

Journal Of Northwest Anthropology

N

“No One Asked for an Ethnography.” Reflections on Community-based Anthropology in Coast Salish Country Thomas W Murphy.....	145
Image Rock: Rediscovering a Petroglyph in the High Cascades David A. Kaiser and Julia Cleary.....	165
Coast Salish Social Complexity, Community Ties, and Resistance: Using Mortuary Analysis to Identify Changes in Coast Salish Society Before, During, and After the Early Colonial Period Alexandra M. Peck.....	175
Confirmation Bias: Commentary on the 2020 <i>JONA</i> Article, “Salish Sea Islands Archaeology and Precontact History” Adam N. Rorabaugh, Kate Shantry, and James W. Brown.....	203
Historical Archaeology of Fort Boise’s Surgeon’s Quarters Porch Evidences the Behavior of Children Nathan J. May.....	240
Abstracts from the 72nd Annual Northwest Anthropological Conference, Kennewick, Washington, 20–23 March 2019	264
<i>Journal of Northwest Anthropology</i> List of Reviewers 2018–2019	278

W

Journal of Northwest Anthropology

Volume 54, Number 2

Fall 2020

CONTENTS

VOLUME 54, NUMBER 1

- 1 **“La Gente de Washington es la Más Tranquila” (People from Washington are the Most Laid-Back): An Ethnographic Perspective on Honduran and Salvadoran Migration to the Pacific Northwest**
Jordan Levy and Sandra Estrada
- 22 **Salish Sea Islands Archaeology and Precontact History**
Richard M. Hutchings and Scott Williams
- 62 **A Comment on Wessen’s “Makahs, Quileutes, and the Precontact History of the Northwestern Olympic Peninsula, Washington,” with a Reply from Gary C. Wessen**
- 62 A Comment on Gary C. Wessen’s “Makahs, Quileutes, and the Precontact History of the Northwestern Olympic Peninsula, Washington”
Jay Powell
- 79 Reply to Powell
Gary C. Wessen
- 97 **“Notes Regarding my Adventures in Anthropology and with Anthropologists” by John Swanton with an Introduction by Jay Miller**
- 97 Introduction
Jay Miller
- 98 Notes Regarding my Adventures in Anthropology and with Anthropologists
John Swanton
- 126 **“The Haida” by Adolf Bastian with an Introduction by Richard L. Bland**
- 126 Introduction
Richard L. Bland
- 127 The Haida
Adolf Bastian, Translated by Richard L. Bland

VOLUME 54, NUMBER 2

- 145 **“No One Asked for an Ethnography.” Reflections on Community-based Anthropology in Coast Salish Country**
Thomas W. Murphy
- 165 **Image Rock: Rediscovering a Petroglyph in the High Cascades**
David A. Kaiser and Julia Cleary
- 175 **Coast Salish Social Complexity, Community Ties, and Resistance: Using Mortuary Analysis to Identify Changes in Coast Salish Society Before, During, and After the Early Colonial Period**
Alexandra M. Peck
- 203 **Confirmation Bias: Commentary on the 2020 JONA Article, “Salish Sea Islands Archaeology and Precontact History”**
Adam N. Rorabaugh, Kate Shantry, and James W. Brown
- 240 **Historical Archaeology of Fort Boise’s Surgeon’s Quarters Porch Evidences the Behavior of Children**
Nathan J. May
- 264 **Abstracts from the 72nd Annual Northwest Anthropological Conference, Kennewick, Washington, 20–23 March 2019**
- 278 **Journal of Northwest Anthropology List of Reviewers 2018–2019**
- 279 **Erratum for Salish Sea Islands Archaeology and Precontact History**

EDITORS

Darby C. Stapp
Richland, WA

Deward E. Walker, Jr.
University of Colorado

ASSOCIATE EDITORS

C. Melvin Aikens (University of Oregon), Haruo Aoki (University of California), Virginia Beavert (Yakama Nation), Don D. Fowler (University of Nevada), Rodney Frey (University of Idaho), Ronald Halfmoon (Lapwai), Bruce Miller (University of British Columbia), Jay Miller (Lushootseed Research), Rudy Reimer (Simon Fraser University), Shannon Tushingam (Washington State University)

Julia G. Longenecker
Alexandra Martin
Victoria Boozer

Operations Manager
Production and Design
Productions Assistant

Composed by Northwest Anthropology LLC, Richland, WA; Printed by Kindle Direct Publishing.
Missing issue claim limit 18 months.

POLICY

The *Journal of Northwest Anthropology*, published semiannually by Northwest Anthropology LLC, in Richland, Washington, is a refereed journal and welcomes contributions of professional quality dealing with anthropological research in northwestern North America. Theoretical and interpretive studies and bibliographic works are preferred, although highly descriptive studies will be considered if they are theoretically significant. The primary criterion guiding selection of papers will be how much new research they can be expected to stimulate or facilitate.

SUBSCRIPTIONS

The subscription price is \$50.00 U.S. per annum for individuals and small firms, \$85.00 for institutional subscriptions, \$30.00 for students with proof of student status, and \$25.00 for all electronic subscriptions; payable in advance and online. Remittance should be made payable to Northwest Anthropology LLC. Subscriptions, manuscripts, changes of address, and all other correspondence should be addressed to:

Darby C. Stapp, Ph.D., RPA
Journal of Northwest Anthropology
P.O. Box 1721
Richland, WA 99352-1721

telephone (509) 554-0441
e-mail JONA@northwestanthropology.com
website www.northwestanthropology.com

MANUSCRIPTS

Manuscripts can be submitted in an electronic file in Microsoft Word sent via e-mail to the Richland, WA, office. An abstract must accompany each manuscript. Footnotes and endnotes are discouraged. Questions of reference and style can be answered by referring to the style guide found on the website or to *Journal of Northwest Anthropology*, 47(1):109–118. Other problems of style can be normally solved through reference to *The Manual of Style*, University of Chicago Press. All illustrative materials (drawings, maps, diagrams, charts, and plates) will be designated “Figures” in a single, numbered series and will not exceed 6 x 9 inches. All tabular material will be part of a separately numbered series of “Tables.”

“No One Asked for an Ethnography.” Reflections on Community-based Anthropology in Coast Salish Country

Thomas W Murphy

Edmonds College

Correspondence
tmurphy@email.edcc.edu

Abstract *A question posed by a student after a guest lecture about a community-based environmental anthropology field school provoked reflection on community needs in Coast Salish Country. The student expressed an interest in an ethnographic account of field work that had been responsive to community requests. The challenge is that in over two decades of consultations and collaborations, no one from Coast Salish communities had asked for an ethnography. Representatives from United Indians of All Tribes Foundation, Tulalip, Stillaguamish, Snoqualmie, Samish, Duwamish, and Snohomish Tribes expressed different needs. They asked community college partners to remember where they came from, support Native American students, develop relations with other than human people, help create culturally relevant jobs, “feed the sea,” assist in bringing salmon back, witness, sing, dance, and ultimately to “pass the mic.”*

Keywords

Ethnography, Coast Salish, Tulalip, Stillaguamish, Snoqualmie, Samish, Duwamish, Snohomish

Introduction

A student raised her hand, initially offering praise for a just-completed guest lecture in an anthropology course at Central Washington University in October of 2013. Her question followed her compliments. “Have you written an ethnography?” An excellent inquiry, posed for a sociocultural anthropologist. The question provoked a pause and contemplation on how to effectively respond to that thoughtful query. The presentation had just outlined a community-based approach to an environmental anthropology field school, in which community partners (tribes, government agencies, and non-profit organizations) identified the needs addressed through hands-on service-learning and undergraduate research projects for com-

munity college students. I had been trained to write ethnographies, but also to be attentive to community needs. My response surprised me almost as much as it startled her. “No one asked for an ethnography,” I replied.

The answer, given on the spot, was true, at least as far as it concerned the Coast Salish nations with whom the Learn and Serve Environmental Anthropology Field (LEAF) School at Edmonds College and its predecessors had partnered for a couple of decades. Even now, seven years later, only government agencies have requested ethnographic assessments of local, *non-Native* communities. In collaborative development of student-centered service-learning and community-based research projects, partners at United Indians of All Tribes Foundation,

Tulalip, Stillaguamish, Snoqualmie, Samish, Duwamish, and Snohomish Tribes have never requested ethnographies.

If Coast Salish partners have not asked for ethnography, then what have they requested? They have asked community college representatives to remember where they come from; support Native American students; develop relations with other than human people; help create culturally relevant jobs; “feed the sea;” bring salmon back; witness, sing, and dance; and ultimately to “pass the mic.” This ethnographic reflection on two decades of community-based field work provides examples of each of these requests and how they have shaped place-based learning for community college students. It also reflectively considers the role of ethnography and its utility for tribal and non-tribal governments.

Remember Where You Come From

Students gather at the start of a service-learning project or during a scheduled break to meet with elders. The LEAF School’s tribal partners frequently request that they form a circle and introduce themselves. Students may be asked, often by professionals working for tribes, about their educational goals. While other questions vary, the most frequent request, especially from elders, is for the students to identify where they come from. Rosie Cayou James frequently reminds students to remember all of their ancestors, as she proudly claims her Hawaiian and French as well as her Samish roots (Tham et al. 2016). In the spirit of such requests, readers may want to know where the author comes from.

I am a guest in Coast Salish Country. Most of my ancestors came to the United States, Canada, and Mexico as settler colonists from Western and Northern Europe. Rosie has encouraged me not to forget Mohawk ancestors, one of whom (Susannah Ferguson, b. ~1786) intermarried with settlers. Her granddaughter and great-grandchildren moved west first

to Kansas and then to Idaho to settle with Mormons (Murphy 2018; Murphy et al. 2020). I was born in Los Angeles, California but grew up in southern Idaho. Interest in stories my grandmother shared about our Native ancestors inspired the pursuit of a Bachelor’s degree in anthropology at the University of Iowa, completed in 1993. Graduate school at the University of Washington (UW) in 1994 brought me to Coast Salish Country where I earned a Master’s and Doctorate in sociocultural anthropology in 1996 and 2003 respectively. A graduate staff assistantship and teaching assistantships in American Indian studies introduced me to Coast Salish communities. In my first year at UW, I worked for the Native American Science Outreach Network. Responsibilities included consultations with non-federally-recognized tribes about culturally relevant science curriculum for middle and high school students. Those consultations introduced me to Duwamish, Snohomish, Samish, and Snoqualmie nations. Samish and Snoqualmie subsequently obtained a restoration of federal recognition in 1996 and 1999. Relationships with these and other federally recognized tribes would be central to future community-based fieldwork with college students.

To help pay for graduate school, I began working as an adjunct instructor at Edmonds Community College (Edmonds CC), now Edmonds College, in Lynnwood, Washington in 1998. The work with community college students was invigorating, fed my passion for social justice, and inspired the successful pursuit of full-time tenure track position in 2000. That fall I accepted student requests to become the advisor for the Native American Student Association and help produce an annual powwow that had begun more than a decade earlier as a partnership with Indian Heritage High School led by Principal Robert Eaglestaff. Experiences on the powwow committee solidified the importance of support for Indigenous students.

Support Indigenous Students

The path for community-based anthropology at Edmonds CC had been laid by a predecessor, Dr. Dale Croes who, as an adjunct, had facilitated a partnership with Indian Heritage High School, led an archaeological field school in collaboration with Tulalip Tribes, and taken many students on field trips to Hoko River and Neah Bay (Crosgrove et al. 2016). With Croes's departure for South Puget Sound CC in 1994 and Robert Eaglestaff's death in 1996, community-based field experiences for anthropology students had lapsed, and the Native American Student Association had struggled to host powwows without adequate institutional support. Students and administrators set high hopes and expectations for a new full-time anthropology instructor.

The uncompensated work required to support the ambitions of the Native American Student Association and to engage in genuine dialogue with local tribal communities turned out to be too taxing in that first year. Students advocated with the Office of Student Life and the Anthropology Department to bring Sherman Alexie, Elouise Cobell, and Madonna Thunder Hawk to campus as featured guest speakers and to host a three-day contest powwow with tens of thousands of dollars in compensation and prizes for staff, host drum, singers, and dancers. Impressively, the students managed to raise sufficient funds (mostly from tribal charities and student fee accounts) and accomplish their goals, while I struggled to keep up with and support them. The Associated Students of Edmonds CC recognized the fifteenth annual powwow as the "Event of the Year." Yet, as the 2000–2001 academic year wound to a close, the students were exhausted and tensions flared, particularly those between students from patrilineal versus matrilineal traditions. Caught in a struggle I did not fully understand, I tried to bring the opposing parties together for a compromise. When I refused to silence the female voices, male leaders of the club called for a vote to

remove me from my role as an advisor. Feeling overwhelmed and hoping to forestall a divisive vote, I impetuously resigned.

This inauspicious start to community-based work would foster surprising resilience in future years. The following year Joey and Cher Ketah, two sisters from the Tlingit & Haida and Blackfoot nations, became my teachers. With patience and persistence, they encouraged me not to use my white, male privilege to walk away from challenges they could not avoid. They demonstrated the importance of cultural events for their educational experience by hosting the next powwow, almost entirely on their own. While helping as no more than a volunteer in the backroom at that powwow, I finally agreed to the request that I once again take on the role of faculty advisor. From these women, I learned resilience and the importance of my role as an educator committed to supporting the success of all students. Indigenous students typically range between one and two percent of the student population at Edmonds CC, even when counting those students who participated in classes offered on the Tulalip Reservation. As outliers on most campuses, the needs of Native American students are rarely considered at an administrative level. Students need faculty and administrative advocates who remind the institution of their needs.

Administrators took notice as I became an advocate for addressing various forms of institutional racism that impeded student efforts to bring their culture to campus. In a series of roundtable discussions around campus, students and the tribal communities gained a forum for constructively addressing challenges with grounds, security, custodial, culinary, marketing, and fund raising entities on campus. The powwow finally began receiving important institutional support, and the club addressed and overcame barriers such as extra fees for grounds, custodial, and security for the powwow; offering cash payouts to contestants; parking RVs on campus; processes for accepting donations from tribal charities; persistent prejudice against American

Indians from some staff on campus; and more. Administrators responded, in part, by offering me reassigned time (a reduced teaching load) for community-based endeavors like the powwow if I would lead efforts to develop a college-wide service-learning program, beginning in 2003. Recognizing an incredible opportunity, I accepted the responsibility.

The LEAF School, founded in 2006, and the Center for Service-Learning, founded in 2007, formalized a structure of community consultation and collaborative development of field-based activities that engaged college students in meaningful service-learning and undergraduate research projects. The LEAF School offers intensive service-learning courses in Human Ecology and Archaeology Field and Lab Methods and coordinates community-engaged research and service-learning projects that reach every anthropology course and across campus into the Humanities, Natural Sciences, and beyond. The projects range from cultural events to ecological restoration. Community partners, such as non-profit organizations and tribal, federal, state, and local governments, play key roles in identifying the needs that service and research address. Their staff leads most of the projects. Faculty connect the service to learning objectives in the classroom and evaluate the students (Murphy 2007; Ballinger and Murphy 2009). External financial support for this work has come from tribal charity funds (Tulalip, Muckleshoot, Suquamish, Snoqualmie, Stillaguamish, Squaxin Island, Swinomish, Puyallup, Lummi, Nooksack, and Nisqually), Seattle Indian Health Board, Corporation for National and Community Service, AmeriCorps, Campus Compact, American Association of Community Colleges, National Oceanic and Atmospheric Administration, U.S. Department of Education, Puget Sound Partnership, Bill and Melinda Gates Foundation, Hazel Miller Foundation, Snohomish County, Snohomish County Conservation District, Cities of Mukilteo, Edmonds, and Lynnwood, and REI (O'Leary 2007; Barnett and Jeandron 2009; Murphy et al. 2010, 2011, 2012a, 2013a; McClure 2013).

Today the Edmonds College Powwow Committee continues its important work of supporting the efforts of Native students and staff to bring culture to campus. Kerrie Sumner Murphy (Cherokee descent), my spouse, took over the primary advisor role for the student club when she came to work at Edmonds CC in 2006. My focus shifted to development of the Center for Service-Learning and the LEAF School, which would continue to provide crucial service learners for the powwow. When Kerrie left Edmonds CC to work for the Indigenous Wellness Research Institute (IWRI) at UW in 2012, the college President Jean Hernandez stepped up to provide an annual budget and a powwow committee structure within a new office of Equity and Inclusion that made the event less dependent on the oscillating fervor and fundraising of student clubs. Native staff (including several former students) from a variety of nations (Quw'utsun, Shoshone-Paiute, Chumash, Tlingit & Haida, Akimel O'odham, Inuit, Yakama, Snuneymuxw, Blackfeet, Cree, Cherokee, etc.) have taken over and rotated through the leadership roles on the powwow committee. My role has shifted to one of background support, facilitating student service learner involvement, and historical memory. Sadly, though, many of the institutional obstacles faced twenty years ago, as well as new ones focused on smoking and the use of tobacco, continue to reappear as new administrators unfamiliar with Native American cultural traditions cycle through college leadership. Resilient Native staff and students continue the hard work, still too often uncompensated, of supporting the recruitment, retention, and success of Native American students.

Other than Human People

In Coast Salish country, plants and animals are people too. Coast Salish teachings shared with students by gifted storytellers like *x̣'istimani* Johnny Moses (Tulalip), *Kawasa* Roger Fernandez (S'Klallam), *cəlálakəm* Pamela Bond (Snohomish), and *čipók'tən* Paul Wagner (Saanich), and drawn from texts by *taq'šəblu* Vi Hilbert (Upper

Skagit), emphasize the peoplehood of plants and animals, even rocks and water (Hilbert 1985; Murphy and Speer 2016). An important part of the community-based work of the LEAF School and Center for Service-Learning involves bringing these teachers (a term preferred over "storyteller") to campus and community events and incorporating traditional stories into course curricula. The learning provided through traditional teachings is complemented by direct service with plants and animals. Developing relationships with plants and animals by learning their names and identifying their needs has become an integral part of the LEAF School curriculum.

In collaboration with United Indians of All Tribes Foundation, students, faculty, and staff from Edmonds CC helped to maintain and update interpretive signage at the Bernie Whitebear Ethnobotanical Garden in Seattle's Discovery Park. A request from the City of Lynnwood that the college adopt nearby Gold Park brought an opportunity to partner with the Snohomish Tribe in 2009 on the creation of *stəlǰxʷáli* (Place of Medicine) Ethnobotanical Garden. Gold Park hosts a stream that drains to Hall's Lake in Lynnwood. Snohomish tribal members report memories of an old trail running from the beach in Edmonds, following the contours of the land up the bluff, along the stream to Hall's Lake and then to Ballinger Lake and on to Lake Washington. They remember this trail that likely went through the park as a place for gathering medicine (Gaeng 2014; Tarrach et al. 2015). When Barbara and Morris Gold purchased the land in 1954, it continued to serve as a place of medicine with the creation of the Lynnwood Clinic offering an urgent care and natural birth center where thousands of local residents began their lives between 1955 and 1982. Today, the site is a park where college students maintain an ethnobotanical garden with interpretive signage designed in collaboration with *cəlálakəm* Pamela Bond (Snohomish), *dídahalqíd* Michael Evans (Snohomish), and *xʷistimani* Johnny Moses (Tulalip). The signs feature traditional uses and names of plants in English, Latin, and

Lushootseed (*Lynnwood eNews* 2013; *Lynnwood Today* 2014; Armstrong et al. 2015; Barojas et al. 2015; Brown et al. 2015; Murphy and Speer 2016; Fairchild 2017; Gaeng 2017).

Requests from the Snoqualmie Tribe illustrate the importance of both plants and animals in LEAF School and service-learning activities at Edmonds CC. LEAF School students provided some of the labor, under the supervision of Snoqualmie Natural Resource staff for the construction of a Traditional Knowledge Trail that opened in 2013 on reservation land west of the Snoqualmie Casino. Interpretive signage features information about various native plants and their Lushootseed names (Snoqualmie Valley Record 2013). Upon hearing about LEAF School projects using camera traps and wildlife tracking to monitor wildlife for the Snoqualmie Pass east freeway expansion, staff from Snoqualmie Natural Resources requested assistance monitoring wildlife at Two Sisters Return, a potential site for a future tribal cultural center along an elk migration route. Starting in January of 2012 and continuing through the end of 2015, students documented wildlife trails and monitored camera traps and prepared quarterly reports about the presence, frequency, and patterns of wildlife in this culturally and ecologically sensitive zone. A smaller camera trap project on tribally owned land along the Tolt River expanded student involvement in wildlife monitoring. The Tribe uses information gathered by students to inform ongoing conservation and development decisions (Dewey et al. 2013; Deklerk and Maslyak 2014; Ross et al. 2014; Andrews et al. 2015; Ryan-Peñuela and Murphy 2015).

Ethnobotany and wildlife monitoring as service projects are invaluable learning experiences for students who gain intimate familiarity with plant and animal people in their neighborhoods and around the region. LEAF School and service-learning students have helped monitor wildlife passage structures on I-90 east of Snoqualmie Pass and under Snohomish County bridges in Granite Falls, Marysville, and Lynnwood (Den Adel et al. 2011; Moskowitz et

al. 2011; Murphy and Oakley 2011; Murphy et al. 2012b; Dewey et al. 2013; Ryan-Peñuela and Murphy 2015). They have monitored the return of wolves to the Cascades and the reintroduction of fishers to the Olympics and Cascades for Conservation Northwest (Lewis and Hayes 2004; Baum et al. 2018). Alternative winter breaks took students to Kettle Falls for wildlife tracking projects with the Forest Service, Colville Tribes, and Kettle Falls elementary and high schools. Students have collected data on wildlife usage of critical areas for Whidbey-Camano Land Trust, Jefferson Land Trust, 21 Acres, Samish Nation, and the City of Mukilteo (Ryan-Peñuela and Murphy 2015). Data from these citizen science projects are now being shared with the scientific community more broadly through Smithsonian Institute's eMammal and Wildlife Insights data management and cyber-tools (Murphy 2019). Learning to recognize plants and their cultural uses, to identify animal tracks and signs, and see photos of wildlife caught with motion sensitive cameras in their own neighborhoods helps teach human ecology to students in practical ways and turns them into valuable allies for tribes and others interested in conservation (Murphy 2009). In projects such as these, anthropology students broaden and expand their understandings and definitions of people while assisting tribes, non-profits, and municipalities by collecting hands-on data that can help better balance the needs of human and other than human peoples.

Culturally Relevant Jobs

Representatives from Tulalip College Center approached faculty at Edmonds CC about offering a series of courses on ecotourism modeled after the field-based Human Ecology classes offered by the LEAF School. This request initiated a series of consultations with tribal and business leaders that led to a broadening (and narrowing) of the topic to Tulalip Tourism. The goal of these service-learning courses, offered in 2009 and 2010, was to involve students directly

in collecting and analyzing data that might help guide tribal and business decisions related to investments in tourism beyond the casinos and hotels. Of all the requests received from tribes by the LEAF School, this one provided the most opportunity to use traditional ethnographic research methodology. Students, who were all enrolled tribal members or employees, engaged in participant observation with eco, agricultural, cultural, volunteer, and educational tourism around the region with tribal and non-tribal businesses, agencies, and non-profits. They developed preliminary ideas and conducted surveys at the annual Veteran's Powwow to evaluate a community response to possible ventures. The students then led focus groups at a *sg^waag^watag^wəl* ("talking with each other," community meeting) to gather deeper qualitative responses to five ideas that had garnered the most quantitative interest: Tulalip Trading Post (modeled after Pike's Place Market), Native foods restaurant and dinner theater, scuba diving, kayak/canoe tours with whale watching, and traditional gaming.

At the *sg^waag^watag^wəl*, student Niki Cleary (Tulalip) described the project in this manner. "The reason that we're here is that Tulalip wants to brand tourism here before somebody else does. We want to make sure that we have ways that complement our existing tourism options; that we're diversifying our Tulalip economy in a way that is sustainable, culturally appropriate, and that creates living wage jobs that tribal members actually want to fill." She continued, "We also want our customers and neighbors to know that Tulalip is not just a casino; that we care about our people, we care about the environment, and we care about what is happening in our region" (Tulalip TV 2009). Feedback at the *sg^waag^watag^wəl* led to a prioritization of the idea of a Tulalip Trading Post. For their final project, students prepared a preliminary business proposal for a tribal version of a community market that they presented to tribal and business leaders for further consideration and development. While ethnographic research methodologies proved central to this project, the final product was not

an ethnographic monograph authored by an anthropologist, but, instead, a student-authored business proposal put to private, practical use by the tribal government.

Feed the Sea

An invitation to attend the Snoqualmie Tribe's 2012 Traditional Knowledge and Healthy Ecosystems summit at Skamania Lodge near Stevenson, Washington led to a renewal of relations with the Samish Nation. After a presentation on traditional foods by representatives from IWRI at UW, the Samish elder Rosie Cayou James shared a concern. Despite much of the recent interest in restoring habitat needed for traditional foods, little attention was being devoted to helping the next generation learn to harvest and prepare them (Tham et al. 2016). Rosie was accompanied by a new tribal employee, Adam Lorio, who had worked previously with the LEAF School as an Interpretive Specialist for Washington State Parks on Civilian Conservation Corps trail restoration projects in the San Juan Islands and invasive species removal and culturally modified tree documentation on Hope Island in Deception Pass State Park (Gould 2008; Gamble 2014). When Adam introduced me to Rosie, I told her I was struck by her comments about the lack of attention to traditional cooking methods, and offered the assistance of the LEAF School in projects that might help address that gap.

Students from the LEAF School began regular field trips to the Samish Nation's Fidalgo Bay Resort to participate in a variety of projects involving clamming, clam bakes, salmon bakes, habitat restoration, wildlife monitoring, and canoe journey. At these events Rosie ensured that students learned the importance of "feeding the sea." Shells and bones, she taught, should be returned to the sea in gratitude but also to provide for the ecological needs of future generations. Representatives from Taylor Shellfish Farms have often joined the students and shared their perspectives on

the importance of maintaining clean water and addressing the impacts of climate change, such as ocean acidification. As it turns out, traditional practices such as returning the shells to the water may be able to help ameliorate, on a local level, some of the impacts of ocean acidification (Kapoor 2017).

Meanwhile, back on campus, the Native American Student Association had requested a more suitable place to host salmon bakes. LEAF School staff member Erin Ryan-Peñuela led efforts to build a cultural kitchen as part of the new Campus Community Farm in consultation with Farmer Frog, UW Farm, Snohomish Conservation District, and Snoqualmie, Samish, and Snohomish Tribes. This effort gave birth to *q'wəld'ali* (Place of the Cooking Fire), a cultural kitchen on campus with three ovens: a multicultural cob or earthen oven above ground, a fire pit for salmon bakes on the ground, and a Coast Salish pit oven under the ground. After losing the first cob oven to winter rains, former students and colleagues donated cedar trees to use for creating shelters. Tom Ficca (Colville) and John Mullen (Snoqualmie) from the Snoqualmie Tribe's carving shed helped students and staff mill the donated trees on site. Edmonds CC and local high school students helped build plank-style shelters and benches from the donated trees. Representatives from the Snoqualmie Tribal Council came to campus to bless and open the space after the completion of construction in 2014 (Snoqualmie Indian Tribe 2014; King 2015; Murphy and Speer 2016). This project, along with the farm of which it is a part, put Coast Salish language and traditional foods on the college map and created a space to discuss sustainability, food security, and "feeding the sea." *q'wəld'ali* serves the campus and community as a place to host discussions, feeds, and potlucks in association with the annual powwow, coastal jams, Elizabeth Peratrovich Day, Edmonds School District Indian Program graduate celebrations, canoe family meetings, college courses, farm harvest, and much more.

Repatriating Salmon

Requests to assist with salmon restoration have been among the most frequently advanced by the college's tribal, government, and non-profit partners. Students have helped the Stillaguamish Tribe with coho escapement surveys, chinook broodstocking, riparian zone restoration, and environmental education at the annual Festival of the River. Students from the Tulalip Tourism class experienced volunteer tourism firsthand with Adopt-A-Stream Foundation and habitat restoration on Quilceda Creek. The Snoqualmie Department of Natural Resources leads students through restoration projects in the Snoqualmie and Tolt River floodplains that integrate salmon habitat restoration with traditional foods revitalization by selectively planting food-producing native species in riparian zones. Students also assist Sound Salmon Solutions (formerly Stilly-Snohomish Fisheries Enhancement Task Force), Snohomish Conservation District, and King Conservation District with salmon habitat restoration projects and Puget Soundkeeper Alliance with cleaning up waterways. Surveys of juvenile Dungeness crab and spot prawn habitat at Edgewater, Picnic Point, and Marina Beach with Washington Department of Fish and Wildlife and Washington State University Beachwatchers have also helped to sustain important food sources for salmon (Moreira 2007; Koenig 2008; *The Marysville Globe* 2008; Herald Staff 2011; News Archive 2011; Slager 2011; Daybert 2012; Puget Soundkeeper 2016).

The most exciting and educationally rich opportunity to assist with salmon repatriation came at the request of Snohomish County Airport. The airport needed to expand runways to comply with new safety requirements, and these expansions would impact wetlands. Airport staff approached Washington Department of Fish and Wildlife, Tulalip Tribes, and the City of Mukilteo about potential opportunities for wetland mitigation under new provisions allowing for the banking of credits for more

holistic stream and wetland restoration. The partners recommended the removal of barriers to salmon migration in Japanese Gulch, the stream in the very shadows of the 1855 Point Elliott Treaty with Coast Salish nations. Initial requests to the college for assistance focused on environmental monitoring, but these would expand when city employees and contractors encountered artifacts from a Japanese lumber town that had called the gulch home from 1903–1930. In 2011 the airport approached the LEAF School to request assistance with an archaeological project. The airport, city, and college reached an agreement to hire collaboratively a cultural resource management (CRM) firm and to use mitigation for education (City of Mukilteo 2012). In 2012 LEAF and AMEC, the selected CRM firm, offered a summer field school to sort through artifacts already disturbed by construction, identify the least destructive alternatives, dig shovel test pits at the proposed footings for a salmon ladder requested by Tulalip Tribes, mitigate for damage to cultural resources through excavation of a trench through the most disturbed portion of the site, and prepare diagnostic artifacts for curation (Boliu et al. 2012; Bruestle 2012, 2014; Choairy de Almeida and Ryan-Peñuela 2012; Pickard and Emerick 2012; Taylor and Samuelson 2012; Donovan 2013a).

The archaeological field work wrapped up in July of 2012. Contractors completed construction of a salmon ladder to connect a wetland to the stream and rerouting of the stream back into a reconstructed historic channel in October of 2012. Two weeks later, college students checking a nearby wildlife camera spotted coho (*Oncorhynchus kisutch*) spawning in the creek for the first time in approximately fifty years. For the next six years, the airport and city contracted with the LEAF School to conduct in-stream surveys of salmon in Japanese and neighboring Big Gulch during coho and chum (*O. keta*) migration seasons. To address restoration needs more holistically, the LEAF School expanded surveys to include

necropsies for identifying pre-spawn mortality and year-round observations of plants, animals, and water quality.

Surveys conducted by students under faculty and staff supervision demonstrated that small numbers of adult coho consistently returned to Japanese Gulch to spawn annually for seven years. Chum returned to Japanese Gulch for just one of those years. Coho returned to the comparative Big Gulch four out of six years and chum for five out of six years in much more variable numbers. The variability of salmon runs in Big Gulch corresponded with a similar volatility in water quality data. For four out of the five years that students conducted necropsies, they documented pre-spawn mortality. Salmon dying before spawning occurred at an especially high cumulative rate of 87.5 percent in Big Gulch and 40 percent in Japanese Gulch. These rates were substantially and moderately higher than predicted by scientists from the National Oceanic and Atmospheric Administration. High rates of pre-spawn mortality indicate that tribes and municipalities need to do more than restore the structure of streams, they need to address the quality of the water running off of streets, homes, and businesses into urban streams (Murphy et al. 2013b, 2016a, 2017, 2018; 2019; Murphy and Coale 2015; Feist et al. 2017).

Between 2012 and 2018, 805 students, staff, faculty, and community members participated in salmon surveys, wildlife monitoring, water quality investigations, and eMammal data entry on projects in the shadows of the Point Elliott Treaty. Through the Center for Service-Learning, student involvement reaches well beyond anthropology into biology, chemistry, diversity studies, English, and pre-college courses. These service-learning projects provide critical educational opportunities to address treaty and sovereignty literacy through coordinated visits to Tulalip Tribes Hilib Cultural Center. They also provide an opportunity to discuss the experience of the members of the Japanese community, many of whom ended up incarcerated during World War II. Reading and listening to

oral histories from survivors collected by college students on a related service-learning project at Nikkei Manor in Seattle helps to bring those experiences to life (Donovan 2013b).

Selected comments from student reflections illustrate how citizen science projects with plant and animal people can easily extend learning into social justice issues involving human people. "Water quality testing at Japanese and Big Gulch in Mukilteo ... was the event that truly made me realize the importance of citizen science," wrote one student. Others noted:

Being in the streams and counting the salmon brought to life the idea of First Salmon ceremonies. Having a fish the size of my torso swim between my feet and witnessing another form of life and knowing what that life means to the Coast Salish tribes tied together a quarter of learning about traditions different from mine.

The most memorable service-learning experience to me is water quality monitoring, as it connects to articles I read about Minidoka. I learned that Japanese used to live in Mukilteo, and later in the Seattle area. After Pearl Harbor was attacked they were sent to the concentration camp in Idaho, called Minidoka, and never returned until after the war. ... Visiting Japanese Gulch makes me think of Minidoka.

Loss of the specialized knowledge of nature is of grave concern for many indigenous communities around the world, which makes the work being done by the LEAF School and City of Mukilteo in service-learning projects such as monitoring wildlife activity for habitat restoration and conservation efforts so, notable, important, and ultimately inspiring. It also makes me proud to be a Mukilteo resident. (Murphy et al. 2019)

Witness, Sing, and Dance

A leadership training event for AmeriCorps members supporting the LEAF School and the Center for Service-Learning focused on helping participants to recognize the variability of people's strengths and fears. The moderator asked the AmeriCorps members and their supervisors to identify their comfort level with a list of potential activities. I identified speaking in front of a large audience, a familiar activity, as my most comfortable option, but listed singing in front of a similarly sized audience, something never attempted, as my most feared activity. While participating in Tribal Canoe Journey has been one of the most rewarding experiences in relation to the LEAF School, I would likely never have accepted the request if I had known in advance that I would be asked to sing and dance in public.

The LEAF School engagement with Tribal Canoe Journey began on a small scale. Tribal Canoe Journey is a "re-culturation" event initiated in 1989 with the Paddle to Seattle as part of the state of Washington's centennial celebration. Four years later, Coast Salish nations responded to invitations from the Heiltsuk Nation to Paddle to Bella Bella in British Columbia, Canada. Along the way, reservation and reserve communities hosted the pullers who thanked their hosts for their hospitality with song, dance, and other gifts. An annual event since 1993 that rotates between final host nations and spans settler state boundaries, Tribal Canoe Journey has reinvigorated languages, songs, dances, potlatch, and traditional knowledge while engaging youth and adults more deeply in Coast Salish culture (Intertribal Canoe Society and American Friends Service Committee 2011).

Responding to a request from the Blue Heron Canoe Family, a few students and a faculty member joined the Blue Heron canoe for several days on the 2011 Paddle to Swinomish. In 2012, an invitation from Squaxin Island brought students and faculty from Edmonds CC together with colleagues from South Puget Sound CC to assist with the potlatch and protocol at the

final landing. Encountering community partners from Samish and Snoqualmie traveling on the journey led to additional invitations in 2013. That year Human Ecology students and staff split between spending four days on the Columbia River with the Blue Heron Canoe Family and on the Strait of Juan de Fuca with the Samish and Snoqualmie Canoe Families, all heading towards Taholah on the Paddle to Quinault.

During these initial engagements with canoe journey, students assisted with ground crew, drove vehicles, rode in support vessels, and occasionally pulled in the canoes to relieve exhausted canoe family members. Faculty, staff, and students witnessed sharing of song and dance as audience members rather than participants in the protocol. Occasionally the role of "witness" might be expanded in ceremony as staff, faculty, and students would be asked to remember and recount the events they observed for future generations. The 2014 Paddle to Bella Bella in British Columbia, though, presented a dilemma. The short-term involvement of helping canoe families for two to four days was not feasible for either the college or the canoe families. Samish and Snoqualmie Canoe Families opted out altogether of a journey of approximately 500 miles across an international border. The Blue Heron Canoe Family expressed interest but asked LEAF School students, staff, and faculty to provide support for the full length of the journey. Accepting that challenge led to an embrace of the full journey that would carry over into subsequent Paddles to Muckleshoot, Nisqually, Campbell River, Puyallup, and Lummi (Muhlstein 2014; Phelps 2015; Wippel 2017; Van Belle 2018; Kodama 2019).

With a commitment to Tribal Canoe Journey, the LEAF School saw its enrollment of Native American students, already ten times higher than one to two percent across campus, leap to 40–60 percent. Generating its own recruitment from canoe families, this high rate of enrollment has held for field schools supporting Tribal Canoe Journey from 2014 onward. Students and staff representing nations from Haida, Tlingit,

Cheyenne, Arapaho, Lakota, Cherokee, Columbia, Egypt, Vietnam, and northern and western Europe became not just guests assisting with a leg of the Paddle to Bella Bella but, also, Blue Heron Canoe Family members themselves. In subsequent years, students would experience a similar embrace from members of the Samish and Stillaguamish canoe families, some of whom became students and staff in the LEAF School. As a full-fledged canoe family member, my fear of singing and dancing came into direct conflict with the LEAF School commitment to address needs identified by our community partners.

My fear stemmed not just from my own lack of talent but also from intellectual concerns about the appropriateness of settler colonists donning Indian regalia. An admirer of Phil Deloria's *Playing Indian* (1998), a book I had occasionally tapped for a classroom text, I faced a crisis of conscience. Confronted with a request from *didahalqid*, skipper of the Blue Heron Canoe, and the enthusiasm of most of my students, I chose to set my qualms aside and become a full participant observer. My wife Kerrie Sumner Murphy, whose employment at IWRI included participation in canoe journey, is a particularly gifted singer whose voice canoe families were eager to engage. I sang and drummed with a soft voice, initially in her shadow, but progressively more openly. Eventually, I reached the point where I could produce an audible, if not particularly lyrical, sound when song leaders passed me the mic for a solo round of a social song. While I learned to manage my fear of singing and dancing, I still feel somewhat ill-at-ease each time I accept an invitation to join a canoe family in protocol. Nonetheless, I accept this unanticipated role and feel honored by the inclusion.

Pass the Mic

The last request to highlight did not come directly from one of the LEAF School's tribal partners. Yet, the sentiment behind it is built into the structure and function of this ser-

vice-learning program. The request to pass the mic came most directly from the hip-hop/Salish fusion singer Calina Lawrence (Suquamish) at the 2018 Festival of Steh-Chass in Olympia, a rally for dam removal on the Deshutes River. Kerrie's invitation to take the stage with the Indigenous Sisters Resistance brought us to the rally. When Lawrence took the stage, she thanked allies who had joined the protest. She noted that allies often wonder what they can do to support tribal communities more effectively. "Pass the mic," was her answer!

The LEAF School's service-learning model provides ample opportunity for anthropology faculty to pass the mic to Native partners. Engaging the students as service-learners in projects led by tribal communities provides a forum for tribal leaders and staff to speak directly to students, unfiltered by an ethnographic voice. The chance to engage directly is not limited to the formal introductions and presentations that might include a mic on a stage but includes informal settings as well. Those might occur while removing invasive species, documenting fish and wildlife, identifying a bird, watching a porpoise, winding nettle fiber, weaving a hat, sitting around a fire, eating lunch on a beach, paddling in a canoe, sitting in a van, resting in a support vessel, waiting in line, or serving dinner to an elder.

Sometimes life has a way of letting you know when it is time for change. In November of 2018, my wife Kerrie experienced a brain-stem stroke that put her into a coma. Over the next several days, canoe family members, colleagues from IWRI, and the Indigenous Sisters Resistance came to her hospital bedside. As we stood there together and sang familiar songs, we watched her vocal chords stir as she tried to sing along despite being unconscious. The songs, complemented by medical care, helped bring her back from the coma for a long and slow road of recovery. Kerrie has had to learn to swallow, sit up, talk, walk, and sing, all over again with a physical body that no longer cooperates in the same way that it did in the

past. What appears to be permanent damage to optical nerves has left her with double vision, debilitating bouts of vertigo, and difficulty with balance. We attempted one more summer of a field school with the 2019 Paddle to Lummi, but I found myself too stretched between my new role as a caregiver and my responsibility to fully support students and canoe family members. Kerrie has accepted a medical retirement, and I have spent most of 2019 and 2020 on family medical leave followed by a sabbatical. I have stepped back substantially, but not completely, from my service-learning liaison role and passed the opportunity to lead summer field schools to other faculty, only to have the plans for 2020 disrupted by the COVID-19 pandemic. Ironically, it is the medical leave and sabbatical that have finally given me the time to share in a reflexive ethnographic form my reflections on community-based anthropology in Coast Salish Country.

Role of Ethnography

The Ph.D. program in sociocultural anthropology at UW that brought me to Coast Salish Country 26 years ago focused most of its attention on teaching graduate students to conduct ethnographic research and write ethnographies. It also introduced innovative community-based approaches that have taken a number of different names: community-based participatory research (O'Toole et al. 2003), public anthropology (Lamphere 2004), participatory action research (Baum et al. 2006), collaborative anthropology (Fluehr-Lobban 2008), and engaged anthropology (Low & Merry 2010). A supportive environment at a community college has provided me with two decades worth of practical experience developing and implementing community-based anthropology.

A team of anthropologists gathered at the 2011 Society for Applied Anthropology meeting in Seattle to discuss founding principles underlying various applied approaches to anthropology. They synthesized and agreed

upon some common tenets underlying what they called action anthropology. These values are reflective of those the LEAF School has attempted to model and are worth repeating here.

1. We serve at a community's discretion and direction.
2. We recognize that we can never fully know a community and its needs; but to the extent we can, it takes time, and we therefore temper our bias for action by avoiding premature choices and responses.
3. We work collaboratively to develop alternatives for improving conditions.
4. We respect the right and ability of a community to make choices affecting its future and the freedom to make its own mistakes.
5. We are open and truthful.
6. We promote community sustainability and capacity building, and we strive to work ourselves out of a job.
7. As professionals, we learn from our experiences and use them to improve our method and theory.
8. We recognized that our source of funding can present conflicts of interest, and we confront this problem by insisting on professional independence.
9. We share what we have learned with the community, our professional colleagues, and others, as appropriate, to improve the human condition (Stapp 2012:3-4).

In Coast Salish Country, I have found these tenets to be in tension with what I had thought was my primary responsibility as a sociocultural anthropologist: writing ethnography. Stapp (2018) has also found them strained in an archaeologist's role in conducting federal agency impact assessments. When no one asks for an ethnography, perhaps it is a particular Coast Salish form of what the Mohawk anthropologist Audra Simpson (2014) calls "ethnographic refusal." Of importance, though, is not only what is refused,

but what is requested. Community discretion and direction in the LEAF School's field work significantly stretched the scope of anthropology as a discipline. Plant and animal people often play a larger role in our service-learning projects than human people. In responding to Coast Salish needs and priorities, the LEAF School became an applied version of an "anthropology beyond the human" (Knight 2006; Descola 2013a, 2013b; Kohn 2013). It is not enough to just teach classes and publish research, anthropologists also need to ensure that institutions of higher education are responsive to the needs of Native students and communities (Grande 2004; Mihesuah and Wilson 2004). Ethnography, as I had imagined and been trained to conduct it, did not meet on its own the expressed needs of the people I had committed to serve.

While not asked for by tribal partners, ethnography continues to have some relevance. I occasionally encountered tribal members and employees familiar with and drawing appreciatively from the work of Erna Gunther (1973), Wayne Suttles (1987), Douglas Duer and Nancy Turner (2005). Government agencies, unlike tribes, approached the LEAF School to request and fund several applied ethnographic projects. LEAF School faculty, staff, and students conducted a rapid ethnographic assessment of septic industry professionals to identify motivations and barriers to quality care and maintenance of septic systems for Snohomish County Public Works and Washington State Department of Ecology (Murphy et al. 2009). A deeper, but still short-term, ethnographic analysis of municipal employees in the Puget Sound region helped Puget Sound Partnership and the U.S. Environmental Protection Agency identify motivations and barriers for implementation and integration of green infrastructure policy in cities and counties along the Salish Sea (Murphy et al 2015). Cultural anthropology students conducted participant observation along with door to door and online surveys to identify motivations and incentives for the installation of rain gardens in households speaking English, Spanish, Korean,

Mandarin, Cantonese, Bahasa, and Vietnamese for Snohomish Conservation District and the Cities of Edmonds and Lynnwood (Barojas et al. 2016; Murphy et al. 2016b; Snohomish Conservation District 2016; Chaercha et al. 2018; Kutz et al. 2018; Nam et al. 2018; Nguyen et al. 2018; Wang et al. 2018; Yue et al. 2018). Although conducted in immigrant/settler communities at the request of non-tribal partners, these rapid ethnographic assessments advance goals of clean water and habitat restoration of importance to tribal communities as well.

A student question in a guest lecture invited a retrospective reflection on the training for and practice of community-based anthropology in Coast Salish Country. Shocked as I was by the realization that no one from tribal communities had asked for the primary product I was trained to produce, I am nonetheless thankful that I have had the privilege of reflecting on where I come from, how to support Indigenous students, relationships with other than human peoples, the value of culturally relevant jobs, "feeding the sea," repatriating salmon to Point Elliott, witnessing Tribal Canoe Journey, and managing my fears of singing and dancing. Unanticipated changes in my personal life have brought me to a point where the depth and extent of my community engagement has been curtailed by the needs of a loved one. Yet, these changes have enabled me to finally write a brief reflexive account of a community-based field school in Coast Salish Country. While no one asked for this ethnography of refusal, I offer this story as an unsolicited gift to my Coast Salish friends and mentors, my community college and university colleagues, and to those anthropologists and their students who will carry forward the legacy of the LEAF School. It is time to pass the mic!

REFERENCES CITED

- Andrews, Lia, Melissa Buckley, Megan McDermott, Kaliae Va, and Pakawat Maneechaemsai
2015 Two Sisters Return. <<https://www.academia.edu/15154868/>>.
- Armstrong, Nicole, Charles Bascos, Midori Brown, Juliene Wall, Tamara Gold, and Thomas W Murphy
2015 "The First Free-Standing Birth Center in the United States," An Oral History from Tamara Gold. <<https://www.academia.edu/19690735/>>.
- Ballinger, Kim and Thomas W Murphy
2009 Anthropology 101: How to Change the World. *Yes! Magazine*. <<https://www.yesmagazine.org/education/2009/06/30/anthropology-101-how-to-change-the-world/>>.
- Barnett, Lynn and Carol Jeandron.
2009 *Enriched & Inspired: Service Pathways to College Success*. Washington, DC: American Association of Community Colleges.
- Barojas, Sahayra, Linda Hall, and Thomas W Murphy
2016 Community-Based Stormwater Solutions for the Perrinville Basin. <<https://www.academia.edu/30220383/>>.
- Barojas, Sahayra, Madeline Mycon, Emilie Sutton, Alison Borchet, dídahalquid Michael Evans, and Thomas W Murphy
2015 "The Old Ways are Good Ways," dídahalquid Reflects on the Snohomish Tribe and Edmonds Community College. <<https://www.academia.edu/19715341/>>.
- Baum, Fran, Colin MacDougall, and Danielle Smith
2006 Participatory Action Research. *Journal of Epidemiology & Community Health*, 60(10):854–857. doi:10.1136/jech.2004.028662.
- Baum, Laurel, David Moskowitz, and Gary Boba
2018 Citizen Wildlife Monitoring Project: 2017 Field Season Report. Conservation Northwest. <https://www.conservationnw.org/wp-content/uploads/2018/03/2017-Citizen-Wildlife-Monitoring-Project-Report_FINAL_WithAppendices.pdf>.
- Bolieu, Sabrina, James Brown, Crystal Donovan, Calvin Hanson, Liam Holmes, Jane Hutchinson, Luke Jones, Lorelee Strength, Michael Stringfellow, and Gail Tamura
2012 Japanese Gulch Archaeology Field School. <<https://www.academia.edu/13184827/>>.
- Brown, Midori, Nicole Armstrong, Charles Bascos, Juliene Wall, Leah Gold, and Thomas W Murphy
2015 "No One had Medical Insurance in Those Days," Leah Gold Remembers the Lynnwood Clinic. <<https://www.academia.edu/19690644/>>.
- Bruestle, Sara
2012 Found Artifacts Tell Story of Lost Japanese Community. *Mukilteo Beacon*. 12 December. <<https://www.mukilteobeacon.com/story/2012/12/12/features/found-artifacts-tell-story-of-lost-japanese-community/6516.html>>.
- 2014 Report: Vital Numbers of Salmon Returning to Mukilteo Streams. *Mukilteo Beacon*, 15 January. <<https://www.mukilteobeacon.com/story/2014/01/15/news/report-vital-numbers-of-salmon-returning-to-mukilteo-streams/8705.html>>.
- Chaercha, Evan N., Janet Kurnia, and Summer J. Gerkenmeyer
2018 Membangun Taman Hujan: Installing Rain Gardens in the Indonesian Community. <<https://www.academia.edu/36808799/>>.
- Choairy de Almeida and Nicole Ryan-Peñuela
2012 Ceramic Artifacts from Japanese Gulch. <<https://www.academia.edu/13185144/>>.
- City of Mukilteo
2012 Interlocal Agreement by and between the City of Mukilteo, Edmonds Community College, and Friends of Narbeck Wetland Sanctuary regarding Anthropology and Archaeology Field Training in the City of Mukilteo and Narbeck Wetland Sanctuary. <<https://mukilteowa.gov/wp-content/uploads/2015/05/doc-ILA-2012-006.pdf>>.

- Cosgrove, Stuart, Marshall Brinton, Diego Chaves, Dale Croes, and Thomas W Murphy
2016 "You do it in Equal Partnership," Archaeologist Dale Croes Remembers Robert Eaglestaff, Indian Heritage High School, and Community College Engagement with Coast Salish Tribes. <<https://www.academia.edu/42235208/>>.
- Daybert, Amy
2012 Class Lets EdCC Environmental Anthropology Students Dig Dirt. *Everett Herald*, 08 January. <<https://www.heraldnet.com/news/class-lets-edcc-environmental-anthropology-students-dig-dirt/>>.
- Deklerk, Muriel and Viktoriya Maslyak
2014 Two Sisters Return (Snoqualmie, WA). <<https://www.academia.edu/15700230/>>.
- Deloria, Phil
1998 *Playing Indian*. New Haven: Yale University Press.
- Den Adel, Sean, Liam Holmes, Anna Michel, Jocelyn Oakley, Terri Wentworth-Davis, and Thomas W Murphy
2011 Monitoring Transportation Projects with Wildlife Passage Structures in Snohomish County. <<https://www.academia.edu/11639178/>>.
- Descola, Philippe
2013a *The Ecology of Others*, Genviève Godbout and Benjamin P. Luley, translators. Chicago: Prickly Paradigm Press.
2013b *Beyond Nature and Culture*, Janet Lloyd, translator. Chicago: University of Chicago Press.
- Dewey, Kyle, Laurie Ross, Thomas W Murphy, Erin Ryan-Peñuela, and Marshall Kramer
2013 Anthropology Matters at Snoqualmie: Combining Traditional Knowledge with Science. <<https://www.academia.edu/11638850/>>.
- Donovan, Crys
2013a Student Archaeology: Japanese Gulch Mill Community (1903–1930). <<https://www.academia.edu/13187299/>>.
- 2013b Stories of Minidoka: Perspectives on the Japanese Internment from Survivors. <<https://www.academia.edu/13187332/>>.
- Duer, Douglas and Nancy J. Turner
2005 *Keeping it Living: Traditions of Plant Use and Cultivation on the Northwest Coast of North America*. Seattle: University of Washington Press.
- Fairchild, Thomas
2017 EdCC & Snohomish Tribe Pay Tribute to King. *The Triton Review*. 13 February. <<https://thetritonreview.com/575/news/edcc-snohomish-tribe-pay-tribute-to-king/>>.
- Feist, Blake E., Eric R. Buhle, David H. Baldwin, Julann A. Spromberg, Steven E. Damm, Jay W. Davis, and Nathaniel L. Scholz
2017 Roads to Ruin: Conservation Threats to a Sentinel Species Across an Urban Gradient. *Ecological Applications*, 27(8):2382–2396.
- Fluehr-Lobban, Carolyn
2008 Collaborative Anthropology as Twenty-first-Century Ethical Anthropology. *Collaborative Anthropologies*, 1:175–182. doi:10.1353/cla.0.0000.
- Gaeng, Betty L.
2014 Cedar Valley and Hall's Lake. *Alderwood Manor News Clippings*, 23(1):1–6.
2017 Looking Back: Before Edmonds, there was the Ten-Mile Beach Settlement. *My Edmonds News*. 17 April. <<https://myedmondsnews.com/2017/04/looking-back-edmonds-ten-mile-beach-settlement/>>.
- Gamble, Erin
2014 Tree People: A Survey of Culturally Modified Trees on Hope Island. <<https://www.academia.edu/13676187/>>.
- Gould, Chuck
2008 S.E.A.: Service, Education, Adventure. *Nor'westing: The Family Boating Magazine*, 43(10):102–104.
- Grande, Sandy
2004 *Red Pedagogy: Native American Social and Political Thought*. Lanham, MD: Rowman & Littlefield Publishers.

- Gunther, Erna
1973 *Ethnobotany of Western Washington: The Knowledge and Use of Indigenous Plants by Native Americans*, revised edition. Seattle: University of Washington Press.
- Herald Staff
2011 LEAF Founder Named Conservation Teacher of the Year. *Everett Herald*, 22 November. <<https://www.heraldnet.com/news/leaf-founder-named-conservation-teacher-of-the-year/>>.
- Hilbert, Vi
1985 *Haboo: Native American Stories from Puget Sound*. Seattle: University of Washington Press.
- Intertribal Canoe Society and American Friends Service Committee
2011 *Tribal Journeys Handbook and Study Guide*. Seattle, WA: Cedar Media.
- Kapoor, Maya L.
2017 As Oceans Acidify, Shellfish Farmers Respond: Scientists Collaborate to Mitigate Climate Impacts in the Northwest. *High Country News*, 18 September.
- King, Rikki
2015 Cultural Kitchen Allows Sharing of Foods from Around the World. *Everett Herald*, 09 September. <<https://www.heraldnet.com/news/cultural-kitchen-allows-sharing-of-foods-from-around-the-world/>>
- Kodama, Yuko
2019 Canoe Journey 2019 – Samish Landing. *91.3 KBCS*. <<https://www.kbcs.fm/2019/07/26/canoe-journey-2019-samish-landing/>>.
- Koenig, Sarah
2008 Crabs Hold Cues to Puget Sound Environment. *Everett Herald*, 03 March. <<https://www.heraldnet.com/uncategorized/crabs-hold-clues-to-puget-sound-environment/>>.
- Kohn, Eduardo
2013 *How Forests Think: Towards an Anthropology Beyond the Human*. Berkeley: University of California Press.
- Knight, John
2006 *Waiting for Wolves in Japan: An Anthropological Study of People-Wildlife Relations*. Honolulu: University of Hawai'i Press.
- Kutz, Harrison, Addison Rackowitz, Salina Saucedo, and Jose Martinez
2018 Jardines de Lluvia: Building Rain Gardens for Spanish Speakers in Snohomish County. <<https://www.academia.edu/36812782/>>.
- Lamphere, Louise
2004 The Convergence of Applied, Practicing, and Public Anthropology in the 21st Century. *Human Organization*, 63(4):431–443.
- Lewis, Jeffrey C. and Gerald E. Hayes
2004 Feasibility Assessment for Reintroducing Fishers to Washington. Washington Department of Fish and Wildlife.
- Low, Setha M. and Sally E. Merry
2010 Engaged Anthropology: Diversity and Dilemmas: An Introduction to Supplement 2. *Current Anthropology*, 51(S2): S203–S226. <https://doi.org/10.1086/653837>.
- Lynnwood eNews*
2013 Edmonds Community College LEAF School and Snohomish Tribe of Indians Honored at City Council Meeting. *Lynnwood eNews*. 12 June. <<https://content.govdelivery.com/accounts/WALYNNWOOD/bulletins/7ef7eb>>.
- Lynnwood Today*
2014 Edmonds Community College Students, Community Volunteers Spruce up Gold Park in Honor of Earth Day. *Lynnwood Today*. 25 April. <<https://lynnwoodtoday.com/edmonds-community-college-students-community-members-spruce-gold-park-honor-earth-day/>>.
- McClure, Ann
2013 Serving the Community: Two-Year Institutions Making a Bigger Commitment to Community Outreach. *University Business Magazine*, April.

- The Marysville Globe*
- 2008 Efforts Help Quilceda Creek. *The Marysville Globe*. 09 September. <<https://www.marysvilleglobe.com/news/efforts-help-quilceda-creek/>>.
- Mihesuah, Devon A. and Angela C. Wilson
- 2004 *Indigenizing the Academy: Transforming Scholarship and Empowering Communities*. Lincoln: University of Nebraska Press.
- Moreira, Naila
- 2007 Being a Good Neighbor is Good for Trout, Salmon. *Seattle Times*, 02 May. <<https://www.seattletimes.com/seattle-news/being-a-good-neighbor-is-good-for-trout-salmon/>>.
- Moskowitz, David, Jen Watkins, Mallory Clarke, and Adam Martin
- 2011 Cascade Citizens Wildlife Monitoring Project: Winter 2010-2011 Field Season Report. <<https://www.conservationnw.org/wp-content/uploads/2017/12/2010-2011-CWMP-Report-FINAL.pdf>>.
- Muhlstein, Julie
- 2014 Anthropology Teacher Turns his Local Environs into a Classroom. *Everett Herald*. 18 October. <<https://www.heraldnet.com/news/anthropology-teacher-turns-his-local-environs-into-a-classroom/>>.
- Murphy, Thomas W
- 2007 Unfurling a New LEAF. *The Watershed Review*. Stilly-Snohomish Fisheries Enhancement Task Force, Everett, WA. <<https://www.academia.edu/11206810/>>.
- 2009 Cascade Citizens Wildlife Monitoring Project. *Curriculum for the Bioregion*. Olympia, WA: Washington Center for Improving the Quality of Undergraduate Education. <<https://ssrn.com/abstract=2345141>>.
- 2018 Decolonization on the Salish Sea: A Tribal Journey Back to Mormon Studies. In *Decolonizing Mormonism: Approaching a Postcolonial Zion*, edited by Gina Colvin and Joanna Brooks, pp. 47–66. Salt Lake City: University of Utah Press.
- 2019 LEAF School. eMammal. Smithsonian Institute. <<https://emammal.si.edu/leaf-school/>>.
- Murphy, Thomas W, Peter Blaustein, Susie Richards, Chris Burt, and Amy Johnson
- 2010 Washington Watershed Education Teacher Training (WWETT) Program: Progress Report, 10/1/09-9/30/10. <<https://www.academia.edu/11575528/>>.
- 2011 Washington Watershed Education Teacher Training (WWETT) Program: Progress Report, 10/1/10-9/30/11. <<https://www.academia.edu/11575574/>>.
- Murphy, Thomas W and Grace Coale
- 2015 Fish and Wildlife in Mukilteo's Japanese and Big Gulch. <<https://www.academia.edu/10366418/>>.
- Murphy, Thomas W, Grace Coale, Skyler Elmstrom, and Kacie McCarty
- 2016a A Survey of Fish and Wildlife: Japanese and Big Gulch 2015. <<https://www.academia.edu/20295524/>>.
- Murphy, Thomas W, Grace Coale, Skyler Elmstrom, Kacie McCarty, Cali Drake, Sarah Taylor, Lazarus Hart, and Bri Castilleja
- 2019 Repatriating Salmon to Point Elliott: Fish and Wildlife in bəka'ltiu (Mukilteo), 2012–2018. <<https://www.academia.edu/38159730/>>.
- Murphy, Thomas W, Grace Coale, Skyler Elmstrom, Kacie McCarty, Cali Drake, and Bri Castilleja
- 2018 Repatriating Salmon to Point Elliott: Fish and Wildlife in bəka'ltiu (Mukilteo). <<https://www.academia.edu/35638222/>>.
- Murphy, Thomas W, Penny Green, and Lisa Quirk
- 2009 A Rapid Ethnographic Assessment of the Septic Industry in Snohomish County, Washington. <<https://www.academia.edu/10367189/>>.
- Murphy, Thomas W, Linda C. Hall, Sahayra Barojas, Grace Coale, Laura Goff, and Kate Riley
- 2016b Motivations and Incentives for Installation of Rain Gardens: An Ethnographic Assessment in the Perrinville Creek Watershed. <<https://www.academia.edu/26474525/>>.

- Murphy, Thomas W, Kerrie S. Murphy, and Jessyca B. Murphy
2020 An Indian Princess and a Mormon Sacagawea: Decolonizing Memories of our Grandmothers. Unpublished manuscript.
- Murphy, Thomas W and Jocelyn Oakley
2011 Wildlife Passage in Snohomish County: September 2010 to April 2011. <<https://www.academia.edu/10722379/>>.
- Murphy, Thomas W, Erin Ryan-Peñuela, Kyle Dewey, Erin Gamble, Laurie Ross, and Chris Shipway
2013b Mukilteo Salmon Survey 2013. <<https://www.academia.edu/10722181/>>.
- Murphy, Thomas W, Erin Ryan-Peñuela, Skyler Elmstrom, Kacie McCarty, Grace Coale, Zachary Bigelow, and Joshua Richard
2017 A Survey of Fish and Wildlife: Japanese and Big Gulch 2016. <<https://www.academia.edu/30938171/>>.
- Murphy, Thomas W, Erin Ryan-Peñuela, Jane Hutchinson, Damien Douglas, Calvin Hanson, Gail Tamura, Joey Madsen, Kate Luebke, Sarah Mortensen, and Lorelee Strength.
2012b Wildlife Tracking and Road Ecology: Using Skills from the Past to Solve Present Problems. <<https://www.academia.edu/7784887/>>.
- Murphy, Thomas W, Erin Ryan-Peñuela, Kacie McCarty, Alexa Ramos, Alicia Kelly, and Dave Ward
2015 *Green Infrastructure Policy Integration in Puget Sound Municipalities: An Ethnographic Perspective*. Puget Sound Partnership Technical Report 2015(02). <<https://www.academia.edu/21427153/>>.
- Murphy, Thomas W, Erin Ryan-Peñuela, and Lisa Quirk
2012a Connect 2 Complete: Peer Advocacy and Service-Learning at Edmonds Community College: Progress Report #1. <<https://www.academia.edu/11575683/>>.
- Murphy, Thomas W, Erin Ryan-Peñuela, and Marshall Kramer
2013a Connect 2 Complete: Ongoing Peer Advocacy and Service-Learning at Edmonds Community College: Progress Report #2. <<https://www.academia.edu/11575742/>>.
- Murphy, Thomas W and lakw'əlás Thomas Speer
2016 *stałjxwáli* (Place-of-Medicine) Ethnobotanical Garden and q'wəld'ali (Place-of-the-Cooking-Fire) Cultural Kitchen. <<https://www.academia.edu/17492570/>>.
- Nam, Sung M., Joe Choi, and Jenna Cho
2018 Introducing Rain Gardens to Korean Households. <<https://www.academia.edu/36812873/>>.
- News Archive.
2011 Anthropology Instructor Thomas Murphy Named Conservation Teacher of the Year. *News Archive: The Latest News from Edmonds Community College*, 17 November. <<https://www.edcc.edu/news/2011/1794.html>>.
- Nguyen, Chau, Minh Bui, and Cong Nguyen
2018 Phong Thuy: Benefits and Barriers of Building a Rain Garden in the Vietnamese Community. <<https://www.academia.edu/36812657/>>.
- O'Leary, Michael
2007 Digging into Jetty Island: EdCC Students Aren't Your Average Beachcombers. *Everett Herald*, 18 August.
- O'Toole, Thomas P., Kaytura F. Aaron, Marshall H. Chin, Carol Horowitz, and Frederick Tyson
2003 Community-based Participatory Research: Opportunities, Challenges, and the Need for a Common Language. *Journal of General Internal Medicine*, 18(7): 592–594. doi:10.1046/j.1525-1497.2003.30416.x.
- Pickard, Ashley and Dawn Emerick.
2012 Leather Artifacts of Japanese Gulch. <<https://www.academia.edu/13185435/>>.

- Phelps, Rakhee
2015 Edmonds CC Students, Faculty, and Staff Participate in Tribal Canoe Journey. *Edmonds Sphere*, 15 September. <<https://www.nwyachting.com/2018/07/colleges-tribal-canoe-journey/>>.
- Puget Soundkeeper*
2016 Standing up for Puget Sound. *Puget Soundkeeper*, 07 June. <<https://pugetsoundkeeper.org/2016/06/07/standing-puget-sound/>>.
- Ross, Laurie, Lia Andrews, David Beckman, Kyle Dewey, Phino Fernandez, Jo Ann Fjellman, Gabriella Golzarian, Courtney Honey, Yong U. Kim, Michael Lubrano, Mina R. Mina, Scott Noll, Jane Pesznecker, Kyli Rhynalds, Paul Ritzman, Marni Swart, Jessica Villines, and Thomas W Murphy
2014 Wildlife Monitoring at Two Sisters Return: Animal Survival in a Semi-Rural Environment. <<https://www.academia.edu/14003225/>>.
- Ryan-Peñuela, Erin and Thomas W Murphy
2015 LEAF School Wildlife Monitoring. <<https://sites.google.com/a/email.edcc.edu/leaf-school-wildlife-monitoring/>>.
- Simpson, Audra
2014 *Mohawk Interruptus: Political Life across the Borders of Settler States*. Durham, NC: Duke University Press.
- Slager, Melissa
2011 Edmonds Community College Professor Wins State Conservation Award. *Everett Herald*, 29 November. <<http://www.heraldnet.com/article/20111129/NEWS01/711299937>>.
- Snohomish Conservation District
2016 Community-Based Stormwater Solutions for the Perrinville Basin, 2016. <<https://www.academia.edu/28684823/>>.
- Snoqualmie Indian Tribe
2014 Tribal Partnership with Edmonds Community College. *Snoqualmie Indian Tribe Newsletter*, May: 4. <<https://snoqualmietribe.us/sites/default/files/newsletters/may2014newsletterwebsite.pdf>>.
- Snoqualmie Valley Record*
2013 Snoqualmie Tribe Hosts Knowledge Trail, Rain Garden Tours. *Snoqualmie Valley Record*, 06 June. <<https://www.valleyrecord.com/life/snoqualmie-tribe-hosts-knowledge-trail-rain-garden-tours/>>.
- Stapp, Darby C.
2012 *Action Anthropology and Sol Tax in 2012: The Final Word?* Richland, WA: Northwest Anthropology.
2018 Integrating Indigenous Values into Federal Agency Impact Assessments to Reduce Conflicts—A Role for Anthropologists. *Journal of Business Anthropology*, 7(1):51–74.
- Suttles, Wayne
1987 *Coast Salish Essays*. Seattle: University of Washington Press.
- Tarrach, Rayna, Ellie Johnson, Alexander Jones, Anca Soloschi, *cəlálakəm* Pamela Bond, and Thomas W Murphy
2015 “Different Kinds of Medicine,” *cəlálakəm* Speaks about *stəłjxwáli* (Place-of-Medicine) Ethnobotanical Garden. Oral History. <<https://www.academia.edu/19674853/>>.
- Taylor, Josh and Colin Samuelson
2012 Glass Artifacts from Japanese Gulch. <<https://www.academia.edu/13185329/>>.
- Tham, Michael, Edwin Cuellar, Mina R Mina, Rosie C. James, and Thomas W Murphy
2016 “You can be an Instrument for the Ancestors,” Rosie Cayou James discusses Coast Salish Culture and Traditional Foods. <<https://www.academia.edu/30652471/>>.
- Tulalip TV
2009 Community Meeting – Tulalip Tourism. *Tulalip TV*, 25 June. <<https://www.kanutv.com/community-meeting-tulalip-tourism/>>.
- Turner, Nancy
2005 *The Earth's Blanket: Traditional Teachings for Sustainable Living*. Seattle: University of Washington Press.

- Van Belle, Greg
2018 College's Tribal Canoe Journey. *Northwest Yachting*. 26 July. <<https://www.nwyachting.com/2018/07/colleges-tribal-canoe-journey/>>.
- Wang, Spencer, Jack Li, and Cynthia Guajardo
2018 Rain Gardens and the Mandarin Community. <<https://www.academia.edu/36809017/>>.
- Wippel, Teresa
2017 Edmonds CC Students Join Tribal Canoe Journey at Olympic Beach. *My Edmonds News*. 20 July. <<https://myedmondsnews.com/2017/07/edmonds-cc-students-join-tribal-canoe-journey-olympic-beach/>>.
- Yue, Fabian, Janae Eldridge, Michelle Tsai, and Yuki Li
2018 Cantonese Community Rain Garden Invitation. <<https://www.academia.edu/36809095/>>.

ABOUT THE AUTHOR

Dr. Thomas W Murphy is Anthropology Department Head at Edmonds College and founder of the Learn and Serve Environmental Anthropology Field (LEAF) School. He has a Ph.D. in sociocultural anthropology from the University of Washington (2003). Students at Edmonds selected him for the 2005 Lifetime Honorary Triton Award for Outstanding Faculty. The Board of Trustees followed in 2008 with its highest honor, Excellence in Education Award. The Washington Association of Conservation Districts selected him as the 2011 Washington State Conservation Educator of the Year. The same year the Snohomish Tribe honored the LEAF School as its Partner of the Year. In 2014 KSER Public Radio recognized him as a Voice of the Community—Community Impact by an Individual for his municipal and tribal partnerships. His leadership of ecological and archaeological projects helped Edmonds College, City of Mukilteo, and Snohomish County win a VISION 2040 Award from the Puget Sound Regional Council for the Japanese Gulch Fish Passage Improvement Project.

Image Rock: Rediscovering a Petroglyph in the High Cascades

David A. Kaiser and Julia Cleary

Oregon Archaeological Society

Correspondence

albion2000@netzero.net

cleary7@gmail.com

Abstract *Originally described in the late nineteenth century, Image Rock has long been thought destroyed. However, this carved image located in the Table Rock Wilderness area of the Cascade mountain range near Molalla, Oregon, was successfully relocated in order to analyze its content and assess its current condition. As one of only a handful of petroglyphs located in western Oregon, this site adds to our understanding of rock art in the region. Though now in a highly damaged and eroded state, historic records and folklore assist in the reconstruction and interpretation of this rare bas-relief petroglyph located within traditional Northern Molalla lands.*

Keywords

Petroglyph, Cascades, Molalla

Introduction

Oregon's Cascade mountains divide the wet, lush western half of the state from the arid, high desert of the east. Rock art in Oregon is most commonly found east of the Cascades, where environmental factors are less detrimental to rock art preservation and visibility. Unlike the numerous sites in the eastern half of the state, surveys of pictographs and petroglyphs in the western region show just over twenty known sites (Cressman 1937; Loring and Loring 1982; Keyser 2005), with only about half a dozen in the northern part of the state. A site known as Image Rock (35CL25), however, failed to make any of these compilations despite being recognized since the nineteenth century.

Image Rock was first noted on an early map of the Cascade Range dated to 1898 (Figure 1). Located between Table Rock and Rooster Rock near the Molalla River, the site lends its name to Image Creek, which begins from a nearby spring (McArthur and McArthur 2003:496). A seasonal huckleberry gathering camp called Image Camp was also located in the vicinity,



Figure 1. 1898 cadastral map showing Image Camp Rock beneath the peak of Rooster Rock.

as noted in the original survey (Gesner 1897). The petroglyph site was well-known enough to feature in a classified advertisement selling property “close to historical ‘Image Rock’” (Oregonian 1905).

So why was such a well-known site not included in later archaeological surveys? Likely reasons for the exclusion include the lack of published images in the literature and the widespread belief that the site was vandalized beyond recognition or completely destroyed (Kerr 1978:31; Bureau of Land Management 1987:55). A 1978 photograph of Image Rock is included as part of site records at the Salem District Bureau of Land Management (BLM) office, but this image shows the rear of the rock, with no indication of human modification.

However, an historic photograph was taken between 1897 and 1901 [Note 1] by Dave Scholl, an optician and jeweler from Cottage Grove who travelled through the Cascades (Figure 2). While lacking clear detail, this image shows a

figure with a round head and nose, or perhaps snout, with long, curved arms reaching around the circular head of a lower figure.

During site research, the authors made contact with the Wrolstad family, Molalla locals who recalled seeing the rock many years before. With the aid of the Scholl photograph, nineteenth century maps, and the Wrolstads as guides, the authors set out to find Image Rock.

Located in a rugged timbered upland in what is now Table Rock Wilderness area in Clackamas County (Figure 3), the site can be accessed via modern hiking trails that evolved from a network of prehistoric Indian trails running north and south. Known as the Molalla Trail, this native trading route connected Willamette Falls at Oregon City with the longer Klamath Trail. This latter trail was used by native peoples to travel between the Klamath Lakes area in southern Oregon and the great trading center at Celilo Falls, near The Dalles, along the Columbia River (Bassett et al. 1998).

Note 1. Various dates have been ascribed to this photograph. However, a 1901 newspaper report describes Dave Scholl heading to the mountains in the area (Oregon City Courier-Herald 1901).



Figure 2. Early photograph of Image Rock by Dave Scholl. Courtesy of Aurora Historical Society.



Figure 3. Table Rock Wilderness Area, with views of Mount Hood.

Following a branch trail to a high meadow beneath Rooster Rock, the hiking party located Image Rock (Figure 4). This large fin-like boulder stands 140 cm high and 330 cm around. While there are other, larger boulders nearby, the rock is unique in its pointed shape and abrupt protrusion from the ground. Though reports of the site's complete destruction were incorrect, the rock art is now, indeed, in poor condition. The head of the upper figure is almost completely destroyed and other elements are also significantly damaged. What remains of the art is a ghostly silhouette, lacking in any clear detail. The curved shape of the upper figure's arms and the roundness of both figures' heads were discernable, but would likely have not been recognized without prior knowledge and the existing photograph.

There has undoubtedly been some vandalism at the site. Early reports mention the nose of the lower figure being shot off (Hardy n.d.:11), and it is likely that other damage has been caused by using the rock for target practice, though no clear impact marks were discernable. The Wrolstads were surprised how poorly the



Figure 4. Image Rock in 2019, showing extensive damage. Scale 60 cm.

image now appeared compared to when last seen around fifty years previous. Some of the damage may also be natural erosion. The rock is a rough pyroclastic breccia embedded with many large lithic fragments and covered in natural protrusions and pockmarks. In this sense it is a very unlikely surface for carving and fine details are difficult to determine.

The overall poor condition of the image coupled with the lack of clear lines due to the naturally rough surface of the rock make interpretation of the remaining image somewhat difficult. To aid in the understanding of the image, it is worth examining previous descriptions of the art:

- “carved upon the face of the rock the image of the young warrior and the panther” (Mellinger 1920).
- “a rock with a picture carved on it. Supposedly an Indian woman’s husband was killed by a cougar. She honored him by inscribing the scene of tragedy on the rock” [Kenny Engle, a forest inspector] (Forest Log 1964).
- “an Indian woman carved on the rock. She was looking up at Rooster Rock and a bear had jumped on her back” (Hardy n.d. [pre-1969]:11).
- “an Indian woman, with a bear on her back” (Kerr 1978:31).
- “a woman, with claws-arms [sic] reaching around in front of her” [David Wilcox, a timber-cruiser, 1978] (Zenk 2008:17).
- “an Indian maiden with a cougar on her back” [Jack Young, a BLM employee, 1978] (Zenk 2008:17).
- “a Molalla Indian who was killed by a bear close to the spring. His wife, as she mourned his passing, went up to the spring and carved from a rock the image of a bear in memory of her husband.” [Bob Sandquist, Molalla rancher] (Sandquist 1984:1150).

While there are some differences in the details, these descriptions convey the narrative nature

of the composition. Most rock art in the region is static, with images juxtaposed, rather than interacting with one another. The dynamic feature of the art at this site is reflected in several of the descriptions above, where they touch on stories associated with two interrelated figures. The earliest description is part of a longer narrative which represents the most complete version recorded.

One day, when he had wandered to the cliff he saw a panther crouched upon the limb above him. Swiftly sped his arrow at the springing animal, only to miss its heart and wound and infuriate it. Hurling himself upon the angry beast they struggled, coming nearer and nearer the edge of the cliff until at last the crumbling edge gave away and they were dashed to death upon the rocks below.

When morning came and he returned not, the maiden sought her brave and found his mangled body beside that of the dead beast.

Silently she drew his hunting knife from his belt and, climbing the cliff, carved upon the face of the rock the image of the young warrior and the panther. (Mellinger 1920)

This version of the tale was told by a sixteen year-old student from Salem, who reportedly collected tales from the Chemawa Indian School as well as the Siletz and Siuslaw tribes (Oregon Daily Journal 1920). Though highly romanticized and couched in contemporary language, the legend might be based on native tradition; however, it is also possible that it is a Euro-American explanatory tale based on the image itself, or a combination of both. Regardless of the origin of these tales, elements of the story are incorporated into many of the existent descriptions of the petroglyph: a person killed by an animal; a woman carving the image in memory of her lost love.

While there are variations in descriptions of the carving, they are consistent in their description of a large animal, with arms stretched towards a lower human figure. Discrepancies occur whether the animal was a bear or a cougar/panther, or if the lower figure was a man or woman. Figure 5 is an attempt to recreate the image prior to vandalism and erosion based on the Scholl photograph and the above descriptions. The nose on the lower figure is speculative as this was likely destroyed even prior to the earliest photograph [Note 2].

Speaking of the lower image, Hardy (n.d.:11) says, "It was plain to see it was an Indian woman." However, no primary sexual characteristics are clear in the earlier photograph or the present-day petroglyph. Additionally, in Columbia Plateau rock art, women are generally depicted wearing basketry hats. There is no indication of the lower anthropomorph wearing such a hat. Three versions of the legends attached to the site tell of the human figure being the husband of the artist. If these stories have any basis in native tradition, then the lower image would be male. Either way, the image was not clear enough to unequivocally determine the gender.

The upper figure is variously described as either a bear or a cougar. Both of these animals, and shamans turning into them, feature prominently in the stories of the mid-Willamette Valley (Jacobs et al. 1945). While each have long claws, a cougar is usually depicted with a long body and a tail curved over its back. No such tail is apparent on Image Rock. In fact, if this is a depiction of a cougar, it would be unique in the art of the region. No ears are discernible on the upper figure, as would be expected for either cougar or bear. Only one description explicitly describes claws, but these would be a key identifying trait of either a bear or cougar and seem implied in the identifications. Long claws, especially on a figure that appears to be standing, are most commonly associated with bears. Bear paws are found at a number of Columbia Plateau sites, including numerous examples carved at Cascadia Cave (Figure 6), a large site in the western slope of the Cascades approximately 50 km south of Image Rock, also near the Klamath Trail (Poetschat et al. 2010). Therefore, if not for the versions of the tradition describing it as a cougar, the upper image would typically be identified as a bear.

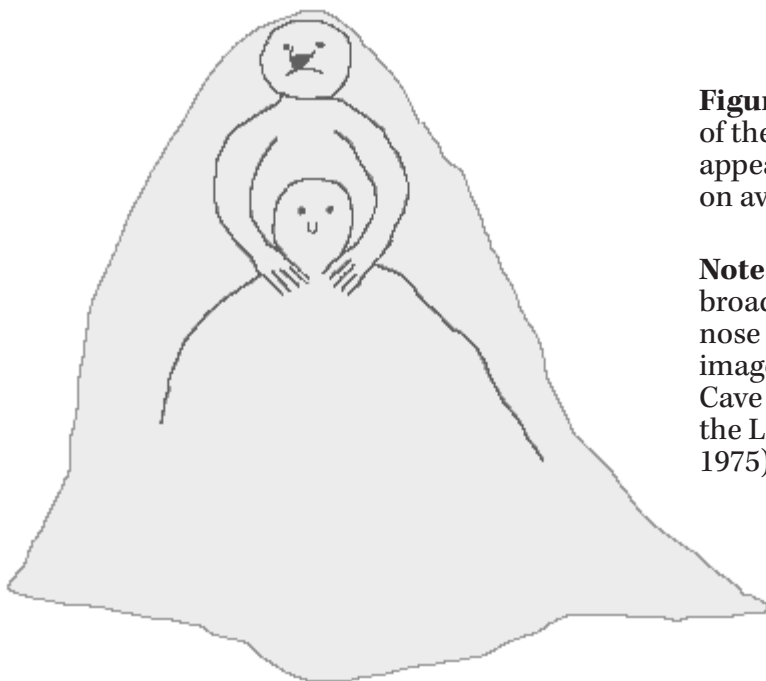


Figure 5. Artistic representation of the possible original appearance of Image Rock based on available data.

Note 2. Though speculative, the broad downward curve of the nose is based on other petroglyph images found nearby at Cascadia Cave (Poetschat et al. 2010) and the Little North Santiam (Booth 1975).



Figure 6. Bear Paws carved at Cascadia Cave. Pigment is paint left by attempts to make a block print.

The region near Image Rock was commonly used for gathering and processing huckleberries. Lithic scatter nearby is further evidence of native use of the area (Bureau of Land Management 1987:55). An east-west trail known as the Table Rock Trail, or Huckleberry Trail, was used by members of the Warm Springs Reservation to access the site until the 1920s (Schrader 2009). Later, Euro-Americans gathered huckleberries here for commercial purposes (Bureau of Land Management 1987:56). The presence of the huckleberries also indicates the likelihood of bears nearby, if the petroglyph commemorates a real-world event. While cougars inhabit the area, interaction with bears at this particular site seems more likely. Prior to Euro-American settlement, both black bears and grizzly bears inhabited this area of the Willamette Valley, particularly in the higher elevations (White 1975:31).

Equally, the image could be ceremonial or symbolic in nature, possibly depicting a myth associated with the landscape. A Molalla origin story collected by Albert S. Gatschet in 1877 tells of Coyote creating the world, when he was challenged by Grizzly Bear near Mount Hood. They held a contest of swallowing hot stones. However, Coyote tricked his opponent by swallowing strawberries instead. Grizzly was defeated when his heart burst. Coyote then cut up the body and scattered the remains. “To the Molalla Country he threw the heart and said, ‘Now the Molalla will be good hunters; they will be good men, thinking and studying about hunting deer’” (Mackey and Brundage 1968:10–11). Image Rock might therefore be a representation of the symbolic connection of Grizzly Bear with the Molalla people. Robert Kentta (Confederated Tribes of Siletz, pers. comm. May 2020) suggests that Image Rock might have

IMAGE ROCK: REDISCOVERING A PETROGLYPH IN THE HIGH CASCADES

been seen as a representation of Grizzly's heart, on which the image was later carved.

The petroglyph is carved in bas-relief. This technique is rare, though not unique in the Columbia Plateau. Many mobile carvings were created using this technique (Wingert 1952; Mercer 2005). However, only a handful of large, earthbound rocks were carved in such a manner to create sculptures rooted within the landscape. One such image is the Beaver Bowl (Figure 7a), found along the Columbia River in the Portland Basin (Keyser et al. 2006). This bedrock sculpture shows a plan view of a beaver with a round bowl carved into its back. Another example (Figure 7b) is a carving of a snake-like creature swallowing the tail of an identical, but larger creature, with its own mouth open (Seaman 1967:227; Loring and Loring 1982:163). This image was formerly found at Celilo Canal (Five Mile Locks), but is now flooded by the backwaters of the dams on the Columbia.

Closer by, another smaller, bas-relief carving of a face was reported in the streambed of the Little North Santiam (Booth 1975). This is a small tributary running into its namesake river, near Mehama, approximately 25 km south of Image

Rock. This image once possibly depicted the full body of the figure, but had been significantly eroded by the time of Booth's report. The round head with indentations for eyes and a bulbous nose remained clear, and a plaster cast was created from the carving (Figure 8). While unverified since the original report, this bedrock bas-relief carving appears similar in design and execution to Image Rock, and, if genuine, may indicate a local artistic convention.

Image Rock is near major trade routes travelled by various tribes, which could have created the petroglyph. Along the western Cascades are found numerous art traditions, including Northern Variants of Far Western Pit and Groove, Columbia Plateau, and even that of the Northwest Coast (Keyser 2005). Just such a seemingly out-of-place image is found amongst the art at Medicine Creek Rockshelter, where a Northwest Coast style face is painted far from where such art is usually found.

High Cascade rock art was recognized as a sub-tradition of the Southern Style Zone of Columbia Plateau rock art tradition by Keyser (2005:53–56). High Cascade tradition rock art as defined consists entirely of pictographs and is

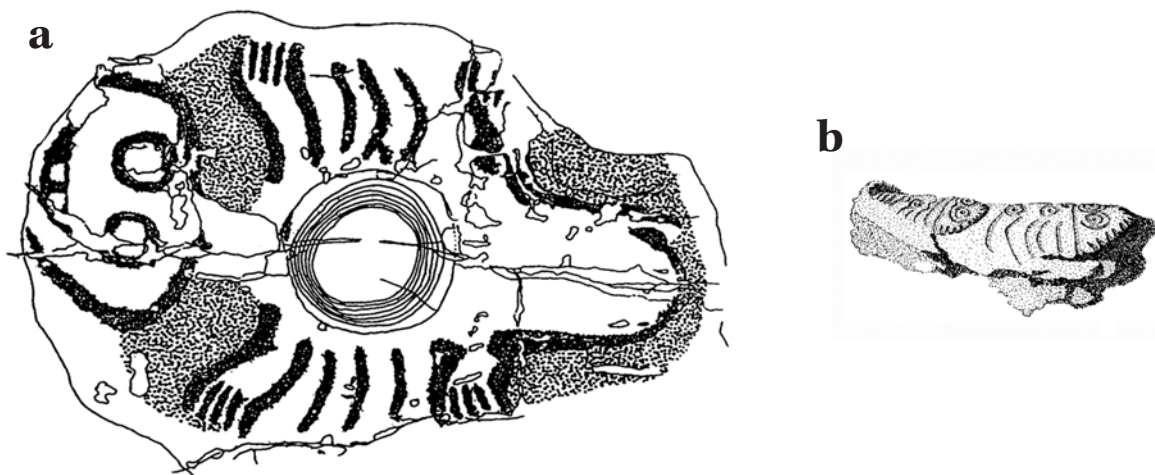


Figure 7. Bas-relief rock art boulders in the Columbia Plateau. A) The Beaver Bowl. B) Celilo Canal (Five Mile Locks). Images courtesy of James D. Keyser.



Figure 8. Plaster cast of bas-relief face in streambed of the Little North Santiam (Booth 1975).

typically made up of tally marks, geometric abstracts, animals, and stick-figure or block body-human images. Like Image Rock, these sites occur at higher elevations by seasonal camps or remote areas used for vision quests. However, these bas-relief carved images are unique in the art of the Cascades and do not fit within the High Cascade tradition.

Image Rock, along with some other rock art sites along the Cascades and elsewhere in western Oregon, does not easily conform to recognized artistic traditions and is of unknown artistic affiliation (Keyser 2005:3). This lack of attribution may be linked to the paucity of other nearby art for comparison, or the influence of multiple traditions as native peoples traversed the long trading routes through the Willamette Valley, north and south and east and west. Such artistic cross-pollination would be a natural consequence of sharing ideas as well as trade goods. Similar compositions showing an upper figure with arms around a lower one are found on a horn bowl produced along the Columbia River (Mercer 2005:55), as well as in Northwest Coast art, where it is a significant design fea-

ture of seated human figure stone bowls (Duff 1975:50–80).

A large petroglyph such as Image Rock would have taken significant time and effort to create, and is unlikely the work of a passing trader. The tools and planning necessary to carve the sculpture indicate it is improbable that its creator was a transient traveler or a spiritual novice on a vision quest. Based on its size and prominent appearance, the petroglyph was intended as public art, and was likely created by a shaman. The art's isolated nature indicates its connection with this particular place. The Molalla tribes were known to inhabit the high elevation regions of the Cascades, as soon as weather allowed, to gather berries and hunt. While the art at Image Rock cannot be attributed to any known stylistic tradition, there is equally no reason to believe the art was created by any group other than the Northern Molalla, in whose territory it is found.

There is no clear indication of age apart from the condition of the art itself. While undoubtedly vandalized, there does seem to be significant erosion of the image overall. Much of this seems to have occurred in the last fifty years, certainly in the last one hundred. Therefore, it seems likely that Image Rock was carved sometime in the last two centuries. This late date would coincide with the probable arrival of the Northern Molalla in the area around 1810 or 1820 (MacKey 1972:63).

Whether Image Rock shows the commemoration of a real-world event or the representation of a symbolic or mythical story, it is impossible to say. Its original appearance is hinted at through previous descriptions, lore, and a single historical photograph. Located at a traditional seasonal camp along a well-traveled trail, the petroglyph still survives, though interpretation is hampered by the poor condition of the art due to vandalism and erosion. However, the carving remains a rare example of rock art in northwest Oregon and may be an example of Northern Molalla artistic tradition. Though damaged, Image Rock is still able to tell us about the variety of indigenous art in the High Cascades.

ACKNOWLEDGMENTS

Thank you to Tom, Ron, and Kathy Wrolstad for accompanying us to the site and sharing their insights. Our appreciation also goes out to the Aurora Historical Society for providing the historic photograph of Image Rock and permission to use it. Likewise, a special thanks to James D. Keyser for allowing us to use his images of the Beaver Bowl and the Five Mile Locks carving. We also appreciate the input of Robert Kentta and another anonymous reviewer in strengthening this paper.

REFERENCES CITED

- Bassett, Karen, Jim Renner and Joyce White
1998 *Oregon Historic Trails Report*. Oregon Trails Coordinating Council, Salem Oregon.
- Booth, John T.
1975 Little North Santiam Petroglyph Under Water. *Screenings*, 24(5), May, Oregon Archaeological Society, nonpaginated.
- Bureau of Land Management
1987 *Final Wilderness Management Plan: Table Rock Wilderness - Oregon*. U.S. Department of the Interior, Bureau of Land Management, Salem District Office, Salem.
- Cressman, Luther S.
1937 *Petroglyphs of Oregon*, University of Oregon, Eugene.
- Duff, Wilson
1975 *Images Stone B.C.*, Oxford University Press, Toronto.
- Forest Log
1964 Clackamas-Marion Area Rich in Colorful Geographical Names, *Forest Log* 33:8, March, State of Oregon Department of Forestry, Salem, p. 3.
- Gesner, Alonzo
1897 BLM Record #1101720, Field Note Volume OR-R0418.
- Hardy, Charles W.
n.d. [Pre 1969] *Early History of Molalla and Nearby Areas*. Charles W. Hardy, Molalla, Oregon.
- Jacobs, Melville, Albert Samuel Gatschet, and Leo Joachim Frachtenberg
1945 *Kalapuya Texts: Parts 1-3*. University of Washington Publications in Anthropology, Volume 11, Seattle.
- Kerr, Andy
1978 *The Wilderness Review Program of the Bureau of Land Management in Oregon - Part 1*. Oregon Student Public Interest Research Group.
- Keyser, James D.
2005 *Pictographs of the High Cascades: Rock Art of Western Oregon*. Umpqua National Forest Heritage Report 1, United States Forest Service.
- Keyser, James D., George Poetschat, Helen Hiczun, Pat McCoy and Betty Tandberg
2006 The Beaver Bowl: Ethnographic Evidence for a Northwest Coast Shaman's Petroglyph. In *Talking with the Past: The Ethnography of Rock Art*, edited by James D. Keyser, George Poetschat, and Michael W. Taylor, pp. 158-172. Oregon Archaeological Society Press, Publication 16, Portland.
- Loring, Malcolm J. and Louise Loring
1982 *Pictographs and Petroglyphs of the Oregon Country - Part 1: Columbia River and Northern Oregon*. Monograph XXI, Institute of Archaeology, University of California, Los Angeles.
- MacKey, Harold
1972 New Light on the Molalla Indians, *Oregon Historical Quarterly*, 73(1):63-65.

- MacKey, Harold and Thomas Brundage
1968 A Molale Indian Myth of Coyote, *Northwest Folklore*, 3(2):10–11.
- McArthur, Lewis A and Lewis L. McArthur
2003 *Oregon Geographic Names*, 7th Edition, Oregon Historical Society, Portland.
- Mellinger, Marjorie
1920 Potlach Tales, *The Oregon Daily Journal*, August, 29, p. 46.
- Mercer, Bill
2005 *People of the River: Native Arts of the Oregon Territory*, Portland Art Museum, Portland, Oregon.
- Oregon City Courier-Herald
1901 *Oregon City Courier-Herald*, August 02, p. 2, Oregon City, Oregon.
- Oregon Daily Journal
1920 Wins University Trophy, *Oregon Daily Journal*, June 13, p. 13, Portland, Oregon.
- Oregonian
1905 Classified Ads, *Oregonian*, November 19, Part Two, p.20, Portland, Oregon.
- Poetschat, George, James D. Keyser, David A. Kaiser, Robin Harrower and Anthony Farque
2010 Interpreting Cascadia Cave: An Upstream Struggle. In *American Indian Rock Art*, Volume 36, edited by Ken Hedges, pp. 59–70. Glendale, American Rock Art Association.
- Sandquist, Bob
1984 Statement of Bob Sandquist, in *Oregon Wilderness Act of 1983: Hearings Before the Subcommittee on Public Lands and Reserved Water of the Committee on Energy and Natural Resources, United States Senate, Ninety-eighth Congress, First Session, on H.R. 1149*. Part 1, U.S. Government Printing Office, Washington, pp.1150–1152.
- Schraider, Kurt
2009 Statement of the Honorable Kurt Schraider, A Representative in Congress from the State of Oregon, 5th District, *H.R. 86, H.R. 118, H.R. 1925, H.R. 2689, H.R. 2781 & H.R. 2888 : Legislative Hearing before the Subcommittee on National Parks, Forests and Public Lands, of the Committee on Natural Resources, U.S. House of Representatives, One Hundred Eleventh Congress, first session, Thursday, October 1, 2009*, pp. 25–26.
- Seaman, N. G.
1967 *Indian Relics of the Pacific Northwest*, Binfords and Mort, Portland.
- White, John R.
1975 A Proposed Typology of Willamette Valley Sites. In *Archaeological Studies in the Willamette Valley, Oregon*, edited by C. Melvin Aikens, pp. 495–503. *University of Oregon Anthropological Papers* 8, Eugene.
- Wingert, Paul S.
1952 *Prehistoric Stone Sculpture of the Pacific Northwest*, Portland Art Museum, Portland, Oregon.
- Zenk, Henry
2008 Notes on Native American Place-Names of the Willamette Valley Region. *Oregon Historical Quarterly*, 109(1):6–33.

ABOUT THE AUTHORS

David Kaiser is an independent researcher who has documented and analyzed the rock art of the Pacific Northwest and the Plains for almost twenty years. He has contributed to numerous publications on the subject as both author and editor.

Julia Cleary is an archaeologist and a current board member of the Oregon Archaeological Society. After graduating from Portland State University, she has worked on archaeology projects at Mount Rainier National Park, as well as Bend, Oregon and Rapoltu Mare, Romania.

Coast Salish Social Complexity, Community Ties, and Resistance: Using Mortuary Analysis to Identify Changes in Coast Salish Society Before, During, and After the Early Colonial Period

Alexandra M. Peck

Brown University
Ph.D. Candidate

Correspondence
alexandra_peck@brown.edu

Abstract *Consistently, Coast Salish mortuary practices demonstrate one element in common, even as burial customs have developed over the course of the Marpole Period to the present day: resistance to authority and societal pressures. Building upon the seminal work of Suttles (1958), Thom (1995, 1998), and Mathews (2006, 2014), this study offers a comprehensive examination of pre- and post-contact Coast Salish burial practices, as well as their corresponding emphasis on social rank, status, or loss of social stratification as identified in the mortuary record. Beginning with an examination of the evolution of ranked social classes in Marpole and Late Period midden, cairn, and mound burials, I conclude with a detailed discussion of enclosed “grave house” burials (originating with Euro-American contact) and the late nineteenth century development of the Indian Shaker Church to demonstrate how recent burial practices are a reaction to and reflection of settler colonial encroachment upon Coast Salish territories. In doing so, I provide evidence that Coast Salish societies grew increasingly unified against non-Native presence at the turn of the century, exchanging previous individual and class-based social rank systems for community-oriented identification that aided in retaining Coast Salish spirituality, access to land, and kinship networks during times of intense cultural turmoil. Compared to Marpole and Late Periods, which witnessed fluctuations in status and resistance to elite authority figures, ethnographic Coast Salish burial phases reveal that certain aspects of pre-colonial Coast Salish social structure were sacrificed to foster tribal solidarity against foreign imposition during the Early Colonial era. Using an interdisciplinary approach advocated by Morris (1992) that combines multiple strands of evidence including grave goods, demography, spatiality, ritual, history, ethnography, and comparative studies, I employ an anthropological lens to analyze the subversive nature of past and present Coast Salish social organization.*

Keywords

Coast Salish, mortuary studies, settler colonialism, cultural change, archaeology of death, burial practices, social status/class/rank, social organization, community/belonging, Indian Shaker Church, Christianity

Coast Salish Burial Practices as Adaptations to and Reflections of Social Change

Coast Salish communities belong to a broad, anthropologically defined culture group of Indigenous nations who share related languages, cultural customs, and geography of the southern Northwest Coast. Unlike other Northwest Coast culture groups, the Coast Salish are rarely treated as one unified group and are instead referred to by their regional divisions. Reflecting the current academic literature, most case studies referenced in this article originate from central (including the Lower Fraser Valley, southern Vancouver Island, and the Strait of Juan de Fuca) and southern (defined here as Puget Sound) Coast Salish territories, with some comparisons made between neighboring non-Coast Salish groups exhibiting similar burial practices, such as the Nuu-chah-nulth to the west and Chinook to the south. While identifying how social rank, social class, and eventual egalitarianism (or the absence of highly stratified systems) constitute distinctive stages that correspond to Coast Salish burial phases, a certain similarity reveals itself, despite the tremendous diversity associated with such mortuary practices. Coast Salish burial practices often resist, or originate in resistance to, constrictive power structures. I provide evidence for this characteristic by charting significant changes spanning from midden burial of the Marpole Period¹ (2500 to 1000 BP), mound and cairn burial of the Late Period (1000 to 500 BP), elevated canoe and box interment prominent during the Early Colonial Period or contact

era (late 1700s), grave house structures of the mid to late nineteenth century, and Indian Shaker Church funerary practices beginning in the 1880s (see Table 1). In addition, I track less frequently discussed phases including cremation, cave burial, and scaffold interment, all of which represent outliers within the Coast Salish mortuary world.

This plethora of burial practices spanning time and space highlight the dynamism that defines Coast Salish communities. Linking mortuary practices of the distant past to those encountered within contemporary Coast Salish settings illustrate Coast Salish continuity and a culture informed, though not necessarily defined by or limited to, the past. Reinterpreting modern mortuary practices, specifically those of the contact era and subsequent Indian Shaker Church Period, demonstrates Coast Salish solidarity and unity—parting ways with the social class and rank distinctions previously integral to burial practices. This is not to say that such differences were completely forgotten or abandoned in recent times, but rather, that newer burial practices emphasize community identity and communal belonging in favor of identities rooted in ascribed or achieved status (Binford 1971; Thom 1995). Spanning 2,500 years, these complicated mortuary transitions represent negotiation, accommodation, and resistance to internal and external power imbalances, standing in stark contrast to how Coast Salish society has been presented in historical literature—as monoliths representing a less-developed cultural “backwater,” in which “the Northern maritime tribes...represented the cultural climax...with their impressive totem poles, chiefly systems,

¹ I use archaeologically defined Coast Salish culture periods (not to be mistaken with general Northwest Coast culture periods) to classify and categorize changes in Coast Salish burial practices. These phases are based on Grier and Angelbeck's 2017 article, “Tradeoffs in Coast Salish Social Action: Balancing Autonomy, Inequality, and Sustainability” in *The Give and Take of Sustainability: Archaeological and Anthropological Perspectives on Tradeoffs*. To some, such as Roy (2010), these phases represent academic jargon inaccessible to the tribal communities that they aim to represent. Acknowledging this, I realize that archaeological categories do not often align with Indigenous ways of interacting with or understanding the past, and can be used as a form of academic violence to delegitimize Native claims. As such, this article provides first person, archival, and ethnographic accounts, as well as oral history excerpts, as an anthropological complement to archaeological classifications. Doing so emphasizes that Coast Salish burial practices remain relevant even in recent times and are not solely consigned to the past.

Table 1. Descriptions of Coast Salish Mortuary Periods

Years BP	Coast Salish Mortuary Period	Characteristics Introduced
3500–2500	Locarno Beach	<ul style="list-style-type: none"> • Small class of elites • Fluid social rank • Labrets as status signifier • Semi-permanent villages • Small village populations
2500–2000	Early Marpole (“Old Musqueam”)	<ul style="list-style-type: none"> • Similar to Locarno Beach Period • Flexed burials in shallow middens • Burning food for deceased • Cave and rockshelter burials
2000–1600	Middle Marpole (“Beach Grove”)	<ul style="list-style-type: none"> • Few grave goods • Large winter villages • Large, multifamily longhouses • Little warfare • Resource surplus • Strong economy
1600–1000	Late Marpole (“Bowker Creek”)	<ul style="list-style-type: none"> • Rock cairn and earthen mound burials • Elevated burials for elite • Large class of elites, with small classes of commoners and slaves • Shift from labrets to cranial deformation for elite individuals
1000–550	Late	<ul style="list-style-type: none"> • Individual cairn and mound burials for majority of population • Few slave burials • Grave good differentiation • Expanding population of elites and expanding social networks • “Inverted pear” shaped social stratification solidifies • Increased intertribal warfare and fortified villages • More utilization of marine resources
250–130	Early Colonial	<ul style="list-style-type: none"> • Elevated canoe burials for political authority figures • Elevated box burials for commoners • Cave burials for diseased, resulting from epidemics • Introduction of scaffold burials and grave houses to discourage looting/trespassing • Diverse mortuary practices • Frequent conflicts • Various sized longhouses dependent upon social class • Loss of land and cultural customs resulting from Euro-American imposition
130–current	Indian Shaker Church	<ul style="list-style-type: none"> • Mourning parades • Elaborate funeral services • Cemeteries • No grave goods • Mortuary taboos • Less emphasis on class/status • Coast Salish, Catholic, and Protestant amalgamation • Indian Shaker Church unifies Coast Salish communities by mirroring kinship ties and travel of pre-colonial era and emphasizing importance of solidarity against colonialism

theatrical winter ceremonials, and large-scale art” (Miller 2013:204; see also Boas 1910 and Duthuit 1946).

Interpreting Social Worlds Through Mortuary Analysis

Mortuary practices communicate socio-cultural values and attitudes associated with both the dead and the living (Tainter 1978; Morris 1992). When analyzed in a specific societal context, it becomes clear that burial practices are not haphazard or random, but instead represent intentional activities that communicate social differences (Watson 1994; Mathews 2014). Examining various aspects of mortuary practices (quantity and quality of grave goods, demographics of the deceased, grave location and spatiality, position of remains, funerary rituals, etc.) highlight important distinctions associated with the deceased based upon ascribed versus achieved status, social class, age, sex, or gender (Binford 1971; Saxe 1971; Pearson et al. 1989; Morris 1992). Simply put, studying the dead tells us about the living. In addition, changes in burial practices illuminate broader societal changes (Morris 1992). Although social class differentiation is often quite stable, in that major fluctuations are rare, the ways in which social class manifests itself in burial practices changes frequently (Cannon 1989). Reflecting lived realities where those who hold the most power create meaning and control social narratives, those in prestigious or elite positions often dictate how religious or ceremonial symbols are defined and enacted in the mortuary record (Bloch 1986; Morris 1987). Attempting to subvert the social hierarchy, other classes might co-opt elite symbols or grave goods as their own, though, as Morris (1987) states, these attempts can be quashed by elites possessing greater power to re-define these symbols or create new ones to challenge lower classes. All the while, the social order is presented as a natural phenomenon, especially for those occupying the lowest rungs of society (Bloch 1986).

Though Morris’ 1992 methodological study, *Death-Ritual and Social Structure in Classical Antiquity*, references Classical Greek and Roman mortuary studies in the context of broader societal changes, his interdisciplinary approach is equally useful when examining Indigenous examples, most notably those of Coast Salish origin. Though mortuary practices alone do not account for societal change, when contextualized and combined with data provided by other sources—whether they be literary, oral, or material—burial practices gain credence as a viable avenue through which to interpret the past. Sole reliance upon historical literature has proven an inadequate and prejudicial means of comprehending those who came before us, as has the scholarly preoccupation with studying ancient elites, whose positions are rarely characteristic of society at large (Morris 1987). Only by using multiple sources, as well as examining a variety of experiences representative of many ranks of society, will mortuary studies contribute to a well-rounded understanding of how societies change and how individuals respond to such change. Grave goods, burial demographics, and even the deceased themselves share relationships with the broader political sphere that cannot be ignored. By examining Coast Salish reactions to the pressures of authority throughout the Marpole Period to the early twentieth century, I provide a fresh perspective on Coast Salish society that considers multiple social classes and historical events. As demonstrated by the latter half of this article, taking into consideration historical sources and ethnographic accounts is of utmost importance if burial practices are to provide relevance for contemporary Coast Salish archaeology. Anthropologically speaking, to neglect the recent period is to deny the existence and vibrancy of Coast Salish culture today. Though colonialism has undoubtedly altered many aspects of Coast Salish social life, burial practices reveal that resistance—a thread that weaves itself through all periods of recent Coast Salish history—perseveres.

Social Organization of the Locarno Beach Period (3500 to 2500 BP)

The earliest recorded phase of Coast Salish burials that display significant social complexity is associated with middens originating during the Marpole Period, dating from 2500 to 1000 BP (Clark 2013; Grier and Angelbeck 2017). Previously, during the Locarno Beach Period (3500 to 2500 BP), Coast Salish society was characterized by semi-permanent villages, small populations, and fluid social rank with some individuals donning labrets as signs of achieved status (Angelbeck and Grier 2012). A type of body modification, labrets were not permanent, and could be implemented, enlarged, or abandoned at any time, pointing towards social flexibility as an explanation for the adaptability of this bodily alteration (Keddie 1981). Locarno Beach Period remains suggest that power was centralized amongst a select few hereditary leaders, with most of the population comprising a commoner class (Angelbeck and Grier 2012). Prior to Locarno Beach settlements, communities were highly mobile and, with increased equal access to resources, notably egalitarian. Fewer grave goods are associated with pre-Locarno Beach graves, signaling that differences in social status may have been less prominent (Burley and Knusel 1989; Grier and Angelbeck 2017).

Midden Burials of the Marpole Period (2500 to 1000 BP)

The early Marpole Period (2500 to 2000 BP), also known as the “Old Musqueam” phase, maintains similarities to the earlier Locarno Beach Period, with major differences emerging in the middle Marpole (2000 to 1600 BP), or “Beach Grove” phase. Middle Marpole communities displayed “large winter villages with enormous, multifamily planked houses, an economy based on stored salmon supplemented with other seasonal resources, [and] highly developed art” (Matson and Coupland 1995:241). Achieved status and prestigious occupations defined individual

positions of social rank that valued household leaders as authority figures, and strong economies “evolved along with the elite, who in turn gained additional influence via economic control by using increased production as an opportunity to compete for prestige” (Mathews 2006:50; see also Moss 1993; Matson and Coupland 1995; Thom 1995). Villages were autonomous and subject to the rule of household leaders, rather than dependent upon regional governments (Angelbeck and Grier 2012). As household leaders sought similar individuals for marriage, these unions contributed to increased social networks that connected autonomous villages via travel and trade and reinforced the importance of the upper class (Grier 2003).

Marpole burials are characterized by flexed remains placed within shallow shell midden pits located adjacent to Coast Salish village sites (Burley and Knusel 1989; Cybulski 1992; McKay 1999; Brown 2003). Mimicking earlier culture phases, graves contain the occasional exotic grave good (associated with particularly elite individuals), with most burials likely interring poor or lower class people who accounted for a bulk of the population (Burley and Knusel 1989; Ham 1998). Few remains exhibit signs of violence—signaling stability and decreased warfare during the middle Marpole (Cybulski 1994). Marpole-era burials, such as the Tsawwassen middens located near the mouth of the Fraser River along the Strait of Georgia, contain bodies wrapped in reed mats or blankets, placed in wooden boxes, and then situated beneath oyster and clam shell middens (Arcas Consulting 1991). Neighboring Marpole midden burials are found in Musqueam tribal contexts and at Skw’atets, located along the Fraser River in Sto:lo territory on the Peters First Nation Reserve (Roy 2007; McHalsie 2011). Today, the Upper Chehalis of western Washington recall stories of Blue Jay, who visited the Land of the Dead, where he encountered piled bones and debris in this afterlife landscape, symbolic of Marpole midden burials (McKay 1999). Similarly, the Duwamish of Seattle also remember a time when “below

ground” midden graves were used by ancestors to inter the deceased (Switzer 2005).

Elevated Canoe Burials for the Marpole Elite

Beginning during the mid to late Marpole Period, ca. 1500 to 1000 BP, a unique form of burial emerges for some of the elite household rulers: placing bodies in elevated settings, such as canoes wedged in trees or platforms balanced atop posts (Suttles 1990; McKay 1999).² Identified by scattered remains that have fallen to the ground below during their decomposition, elevated burials were often isolated and located in forests, abandoned settlements, or on islands (Ham 1998; Lepofsky et al. 2000). Sites containing these burials, such as Beach Grove and neighboring Crescent Beach, located on Boundary Bay in Georgia Strait, are identified by fractured and dispersed human remains (Abbott 1962; Ham 1982; Mitchell 1996). Though interring bodies in wooden boxes placed in trees or on raised structures eventually became the norm in Coast Salish communities of the contact era, such burials were first correlated with social elites interred in canoes balanced upon cedar or Douglas fir branches during a much earlier time (Elmendorf 1960:455). Suttles (1958, 1987:16–17) explains that Coast Salish elites often legitimized their status by claiming to possess special knowledge, “advice,” or good etiquette (accessed by “moral training”) that supposedly differentiated them from commoners or lower class individuals. Lower class individuals were thought to have “lost their history,” and represented “people who had no claim to the most productive resources of the area and... to recognized inherited privileges” (Suttles 1987:16–17). Elevated canoe burials not only physically allowed the high ranking deceased to preside over lower class corpses and the living, but the burial mode also communicated that the elite possessed a special connection with

² This elite practice continued intermittently into the Early Colonial Period of the nineteenth century, thus overlapping with 550 to 225 BP when political authority figures intensified in local Coast Salish societies as a result of fur trade competition and introduction of European economies (Donald 1985, 1997; Suttles 1990).

non-human entities and realms supposedly inaccessible to other classes.

Canoes, an expensive commodity whose use in burial was not something a low ranking person could afford, held spiritual significance within Coast Salish societies. Skilled healers were known to travel in the maritime vessels between worlds that separated the sea from the land, the spiritual from the secular, and the dead from the living during otherworldly journeys, such as the Sbetetdaq or spirit canoe rite practiced by Puget Sound tribes (Haeberlin 1918; Torrance 1994). Spirit canoe practitioners performed the alternate world ritual in the dark of winter, “since in the other world it would then be a bright summer day” (Torrance 1994:182), and paddled in a canoe toward the land of the dead while battling sinister creatures who held captive the spirit of an ill patient (Haeberlin 1918). A similar Nuxalk story tells of a shaman who “descended into the ocean by a rope lowered from his canoe ‘until he found himself in a land where everything was much the same as on this earth’; he rescued his wife and later revived the son who had rotted away to a skeleton during his father’s absence of nearly a year” (McIlwraith 1948:544–546).

Social Shifts from the Mid to Late Marpole Period (1600 to 1000 BP) to the Late Period (1000 to 550 BP)

The transition from the terminal Marpole (“Bowker Creek” phase) to the Late Period witnessed a significant change in mortuary practices, with rock cairns and earthen mound graves replacing the midden burials that formerly accounted for a majority of the commoner population (Burley and Knusel 1989; Cybulski 1992, 1994; Mathews 2006; Angelbeck 2016). Cranial deformation, an intentional means of head flattening, became a widespread practice seen amongst most skeletal remains, with few interments exhibiting the labrets that were once

affiliated with high status (Angelbeck and Grier 2012; Grier and Angelbeck 2017). Unlike labrets, cranial deformation was permanent and denoted that an individual's status was likely fixed or unchanging. Gone were the days of being able to achieve positions of household leadership by performing impressive feats or simply asserting one's authority over others. It was during the Late Marpole when the elite population dramatically increased in size, leading to the development of an ascribed class-based society containing small lower class populations (Thom 1995; Angelbeck and Grier 2012). This shift laid the foundation for an entirely new period of Coast Salish history, the Late Period (1000 to 500 BP). The Late Period reflected a shift in social organization, with personal status becoming indicative of an ascribed social class, compared to achieved or competitive positions seen during the Marpole Period (Suttles 1958; Thom 1998). Late Period settlements display large longhouses and villages to accommodate expanding populations, with the landscape increasingly utilized and modified for resource harvesting along maritime regions. Though this phase intensified stress on social networks, the natural environment, and local communities, "Coast Salish economies exhibit a strong degree of continuity over this extended period, suggesting...long-term sustainability" (Grier and Angelbeck 2017:204). Visible, above-ground gravesites in the form of cairns and mounds, some reaching nine feet tall, became favored over previous subterranean Marpole midden interments (McKay 2009). This change was accompanied by increased warfare and social stratification in the form of class-based status, rather than individually achieved or inherited rank (Angelbeck and Grier 2012). Angelbeck and Grier (2012) attribute the Late Period formation of a large elite population to resistance and intertribal warfare that occurred during the end of the Marpole stage, in which the commoner class rebelled against the few household heads who dominated Coast Salish society. Intertribal warfare of the terminal Marpole hints that class-based conflicts occurred,

with commoners aggressively negotiating for increased status, which the elite were forced to submit to. This theory also accounts for the increase in cranial deformation to include most individuals, as well as decrease in labret usage, during the Late Period—signifying that positions of high rank were now more inclusive as well as more permanent. Thus, a "nouveau riche" class formed that included a majority of society.

Reasons proposed for social changes during the Late Period include: decreased salmon supply (linked to climate change), increasingly dispersed Coast Salish populations resulting from intermarriage amongst elites, fewer cultural (artistic and religious) specialists, and increased violence (Keddie 1984; Ames 1994; Cybulski 1994; Moss and Erlandson 1995; Thom 1998; Carlson 2011). However, Butler and Campbell (2004), as well as Grier and Angelbeck (2017), find no compelling signs of Salish Sea resource shortage during the past 7,000 years, suggesting stable Coast Salish populations. As a possible explanation for why social classes developed out of relative stability, Thom (1998, 2009) explains that Coast Salish social networks for trade, access to resources and land, and exogamous marriage with allied tribal communities were integral to forming social classes, spreading community wealth, and dispersing populations beyond immediate village sites. He argues that "changes in settlement patterns, tool assemblages, subsistence strategies, increased warfare and the advent of burial cairns and mounds are a consequence of intensified social networking during the Marpole Period," during which elite individuals intermarried with other high status people from differing communities to secure land rights, resources, and alliances (Thom 1998:7). A constantly expanding network of elites eventually generated a formal high ranking class associated with the Late Period, characterized by increased labor and "food production from seasonally occupied limited activity sites to be used as gifts for exchange with other members of the social network" (Mathews 2006:49).

Because the new class of elites controlled who could access such resources and marry into high ranking families, commoner and lower classes also developed, thus securing the oft-cited Coast Salish hierarchy described as “three distinct social classes—a majority identified as ‘high class,’ a somewhat smaller group identified as ‘low class,’ and still smaller groups of slaves” (Suttles 1987:16–17, see also Suttles 1958, Mathews 2006). This framework, known as the “inverted pear” model of social organization, was characterized by a large and expanding upper class, a smaller commoner class, and a minimal slave or servant class (Suttles 1958:500–501). Despite that social stratification became stricter amongst individuals (reflecting “high social complexity”), villages retained their political autonomy (indicative of “low political complexity”) and relied upon other self-governing settlements for mutual aid (Matson and Coupland 1995:29; Angelbeck and Grier 2012). As anarchic societies, Coast Salish communities promoted self-rule and discouraged overarching bodies of governance. Feinman (2000) suggests that social networking itself is not a system of political rule, a claim confirmed by Coast Salish individuals who reaped the benefits of mutual aid while managing to avoid falling under the purview of non-local authorities.

Village organization supports the hypothesis that social classes of nobles, commoners, and slaves or very low ranking people developed and stabilized during the Late Period. Shoreline villages dating from the Late Period contained settlements for high ranking individuals situated in protected or fortified areas abutting bluffs with separate quarters for lower class people located in vulnerable positions on narrow spits (Suttles 1958). As unfortunate occupants of the lowest societal rung (because slaves functioned as property who lived within the households of their masters, as opposed to “true” members of society), low class individuals held negligible socio-economic connections to those who would share resources or supplies during times of need (Suttles 1973, 1987). Perhaps as

a result of the new social organization, warfare increased during 1600–500 BP, as evidenced by skeletal trauma and heavily used defensive sites (Cybulski 1994; Schaepe 2009). For villages subject to frequent raids and increased violence, such as the Lower Skagit settlement of Penn Cove, deceased enemies, “especially those of defeated Northern raiders” (Deur 2009:95), were impaled or displayed at the entrance to fortified settlements, in hopes of deterring future adversaries (Deur 2009:95). Another deterrent to attack, defensive boulder walls dating to the 1400s (the end of the Late Period), are present along the Lower Fraser River Canyon (Supernant 2009, 2011).

Late Period (1000 to 550 BP) Cairn and Mound Burials

Late Period burials are identified by the prevalence of cairn and mound interments, marked by piles of small stones or large boulders rolled upon graves (Pickford 1947). With the exception of slaves, whose diminished status permitted them little ritual treatment, both elites and commoners were buried via individual cairns and mounds in large fields or forested areas that functioned as cemeteries (Thom 1995). Individual burial “plots” display differences in social class based upon grave goods and cairn or mound size. An example of this phenomenon includes the Scowlitz Mounds site (also called the Fraser Valley Pyramids), located in southern British Columbia where the Harrison and Fraser Rivers meet. Here, elite Hul’qumi’num burial mounds contain prized artifacts including copper, abalone, and dentalium (Thom 1995, 1998; Lepofsky et al. 2000). Of the 42 Scowlitz mound burials, slate knives and other utilitarian objects also appear in high numbers (Lepofsky et al. 2000). The Late Period exhibits remarkable variation, however, as demonstrated by southern Vancouver Island’s Rocky Point site. This region contains hundreds of earthen mound graves, few grave goods, and indiscernible status markers associated with burial remains (Thom 1998; Mathews 2006, 2014). Mathews (2006, 2014) suggests that

analyzing the external, as opposed to internal, mound features provides answers to the social mortuary structure of Rocky Point. For instance, the different clustered locations of mounds at Rocky Point may demarcate different regions reserved for the dead as based upon their social status. Evaluating the size and shape of mound and cairn burials also provide information about social signifiers of the deceased. Just as village organization provides clues as to the three-tiered Coast Salish social structure that evolved during the terminal Marpole phase, burial and mound organization operated as metaphorical “villages” for the ancestors. The living imposed social control over the deceased, mirroring the circumstances of daily life and making it impossible to extricate the dead from the social order of the time. Despite differences in grave good quantity/quality and monument size, both Coast Salish cairn and mound burial methods spanned far and wide, as recorded by mounds at the Comiakin Duncan site and cairns encountered at Penn Cove (Pickford 1947; Deur 2009).

Cairn and mound burials necessitated a unified labor force to allow for their elaborate, monument-like construction (Mathews 2006). Produced by the social shifts that occurred at the end of the Marpole Period to the beginning of the Late Period, a large elite population met the demands of the new interment style, which was certainly more costly than simple midden burials. As high ranking families employed social networking to extend their access beyond their own familial territories, such as camas fields, specific fishing holes, or envied hunting grounds, the importance of forming a “symbolic and visible expression of a mutual identity” associated with these spaces also grew (Mathews 2006:237). Performed as a group activity, burial cairn and mound building acted as a means of strengthening ties to familial places, staking or reinforcing territorial claims, and provided a meaningful way to visit with relatives during difficult times of grief (Mathews 2014). Burial mounds, such as those at Rocky Point, were not

visible from afar, but instead hidden behind natural slopes and wetlands that defined the geography. Those wishing to access such monuments needed intimate knowledge of and access to the sometimes physically challenging mortuary landscape (Mathews 2006). Access to these territories was dependent upon social status, where elites and high ranking individuals possessed increased rights of visitation and travel, as well as increased spiritual knowledge (as identified by Suttles (1958, 1987) who linked status to specialized wisdom) that was off-limits to slaves and lower class persons. As cairns multiplied and were built in clustered groups, the cairn cemetery presented itself as naturally occurring or spontaneously regenerative—reminiscent of Bloch’s (1986) and Morris’ (1987) claims that social organization often initially appears to be organic, rather than manmade. However, cairn construction, placement, and access were largely determined by the elite, who defined mortuary symbols and practices.

Movement though the landscape simultaneously asserts and reflects rights to place, as well as mediates interactions between individuals (Ingold 2011). When Late Period burials are contextualized within the political climate that experienced a change from few elites to many, it becomes apparent that building cairn and mound burials was a subversive action undertaken by the new majority elite class. In contrast to midden burials during the Marpole Period, in which dead commoners were invisible *beneath* the terrain and elites were displayed *above* in elevated canoe graves, cairn burials were prominent markers imposed *upon* the landscape—meaning that the large elite class were asserting their rightful presence on the local landscape in a visible, irremovable fashion (Mathews 2006). Re-visiting cairn and mound cemeteries to build additional memorials or to honor the deceased undoubtedly claimed rights to place via monumentalization and commemorative processes (Dark 1995). Claiming burial grounds is a form of territoriality, in which the living hold the power to designate the landscape

as one reserved for the dead, communicating that the landscape is also the responsibility or property of the living.

Yet, monuments symbolize more than mere hierarchical power relations or territoriality. The labor needed for cairn and mound construction (and subsequent maintenance) encouraged community participation and communal belonging by routine interaction with the local geography (Mathews 2014). The well-trodden routes, paths, and trails taken to arrive at cairns and mounds both reflected and controlled how people experienced their physical and spiritual environments (Dillehay 2007). Limiting or allowing access to highly charged spaces influenced how the landscape was viewed and fostered social relationships that revolved around shared experience and meaning-making (Barrett 1990; Dillehay 2007). Some mound burial sites, such as those at Skw'atets, are interred upon previous Marpole midden graves, offering poignant reminders of cultural continuity (McHalsie 2011).³ Though the internment of the deceased can inhibit travel and movement in attempts to abide by cultural taboos or property rights, Late Period mounds and cairns prove that cemeteries also stimulate movement and encourage interaction, rather than silence, with the past (Barrett 1994; Tilley 1994, 1996; Mathews 2014).

The Contemporary Political Context of Cairn and Mound Burials

To the untrained eye, mound and cairn burials are difficult to discern, and, as such, were “some of the first archaeological victims of urbanization” (Thom 1995). In British Columbia, the Heritage Conservation Act dictates that culturally significant or sensitive First Nation sites cannot be disturbed without proper permits. Recorded in a provincial database consisting of more than 54,000 burial and/or spiritually significant sites, such information is not dis-

³ Mathews (2006) mentions that Rocky Point cairns and mounds are located in the vicinity of, though not overlapping with, traditional midden and village sites—implying that the region was perhaps used for mortuary practices of the past.

played on land titles, meaning that property owners often do not recognize the potential for conflict until they initiate development. This is not an unfamiliar problem faced by Native communities and non-Indigenous property owners, as evidenced by the recent Chilliwack River controversy, in which Ts'elxwéyeqw burial mounds were “discovered” by a married couple who wished to build a new home upon lands they purchased (McCue 2019). Even during an era far removed from the Late Period, remnants of mounds and cairns offer resistance to the social order of the settler state. The continued relevance of these burial practices challenge non-Native ideas of land use and land ownership by limiting development and construction upon Coast Salish burial grounds. Gone though not forgotten, mounds and cairns serve as reminders that the land is Indigenous, even as Indigenous presence has been substantially diminished by settler colonialism.

Elevated Burials Become Commonplace During the Early Colonial Period (250 to 130 BP)

Prior to the Late Period adoption of the “inverted pear” societal model that reflected a large elite class, small commoner class, and minimal lower class, elevated canoe interments were reserved for the rare elites of the late Marpole Period (1500 to 1000 BP), whose aerial graves communicated important status distinctions to commoners and slaves. However, while arriving in Coast Salish lands during the late 1700s, non-Native explorers and early ethnographers noted the ubiquitous presence of elevated canoe burials, suggesting that the interment practice was no longer reserved for the fortunate few (Mitchell 1996; Mathews 2014; McKay 2018). Manuel Quimper, the Spanish explorer of 1790, observed Coast Salish burials consisting of placing the dead on raised platforms or canoes suspended in trees near southern Vancouver

Island's Sooke Harbor, with Archibald Menzies encountering similar Lummi burials at Birch Bay in 1792 (Newcombe 1923; Wagner 1971). The practice continued until the late nineteenth century, as evidenced by pre-1894 sketches made by Congregationalist missionary Myron Eells of a Skokomish canoe burial, as well as those by ethnographers George Gibbs (1877) and James Swan (1857), who depicted similar (non-Coast Salish) Chinook mortuary practices (Castile 1985). Numerous modern tribal accounts remember canoe burials as a means of interment, including the Duwamish recollection of Stitici (a burial ground located on Foster Island in Seattle's Washington Arboretum) and the Olympic Peninsula's Jamestown S'Klallam, who recall that individuals (whose "relations may be included at a later time") were situated in a canoe, with a small canoe or reed mats covering the interment as a lid (Jamestown S'Klallam Tribe n.d., see also University of Washington Botanic Gardens 2009; Duwamish Tribe 2018). Illustrating elevated canoe burials' connotations with high status, *Coba?álsid*, the Lower Skagit village of Snatelum Point on Whidbey Island, "was of unusually high status and, according to oral tradition, of unusual antiquity," occupying a landscape where "canoe burial was widespread and...standard practice for tribal elites" (Deur 2009:95). Of practical use, as well, canoe burials prevented bodies from being disturbed by large animals or unwanted visitors.

Harris (1997) speculates that, when two thirds of Coast Salish populations were killed during smallpox epidemics of 1782 to 1783, new religious and burial customs emerged. In 1792, Captain George Vancouver noted that children and adult skeletons wrapped in blankets were preserved in boxes and baskets suspended from trees near Discovery Bay, a S'Klallam site known locally for its history of smallpox (Vancouver 1792; Gibbs 1877; Brooks 1997). It was also here where small boxes containing food, presumably to nourish the dead in the afterlife, dangled from

trees (Gibbs 1877). Bodies wrapped in blankets and affixed to trees were found at the base of the Okanagan River in the 1850s, with Gibbs (1855, 1877) mentioning that children were sometimes placed in hollowed out trees or stumps. Vancouver (1801) recorded a similar scene at Penn Cove, with Eells, Gibbs (1877), and Roberts (1975) supporting the theory that "suspended" burials for small children reflected recent epidemics (Castile 1985). By the mid-1800s, elevated burial in wooden boxes became a mainstream mode of interment, regardless of one's social class affiliation (Elmendorf 1960). However, canoes were still reserved for the elite, with wooden chests or boxes housing remains in trees for commoners and lower classes (Smith 1899).⁴ Many instances of Squamish and Musqueam tree box burials exist, notably at Deadman's Island near Stanley Park in Vancouver, accompanied by Kwantlen recollections of bodies "wrapped in skins and blankets and placed in pole platforms high above the reach of animals, or in tree [with] pipes, bowls, hammers, or such things as he... might require to start life in the next world" (Webber 1899:313, see also Mitchell 1996). Just as mound and cairn burials of the Late Period were often constructed upon older Marpole midden grounds, Sto:lo and Duwamish elevated box burials located, respectively, at Skw'atets and Stitici are superimposed over landscapes where earlier burial modes were also practiced (Switzer 2005; McHalsie 2011; Duwamish Tribe 2018).

The reason for adopting elevated box burials is not clear. Deur (2009) cites Upper and Lower Skagit examples to support the idea that elevated box burials were adopted to challenge or co-opt elite canoe burials, perhaps signaling tension or rivalry between competing classes during the Early Colonial Period (250 to 130 BP). This theory is viable, as the fur trade spurred new forms of economic competition amongst Coast Salish individuals. Elmendorf (1960) suggested that elevated box burial was inspired by older

⁴ At this time, some especially poor families buried their dead in boxes beneath a layer of soil, though this practice was rare and not readily employed by others—likely illustrating the large upper class that continued to occupy most of Coast Salish society (Elmendorf 1960).

Marpole traditions renewed during the contact era, supported by the Chehalis story of “The Man Who Gains Power to Restore the Dead to Life,” which details that the protagonist’s deceased wife is placed in a tree as homage to the “old ways” (Hill-Tout 1978). However, the Coast Salish transition to elevated box burials at the time of European expansion begs the obvious question: were burials gradually raised from the ground in response to prying non-Native eyes and sticky fingers? Ethnographers were rapidly collecting for museum collections and world’s fair exhibitions, with looters and amateur archaeologists hoping to sell or pocket their exotic Northwest Coast “Indian” finds. Franz Boas, the father of American anthropology and founder of salvage ethnography, sifted through Kwakwaka’wakw and Coast Salish graves in search of skulls for measurement and display, admitting in 1888 that “it is most unpleasant work to steal bones from a grave, but what is the use, someone has to do it....I am as well known here in Victoria [British Columbia] as a mongrel dog” (Rohner 1966). Such actions had consequences and did not go unnoticed by Coast Salish individuals or fellow non-Indigenous observers. Missionary Myron Eells believed that elevated box burials (“a change in their mode of burial”) of the late nineteenth century reflected an outraged Native reaction to the “actions of unprincipled white gold seekers who stole both canoes and grave goods from burials they encountered along rivers in the Pacific Northwest” (Castile 1985:334). He emphasized that such theft even incited Coast Salish communities to painstakingly excavate previously interred midden and cairn remains from their ancient cemeteries, and, “because enough trees could not be obtained [for canoe burials]...they made boxes and elevated them” on scaffolding or posts (Castile 1985:334).

Located immediately south of Coast Salish territory, the Chinook of Longview, Washington proposed a similar, but tragically unsuccessful, solution for their burial ground located at Mount Coffin, a remote bluff located below the mouth of the Cowlitz River. Though Lewis and Clark

detected, but did not disturb the more than 3,000 canoe burials at Mount Coffin in 1805, “a fire caused by the carelessness” of Captain Charles Wilkes’ 1838–1842 expedition “destroyed the whole...to the great indignation of the Indians” (Gibbs 1877). Much like attitudes reported by Eells, the “violation of the grave was always regarded as an offense of the first magnitude and provoked severe revenge” from the Chinook (Gibbs 1877). As places for the dead to rest in peace, canoe burials were not meant to be disturbed in such a manner. When questioned by early ethnographers about mortuary practices and taboos, McKay (2018) reports that some Coast Salish interlocutors feigned ignorance, which was interpreted as a lack of concern or knowledge about the past, cold detachment, or paranoid superstition. Judging by the intrusive actions of non-Natives, however, these presumably disengaged attitudes were likely meant to distract from or discourage meddling with graves and remains.

Accounting for Infrequent Cremation and Cave Burials throughout Coast Salish History

Burning human remains and grave goods, as well as interring bodies in caves and rock shelters, are somewhat rare within the Coast Salish mortuary record, though these practices occurred with enough frequency to warrant discussion here. Marpole midden burials, such as those at Tsawwassen, contained scorched food and goods (Arcas Consulting 1991). Carlson (2011) suggests that the shift from Marpole (2500 to 1000 BP) to Late Period burials of 1000 to 550 BP signaled a concurrent shift from ritual feeding of the deceased to burning food or possessions for the deceased, with Carlson and Hobler’s (1993) Pender Canal study charting a similar Marpole phase transition to burning offerings for, as opposed to physically feeding, the dead. Hill-Tout (1930) records charcoal and charred soil intermixed with stone cairn graves, leading to speculation of cremation or ritual

burning. This theory is reinforced by Pickford's (1947) observations of Late Period mound and cairn burials interred primarily with cremated remains, forming a sort of "mortuary mortar," spanning from the northern Coast Salish Comox community to Puget Sound and inland to the Fraser River. When smallpox struck in the late 1700s and early to mid 1800s, burial rituals became abbreviated, with communities burning villages and longhouses "when the families that formerly occupied the house had been largely decimated due to disease and there were no survivors to maintain the home" (Deur 2009:96, see also Roberts 1975). Referencing raised canoe burials in trees, Eells (Castile 1985) notes that he participated in a funeral during 1877 that featured goods burned for the dead on the Skokomish Reservation. Since 1900, burning grave goods to provide sustenance for the deceased grew common in central and southern Coast Salish ceremonies and is a practice retained today by some groups, such as the Sto:lo (Kew 1990; Fehr 2016).

Outliers within Coast Salish mortuary practices, cave interments represent a puzzling occurrence within the archaeological record. Thought to constitute burials for social outcasts and criminals or severely diseased individuals, cave burials date to the Marpole Period, as evidenced by interments located near the *Snunéymuxw* village at False Narrows dating to 2000 BP (Littlefield 2000:10). Bilton (2014) records cave burials along the Gulf of Georgia, with Cassidy (1976) noting caves and rock outcroppings used as burial places in southwestern Georgia Strait, and Beram (1990) writing of a Vancouver Island cave burial at Francis/King Regional Park containing human teeth and bird bones. Similarly, cave burials are documented amongst tribal communities adjacent to Coast Salish settlements, such as Nuuchahnulth cave and rock shelter burials at Hesquiat Harbor, circa 2500 BP (Haggarty 1982).

Instances of cave burials are recorded during the ethnographic era as well, with Nuuchahnulth burials at Broken Group Islands

commonly located in sea caves and identified by wooden box interments supplemented with European manufactured grave goods (Haggarty and Inglis 1983). Coast Salish skeletal remains found in caves such as those on Gabriola Island, as well as Barkley Sound's Nuuchahnulth sites, display signs of tuberculosis and syphilis, spreading after European contact occurred (McMillan and Schulting 1995; Curtin 2002). Tuberculosis and syphilis took root in 1778, when permanent British settlements and trading posts appeared in the Pacific Northwest (McMillan and Schulting 1995; Daugherty and Kirk 2007). The strain of tuberculosis introduced during this period was particularly virulent, leading to early adult death before the disease had a chance to cause dramatic skeletal changes, thus accounting for the minor skeletal decay documented on tuberculosis-infected individuals buried in rock shelters (McMillan and Schulting 1995). These recent strands of evidence support the assertion that cave burials were associated with deaths caused by extremely contagious diseases, representing European epidemics (Haggarty and Inglis 1983:31). Burial caves held connotations of disease, trauma, and possible sexual deviance (associated with syphilis), and situated diseased bodies in asocial or isolated places distant from villages. Removing perceived threats of disease from the community and avoiding interaction with infected corpses illustrated Coast Salish attempts to strengthen or cure villages of epidemics during the Early Colonial Period.

Coast Salish informants describe caves as places of wartime refuge and as spaces often referred to in cosmological narratives, such as the malicious *Hul'qumi'num* figure of "Sheshuq'um, or 'Open-Mouthed,'" who "lived in a cave at Octopus Point at the southern entrance to Maple Bay, where it would swamp canoes traveling through Sansum Narrows with its tongue, drowning and devouring travelers in the tidal rapids and whirlpools" (Angelbeck and McLay 2011:364, see also: Littlefield 2000; Angelbeck 2009). Given the scant amount of published information about Coast Salish cave

burials in Northwest Coast academic literature, the (perhaps intentional) ambiguity of these graves remain both literally and metaphorically hidden—successfully preserving cultural meanings, stories, and associations that may not be deemed appropriate for secular settings.

Post-Contact Influenced Scaffold and Grave House Burials

Although box and canoe burials in trees, with occasional cave burials, remained prevalent throughout the late 1800s, non-Native theft and ensuing destruction took their toll on local Indigenous societies. Perhaps in an effort to further secure human remains and the belongings of the dead, Coast Salish burials gradually shifted to interring bodies upon scaffolding and enclosed within small, house-like structures during the 1850s (Castile 1985; Mitchell 1996; McKay 1999). Canoe burial via scaffolds were present in Puget Sound and central Coast Salish regions, with the Cowichan legend “Blue Jay Brings the Dead Girl to Life” telling of how Blue Jay, wishing to take a beautiful woman as his wife, miraculously revived the woman from her final resting place on scaffolding (Gibbs 1877; Barnett 1955). More widespread and common than scaffolding, grave houses covered the remains of the buried dead, acting as a pseudo-mausoleum. Nearby non-Coast Salish tribes such as the Makah, Nuuchahnulth, and Kwakwaka’wakw were known to practice grave house interment during pre- and post-contact periods, signaling that the practice was not distinctly Coast Salish (Gibbs 1877; MacLeod 1933). Grave houses enclosed subterranean burials, offered protection against theft, and, built in a simple shed style with tokens often left for the deceased, were recognized by non-Natives as a

form of “proper” burial (Deur 2009:97). Grave house interments satisfied Western assumptions of what constituted acceptable mortuary practices, in contrast to elevated burials, which were interpreted by Europeans as a peculiar practice, and midden or mound burial grounds, which were easily violated in the name of settler development or rogue collectors.

Some attribute the Coast Salish transition to grave houses as a consequence of Christian missionary influence, using cemetery burial as a means of assimilation and conversion. Father Chirouse, a Catholic priest who began his tenure at the Tulalip Reservation in 1857, encouraged the Tulalip Tribes to abandon “their ancient custom of placing the dead in canoes, and then raising them up on trees. He established and blessed a cemetery, and the Indians showed much respect for it, and pride in its appearance” (Sullivan 1932:47). Smith (1899:538) also noted that missionary influence and legal ordinances caused the Coast Salish to “bury as do the whites of the region,” referring to interments that resembled Christian cemeteries with personalized grave houses acting as Indigenous gravestones or shrines. However, the shift to grave houses is more complex than the assimilationist approach suggests and demands critical analysis of the contemporaneous Coast Salish social fabric. Native lands were increasingly lost throughout the nineteenth and twentieth centuries, resulting from the Stevens Treaties in Washington, the Douglas Treaties of Vancouver Island, and a lack of treaties throughout greater British Columbia—despite that King George III’s 1763 Royal Proclamation declared territory belonging to First Nations could only be ceded to the British Crown for non-Native settlement via treaties.⁵ These coercive land

⁵ While Coast Salish treaties were signed in Washington Territory, the process leading up to such negotiations mirrored the absence of treaties in British Columbia. The United States’ Confederation Congress Proclamation of 1783 states that Native title to land can only be extinguished by the federal government—not by individual or state-wide agreements—signifying that ceding land was a government-to-government affair. Similarly, the Indian Non-Intercourse Act of 1834 prohibited the purchase of land in Indian Country by non-Natives prior to treaty negotiations, even though many settlers violated the Act by homesteading Coast Salish territory before treaties were signed in the 1850s. This violation was made possible by the Donation Land Claim Act of 1850, which allowed settlers in Washington and Oregon Territory to claim 320 acres per man or married woman. The Donation Land Claim Act was problematic because it granted lands prior to the ceding of territory by Coast Salish signatories. Governor Stevens of Washington Territory

deals (or, conversely, a suspicious lack of negotiation altogether) encouraged encroaching homesteads, which Coast Salish communities rebelled against by constructing grave houses denoting long-standing sacred places on the local landscape. In addition, resources were lost to the settler colonial monopoly, meaning that many high status families did not maintain their rights to traditional lands and wealth sources that had secured their prestige during the pre-colonial era (Suttles and Lane 1990). By adopting a form that was recognizable to and respected by Europeans, Coast Salish grave houses subverted settler gazes by physically covering remains, visibly reclaiming the land using a method that monumentalized the dead (reminiscent of cairn and mound burial of the Late Period), and provided a meeting place for descendants to honor the deceased.

In the past, Coast Salish villages were politically autonomous or anarchic from any centralized power and employed potlatching with members of extensive social networks to reach political consensus, spread surplus wealth, witness legal agreements, and profess rights to specific land claims (Angelbeck and Grier 2012; Grier and Angelbeck 2017). Compared to European notions, Coast Salish understandings of territorial boundaries and power hierarchies differed greatly (Thom 2009). For the Coast Salish, historical authority figures were “situationally justified” (Angelbeck and Grier 2012:552). Leaders did not inhabit widespread positions where they controlled all aspects of daily life, but instead, roles were often contextual, temporary, and mutually agreed upon by those subject to their authority (Smith 1940; Miller 2001). All-purpose leaders were often rejected or punished for attempting to rule over communities who saw themselves as independent and self-governing. Indian agents and missionaries, who were granted control over a large portion of Coast Salish society during the reservation and treaty eras, did not mesh

well with traditional Coast Salish definitions of leadership. Government agents on reservations surveilled Native movement and bodies, often restricting trade, travel, and communication between historically mobile tribal nations who depended upon mobility to strengthen and maintain social order and class differences. With compromised access to wealth, social networks, and status symbols, it follows that elite burial practices (such as canoe interment) faltered, leaving grave houses to inter all classes of the dead in a more egalitarian manner.

Chehalis grave houses were recorded by Edwin Chalcraft (2004:17), an Indian boarding school superintendent during the 1800s, who described the structures as a “grave shallow enough to permit the cover of the box in which the body had been placed to be level with the surface of the ground, and then build a small house, about three feet high, over the grave.” Drawings and paintings by W. McMurtie at Victoria in 1854, Edward M. Richardson in 1864, and Edward Whymper at Chapman’s Bar, British Columbia, all illustrate grave houses. Richardson’s depiction is especially noteworthy, in that it portrays a large grave house replete with shotguns and other firearms (perhaps left for the dead or serving as a warning to trespassers), numerous European grave goods, and large rocks surrounding the structure—possibly implying that grave houses were built near older cairn burials to maintain a connection to places charged with mortuary importance. Deur (2009) describes similar continuity at Snatelum Point, a site used for canoe burials and subsequent grave house burials. Even after the site was abandoned by Coast Salish individuals, white settlers left the grounds intact because of its “certain status” as a legitimate cemetery (Deur 2009:97). In 1914, the cemetery was later purchased by Skagit descendents of the village (who had since moved to reservations), assisted by Tulalip Indian Agent Charles Buchanan and government agents on

quickly recognized the contradiction between the two pieces of legislation. In 1854, he urged the formation of treaties in the Pacific Northwest so as to avoid any further confusion and legally grant homesteaders “their” lands (Coan 1922). In return, Stevens was instructed to make immediate treaties with tribes, revealing that the Stevens Treaties did not intend to reserve lands or rights for Washington’s Native nations, but rather, aimed to extinguish their rights as quickly as possible to legally settle the frontier.

the Swinomish Reservation (Buchanan 1914). Ethnographic accounts of grave houses are plentiful, with Eells recording the practice in 1878 by Twana mourners and Edward Curtis (1907) photographing a Snohomish grave house in 1912 (Castile 1985). A Kwantlen woman chronicled the grave houses of her community, stating that “within an hour of death,” corpses were “placed in a tiny house” (Webber 1899:313). Eells noted that a similar method of burial emerged amongst the S’Klallam, in which the dead were buried below ground and surrounded by a small fence in substitution of a grave house structure (Castile 1985). Grave house interment represents a final phase that took place in the region, only to be eclipsed by Indian Shaker Church practices that spread like wildfire throughout Coast Salish territory in later years.

Establishing the Indian Shaker Church (1880s)

It was in 1881 that John Slocum, of Washington’s Coast Salish Squaxin Island Tribe, founded the Indian Shaker Church. Slocum was a logger who had lost eleven of his thirteen children to disease or untimely deaths, with one of his remaining sons imprisoned. Depressed, Slocum spent his wages on whiskey and gambling, until he suddenly died one day in 1881. Depending upon which accounts are cited, Slocum remained dead anywhere from eight hours to three days before he miraculously revived (Ruby and Brown 1996). Although Slocum’s “death” might be regarded as a coma, seizure, or trance-like state by medical professionals, Slocum claimed to have seen a bright light and was urged by an angelic figure to return to Earth and form a new religion (Ruby and Brown 1996). Gladly accepting this proposition, he awoke to find his wife, Mary, praying and vigorously shaking over his body—presumably out of fear or grief. He credited her shaking movement for his return to life, thus establishing the Indian Shaker Church (Harmon 1971). The new religion, which promoted resurrection and Christ as Messiah,

instructed that the trembling of one’s body, hands, and rattles—especially when performed in a communal setting led by women—could revive the recently deceased, heal the sick, and even aid in locating drowned bodies of drunken men (Amoss 1982).

The religious movement grew popular amongst other Coast Salish nations. Requiring sobriety of its members and declaring gambling immoral, Indian Shaker churches were organized by male Coast Salish “bishops” who spoke a combination of English and various Coast Salish languages during services (The Morning Olympian 1911; Barnett 1957). At a time when local newspapers lamented that young Coast Salish individuals’ names were “more frequently” associated with the “police headquarters’ docket than upon the roll of honor,” non-Natives initially praised the “curious” Shaker religion for its “elevating influence upon the Indian” (The Olympia Daily Recorder 1907). Washington legally incorporated the religion in 1910, granting Coast Salish tribes control over their own religious practices. Characterized by unadorned, dark wood paneled buildings that were rectangular in shape, Indian Shaker churches were oriented east-west and quickly appeared on dozens of Coast Salish reservations, accompanied by Indian Shaker cemeteries resembling Catholic burial grounds.

Shaker Funerary Practices

Influenced by Catholic and Presbyterian customs, Shaker funerary practices (known to include Catholic priests, potlatches, and private services) are elaborately structured and regarded as the most varied of all Shaker ceremonies (O’Brien 2013). The night before a funeral and subsequent burial, a candlelit service is held in which members speak of the deceased (Ruby and Brown 1996). The corpse is not present at this service, which features the sign of the cross performed three times in a row and Coast Salish elements such as spontaneous praying and singing. A funeral occurs the next day, with balloons,

wreaths, and flowers surrounding the deceased inside the church (Ruby and Brown 1996). During the funeral, men sit on the left side of the church, with women and children to the right. A group of women with candles and men with bells (items important to Shaker ceremonialism because of their associations with shaking and reverberation) surround the deceased to sing memorized songs in an extemporaneous fashion (Ruby and Brown 1996). Crying and outward displays of emotion are both expected and encouraged, with faces washed in a communal basin (akin to a baptismal font) as the funeral concludes (Ruby and Brown 1996).

After the funeral, the body is prepared for burial by being placed in a coffin at the home of the deceased (Gunther 1949). Coffins are carried to a cemetery, sometimes followed by an impressive mourning parade. Once mourners arrive at the cemetery, Protestant hymns are sung in full, which is unique because non-mortuary Shaker services often contain only snippets of hymns (Gunther 1949). Unlike at other Shaker services where shaking is employed to heal or revive an individual, burial settings do not feature shaking and are instead conducted while standing completely still. Following burial, the group returns to the church and passes around the clothing of the deceased in a counter clockwise circle. Although clothing is not retained by group members, this rotating of intimate possessions aids the grief process and preserves the memory of the deceased. Any images of the dead, as well as their belongings, are hidden or removed from sight for a year following death. Concealed possessions are allowed to return to public view after a year, when the items are then entrusted to family members and close friends (Johansen 2015). Grave goods are not buried with the dead, thus denying any material reminders of status or prestige in the afterlife.

Resistance and Amalgamation Within the Indian Shaker Church

Beginning in the 1880s and continuing in some Coast Salish communities until the

present day, the Indian Shaker Church formed as a distinct, amalgamated Coast Salish belief system that unified Native communities against the tragic effects of colonial imposition. Shaker practices were observed by Eells (1886) as a combination of Coast Salish spirituality and Catholicism, with practitioners believing that their religious activities could cure sickness, revive the dead, and control settler impact on the landscape. Eells (1886) wrote that Shakers attributed the closure of local logging camps to Shaker ceremonies, which were deemed as capable of purifying the landscape of foreign influence. Shaker rituals also pledged the ability to manipulate future events. Shaker leaders courted their fellowships with promises to “shake away the Indian court, the judges, the agents, the agency, laws, influences and restrictions... shake away all the whites in the country and bring back the old days to them all, with freedom, license, and everything that then existed” (Eells 1899:9). While the Indian Shaker Church resembles other American Indian revitalization movements of the same time that desired to return to a pre-colonial environment devoid of white presence (such as the Great Plains and Great Basin Ghost Dance), Shakers diverged from such movements by uniquely melding Christian and Coast Salish themes. Just as grave houses aided in preserving Coast Salish lands and livelihoods, the Indian Shaker Church protected Coast Salish ceremonies and shifted the social organization of tribal communities towards increasing unity and solidarity with each other.

Settler colonialism represents a “contact zone,” or, a “social space where disparate cultures meet, clash, and grapple with each other, often in highly asymmetrical relations of domination and subordination—like colonialism [or] slavery” (Pratt 1992:4). However, as demonstrated by the Indian Shaker Church, “encounters between Indigenous peoples and Christianity rarely have been singular confrontations among spiritual and cultural worlds characterized by unintelligibility, misunderstanding, and opposition” (Neylan 2011:189). As a counter-colonial measure, Shakers adapted deeply ingrained Coast

Salish practices to exist both within and against Christianity, marking the belief system's purpose as two-fold and, to those unfamiliar with the religion, seemingly contradictory. This duality is infrequently acknowledged even by Shakers themselves, who view their practices (including Christian prototypes of candles, bells, crucifixes, and vestments) as distinctly independent from, rather than reliant upon, Christianity (Amoss 1982). The uses and meanings attributed to sacred Shaker accoutrements are said to "come directly from God, not through the mediation of Christian missionaries and their teachings," implying that the Indian Shaker Church was more resistant to Christian influence than is generally portrayed (Amoss 1982:99). Disapproving missionaries noticed this defiance. Rather than rejoice in their semi-successful attempts to force foreign beliefs upon the Native public, many Christian missionaries were threatened by Shakers, stating that, "without the leaven of pure Christianity and all the good there is in it," the Indian Shaker Church would merely represent old Coast Salish ways, which "would not make a safe place for anyone" (Eells 1899:9). Taking little care to mollify these concerns, early Shakers stood steadfast in the Indigenous roots of their church and took pride in "how we Shakers don't have to wait or look at the government or white people missionaries to show us how to carry our religion....We have...everything ourselves that the religion needs" (Abraham 1911). In this way, the new religion retained a sense of autonomy and self-sufficiency for Coast Salish individuals whose agency was severely limited.

The Indian Shaker Church's Promotion of Cultural Unity and Solidarity

The spread of Shaker beliefs and practices mirrored those of pre-colonial trade routes, seasonal travel, and social networks valued by elite Coast Salish families (Raibmon 2005). Previously, to lay claim to valued or familial lands, such as fishing holes, camas prairies,

or tide flats, high class families were obligated to host potlatches where wealth circulated amongst other elite individuals. The Canadian potlatch ban of 1885 and a concurrent, though informal, ban in the United States, as well as legal land theft (originating from British Columbia's disregard for treaty negotiation, as well as unfulfilled and questionable treaties in the United States), negatively impacted Coast Salish social structure and limited relationships with distant relatives. Shaker gatherings circumvented some aspects of potlatch bans by supporting pre-colonial routes of trade and travel. Though reservation surveillance and laws controlling Indigenous mobility made it increasingly difficult to maintain Coast Salish kinship ties to land and relations, the Indian Shaker Church called upon modern kinship networks to spread the religion to other Coast Salish territories. Church services "saw not only visitors from neighboring reservations but also those who had traveled great distances to find employment or to visit kin," whereas religious and national holidays (such as Christmas or the Fourth of July) attracted "annual congregations of Natives" to reservations, where veiled "exchanges of religious ideas were a part of the socializing" (Neylan 2011:205). Gunther (1949) and Amoss (1982, 1990) recognize two phases of Shaker expansion, constituting the initial phase in the 1880s that transmitted the new religion to other Coast Salish groups, and the second stage, which occurred in the 1890s and spread Shaker beliefs to non-Coast Salish communities in California, Oregon, and eastern Washington. Neylan (2011) identifies a third phase of Shaker expansion, taking place during World War I, attributed to crisis, wartime instability, and the Spanish influenza pandemic. These stages would not have been possible without strong, already existing Coast Salish ties secured by social networks that allowed for historical participation in cairn and mound burial construction.

Prior to European contact and colonialism, Coast Salish groups "identified with their local village, household, or kin group more so than

any larger scale of identity, such as the region, language group, or pan-Salish ethnicity” (Grier and Angelbeck 2017:198). These societies were autonomous, managing to maintain contacts from outside the immediate community via potlatching and trade routes, without any specific political or authoritarian figures to act as intermediaries (Thom 2009; Grier and Angelbeck 2017). However, with numerous societal stressors introduced during the late 1800s, Coast Salish communities began to embrace an identity centered around broad similarities and ideas of unity or solidarity. This trait was strengthened by the move to reservations, many of which consisted of multiple tribes living within the same boundary. (The modern Tulalip Tribe is a good example of this, with its roots in Duwamish, Snohomish, Snoqualmie, Skagit, Suiattle, Samish, and Stillaguamish communities who were later legally consolidated and classified by the United States federal government as “Tulalip.”) Rather than return to pre-contact autonomous groups that used potlatching to negotiate consensus amongst distant and varied communities, the late nineteenth century witnessed the unification of Coast Salish society. The pan-tribal Indian Shaker Church provided an avenue for increased solidarity that emphasized Indigeneity, rather than identity based upon individual social status of the Locarno Beach and early Marpole Periods or ascribed social rank and confidential spiritual knowledge of the Late Period. Shakers promoted continued kinship relations and “shared dedication to maintaining Indian traditions” (Harmon 1998:224). Elevating one’s status in historical ways became less important, with Shaker Church membership providing ceremonies that heightened morale and instilled pride amongst Coast Salish participants (Wike 1941; Amoss 1978). Shakers viewed themselves as holding enviable “access to supernatural assistance,” “good health, the power to overcome hardship, and the support of a strong community”—all characteristics previously identified by Suttles (1958, 1987) as traits associated with high ranking individuals of

the Late Period’s inverted pear hierarchy (O’Brien 2013:142–143). Rather than emphasize class-based identity of the past—which could threaten the already fragile Coast Salish communities of the reservation and treaty eras—the Indian Shaker Church served as a Coast Salish source of belonging and social solidarity, “locating the individual within an extended network of kin and community” (O’Brien 2013:142).

Conclusion

By tracking the development and diversity of Coast Salish mortuary traditions spanning from Marpole Period midden burials to Late Period cairns and mounds, as well as more diverse recent practices including elevated interments, grave houses, and Indian Shaker Church funerals, it is revealed that Coast Salish mortuary practices grew less status-centric and increasingly community-focused during and after the Early Colonial Period. Coast Salish burial customs changed dramatically during the initial Colonial Period as a means of communicating resistance to settler imposition, preserving Indigenous identity in creative ways, and adapting to cultural crisis. These adaptations were reflective of familial alliances secured by Coast Salish communities of the distant past, who used their high social status and mobility to secure territories, resources, and relationships. A culmination of Christian missionary presence and Coast Salish agency, the Indian Shaker Church and its contemporary tribal members offer proof of cultural amalgamation as an effective means of Native survivance.

When examined closely through the context of pre-colonial Coast Salish burial phases and social status discrepancies, the Indian Shaker Church shares a connection to the past rooted in resistance to authority, however defined. Defying existing power structures is a defining feature of Coast Salish mortuary practices, as depicted by the transition from a small class of elites during the Marpole Period to an overarching class of elites seen in the Late Period. Mortuary

acts of resistance were also implemented in the Early Colonial Period, when elevated box burials for commoners evolved in competition with elite canoe interments and in response to the steadily increasing power wielded by non-Native ethnographers and explorers. This rebellious characteristic of Coast Salish mortuary practices continued to manifest itself with the formation of grave house structures that grew popular during the treaty era, in opposition to land theft and settler colonial homesteading. As modern burial practices illustrate, Coast Salish society is dynamic and flexible, seeking

today to promote a distinct cultural identity characterized by increased social solidarity in exchange for pre-colonial social stratification. Despite parting ways with historical social organization systems that emphasized class-based differences, Indian Shaker mortuary practices challenged Christian missionary authoritarianism and forced removal to reservations, echoing a similar resistance promoted by Coast Salish ancestors of the deep past.

ACKNOWLEDGMENTS

I thank my advisor, Dr. Patricia Rubertone (Department of Anthropology, Brown University), who oversaw the formation of this manuscript, prepared on Narragansett lands. In addition, I owe my gratitude to my generous peer reviewers and those who attended the 2019 Northwest Anthropological Conference in Kennewick, Washington on shared Umatilla, Yakama, Nez Perce, Wanapum, Colville, Walla Walla, and Cayuse territory for their thoughtful feedback. Finally, in Coast Salish custom, I raise my hands in appreciation to the numerous Coast Salish individuals and communities who have graciously welcomed me into their ancestral and contemporary homelands. Of course, this work would not have been possible without research grants from Brown University's Department of Anthropology and Graduate School.

REFERENCES CITED

- Abbott, Donald
1962 Preliminary Report on the Beach Grove Site, DgRs 1. Report to British Columbia Archaeological Sites Advisory Board, Victoria, British Columbia, Canada.
- Abraham, Enoch
1911 Letter to Peter Heck from Enoch Abraham, White Swan, Washington, May 2. Correspondence. Indian Shaker Church of Washington Records MS 29, Box 3, Folder 46, Washington State Historical Society, Tacoma, Washington.
- Ames, Kenneth
1994 The Northwest Coast: Complex Hunter-Gatherers, Ecology, and Social Evolution. *Annual Review of Anthropology*, 23:209–229.
- Amoss, Pamela
1978 *Coast Salish Spirit Dancing: The Survival of an Ancestral Religion*. Seattle, University of Washington Press.
1982 Resurrection, Healing, and “the Shake”: The Story of John and Mary Slocum. In *Charisma and Sacred Biography*, edited by Michael Williams, pp. 87–109. Chambersburg, Pennsylvania: American Academy of Religious Studies.

- 1990 The Indian Shaker Church. In *Northwest Coast*, edited by Wayne Suttles, pp. 633–639. Handbook of North American Indians, Vol. 7. Washington, D.C.: Smithsonian Institution.
- Angelbeck, Bill
2009 “They Recognize No Superior Chief”: Power, Practice, Anarchism, and Warfare in the Coast Salish Past. Ph.D. dissertation, University of British Columbia, Vancouver, British Columbia, Canada.
2016 Localized Rituals and Individual Spirit Powers: Discerning Regional Autonomy Through Religious Practices in the Coast Salish Past. *Journal of Northwest Anthropology*, 50(1):27–51.
- Angelbeck, Bill and Colin Grier
2012 Anarchism and the Archaeology of Anarchic Societies: Resistance to Centralization in the Coast Salish Region of the Pacific Northwest Coast. *Current Anthropology*, 53(5):547–587.
- Angelbeck, Bill and Eric McLay
2011 The Battle at Maple Bay: The Dynamics of Coast Salish Political Organization Through Oral Histories. *Ethnohistory*, 58(3):359–392.
- Arcas Consulting
1991 Archaeological Investigations at Tsawwassen, British Columbia, Volume 4. Report to Construction Branch, South Coast Region, Ministry of Transportation and Highways, Burnaby, British Columbia, and the British Columbia Archaeology Branch, Coquitlam, British Columbia, Canada.
- Barnett, Homer G.
1955 *The Coast Salish of British Columbia*. Eugene, University of Oregon Press.
1957 *Indian Shakers: A Messianic Cult of the Pacific Northwest*. Carbondale, Southern Illinois University Press.
- Barrett, J. C.
1990 The Monumentality of Death: The Character of Early Bronze Age Mortuary Mounds in Southern Britain. *World Archaeology*, 22(2):179–189.
- 1994 *Fragments from Antiquity: An Archaeology of Social Life, 2900-1200 BC*. Hoboken, New Jersey: Blackwell.
- Beram, Luisa
1990 The Capital Regional District Parks: A Case Study in Archaeological Resource Management. M.A. thesis, Simon Fraser University, Burnaby, British Columbia, Canada.
- Bilton, David
2014 Northern, Central, Diversified, Specialized: The Archaeology of Fishing Adaptations in the Gulf of Georgia (Salish Sea), British Columbia. Ph.D. dissertation, University of Toronto, Toronto, Ontario, Canada.
- Binford, Lewis
1971 Mortuary Practices: Their Study and Their Potential. In *Approaches to the Social Dimensions of Mortuary Practices*, No. 25, edited by J. A. Brown, pp. 6–29. New York, New York: Memoirs of the Society for American Archaeology.
- Bloch, Maurice
1986 *From Blessing to Violence: History and Ideology in the Circumcision Ritual of the Merina of Madagascar*. Cambridge, England: Cambridge University Press.
- Boas, Franz
1910 The Jesup Expedition Results. *International Congress of Americanists*, 16:3–16.
- Brooks, Pamela M.
1997 John Peabody Harrington’s Klallam and Chemakum Place Names. *International Conference on Salish and Neighboring Languages*, 32:144–188.
- Brown, Douglas
2003 Shell Middens and Midden Burials in Southern Strait of Georgia Prehistory. In *Archaeology of Coastal British Columbia: Essays in Honor of Professor Philip M. Hobler*, edited by Roy Carlson, pp. 153–164. Burnaby, British Columbia, Canada: Simon Fraser University Archaeology Press.

- Buchanan, Charles M.
1914 Letter to the Superintendent of Indian Affairs from Charles M. Buchanan, Tulalip Indian Agent, Washington, D.C., November 24. Unpublished correspondence. Tulalip Indian Agency Records, Record Group 75, National Archives and Records Administration, Pacific Alaska Region, Seattle, Washington.
- Burley, David and C. Knusel
1989 Burial Patterns and Archaeological Interpretation: Problems in the Recognition of Ranked Society in the Coast Salish Region. Paper presented at the Circum-Pacific Prehistory Conference, Seattle, Washington.
- Butler, Virginia L. and Sarah K. Campbell
2004 Resource Intensification and Resource Depression in the Pacific Northwest of North America: A Zooarchaeological Review. *Journal of World Prehistory*, 18(4):327–404.
- Cannon, A.
1989 Historical Dimensions in Mortuary Expressions of Status and Sentiment. *Current Anthropology*, 30(4):437–458.
- Carlson, Roy L.
2011 The Religious System of the Northwest Coast of North America. In *The Oxford Handbook of the Archaeology of Ritual and Religion*, edited by Timothy Insoll, pp. 639–655. Oxford, England: Oxford University Press.
- Carlson, Roy L. and Philip M. Hobler
1993 The Pender Canal Excavations and the Development of Coast Salish Culture. *BC Studies*, 99:25–52.
- Cassidy, S.
1976 The Geography of Archaeological Sites in Southwestern Georgia Strait, British Columbia. Paper presented at the 29th Annual Northwest Anthropological Conference, Burnaby, British Columbia, Canada.
- Castile, George Pierre
1985 *The Indians of Puget Sound: The Notebooks of Myron Eells*. Seattle, University of Washington Press.
- Chalcraft, Edwin
2004 *Assimilation's Agent: My Life as a Superintendent in the Indian Boarding School System*. Lincoln, University of Nebraska Press.
- Clark, Terence N.
2013 *Rewriting Marpole: The Path to Cultural Complexity in the Gulf of Georgia Region*. Ottawa, Ontario, Canada: University of Ottawa Press.
- Coan, C.F.
1922 The Adoption of the Reservation Policy in Pacific Northwest, 1853–1855. *The Quarterly of the Oregon Historical Society*, 23(1):1–38.
- Curtin, A. Joanne
2002 *Prehistoric Mortuary Variability on Gabriola Island, British Columbia*. Burnaby, British Columbia, Canada: Simon Fraser University Archaeology Press.
- Curtis, Edward
1907 *The North American Indian, 15th Volume, 1900–1902*. Seattle, Washington: Edward Curtis.
- Cybulski, Jerome S.
1992 A Greenville Burial Ground: Human Remains and Mortuary Elements in British Columbia Coast Prehistory. In *Anthropological Survey of Canada Mercury Series Paper No. 146*. Hull, Quebec, Canada: Canadian Museum of Civilization.
1994 Culture Change, Demographic History, and Health and Disease on the Northwest Coast. In *In the Wake of Contact: Biological Responses to Conquest*, edited by George R. Milner, pp. 75–85. Hoboken, Wiley-Liss.
- Dark, K. R.
1995 *Theoretical Archaeology*. Bristol, England: Bristol Classical Press.
- Daugherty, Richard D. and Ruth Kirk
2007 *Archaeology in Washington*. Seattle, University of Washington Press.

- Deur, Douglas
2009 Ebey's Landing National Historical Preserve: Ethnohistory of Traditionally Associated Contemporary Populations. *United States Department of the Interior, National Park Service Pacific West Region Series in Social Science*. Washington, D.C.
- Dillehay, Tom
2007 *Monuments, Empires, and Resistance: The Araucanian Polity and Ritual Narratives*. Cambridge, England, Cambridge University Press.
- Donald, Leland
1985 On the Possibility of Social Class in Societies Based on Extractive Subsistence. In *Status, Structure, and Stratification: Current Archaeological Reconstructions*, edited by M. Thompson, M. T. Garcia, and F. J. Kense, pp. 237–244. Calgary, Alberta, Canada: University of Calgary Archaeological Association.
1997 *Aboriginal Slavery on the Northwest Coast of North America*. Los Angeles, University of California Press.
- Duthuit, Georges
1946 The Gift Amongst Indians of the Northwest Coast of America. *Labyrinthe*, 18.
- Duwamish Tribe
2018 Cheshiahud, Duwamish Tribe, Who We Are. <https://www.duwamishtribe.org/cheshiahud>
- Eells, Myron
1886 *Ten Years of Missionary Work Among the Indians at Skokomish, Washington Territory, 1874–1884*. Boston, Massachusetts: Congregational Sunday-School and Publishing Society.
1899 Tacoma On the Skokomish Reservation. *The Indian's Friend*, 21(6):9.
- Elmendorf, William
1960 *The Structure of Twana Culture*. Pullman, Washington State University Press.
- Fehr, Amanda
2016 A Subversive Sincerity: The I:yem Memorial, Catholicism, and Political Opportunity in S'olh Temexw. In *Mixed Blessings: Indigenous Encounters with Christianity in Canada*, edited by Tolly Bradford and Chelsea Horton, pp. 61–82. Vancouver, British Columbia, Canada: University of British Columbia Press.
- Feinman, Gary
2000 Corporate/Network: New Perspectives on Models of Political Action and the Puebloan Southwest. In *Social Theory in Archaeology*, edited by Michael B. Schiffer, pp. 31–51. Salt Lake City, Utah: University of Utah Press.
- Gibbs, George
1855 Report on the Indian Tribes of the Territory of Washington. *Pacific Railroad Report*, 1:402–436. Washington.
1877 Tribes of Western Washington and Northwestern Oregon. In *Contributions to North American Ethnology*, Volume 1, edited by John Wesley Powell. Washington, D.C.: Department of the Interior U.S. Geographical and Geological Survey of the Rocky Mountain Region.
- Grier, Colin
2003 Dimensions of Regional Interaction in the Prehistoric Gulf of Georgia. In *Emerging From the Mists: Studies in Northwest Coast Culture History*, edited by R. G. Matson, Gary Coupland, and Quentin Mackie, pp. 170–187. Vancouver, British Columbia, Canada: University of British Columbia Press.
- Grier, Colin and Bill Angelbeck
2017 Tradeoffs in Coast Salish Social Action: Balancing Autonomy, Inequality, and Sustainability. In *The Give and Take of Sustainability: Archaeological and Anthropological Perspectives on Tradeoffs*, edited by Michelle Hegmon, pp. 198–221. Cambridge, England: Cambridge University Press.
- Gunther, Erna
1949 The Shaker Religion of the Northwest. In *Indians of the Urban Northwest*, edited by Marian Smith, pp. 37–76. New York, New York: Columbia University Press.

- Haeberlin, Herman K.
1918 Sbetetdaq, a Shamanistic Performance of the Coast Salish. *American Anthropologist*, 20(3): 249–257.
- Haggarty, James C.
1982 The Archaeology of Hesquiat Harbor: The Archaeological Utility of an Ethnographically Defined Social Unit. Ph.D. dissertation, Washington State University, Pullman, Washington.
- Haggarty, James C. and Richard I. Inglis
1983 Interim Progress Report: Historical Resources Site Survey and Assessment Pacific Rim National Park. Report to Archaeology Division of British Columbia Provincial Museum, Victoria, British Columbia, Canada.
- Ham, Leonard C.
1982 Seasonality, Shell Middens Layers, and Coast Salish Subsistence Activities at the Crescent Beach Site, DgRr 1. Ph.D. dissertation, University of British Columbia, Vancouver, British Columbia, Canada.
1998 Gulf of Georgia Culture Type. In *Archaeology of Prehistoric Native America: An Encyclopedia*, edited by Kenneth M. Ames and Guy E. Gibbon, pp. 339–340. New York, New York: Taylor and Francis.
- Harmon, Alexandra
1998 *Indians in the Making: Ethnic Relations and Indian Identities Around Puget Sound*. Berkeley, University of California Press.
- Harmon, Ray
1971 The Dalles' Indian Shaker Church. *Oregon Historical Quarterly*, 72:148–158.
- Harris, C.
1997 *The Resettlement of British Columbia*. Vancouver, British Columbia, Canada: University of British Columbia Press.
- Hill-Tout, Charles
1930 Prehistoric Burial Mounds of British Columbia. *Museum and Art Notes*, 5:120–126.
1978 *The Salish People*, Volumes 1–4, edited by Ralph Maud. Vancouver, British Columbia Canada: Talonbooks.
- Ingold, Timothy
2011 *Being Alive: Essays on Movement, Knowledge, and Description*. New York, New York: Taylor and Francis.
- Jamestown S'Klallam Tribe
n.d. Coast Salish Canoes, Jamestown S'Klallam Tribe, History. https://www.jamestowntribe.org/history/hist_canoes.htm
- Johansen, Bruce E.
2015 *American Indian Culture: From Counting Coup to Wampum*. Santa Barbara, California: ABC-CLIO.
- Keddie, Grant
1981 The Use and Distribution of Labrets on the North Pacific Rim. *Syesis*, 14:59–80.
1984 Fortified Defensive Sites and Burial Cairns of the Songhees Indians. *The Midden*, 16(4):7–9.
- Kew, Michael
1970 Coast Salish Ceremonial Life: Status and Identity in a Modern Village. Ph.D. dissertation, University of Washington, Seattle, Washington.
1990 Central and Southern Coast Salish Ceremonies Since 1900. In *Northwest Coast*, edited by Wayne Suttles, pp. 476–480. Handbook of North American Indians, Vol. 7. Washington, D.C.: Smithsonian Institution.
- Lepofsky, Dana, Michael Blake, Douglas Brown, Sandra Morrison, Nicole Oakes, and Natasha Lyons
2000 The Archaeology of the Scowlitz Site, Southwest British Columbia. *Journal of Field Archaeology*, 27(4):391–416.
- Littlefield, Loraine
2000 The Snunéymuxw Village at False Narrows. *SHALE*, 1:3–11.
- MacLeod, William Christie
1933 Mortuary and Sacrificial Anthropophagy on the Northwest Coast of North America and Its Culture-Historical Sources. *Journal de la Société des Américanistes*, 25(2):335–366.
- Mathews, Darcy
2006 Burial Cairn Taxonomy and the Mortuary Landscape of Rocky Point, British Columbia. M.A. thesis, University of Victoria, Victoria, British Columbia, Canada.

- 2014 Funerary Ritual, Ancestral Presence, and the Rocky Point Ways of Death. Ph.D. dissertation, University of Victoria, Victoria, British Columbia, Canada.
- Matson, R. G.
1983 Intensification and the Development of Cultural Complexity: The Northwest Versus the Northwest Coast. In *The Evolution of Maritime Cultures on the Northeast and Northwest Coasts of North America*, edited by R. J. Nash, pp. 111–122. Department of Archaeology Occasional Papers 11. Burnaby, British Columbia, Canada: Simon Fraser University.
- Matson, R. G. and Gary Coupland
1995 *The Prehistory of the Northwest Coast*. New York, New York: Academic Press.
- McCue, Duncan
2019 Discovery of Ancient Burial Mounds Traps Landowners in Bureaucratic “Bottomless Pit of Hell.” *Canadian Broadcasting Corporation*, 30 March: Ottawa, Ontario, Canada.
- McHalsie, Naxaxalhts’I Albert
2011 We Have to Take Care of Everything That Belongs to Us. In *Be of Good Mind: Essays on the Coast Salish*, edited by Bruce Granville Miller, pp. 82–130. Vancouver, British Columbia, Canada: University of British Columbia Press.
- McIlwraith, R. F.
1948. *The Bella Coola Indians*. Toronto, Ontario, Canada: University of Toronto Press.
- McKay, Kathryn
1999 Recycling the Soul: Continuity of Life in Coast Salish Burial Practices. M.A. thesis, University of Victoria, Victoria, British Columbia, Canada.
2009 Disturbing the Dead: Diversity and Commonality Amongst the Sto:lo. *The University of the Fraser Valley Research Review*, 2(2):119–136.
2018 Caring for the Dead: Diversity and Commonality Amongst the Sto:lo. In *Towards a New Ethnohistory: Community Engaged Scholarship Among the People of the River*, edited by Keith Thor Carlson, John Sutton Lutz, Naxaxalhts’I Albert McHalsie, and David M. Schaepe. Winnipeg, Manitoba, Canada: University of Manitoba Press.
- McMillan, Alan D. and Rick J. Schulting
1995 A Probable Case of Tuberculosis From a Burial Cave in Barkley Sound, Vancouver Island. *Canadian Journal of Archaeology*, 19:149–153.
- Miller, Bruce Granville
2001 *The Problem of Justice: Tradition and Law in the Coast Salish World*. Lincoln, University of Nebraska Press.
2013 Anthropology of Art: Shifting Paradigms and Practices. In *Native Art of the Northwest Coast: A History of Changing Ideas*, edited by Jennifer Kramer, Charlotte Townsend-Gault, and Ki-Ke-In, pp. 203–233. Vancouver, British Columbia, Canada: The University of British Columbia Press.
- Mitchell, Lesley Susan
1996 The Archaeology of the Dead at Boundary Bay, British Columbia: A History and Critical Analysis. M.A. thesis, Simon Fraser University, Burnaby, British Columbia, Canada.
- Morning Olympian, The
1911 Mud Bay Sam, Head of Shaker Church, Dies of Apoplexy—Big Funeral. *The Morning Olympian*, 8 August: Olympia, Washington.
- Morris, Ian
1987 *Burial and Ancient Society: The Rise of the Greek City-State*. Cambridge, England: Cambridge University Press.
1992 *Death-Ritual and Social Structure in Classical Antiquity*. Cambridge, England: Cambridge University Press.
- Moss, Madonna
1993 Gender, Social Inequality, and Cultural Complexity: Northwest Coast Women in Prehistory. Paper presented at the 26th Annual Chacmool Conference, University of Calgary, 11–14 November, Calgary, Alberta, Canada.

- Moss, Madonna and J. M. Erlandson
1995 Reflections on North American Pacific Coast Prehistory. *Journal of World Prehistory*, 9(1):1–45.
- Newcombe, C.F.
1923 *Menzies' Journal of Vancouver's Voyages, April to October 1792*, Memoir No. 5., Archives of British Columbia: Victoria, British Columbia, Canada.
- Neylan, Susan
2011 Shaking Up Christianity: The Indian Shaker Church in the Canada-U.S. Pacific Northwest. *The Journal of Religion*, 91(2):188–222.
- O'Brien, Suzanne Crawford
2013 *Coming Full Circle: Spirituality and Wellness Among Native Communities in the Pacific Northwest*. Lincoln, University of Nebraska Press.
- Olympia Daily Recorder, The
1907 Great Potlatch by Mud Bay Sam Brings Sound Indians. *The Olympia Daily Recorder*, 22 November: Olympia, Washington.
- Pearson, R., Lee, W. Koh, and A. Underhill
1989 Social Ranking in the Kingdom on Old Silla, Korea: Analysis of Burials. *Journal of Anthropological Archaeology*, 8(1):1–50.
- Pickford, A. E.
1947 Prehistoric Cairns and Mounds in British Columbia: With a Report On the Duncan Burial Mound. *The British Columbia Historical Quarterly*, 11(4):237–264.
- Pratt, Mary
1992 *Imperial Eyes: Travel Writing and Transculturation*. London, England: Routledge.
- Raibmon, Paige
2005 *Authentic Indians: Episodes of Encounter from the Late-Nineteenth-Century Northwest Coast*. Durham, North Carolina: Duke University Press.
- Roberts, Natalie Andrea
1975 A History of the Swinomish Tribal Community. Ph.D. dissertation, University of Washington, Seattle, Washington.
- Rohner, Ronald P.
1966 Franz Boas: Ethnographer on the Northwest Coast. In *Pioneers of American Anthropology: The Uses of Biography*, edited by June Helm, pp. 149–212. Seattle, Washington: University of Washington Press.
- Roy, Susan
2007 “Who Were These Mysterious People?": The Marpole Midden, Coast Salish Identity and Dispossession of Aboriginal Lands in British Columbia. Ph.D. dissertation, University of British Columbia, Vancouver, British Columbia, Canada.
2010 *These Mysterious People: Shaping History and Archaeology in a Northwest Coast Community*. Montreal, Quebec, Canada: McGill-Queen's University Press.
- Ruby, Robert H. and John A. Brown
1996 *John Slocum and the Indian Shaker Church*. Norman, Oklahoma: University of Oklahoma Press.
- Saxe, Arthur A.
1971 Social Dimensions of Mortuary Practices in a Mesolithic Population from Wadi Halfa, Sudan. *Memoirs of the Society for American Archaeology, Approaches to the Social Dimensions of Mortuary Practices*, 25:39–57.
- Schaepe, David M.
2009 Pre-Colonial Sto:lo-Coast Salish Community Organization: An Archaeological Study. Ph.D. dissertation, University of British Columbia, Vancouver, British Columbia, Canada.
- Smith, Harlan
1899 Archaeological Investigations On the North Pacific Coast of America. *Science*, 9(223):535–539.
- Smith, Marian W.
1940 *The Puyallup-Nisqually*. New York, New York: Columbia University Press.

- Sullivan, Nellie (Sister Mary Louise)
1932 Eugene Gasimir Chirouse O. M. I. and the Indians of Washington. M.A. thesis, University of Washington, Seattle, Washington.
- Supernant, Kisha
2009 Quantifying the Defensiveness of Defended Sites on the Northwest Coast of North America. *Journal of Anthropological Archaeology*, 28(2):191–204.
2011 Inscribing Identities on the Landscape: A Spatial Exploration of Archaeological Rock Features in the Lower Fraser River Canyon. Ph.D. dissertation, University of British Columbia, Vancouver, British Columbia, Canada.
- Suttles, Wayne
1958 Private Knowledge, Morality, and Social Classes Among the Coast Salish. *American Anthropologist*, 60:296–305.
1973 Comments on Slavery, Surplus, and Stratification on the Northwest Coast: The Ethnoenergetics of an Incipient Stratification System by Eugene E. Ruyle. *Current Anthropology*, 14(5):622–623.
1987 *Coast Salish Essays*. Vancouver, British Columbia, Canada: Talonbooks.
1990 Central Coast Salish. In *Northwest Coast*, edited by Wayne Suttles, pp. 453–476. Handbook of North American Indians, Vol. 7. Washington, D.C.: Smithsonian Institution.
- Suttles, Wayne and Barbara Lane
1990 Southern Coast Salish. In *Northwest Coast*, edited by Wayne Suttles, pp. 485–502. Handbook of North American Indians, Vol. 7. Washington, D.C.: Smithsonian Institution.
- Swan, James
1857 *The Northwest Coast: Or, Three Years' Residence in Washington Territory*. New York, New York: Harper and Brothers.
- Switzer, Jeff
2005 Duwamish Tribe Seeks Protection for Foster Island. *King County Journal*, 20 February: Kent, Washington.
- Tainter, Joseph
1978 Mortuary Practices and the Study of Prehistoric Social Systems. In *Advances in Archaeological Method and Theory*, Vol. 1, edited by M.B. Schiffer, pp. 105–141. New York, New York: Academic Press.
- Thom, Brian
1995 The Dead and the Living: Burial Mounds and Cairns and the Development of Social Classes in the Gulf of Georgia Region. M.A. thesis, University of British Columbia, Vancouver, British Columbia, Canada.
1998 The Marpole-Late Transition in the Gulf of Georgia Region. *The Midden*, 30(2):3–7.
2009 The Paradox of Boundaries in Coast Salish Territories. *Cultural Geographies*, 16(2):179–205.
- Tilley, Christopher
1994 *A Phenomenology of Landscape: Places, Paths, and Monuments*. Providence, Rhode Island: Berg.
1996 The Powers of Rocks: Topography and Monument Construction on Bodmin Moor. *World Archaeology*, 28(2):161–176.
- Torrance, Robert M.
1994 *The Spiritual Quest: Transcendence in Myth, Religion, and Science*. Berkeley, University of California Press.
- University of Washington Botanic Gardens
2009 The Ditch and the Cut: History of Washington Park, Elizabeth C. Miller Library, Looking Back: A History of the Washington Park Arboretum. https://depts.washington.edu/hortlib/wpa_history/Panel8-The_ditch_and_the_cut.shtml
- Vancouver, George
1792 *A Voyage of Discovery to the North Pacific Ocean and Round the World, Volume II*. London, England: Kaye Lamb.
1801 *A Voyage of Discovery to the North Pacific Ocean, and Round the World, Volume II*. London, England: John Stockdale.

- | | |
|---|--|
| Wagner, Henry R.
1971 <i>Spanish Explorations in the Strait of Juan de Fuca</i> . New York, New York: AMS Press. | Webber, Ellen
1899 An Old Kwanthum Village—Its People and Its Fall. <i>American Antiquarian</i> , 21:309–314. |
| Watson, Paul
1994 <i>The Archaeology of Rank</i> . Cambridge, England: Cambridge University Press. | Wike, Joyce
1941 Modern Spirit Dancing of Northern Puget Sound. M.A. thesis, University of Washington, Seattle, Washington. |

ABOUT THE AUTHOR

Alexandra M. Peck is a Ph.D. candidate in the Department of Anthropology at Brown University. Originally from the Pacific Northwest and Rocky Mountains, Peck collaborates with Coast Salish tribal nations in Washington and specializes in Northwest Coast art, cultural heritage, and colonial interactions. Her dissertation examines the recent adoption of totem poles and formline design into Coast Salish artistic repertoire.

Confirmation Bias: Commentary on the 2020 *JONA* Article, “Salish Sea Islands Archaeology and Precontact History”

Adam N. Rorabaugh,^a Kate Shantry,^b and James W. Brown^b

^aWashington State Department
of Fish and Wildlife

^bDepartment of Anthropology,
Washington State University

Correspondence

adam.rorabaugh@dfw.wa.gov

james.brown@wsu.edu

kate.shantry@wsu.edu

Abstract *Hutchings and Williams’ proposed sequence for Salish Sea Islands is an ambitious effort. While we agree that a synthesis of the archaeology of the southern Salish Sea is long overdue, their summary fails to reflect the current state of research in the Salish Sea and is a decontextualized application of indigenous ontology. We provide a breakdown of data and interpretive issues with their summary. Our critiques broadly fall within categories of: theoretical issues with chronology construction, the need for methodological rigor when discussing radiocarbon age estimates, underciting current research which may, in part, be attributable to the accessibility of cultural resource management “gray” literature and the US-Canadian border, and the need to critically think about the application of ethnographic data. While there is a clear need for a proper regional synthesis, it should be the result of a longitudinal research program in southern Puget Sound in concert with tribes.*

Keywords

Coast Salish, Holocene, culture history, island archaeology, Indigenous history, landscape management

Introduction

Hutchings and Williams’ 2020 article in the *Journal of Northwest Anthropology* endeavors to provide a new sequence for Salish Sea Islands, with an emphasis on the southern Salish Sea. While we agree that such a synthesis of research is valuable, it is a considerable undertaking, and we suggest that sequence construction may not be the most appropriate framework for such a synthesis. Such an effort requires a literature review that reflects the current state of knowledge in the region and provides a synthesis that is theoretically informed. We argue that their effort does not adequately make the argument for a culture history specific to Salish Sea islands differentiated from the broader Salish Sea. Additionally, the literature cited does not present the current state of collective research on the archaeology of the Salish Sea. As such, we feel the need for a commentary that highlights

research overlooked by Hutchings and Williams, while also providing a theoretically informed critique of their sequence building and decontextualized application of indigenous ontology.

The main argument of the authors for the need of their research is that archaeological analysis is rarely conducted at the scale of the entire Salish Sea. Existing sequences for the region were characterized by the authors as regional sequences. This statement by the authors requires elaboration, as there are several sequences developed for specific regions of what would later be defined as the Salish Sea, including the San Juan Islands (King 1950; Carlson 1960), Fraser Canyon (Borden 1968, 1975), the Fraser Delta (Borden 1970), and Gulf Islands (Carlson 1970). However, researchers have provided broader sequences covering the Gulf of Georgia (Mitchell 1971; Ames and Maschner 1999; Clark 2010, 2013; see Morin for a review of Clark 2013) and Southern Northwest Coast (Stein 2000).

The Gulf of Georgia, as defined in this literature does include northern Puget Sound (Bryan 1963:89–90; Mitchell 1971:37; Gaston 1975), and on occasion riverine sites that drain into Puget Sound (Robinson and Thompson 1981), but not all of western Washington, as treated by Kidd (1964).

The history of cultural sequences in the Salish Sea, sans southern Puget Sound, has been well summarized (Mitchell 1971; Stein 2000; Ames 2009; Clark 2010, 2013). Following Burley (1988) for illustration, we provide summary figures of the sequences developed for Salish Sea Islands (Figure 1), Puget Sound (Figure 2), and the Gulf of Georgia (Figure 3) in general. Additionally, there are site-specific sequences for Puget Sound and regional variation, with Puget Sound assemblages not necessarily having all of the ‘traits’ of contemporaneous sites in the Gulf Islands and Fraser Delta (e.g., Campbell 1981; Chatters 1989; Larson and Lewarch 1995; Schalk and Nelson 2010; Chatters et al. 2011; Croes 2014).

Some researchers have used the Gulf of Georgia sequence more broadly to encompass the entire Salish Sea, while recognizing the need for further integration of the archaeology of southern Puget Sound. Keddie (1992) provided a cogent critique of the cultural sequences developed in the 1960s and 1970s, along with their refinements in the early 1990s, and argued for a focus on specific site histories, which has been the direction taken by numerous scholars, particularly those working in the Gulf Islands, San Juan Islands, and southern Puget Sound.

The authors argue that they provide a synthesis of Gulf Islands, San Juan Islands, and those in southern Puget Sound. Such a study would involve an in-depth examination of the literature for Bainbridge, Hartsene, McNeil, Vashon, Anderson, and Maury Islands and compare it to the considerable body of published literature for the Gulf Islands and San Juan Islands. When first encountering this article, a focused discussion of the archaeologies of these southern Puget Sound islands and contrasts to

patterns in the Gulf Islands and San Juan Islands is what we expected, with perhaps a sequence summarizing the major trends in the island archaeology of the entire region.

The notion of fitting archaeological material culture into classifications have tended to both over-specify and homogenize time periods based on qualifying technological traditions. This has led to a nomenclature issue and a “multiple-choice” approach to characterization where sites are sometimes lumped into previously characterized cultural types, an outdated approach, but one that unfortunately lends itself to the demands of the cultural resources management (CRM) industry. This can be avoided as the CRM industry produces increasing documentation of archaeological data in the Salish Sea region, and many communal and fluid relationships exist between practitioners of historic preservation and active scholars who have mutual interests (e.g., Kopperl 2016).

Sequence building is an inherently theoretical process and tied to what patterns are of interest to a researcher or circle of researchers. The thrust of our critiques are twofold: 1) areas where we believe that work by Coast Salish researchers has been undercited or misrepresented; and 2) more centrally a critique of the organization of the sequence these authors provide and whether or not it provides a useful heuristic (e.g. Adams and Adams 1991) for questions by the archaeological and First Nations communities. To adapt Box and Draper’s (1987:424) argument about the utility of models in archaeology, essentially all sequences are wrong, but some sequences are useful. Part of the challenge in constructing a synthesis for the Salish Sea, let alone its islands, is the growing data over the past five years and need for nuanced interpretations of what these archaeological data are, with meaningful contextualized interpretations informed by the ethnographic record and First Nations (e.g., Grier 2007; Grier and Shaver 2008). There are numerous critiques of the very act of construction of culture-historic sequences (Lyman et al. 1997; papers in Oland et al. 2012; Pestle et al.

COMMENTARY ON THE 2020 JONA ARTICLE, "SALISH SEA ISLANDS"

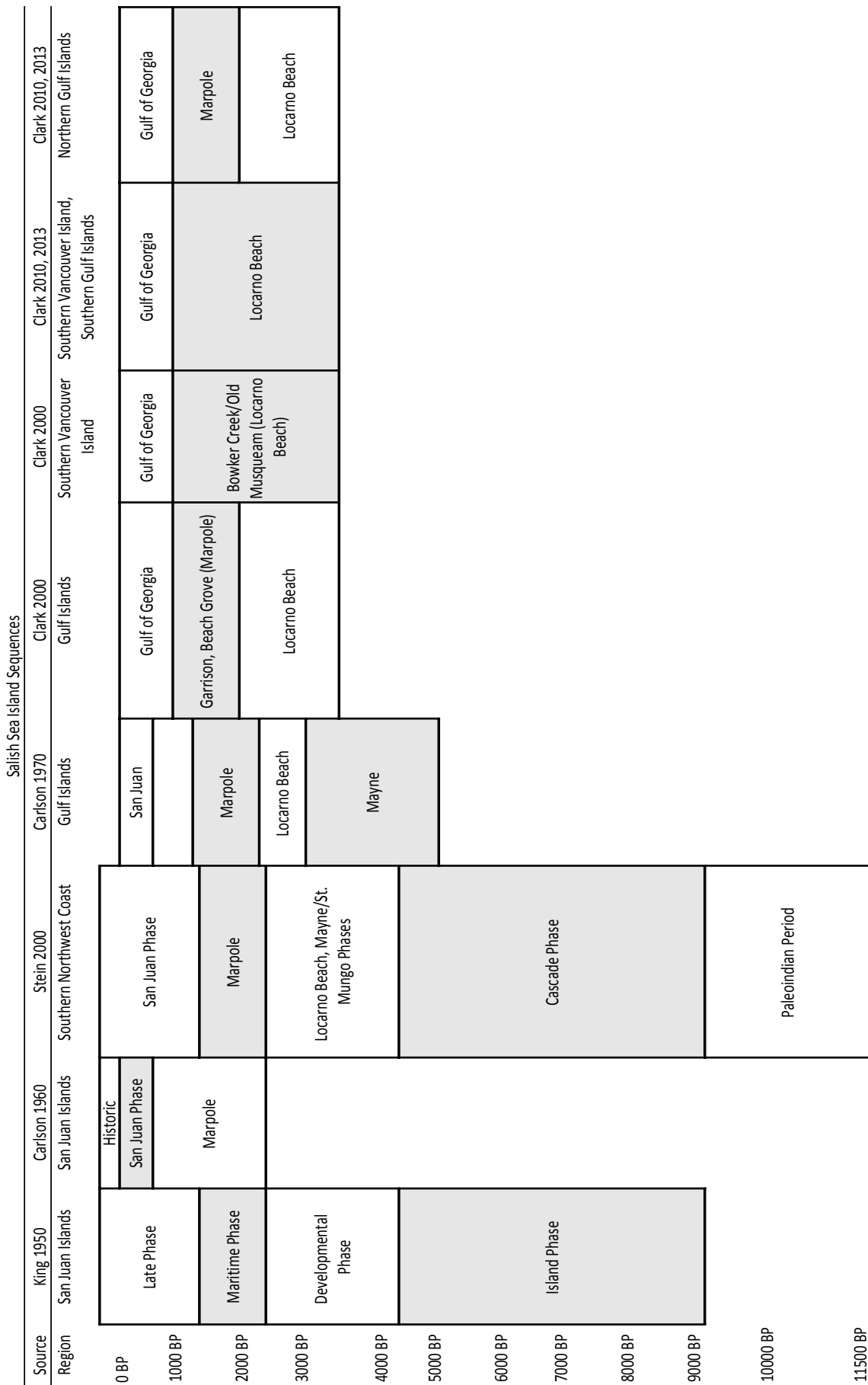


Figure 1. Salish Sea island sequences.

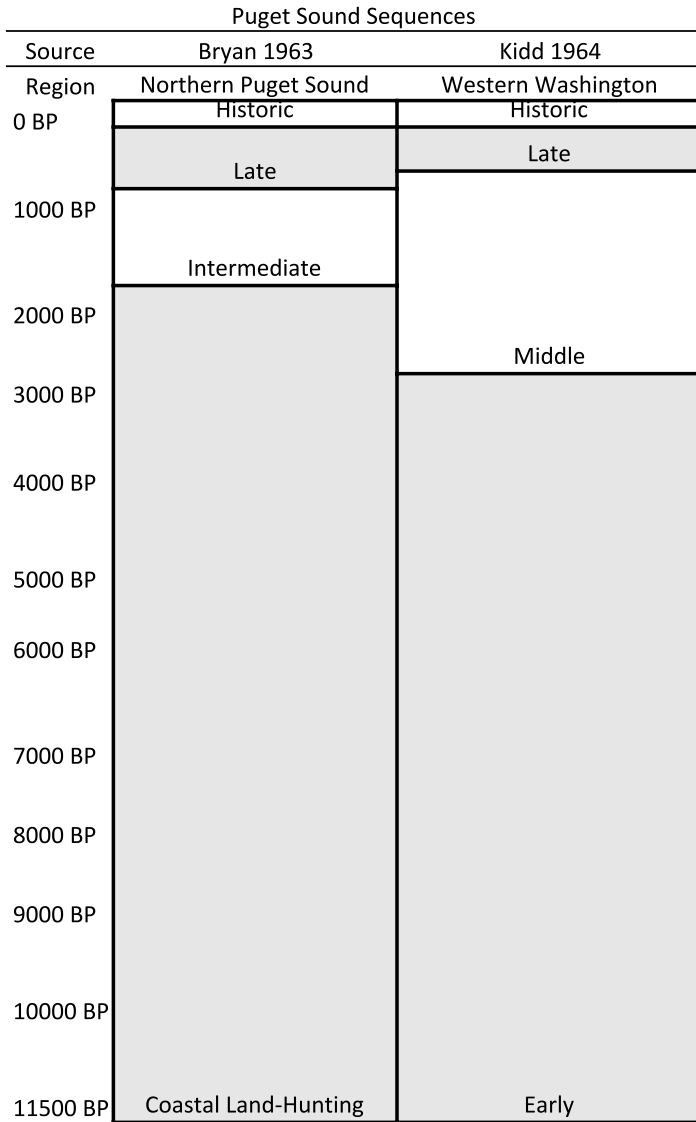


Figure 2. Puget Sound regional sequences.

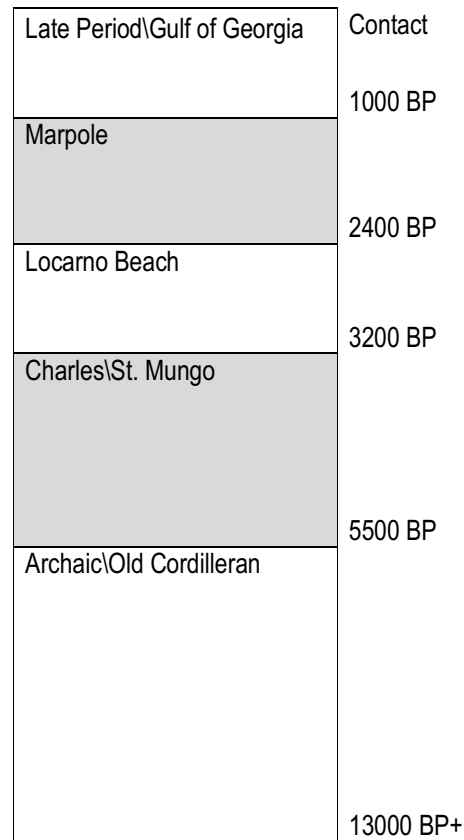


Figure 3. Gulf of Georgia sequence (Mitchell 1971) adapted as Salish Sea chronology (Rorabaugh 2017:8).

2013; Henry et al. 2017). In the Fraser Valley Richtie et al. (2016) demonstrated the utility in eschewing culture-historic categories when examining Coast Salish demographic variation through time. In the end, the validity of any culture-historic sequence is tied to its ability to answer questions.

Hutchings and Williams never explain why they suspect “mountains, foothills, rivers, deltas and inlets” in the Salish Sea tell “different stories.” They fail to provide predictions for how the material record may vary in those environments. We prefer approaches that embrace inter-de-

pendent systems at work on the landscape over time (e.g., Grier 2017). Isolating the islands and ignoring the mainland coast of the Salish Sea is an implausible way to characterize the history of the landscape and people. The authors are “late to the party” when discussing trends in the archaeological record of the Salish Sea. The “gaps” the authors cite in “the region’s maritime archaeological record” are actually examples of studies that were able to compile the rich datasets available in Washington and British Columbia into more comprehensive regional studies (Table 1).

Table 1. Comprehensive Regional Studies Including Salish Sea Data.

CITATION	GAP IDENTIFIED?
Davis 2011	The rare discovery of fluted points could also represent the curation of these items that were obtained elsewhere and transported to the coast during the Late Pleistocene or afterward or that only the technological ideas, not the Paleoindian peoples themselves, spread along the Pacific coast. Thus, the presence of Clovis Paleoindian-style artifacts along the North American Pacific coast is difficult to fully interpret and explain, and contrasts sharply with our current understanding of Late Pleistocene–Early Holocene coastal prehistory. ALTERNATIVE THEORY
Elder et al. 2014	Using the recently augmented coastal fish weir record in Washington State as a case study, we explore these factors by compiling an expanded database of 22 sites and 36 radiocarbon dates and systematically consider how coastal geomorphological processes operating along the Northwest Coast affect the age and distribution of fish weirs. PRESERVATION ISSUE
Moss and Erlandson 1998	Moss and Erlandson (1998) pointed out that the temporal–spatial patterns were skewed not only by different intensities of sampling, but also by different coastal geomorphic processes. VARIABLE SAMPLING and GEOMORPHOLOGY COMMON IN DYNAMIC ENVIRONMENTS
Wyatt 2015	Study of local paleo–sea level curves for Southern Georgia Strait and the Southern Gulf Islands constructed from a literature search, GIS analysis, and archaeological data from clam gardens TREND OF INCREASING CLIMATE STUDIES

Additionally, the authors’ decontextualized use of traditional knowledge is problematic. Without any citations, Hutchings and Williams (2020:27) contend that “Great Flood stories are universal among the Coast Salish.” Generalizations of the ethnographic record in non-native voices should be cautioned against, particularly when interpreting material culture. The larger universe of aquatic environments that maritime cultures inhabit includes island *and mainland* coastlines, which compose a significant amount of the land in the Salish Sea basin, and is where a majority of archaeological research has been conducted on both sides of the U.S.-Canadian border.

In terms of the regional scope of their article, the dashed lines labelled “SS Boundary” on Figure 1 are curious as they attach to the mainland of western Vancouver Island, northwestern Olympic Peninsula, and the inland shores of British Columbia and western Washington including Hood Canal, but the

coastal archaeological records of these areas are absent from the synthesis. If the authors are arguing for a distinct sequence that only applies to activities at island sites, this ignores the entire concept of a “Coast Salish culture” as Suttles (1951, 1987) has suggested. Not that a theory that hypothesizes a particular set of cultural traits and lifeways specific to “island life” is inappropriate, however, to ignore data from important places like Ozette, *Ćix̱wic̱an*, Old Man House, Birch Bay, Cherry Point, Tualdad Altu, West Point, for example, is incongruent with current research.

Rainbird’s theoretical framework considers islands not as “distinct physical and social entities,” but also as places where “islanders themselves actively promote distinctions and boundaries between ethnic groups” (2007:173). This aspect of identity, however, is not unique from mainland coastal cultural patterns in an area of the world where political autonomy is a trademark (Ames 1995, 1996, 2001, 2008, 2010,

Angelbeck 2009, 2016; Angelbeck and Grier 2012). The authors seem interested in the uniqueness of the islands, when in fact, the uniqueness may lie in the way “island subcultures” interact with “mainland subcultures.” The quote from Rainbird (2007:173) the authors use on page 29 applies to “people of maritime circumstances” not solely islanders, the selective population that Hutchings and Williams (2020) are considering.

While the main thrust of our discussion pertains to the sequence the authors developed, there is confusion in their discussion. The authors present one chronology, or grouping of time periods, in Figures 2 and 3; although in the text (2020:24), they refer to the two figures as “two Salish Sea chronologies.” This is confusing for several reasons. The first is that the time periods are quite similar to the “PaleoIndian,” “Early,” “Middle,” “Late,” and “Historic” Periods commonly cited in western Washington’s vast CRM gray literature. Furthermore, their scheme does not acknowledge Chatters et al.’s (2011) discussion of Olcott or site specific sequences, such as the Marymoor Phase (Greengo 1968), and the arguable absence of Locarno Beach and Marpole traditions in archaeological sites at places like Duwamish No. 1 and West Point in Seattle (Campbell 1981; Larson and Lewarch 1995), Cama Beach on Camano Island (Schalk and Nelson 2010), and *Qwu?gwes* at Mud Bay in southern Puget Sound (Croes 2014). Synthesizing these site-specific chronologies is key for understanding the southern Salish Sea and the cultural variation of the region.

If we give into the temptation to fit everything we understand culturally about the archaeology of the Salish Sea into temporal categories, we lose the option to develop what Grier (2017:18) recognizes as “the need to move beyond traditional anthropological models and typologies, instead drawing critically on ethnography, revamping the role of analogy, and utilising some novel theoretical perspectives.”

Indigenous History of the Salish Sea

In the opening to their article, Hutchings and Williams (2020) acknowledge the “different stories” that landscape features tell, but they fail to look at the epistemology, or the theory of knowledge, of the landscape. The culture-history approach the authors take in defining “periods” is antiquated, whereas more collaborative approaches rooted in historical ecology and landscape theory have been productive in engaging multiple perspectives when deriving the “Pre-contact History” of the Salish Sea. The authors’ Coast Salish timeframe only refers to Reimer (2012), who provides a cultural sequence situated in Squamish experience. Attempting to apply that sequence broadly to the entire Salish Sea, which includes dozens of inter-related Tribes and First Nations, without the historic context of other groups we suggest overlooks the historic variation of the region.

Furthermore, one might argue that chronology is primarily a culture-history or processual endeavour, while ontology lies more in the realm of post-processual theoretical frameworks like phenomenology, for instance (e.g., Hodder 1985, 1995; Ingold 1993; Tilley 1994; Barrett 2009; Johnson 2012). It seems unlikely that Coast Salish ontologies would correlate so directly with archaeological timeframes and the geologic landscape. The goal identified is to synthesize the archaeological record and indigenous perspectives of Salish Sea history. The authors cite McLaren (2003) in asserting that the overall narrative is consistent with the archaeological record, however, McLaren was writing about the “Fraser River region of southwestern British Columbia.” McLaren (2003:198) states that the premise of placing oral narratives into the “types of charts used in archaeology” because “this type of sequence has been undertaken before,” citing Linklater (1994). The work of Linklater (1994), a Cree native, was a Master’s thesis that developed a framework for the “Cree historical landscape,” a particular historic context developed to protect cultural resources threatened

be a hydro-electric project. Missing from this section is Grier's (2007:285) caution that an "uncritical view of the relationship between the archaeological and ethnographic records limits the contribution of archaeology to the understanding of Northwest Coast cultures. This is true for the coast as a whole, but it is particularly true for the Coast Salish peoples." Hutchings and Williams (2020) interchangeably use the terms "Coast Salish history" and "Coast Salish histories" without using any more specific modern or past tribal identities nor a discussion of the Salishan language.

The authors also used the terms "history" and "chronology" interchangeably without explanation at the bottom of page 26. Searching for a convenient and suitable narrative for the Salish Sea geographic area, the authors seem to be appropriating the work of Reimer (2012:15), whose framework seeks to account for "variable forms and scales of social exchanges in Coast Salish cultures." To apply the perspective of the Squamish for all indigenous peoples who lived in the Salish Sea has the effect of homogenizing native ontologies for the purposes of archaeological explanation (see Grier 2007).

Archaeology of Salish Sea Islands

There is good reason that an "island archaeology" tradition never developed in the Salish Sea, where a watershed approach is more common. Fitzpatrick (2004:3-4) discussed unprotected islands in isolation from an evolutionary perspective where "islands...tend to be more ecologically fragile." Fitzpatrick states that "island societies... exist with a sea-bounded landscape," which is not a perfect fit for the watershed of the Salish Sea, where the watershed extends from the mountains to the sea.

The combination of the Gulf Islands and the San Juan Islands as the "Salish Sea Islands" is a useful and interesting terminology that Hutchings and Williams develop to view these islands as a single island group, or archipelago. This is a useful way to view them as a network of islands,

however, it does lead them to be viewed as not being included in greater networks throughout the Salish Sea Basin. The Gulf Islands are part of a complex network that involves the Fraser River and Vancouver Island all being situated around the Gulf of Georgia. The San Juan Islands can be viewed as a crossroads that place them as being a location that people would have had to travel through coming from any direction leading them to likely being connected to much of the central and southern Salish Sea. So while the use of Salish Sea Islands is worthwhile for use, in the discussion of Hutchings and Williams chronology, it is worth it to still consider them as separate island groups connected to complex socio-political networks.

History of Research

The authors suggest that "archaeological analysis today is rarely, if ever, conducted at the Salish Sea basin-scale" (Hutchings and Williams 2020:30). However, many studies consider sites on both sides of the border (e.g., Bovy 2002; Butler and Campbell 2004; Angelbeck and Grier 2012; Shantray 2014; Coupland et al. 2016; Croes 2016; Rorabaugh and Shantray 2016; Rorabaugh 2017; Springer et al. 2018). In fact, one might argue that the digitization of archaeological records in the last 20 years has enabled much greater access to the literature on both sides of the international border. Ethnographic studies, such as Angelbeck and McLay's (2011) presentation of the collective oral history for the "Battle of Maple Bay," also demonstrates research that incorporates collective histories. In a later publication, Angelbeck and Grier (2014) address the multi-faceted aspects of long-term collaborative work with indigenous groups (e.g., Martindale and Lyons 2014; cf. LaSalle and Hutchings 2016; Martindale et al. 2016).

Caldwell et al. (2012) conducted a study of the northern portion of the Salish Sea and does not include the Puget Sound. Clark (2013) discusses the temporal and spatial extent of Marpole culture type, however the authors omit Morin's (2014) critique, which challenges

the approach. On a broader scale, the authors fail to cite Moss (2011) who raises issues with “middle-range societies” and “the complex hunter-gatherer stereotype” when discussing complexity on the Northwest Coast. This discussion is directly relevant to characterizing cultures within the Salish Sea region.

Salish Sea I

In terms of the chronology indicating when the Salish Sea was first formed, the authors state that Puget Sound was ice-free and inundated with water by 15.5–16kya. The source of this estimated date is unclear along with whether these represent radiocarbon ages or calibrated years before present. However, a geomorphology summary based on current research provides some of the context the authors did not.

According to Troost (2016), the Puget Lobe reached its maximum position at what is now Tenino, Washington after 16,950 cal BP. The Puget Lobe then retreated rapidly, in geological terms, starting at 16,850 cal BP (Clague 1981; Easterbrook 1986; Booth 1987; Porter and Swanson 1998; Booth et al. 2002; Troost 2016). The latest age that the ice sheet must have been present in the Tacoma, Washington area was 16,350 cal BP.

Is glacial lake Russell, which formed from the retreat, then the first form of “the Salish Sea?” The passing of the retreating ice margin through the Strait of Juan de Fuca is bracketed with a latest age of 15,991 cal BP (Mosher and Hewitt 2004). For a conservative estimate, the Strait of Juan de Fuca had opened by this time. However, these waters inundated significant portions of the San Juan Islands, Whidbey Island, and the lowlands north of present-day Bellingham (Dethier et al. 1995). While there is clearly a sea at the time the authors state (assuming they are using calibrated radiocarbon years for their chronology), is this the Salish Sea defined by its ecological and cultural relationships?

So, when did the Salish Sea form? Is the Salish Sea, as a biogeographical and cultural region, fundamentally tied to the Holocene? If

we consider global and local factors of eustatic sea level change and isostatic land rebound, the Puget Basin changed considerably from 13,000 cal BP to 7000 cal BP, with rebound slowing by 9000 cal BP when global sea level rise inundated Early Holocene shorelines (Dragovich et al. 1994; Mosher and Hewlett 2004).

The transition from deglaciation to the environmental equilibrium of the Holocene, known as the paraglacial period, is marked by the sculpting of large-scale landscape features (Church and Ryder 1972; Matthews 1992; Benn and Evans 1998; Ballantyne 2002; Orwin and Smart 2004). For a broader context, and understanding taphonomic biases in the record, the paraglacial period is key for understanding settlement in the area. Numerous researchers (Hutchinson et al. 2004; Fedje et al. 2009, 2018; Grier et al. 2009; Mackie et al. 2011; McLaren et al. 2020) have examined this in-depth in the Salish Sea. Different regions of the Salish Sea have different sea level histories, as highlighted by Fedje’s (2009, 2018) work.

It is also surprising, considering the later discussion on resources, that the authors do not mention that Pacific salmon have been present on the Northwest Coast for over one million years (Montgomery 2003:24), and within 100 years of deglaciation, sockeye, pink, and chum salmon were established in streams emptying into Glacier Bay (Montgomery 2003:32–33). Moss et al. (2007:511–512) also note the presence of salmon in assemblages dating to the Late Pleistocene and Early Holocene; a salmon bone at the Bear Creek Site “hints at LPH [Late Pleistocene–Holocene (LPH) transition] biogeography and possible fish utilization in the Sammamish basin” (Kopperl et al. 2016:273). While this is for the broader Northwest Coast, it is highly likely that this occurred during the forming Salish Sea as well.

The fundamental understanding that landforms shifted, and people’s relationships with the landform changed significantly during this period, is a key part of why Reimer (2012) considers this a time of transformation from both

Coast Salish and western scientific ontologies. However, caution should be exercised when applying a contextualized framework situated in Squamish lived experience to the entire Salish Sea. Numerous researchers working in the Salish Sea have provided contextualized approaches through collaboration with First Nations situated in the historic frameworks of the specific community (Nicholas 1997, 2000, 2006, 2008; McLay 2004; McLay et al. 2004, 2008; Thom 2005, Grier and Shaver 2008; Angelbeck and Grier 2014).

To get at the crux of the authors' chronology, which appears to be to characterize shifts in a defined biogeographical and cultural region, do we consider the Salish Sea to have formed during the initial retreat of the Puget Lobe? With glacial lake Russell? Or at the end of the paraglacial period when the environmental equilibrium of the Holocene was reached? Both have considerable implications for the provided chronology and how it should be interpreted.

The authors also state that the earliest record of human activities in the Salish Sea date to 13.9kya at two sites, the Ayer Pond site on San Juan Island and the Manis site on the Olympic peninsula. It is unclear specifically how the authors reached some of their age estimates. These comments have been our attempt to reconstruct their research efforts, and again caution is warranted when comparing calibrated and uncalibrated radiocarbon ages in a discussion. There has been considerable discussion surrounding the need for clarity in dealing with radiocarbon chronologies (Deo et al. 2004; Daniels 2009; Chatters et al. 2017).

The Manis Mastodon site (45CA2189) on the Olympic peninsula south of Sequim, Washington is a candidate for the earliest evidence of human activity in the Salish Sea. This site lacks evidence of stone tool technologies but does have the remains of an extinct Pleistocene mega-fauna, *Mammuthus americanus*, with evidence of human predation. The authors are correct in noting that X-Ray and CT analyses suggest that a bone point is embedded in one of the Mastodon's ribs (Gustafson et al. 1979;

Ames and Maschner 1999:66; Meltzer 2009). However, some archaeologists have questioned whether this embedded object is a projectile (Fladmark 1982:106; Carlson 1990; Grayson and Meltzer 2002). Waters et al. (2011:352) average the results of four 1- σ AMS ages and calibrate that result to yield an age of 13,860–13,763 cal BP, which appears to be the age estimate used by the authors.

In the case of the Ayer Pond site, Kenady et al. (2011) provide a Late Pleistocene date of 13,970–13,745 cal BP. Kenady et al. (2011) argue that the Ayer Pond bison has evidence of human butchery and predates the Waters and Stafford (2007) cluster of dated Clovis assemblages by 800 radiocarbon years, thus the 'pre Clovis' designation. Hutchings and Williams fail to include the methodology and degree of uncertainty the researchers cited when constructing a chronology for the earliest, and most scrutinized, time period.

Salish Sea II and III

Although these two periods have limited treatment by the authors, their statement regarding the biases in this time period being tied to cultural heritage management regulations is both perplexing and concerning. Although professional archaeologists and the First Nations communities with whom we collaborate agree that the laws are not perfect, Washington State provides protections for archaeological sites on private land (RCW 27.53). Regardless, numerous researchers have previously discussed Salish Sea island archaeology. Grier et al. (2009), Fedje et al. (2009), and Taylor et al. (2011) have all noted factors that skew the record towards the mid to late Holocene in a more constructive manner than Hutchings and Williams (2020).

Archaeological sites have been reported on Pleistocene-aged surfaces, namely outwash terraces. Kopperl (2016) reported such a deposit with unfluted points below 10,000-year-old peat deposits near Lake Sammamish. Late Pleistocene human occupation is also noted near the crest of the Cascade mountains from a radiocarbon

date from a hearth at Cascade Pass which is also nearly 10,000 years old (Mierendorf 2015, 2018:85). Both of these projects are from cultural resource management contexts, private and agency respectively.

The discussion of trade networks is remiss of Springer et al.'s (2018) study of the spatial and temporal distribution of sourced obsidian in the Salish Sea. Obsidian from the Anahim source in BC is the earliest noted on the Northwest Coast dating to 10,000–9,000 radiocarbon years BP. Oregon obsidian becomes available in the Salish Sea by at least 8,000 radiocarbon years BP, indicating down the line trade throughout the Holocene. Citing the presence of Clovis artifacts in the Salish Sea as evidence of engagement in a large-scale trade network appears unnecessary in light of several studies. Specifically, we note Springer et al.'s (2018) study, work by Mierendorf and Baldwin (2015), and Smith et al. (2016). Smith et al.'s (2016) analysis confirms that beads produced from Pacific Coast shells, not necessarily Salish Sea, are found in the Great Basin and are indicators of down the line trade. Approaches combining lithic sourcing and the lived experience of Coast Salish communities also reinforce the deep time of the cultural knowledge of lithic sources (Reimer 2012, 2018). Additionally, evoking statements that archaeologists view 'artifacts as people' and stating that Clovis technologies do not represent evidence of population replacement would be better served by citing recent aDNA studies indicating continuity (e.g., Lindo et al. 2017).

The overall dearth of discussion for these two time periods also raises the question regarding their analytic utility. If our data regarding the elaboration of trade networks fits primarily within 'Salish Sea III' in the authors' schema, and they provide no arguments for social or economic shifts, then what is the analytic purpose of dividing Salish II and III? Additionally, sea level dynamics vary by locality (e.g., Grier et al. 2009; Fedje et al. 2009, 2018), which means that this does not provide a clear demarcation for time periods. Overall, sequences must exist

to answer a question, and it is unclear what the division of Salish Sea II and III presented by Hutchings and Williams sheds light on for this time period.

The Early to Mid Holocene, or as Hutchings and Williams refer to it as Salish Sea II and II, are poorly understood periods of time. This is, in part, due to sites believed to be of this age not having radiometric dates, leaving these sites afloat in the chronology. Without ascertaining any age estimates for these sites, developing chronologies based upon them are suspect at best. Hutchings and Williams use many sites that are characterized in this way. Without ascertaining any age estimates for these sites, developing chronologies based upon them are suspect at best. Hutchings and Williams use many sites that are characterized in this way.

The discussion of the DeStaffany site is valid in being used to characterize this early time period of the islands of the Salish Sea, but the site is a prime example of an undated early site that likely holds significant potential for understanding the Western Stemmed and Old Cordilleran Tradition (OCT) within the Salish Sea. The stylistic attributes of the artifacts at DeStaffany are consistent with the Western Stemmed Tradition. However, without radiometric dates, using this site to characterize the Salish II period is tentative, at best, and lacking substance. Similarly, the authors fail to acknowledge the variation in the region including Olcott and OCT assemblages in Puget Sound.

The presence of patinated foliate or lanceolate projectile points does not always indicate the significant age of a site. Often, foliate projectile points that have been significantly dissolved due to acidic soils are characterized as being of significant age and attributed to the Olcott complex. While many of these sites may be Olcott in nature, not all are because the presence of foliate projectile points has been noted in later middle Holocene sites. A site that Hutchings and Williams appear to have left out of their study is the Helen Point site, which is dated at the earliest to 5420 ± 230 BP (Carlson 2008). This

makes the Helen Point site distinctly fall into the Mayne phase, not the earlier Olcott or OCT even though it shares similar projectile points. The presence of similar projectile points only miles across the border on the north end of Mayne Island may be reason to call into question the attribution of undated foliate projectile points to the earlier Olcott period.

The presence of the Olcott Complex in the San Juan Islands is sparse at best and often only characterized by a few sites and isolates as Hutchings and Williams note. The Olcott Complex is a regional manifestation of the Old Cordilleran Tradition (Butler 1961; Kidd 1964). This leaves the characterization of Salish Sea III incredibly lacking. As we have indicated previously in this comment, these island systems and the people that inhabited them were not isolated from the mainland. Within the greater extent of the Salish Sea, there has been ongoing research into Olcott and attempts at defining the period (Chatters and Brown 2016; Brown and Chatters 2017). The ongoing research into Olcott has sought to ascertain age estimates for previously undated sites and placed them in time. The most noteworthy site that this has been done for is the Marymoor site (45KI9) (Chatters and Brown 2016; Brown and Chatters 2017).

In contrast to Hutchings and Williams, who characterize Salish Sea III as a 5,000-year period of poorly defined sparse lithic sites, Brown and Chatters (2017; Chatters and Brown 2016) have given insight into this 5,000-year period. It is increasingly evident that this is a dynamic period of time in which stylistic variation was introduced and the technological toolkit of the Olcott peoples became more diversified. This variation can be seen as indication of the high degree of mobility that people during this time had with movement of lithic raw materials and knowledge of lithic technology being transported east to west across the mountain passes due to the presence of uniquely Plateau side-notched projectile points within the Marymoor assemblage. Through efforts to further analyze and understand the variation of Olcott lithic assemblages throughout the Salish Sea, the

archaeologists of the region will begin to better understand the lifeways of people that lived in the region 9,000–4,000 years ago.

Variation and change have of course not been recorded within the islands of the Salish Sea yet. That is largely due in part to the few sites that have been recorded on the islands associated with this time period. Ultimately this is likely due to changing sea levels during the Holocene that inundated parts of the landscape that people during this time inhabited. However, it is possible that earlier Western Stemmed sites and some Olcott sites do remain on the islands further inland at higher elevations.

Salish Sea IV

Whether to approach this period thematically or chronologically is irrelevant when the true underlying issue is the question—what is a sequence intended to examine? The authors provide what appears to be a dismissive take on the research interests in this period discussing population growth and the development of “social complexity.” What Matson and Coupland (1994) termed the “Developed Northwest Coast Pattern,” the suite of behaviors and relationships observed among ethnohistoric Coast Salish communities, led to researchers critically engaging with ethnography and oral histories to examine the archaeological record (e.g. Grier 2007; Grier and Shaver 2008).

Despite the authors’ statement that their chronology moves away from ‘linear progressive evolutionary models,’ over the past two decades, researchers have increasingly taken a more nuanced, historical approach as archaeological evidence points to more complex relationships between the increased use of different kinds of resources throughout the region and the profound impacts they had on the historical trajectories of the peoples of the Northwest Coast (e.g. Butler and Campbell 2004; Bovy 2005; Deur and Turner 2005; Orchard 2007; Daniels 2009; Campbell and Butler 2010; Monks and Orchard 2011; Moss 2011, 2012; papers in Moss and Cannon 2011; Bilton 2014; McKechnie 2014). There does not appear to be a specific

time when the ecological adaptations of the ethnohistoric period emerged in the region, as assemblages in the Salish Sea appear to be relatively diverse through the Holocene (Orchard and Clark 2006; Bilton 2014; McKechnie 2014). The authors note of ‘intensive fisheries’ emerging during Salish Sea IV does not necessarily align with the evidence from syntheses over the past decade, which encourage researchers to take a more sophisticated view of the histories of Coast Salish economies than simply assessing increased production output through time or resource depression.

Due to the ecological continuity seen, some researchers have suggested that the cultural changes in the region do not correspond to changes in material conditions and instead have placed greater emphasis on historical process (e.g. Cannon 2002; Grier 2003; Angelbeck 2009; Martindale and Letham 2011; Angelbeck and Grier 2012). Despite this continuity, there are some marked shifts through time as, for instance, it has been argued that the seasonality of early houses (4000–5000 BP) may be markedly different than later households (2000 BP and earlier) in the Salish Sea (Lepofsky et al. 2009; Grier and Kim 2012).

Although there is considerable continuity in economic adaptations through time, fundamental social transformations do occur in the Salish Sea over the past 5,000 years. Due to the aforementioned ecological continuity, researchers have argued that these transformations are best viewed as historic processes avoiding the sometimes uncausal thinking of past approaches (e.g., Grier 2006; Angelbeck 2009; Angelbeck and Grier 2012; Grier and Kim 2012; Grier and Angelbeck 2017).

The most fundamental aspect of these historic changes is the emergence of hereditary forms of social inequality. Additionally, the dynamism within Coast Salish societies (Ames 1995, 1996, 2001, 2008, 2010; Angelbeck 2009; Schaepe 2009; Angelbeck and Grier 2012; Grier and Kim 2012; Angelbeck and Cameron 2014; Coupland et al. 2016) and regional variation in material culture (Abbott 1972; Clark 2013) is lost

within the schema provided. This again raises the question—what is this sequence attempting to problematize? As an interpretive framework, it glosses over much of the fundamental, historically contingent, uniqueness of societies in the Salish Sea by not including them as markers for periods.

Shell Midden. Hutchings and Williams unnecessarily quote Campbell verbatim on the definition of a shell midden and overlook advances in shell midden archaeology that have been occurring in the Salish Sea for at least 30 years, including methodological developments from the Číx-wicw̓n project (Butler et al. 2019). Hutchings and Williams do not provide current ideas or information in this section. The knowledge of what a shell midden is should be common parlance to the archaeologists of the Northwest Coast. As Campbell (2005) notes that the use of shell midden is not “an analytically rigorous term” and that “Shell-bearing site is a more accurate label” (e.g., Claasen 1991), it does beg the question of which is more suitable. More recent studies on the Northwest Coast (Letham et al. 2017) have taken the stance of using the term shell-bearing as more appropriate than shell-midden. Shell-bearing allows for the inclusive agency of the people that constructed these places as a result of daily activities as a result of the varying depositional events that ranged from refuse disposal to the intentional mounding and terracing of shell to create or modify underlying landforms. McLay et al. (2004, 2008) note that the term “midden” and its connotation of refuse may be viewed as inappropriate, abstract, and disassociates material from the human record by First Nations, specifically the Hul’qumi’num.

Fauna. The authors ignore important relevant research questions that archaeologists in this region have been contributing to for many years in a region where faunal analysis is a common component of scholarly excavations as well as CRM data recovery excavations. Diversity of resources is a characteristic of most coastal

Salish Sea shell middens that archaeologists have identified since the initial work of Waterman, followed by Bryan's 1963 survey of Northern Puget Sound, the scholarly work of archaeologists from University of Washington and Washington State University in the 1980s and 1990s, Dr. Gary Wessen's numerous surveys of shell middens on the Salish Sea, and over three decades of cultural resources management in the Pacific Northwest. The Salish Sea and Pacific Northwest have a long tradition of zooarchaeology that warrants inclusion if the goal is to synthesize the archaeological record and indigenous perspectives of Salish Sea history (Hutchings and Williams 2020).

The authors also tend to cite published works related to projectile point typologies and lithic technological change while they ignore the growing body of work on fish and shellfish remains in the archaeological record. For example, Butler and Campbell's (2004) review of the 10,000 year-old faunal record entirely encompasses the Salish Sea. Campbell and Butler (2010) concluded in their follow-up that "the institutions, beliefs and rituals known for the indigenous peoples of the Pacific Northwest had the effect of managing human behavior so that salmon harvest timing and intensity were moderated by some group of central decision-making process." Numerous faunal datasets from the Salish Sea are available, yet the history of work is not included in the synthesis and current research questions are not considered (e.g., Monks 1987; Bovy 2002; Trost et al. 2011; Moss 2016; Nims 2016).

A substantial body of shell midden research has been contributed to the record from excavation of large shell middens on the coast of the Salish Sea mainland, which are not considered in Hutchings and Williams' schema. Excavations at places like Cherry Point in Ferndale, Duwamish No. 1 in Seattle, the East side of Vancouver Island, the Fraser Delta in Vancouver B.C. (e.g., Borden 1970), Mud Bay in Shelton, and the West Point Site are examples of inland sea coastal shell middens with faunal data that is meaningful when characterizing the lifeways of the ancient

inhabitants living adjacent to and within reach of the Salish Sea. Without consideration of studies like these, the authors have provided no empirical data that supports their call-out of "changes in animal use are evident during Salish Sea IV."

Technology. In the Technology section, "Salish Sea basin" is often substituted for "Salish Sea Islands," relying on the work of Ames et al. (2010) and Rorabaugh (2017), who both use the Gulf of Georgia nomenclature which includes a much larger universe than archaeological sites on islands in the Salish Sea. This convenient geographic expansion is also present in appropriating the terms "Old Cordilleran Olcott-Cascade" for a chronology designed to be specific to islands, and the same is true for the "Western Stemmed Point Timeframe" in light of excavations at the Bear Creek site in Redmond, Washington (Kopperl 2016). This also applies to the Constructed Landscapes, Managed Landscapes, and Households and Villages sections.

Symbolism. Numerous researchers have provided excellent summaries of shifts in Coast Salish symbolism (e.g., Angelbeck 2016; Arnett and Morin 2018). The symbolic evolution and intentional change of mortuary practices as discussed by Thom (1995) is surprisingly absent as is Thom's (1998) broader discussion of shifts observed ca. 1000 BP.

In their discussion of symbolism, the authors also misrepresent Shantry (2014) in stating that certain labret styles are unique to the Gulf Islands or the San Juan Islands. To reiterate Shantry (2014), Tee and Knob styles are found throughout coastal British Columbia but the disc, double-knob, and pendant labret styles are observed only in the Salish Sea. The fundamental argument of Rorabaugh and Shantry (2016) is that labrets, much like cranial modification, represented a shared regional symbol with one of their implicit or explicit symbols. These shared symbols helped

distinguish individuals that could be trusted to reciprocate in the management of resources by kin groups. Unique regional styles do not fit the data.

Artifacts and skeletal evidence of cranial modification and labret-wearing are not specific to islands on the Salish Sea (Rorabaugh and Shantry 2016). Shell middens containing human internments are also not specific to the islands. This section is another example of the authors “cherry-picking” data that fits their narrative. When necessary, they refer to larger datasets such as “the southern Pacific Northwest Coast” and ignore important details such as the number of labrets from dated contexts (Shantry 2014; Rorabaugh and Shantry 2016). The “prolific” number of labrets in the “Central Salish Sea” is almost certainly connected to the mouth of the Fraser River to which the Gulf Islands are adjacent, but the authors make no mention of the settlement and salmon runs on the Fraser. Terms like “roughly contemporaneous” and “particularly indicative” for a small dataset with chronological control does not move the yardstick further to a greater understanding of the archaeological record of the Salish Sea, even more so without a thorough review of the existing literature.

Constructed Landscapes. In the discussion of terraforming and resource management, while Dr. Stein is clearly a prolific writer who has made key contributions to geoarchaeology and island archaeology, the authors’ exclusion of other prolific Coast Salish, and more specifically Salish Sea Island, archaeologists dealing directly with questions raised in their article is puzzling. The authors do not mention papers in Grier (2014), Grier and Schwadron (2017), or Grier et al. (2017), which provide excellent treatments of the subject. Additionally, discussions of plant resources and their management are remiss of studies by Hoffman et al. (2016) and Derr (2012), which discuss long-term archaeological evidence of plant management strategies, namely controlled burns (in the case of Derr’s

work). Strangely their discussion of landscape management is focused heavily on clam gardens and omits terraforming in the forms of fish traps, trench embankments, and intentional landscape construction for cemeteries, to name a few. The treatment provided by Grier et al. (2017) provides a more encompassing summary in British Columbia and guidance for archaeologists working in Puget Sound for how to consider the features encountered.

Most notably absent from this section are Blukis Onat’s (1987) apt discussion of shell midden used as construction material and Grier’s work on terra-forming at Dionisio Point and other lagoon-spit complexes throughout the Salish Sea (Grier 2014; Grier et al. 2017; Grier and Schwardon 2017). This phenomenon can be understood through the coastline of the Salish Sea and Strait of Juan de Fuca, as lagoon-spit complexes exist at numerous places (e.g., Weaverling Spit on Fidalgo Island, Snakelum Point and Oak Harbor on Whidbey Island, and Ediz Hook on the Olympic Peninsula). The authors prefer in the section as well to offer a generalized quote than to present or analyze data. A prime example of the authors being late to the party is their need to explain that shell middens are more than an artifact assemblage. It has been 28 years since Stein’s 1992 monograph, *Deciphering a Shell Midden*, and the complexity of shell midden archaeology is not new to archaeologists. Furthermore, the authors do not place constructed landscapes in a context specific to islands.

The authors’ choice to also exclude any mention of defensive sites or evidence of warfare is also surprising, considering some of the nuanced interpretations made by researchers contextualizing conflict and warfare within Coast Salish ontogeny (e.g. Angelbeck 2007, 2009, 2016; Angelbeck and McLay 2011; Miller 2011; Angelbeck and Grier 2012; Angelbeck and Cameron 2014).

Managed Landscapes. Managed landscapes are a larger trend throughout the Pacific Northwest,

from the mountains to the sea. For instance, prescribed burning is expected to have been at play in the Harrison River Valley in British Columbia (Lyons and Ritchie 2017) and at Muckleshoot Prairie in interior Puget Sound (Matthes 2016). The signatures necessary to identify such phenomenon archaeologically can be complicated in forested upland areas, however, advances in paleoethnobotanical and geoarchaeological analysis are making progress particularly on the Columbia Plateau (e.g., Carney 2016).

Additionally, the statement that no clam gardens are recorded in the Southern Salish Sea miscites Lepofsky et al. (2015); page 259 consists of footnotes and Lepofsky et al. make no such statement in the paper, although their study is focused to sites in British Columbia. There are clear examples in the Gulf of Georgia in Washington state of active clam garden management. Stern (1934:74) in his ethnographic account of the Lummi noted owned clam gardens, and Daniels' (2009) dissertation argues for management of marine invertebrates from assemblages in the San Juan Islands. In Puget Sound, the Swinomish have engaged in a program to revitalize clam gardens drawing from research being conducted in British Columbia and noting their use in Puget Sound for over 3,000 years. Archaeological clam gardens in Puget Sound are understudied compared to the body of research on them in recent years in British Columbia (e.g., Smith et al. 2019), but that is tied more to specific research histories than a lack of clam gardens in Puget Sound.

Households and Villages. Hutchings and Williams use to great effect the works of Julie Stein (Stein 1992, 2002; Stein and Deo 2003) to explain away the dearth of household studies within the San Juan Islands. While identifying events and activities associated with houses in shell midden deposits is difficult, it is not impossible when there are a number of studies within the Salish Sea doing just that (Grier 2003, Matson 2003). It is strikingly odd that this section

does not mention one of the most thoroughly investigated household complexes in the Salish Sea Islands at Dionisio Point on Galiano Island (Grier 2001, 2003, 2006; Grier et al. 2009; Grier and Angelbeck 2017). The absence of a mention of the Ozette village, the best archaeological evidence that exists for houses on the Northwest Coast, is another clear oversight. Without the understanding of archaeological houses that the archaeologists of the region gained from the Ozette excavations, we would not be as far as we are today in our understanding of house lifeways.

Potentially the most confounding sentence in this section is the uncorked "numerous descriptions of what are thought to be pre-contact Salish Sea island houses/villages...All date to Salish Sea IV" (Hutchings and Williams 2020:45) without any citations for ethnographic or archaeological evidence. Are the authors suggesting dated evidence for houses exist for the Salish Sea Islands but do not cite any references to this effect, conspicuously leaving out Grier's work at Dionisio Point?

It is strikingly odd that the authors claim that Coast Salish household archaeology has been limited. Significant household archaeological work has been conducted at Dionisio Point, Shingle Point, and Montague Harbour. Dionisio Point has had a concerted research program for almost two decades (Grier 2003; Matson 2003; Dolan 2015; Hopt and Grier 2017).

Another selective mention is the Ferndale site on the Nooksack River. This is the only mention of a mainland riverine when many other village sites on drainages are known. The authors fail to relate this site to the Salish Sea islands and fail to mention older shell midden sites, such as Helen Point on Mayne Island, the oldest stratified shell midden in the Gulf Islands dating to 6200 cal BP (Grier et al. 2009:255).

Similarly, due to their inclusion of the Ferndale site, the authors are oddly remiss of any mention to the early houses at DgRn-23 Xá:ytem (Mason 1994) and DhRk-8 Maurer (LeClair 1976; Schaepe 2003) on the Upper

Fraser. These sites have features that appear to be substantial rectangular plank house structures with living floors similar in size to the smaller multifamily houses seen after 2000 BP, although still much smaller than those larger structures. Additionally, there are also the claims for the presence of houses at DgRr-2, the St. Mungo site (Ham et al 1983). There is a larger sample, and more variation of, early house structures in the Coast Salish world than the one example pithouse site the authors discuss.

While focused on the Fraser Valley, Ritchie et al. (2016) provide an examination of settlement patterns summarizing long term trends in settlement size and demography. It is similarly surprising that Pratt's (1992) synthesis of the Charles period is not mentioned, nor Ames' (2009) and Ames et al.'s (2010) analysis of lithic technologies, specifically changes in the frequency of chipped and ground stone technologies. Similarly, Graesch's (2007) discussion of slate knives and household labor are absent.

This variation in reported houses in the Salish Sea (Figure 4) is outlined in Figure 5 and Table 2 (adapted from Rorabaugh 2017). It is clear a unilineal development of house structures does not exist in the Salish Sea, with varieties like pithouses taking round and sub-rectangular forms and rectangular plank houses reflecting a variety of sizes. Instead different residential strategies are being used throughout time and space. However, the statement by the authors that the islands were used for seasonal gathering from "Salish Sea IV and on," and that temporary structures would be more common on islands than plank houses is unsupported by archaeological (Table 1) and ethnographic data (Suttles 1951). For an example in Puget Sound, Chatters and Cooper (2016) provide a comparison of a seasonal inland site and a plank house, Tualdad Altu. Any interpretation to that effect is a fundamental misrepresentation of the concerted household archaeology programs conducted throughout the Salish Sea.

Salish Sea V

The authors state that Salish Sea IV ends abruptly with Euroamerican contact, however, the process of contact was exactly that, a process. Even though the first European explorers did not reach South Puget Sound until 1792 and the interior of the Pacific Northwest until the early nineteenth century (Blumenthal 2004), the connections between First Nations in western North America brought the impacts of European settlers across the continent not long after the Spanish established a presence in Mexico in the 1520s. The authors demarcate the first Spanish surveys from 1774–1775 as contact on the outer coast, which requires some further elaboration for context. Hutchings and Williams (2020:26) refer to the 1774 expedition, which involved extended interaction and trade on Nootka Sound, and the 1775 expedition, which had a landing at the mouth of the Quinault River. In actuality, the introduction of European trade goods, domesticated animals, and epidemic diseases affected Coast Salish communities before 1774 (Gough 2012, 2017).

Horses appeared in Yakama territory of the Columbia Plateau by 1735. Boxberger (1984) argues that it is likely that they made an appearance west of the Cascades by the mid-eighteenth century. While Boxberger notes that environmental restrictions meant that the adoption of horses was primarily among the Nisqually, Chehalis, and Cowlitz, the introduction of the horse fundamentally altered Interior and Coast, Salish trade and social networks (Walker 1997).

Campbell (1989), Boyd (1990, 1999), and Boyd and Gregory (2007) note the repeated waves of smallpox epidemics on the Columbia Plateau and the Northwest Coast, respectively. The earliest epidemics hit portions of the coast as early as 1770, before face-to-face contact with Europeans. Again, contact is a process and not as abrupt as characterized by the authors. The changes to First Nations trade networks due to the Russian, Euroamerican, and Eurocanadian

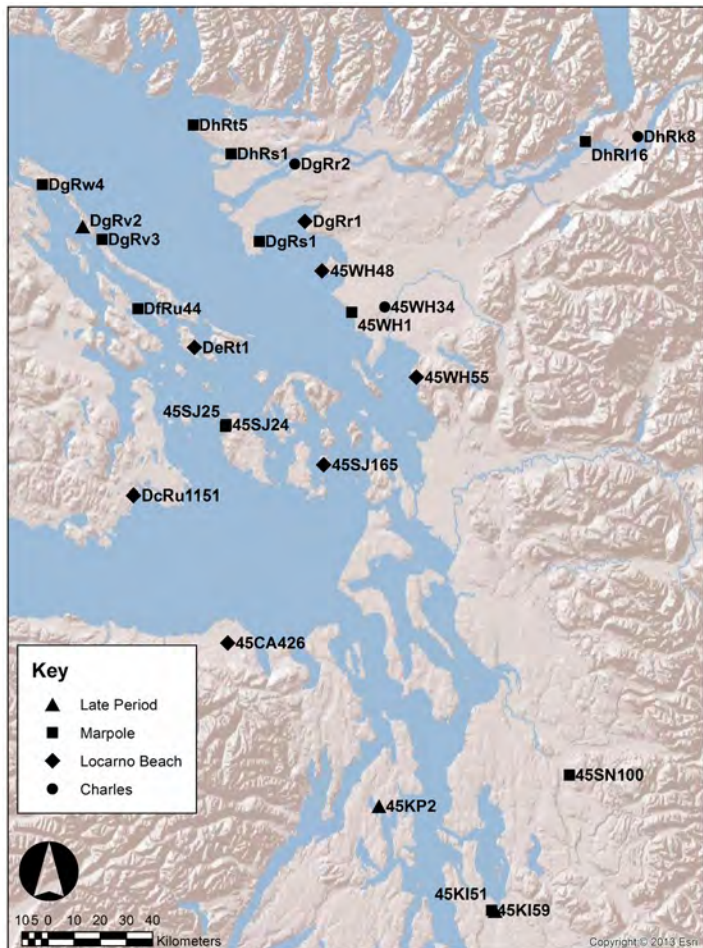


Figure 4. Locations of referenced household sites (Rorabaugh 2017:11).

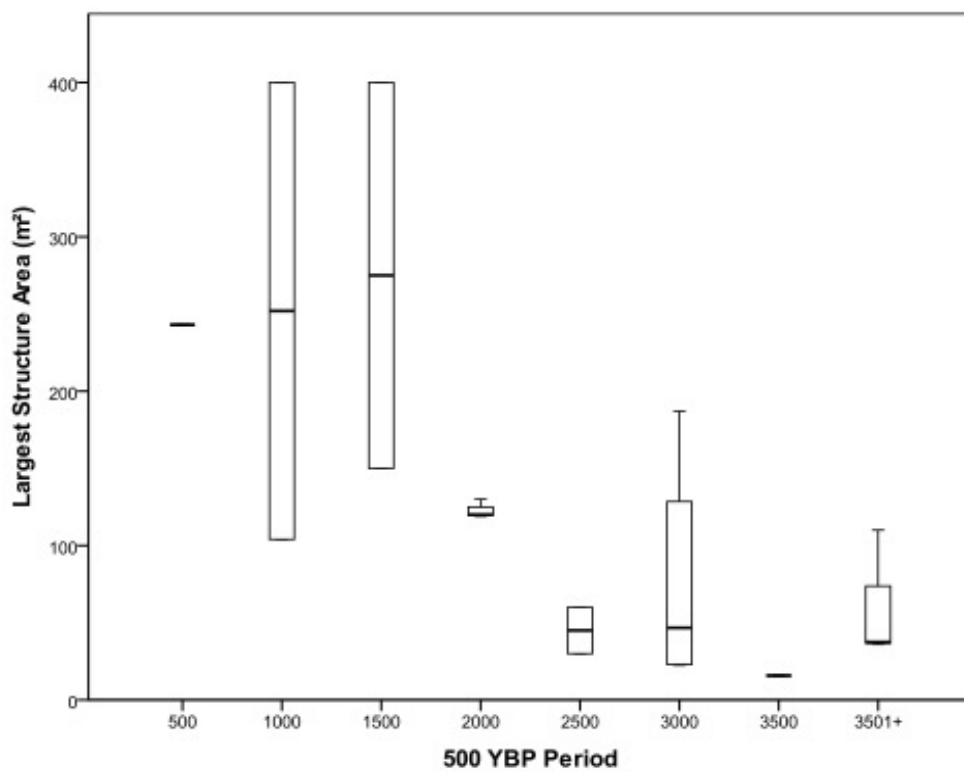


Figure 5. Whiskerplot of Coast Salish house floor areas (Rorabaugh 2017:12).

Table 2.

Site	Name	Location	Median Cal Age BP	# of Identified Structures	Largest Structure Dimensions (m)	Largest Structure Area (m ²)	Description	Reference
DgRn23	Xá:ytem	Upper Fraser	5080	3	11x10	110	Rectangular Plankhouse	Mason 1994; Schaepe 2009
DhRk8	Maurer	Upper Fraser	4940	1	7.5x5	37.5	Rectangular Plankhouse	LeClair 1976; Lepofsky et al. 2009; 602; Schaepe 2003
45WH34	Ferndale	Northwest Washington	4640	2	6x6	36	Round Pithouse	Gillis 2007; Hutchings 2004
DgRr1	Crescent Beach	Fraser Delta	3170	1*	4.5x3.5	15.75	Round Pithouse*	Matson et al. 2008; Percy 1974; Trace 1981
DcRu1151	Esquimault Lagoon	Vancouver Island	3000	1*	n/a	n/a	Sub-Rectangular Pithouse*	Bowie and Kristensen 2011
45WH48	Birch Point	Northwest Washington	2800	1	10x7	70	Round Pithouse	Gaston 1975: 27
45WH55	Woodstock Farm	Northwest Washington	2605	1	>2.8x>2.4	n/a	Sub-Rectangular Pithouse	Campbell et al. 2010; Lewis 2013
DhRl16	Scowlitz	Upper Fraser	2600	8	17x11	187	Rectangular Plankhouse	Lepofsky et al. 2000: 402
45SJ165	Decatur Island	San Juan Islands	2585	1	5.5x4.25	23.4	Sub-Rectangular Pithouse	Walker 2003
45CA426	Sequim	Northern Olympic Peninsula	2555	2	5x4.5	22.5	Sub-Rectangular Pithouse	Morgan 1996, 1998
DeRt1	Pender Canal	Gulf Islands	2440	1	6x5	30	Sub-Rectangular Pithouse	Carlson and Hobler 1993:43; Hanson 1990
DfRu44	Long Harbour	Gulf Islands	2320	4	7.5x?	60	Sub-Rectangular Pithouse	Johnstone 1991, 2003; Grier and Kim 2012
45SN100	Biederbost	Puget Sound	1960	1	7x?	n/a	Rectangular Plankhouse	Nordquist 1976, Nelson 1962, 1976
DhRt5	Point Grey	Fraser Delta	1960	>1	n/a	n/a	Rectangular Plankhouse	Borden 1947; Coupland 1991
DfRs3	Whalen Farm	Fraser Delta	1950	>1*	n/a	n/a	Pithouse*	Smith 1921: 315; Thom 1992: 22

Table 2. cont.

Site	Name	Location	Median Cal Age BP	# of Identified Structures	Largest Structure Dimensions (m)	Largest Structure Area (m ²)	Description	Reference
45WH1	Cherry Point	Northwest Washington	1875	1	20x6	120	Rectangular Plankhouse	Blodgett 1976; Dubeau 2012; Dugas 1996; Grabert 1988; Markham 1993; Rorabaugh 2017
DhRs1	Marpole	Fraser Delta	1845	1*	n/a	n/a	Rectangular Plankhouse*	Borden 1970
45S]25	Garrison Bay	San Juan Islands	1725	1*	n/a	n/a	Rectangular Plankhouse*	Kenady et al. 1973; Stein 2000
DgRw4	False Narrows	Gulf Islands	1590	2	n/a	n/a	Rectangular Plankhouse	Burley 1988; Mitchell 1967
45KI59	Tualdad Altu	Puget Sound	1570	1	17x7	119	Rectangular Plankhouse	Chatters 1989; Chatters et al. 1990
DgRs1	Beach Grove	Fraser Delta	1520	11*	13x10	130	Rectangular Plankhouse*	Ball 1979; Grier 2003: 186; Matson 1980; Ham et al. 1983
DgRv3	Dionisio Point	Gulf Islands	1400	5	40x10	400	Rectangular Plankhouse	Mitchell 1971; Grier 2001
45S]24	English Camp	San Juan Islands	1350	1	15x10	150	Rectangular Plankhouse	Kornbacher 1989; Stein 1992; Taylor et al. 2011
DgRv2	Shingle Point	Gulf Islands	890	1	13x8	104	Rectangular Plankhouse	Grier et al. 2009; Matson 2003
DgRv6	Dionisio Point Locality	Gulf Islands	825	1	40x10	400	Rectangular Plankhouse	Derr 2012; Grier et al. 2017
45KI51	Sbabadid	Puget Sound	200	1	27x9	243	Rectangular Plankhouse	Chatters 1989
DiRi15	Welqamex	Upper Fraser	200	11	> 10x5	n/a	Rectangular Plankhouse	Graesch 2006: 48
45KP2	Old Man House	Puget Sound	100	1	160x18	2880	Rectangular Plankhouse	Gibbs 1970; Snyder 1954; Suttles and Lane 1990

fur trades imported domesticated animals, and epidemic diseases had reverberations before face to face contact with Europeans.

Constructing a chronological sequence allows for re-examining assumptions regarding contact. We suggest an in-depth re-evaluation of what constitutes contact as a spatially and temporally variable historic process, and any sequence should recognize changes to Coast Salish lifeways before 1775.

Synthesis

In their synthesis section, the authors state that archaeological research has emphasized hunting, fishing, and the attainment of “social complexity” (Hutchings and Williams 2020:48). Numerous excellent scholars providing contextualized, historical, interpretations that have moved beyond the unilineal evolutionary thinking of the 1970s–1990s are not cited.

Seascapes are not a new concept in archaeology (e.g., Mcniven 2004, 2008), and reconstruction of paleo-shorelines is an active research topic on the Northwest Coast (e.g., Letham et al. 2018). The reframing at the end of the article of the Salish Sea as a ‘Mediterranean’ has been more eloquently discussed within a Coast Salish epistemic framework as the anchored radiance concept (Miller 1999). Coast Salish researchers have long recognized the central importance of watercraft, and so a ‘Salish Seaway’ or Mediterranean as presented by the authors appears to be less useful of a concept than a more contextualized framework situated in Coast Salish experience, such as the one discussed by Miller.

In their effort to apply the idea of the ‘Mediterranean’ to the Salish Sea, the authors cite multiple pages from Rainbird (2007) regarding the prehistory of the Mediterranean region, suggesting similarity on the basis on the archipelago’s proximity to the mainland. A closer reading of Rainbird notes many contrasts in living patterns between the island of Malta and the mainland in terms of not adopting megaliths or importing

metal in the Late Neolithic (Rainbird 2007:71). An obvious contrast between the Mediterranean and Salish Sea is the development of agriculture which occurred as early as 10,000 years ago on Cyprus (Rainbird 2007:83).

The following excerpt is about colonization of the Mediterranean (Rainbird 2017:92).

Like the earliest colonizers of some of the Mediterranean islands, the settlers of Sahel were gatherer-hunter-fishers who entered, through the use of water-borne technology, new areas to exploit with new animals to hunt.

Of possible thematic similarities among the two inland seas, times of isolation are not explored to suggest archaeological patterns and signatures that might indicate times when Salish Sea Islands served as refuge areas and the effects of increased populations on the islands. Grier (2003) discusses different dimensions of interaction among Salish Sea inhabitants as the precursors to houses and terra-forming investments on the landscape (e.g., Grier 2014).

Towards the end of the synthesis, the authors acknowledge that the islands “cannot be considered apart from the socioecological life of the surrounding basin” (Hutchings and Williams 2020:48). However, the relationship between islands and river deltas are not explored for either the Salish Sea or the Mediterranean by the authors.

Blukis Onat’s (1987:19) model uses landscape restrictions and constraints to model the “fluctuating interactions among residential groups, resource specialists, resource ownership and kinship.” While the authors have counted up all the archaeological sites on the islands, they did not specifically call-out permanent residence, resource collection, and resource production landforms. Such information is necessary to provide an informed discussion using Blukis-Onat’s model.

The history of the Salish Sea often uses the term “Coast Salish” to collectively describe indigenous people who spoke a language within

the Salishan language family (Thompson and Kinkade 1990:30–42). It should be noted that some of the living communities whose ancestors inhabited the Salish Sea do not identify as “Coast Salish” (Steven Mullen-Moses, personal communication 2020), viewing it as an anthropological construct, while others have embraced that identity. In this way, tribal affiliations are a remnant of the autonomy of cultures on the Salish Sea. The statement that “vital cultural information transmitted in traditional knowledge about Coast Salish history and identity does not preserve in the ground” (Hutchings and Williams 2020:48) seems out of place in a region where traditional knowledge is referenced in daily living. Such statements are also a disservice to nearly a century of archaeological theory-building.

Ed Carriere is a prime example of how that transfer of traditional knowledge functions, from his work today, back to the beginning of time—Bud Lane, president Northwest Native American Basketweavers Association. (Carriere and Croes 2018:xv)

Finally, the synthesis section ends with a sentence stating that “many indigenous people” do not find much meaning or relevance in archaeological data alone. This appears to be a stretch to directly apply to the Pacific Northwest where indigenous communities are actively engaged in cultural heritage representing many peoples and perspectives, with professional archaeologists engaged as partners with First Nations (e.g., Grier and Shaver 2008; cf., LaSalle and Hutchings 2016; Martindale et al. 2016). In this framework, archaeological data and interpretation serve to inform a broader historic context.

Concluding Remarks

While some of the critiques forwarded here may be viewed as technicalities, considerable rigor is needed to properly summarize a large body of literature. The authors’ paper highlight some of the difficulties in constructing syntheses for the Salish Sea: 1) the need for sophistication

when dealing with uncorrected and calibrated radiocarbon ages and being explicit about dates used (e.g. Taylor et al. 2011; Ritchie et al. 2016); 2) issues with the United States-Canadian border and how it impacts both citations and sites examined in studies, as numerous researchers from British Columbia are undercited in this paper; 3) the need to critically think about how ethnographies are applied, to ensure that they are not taken out of context when used to inform research questions or typologies whether chronological or dealing with specific aspects of material culture.

These issues are not insurmountable, and a number of Coast Salish scholars, not cited by the authors, have provided excellent ways forward. Examining variation in the record, over culture-historic periods or phases may be the most fruitful approach. As Lucas has argued (2005:27), we need to move beyond chronology and simplistic classifications to open new ways of interpreting the past. If researchers are to develop chronologies, they should be specific and targeted to include the variation of a region that makes it unique. The need for grand encompassing culture history sequences is gone because they only obfuscate the record that exists in favor of a clear sequence. To end on positive note, there is a clear need for a concerted decade island archaeology research program in southern Puget Sound in concert with tribes to assess sea level dynamics, local radiocarbon reservoirs, and monumentality in shell features. Such a program would then allow for a meaningful synthesis of the cultural and ecological history of the entire Salish Sea.

REFERENCES CITED

- Abbott, D. N.
1972 The Utility of the Concept of Phase in the Archaeology of the Southern Northwest Coast. *Syesis*, 5:267–78.
- Adams, William Y. and Ernest W. Adams
1991 *Archaeological Typology and Practical Reality: A Dialectical Approach to Artifact Classification and Sorting*. Cambridge University Press, Cambridge.
- Ames, Christopher
2009 From Chipped to Ground: the spatio-temporal systematics of 9000 years of archaeological change in southwest British Columbia. Unpublished MA Thesis. Department of Anthropology. McGill University.
- Ames, Christopher, Andre Costopoulous, and Colin Wren
2010 8,000 Years of Technological Change in the Gulf of Georgia: Is There a Major Transition at 4850 cal B.P.? *Canadian Journal of Archaeology*, 34(1):32–63.
- Ames, Kenneth M.
1995 Chiefly Power and Household Production on the Northwest Coast. In *Foundations of Social Inequality*, edited by Price, T. D. and Feinman, G. M., pp. 155–187. Plenum Press, New York.
- 1996 Life in the Big House: Household Labor and Dwelling Size on the Northwest Coast. In *People Who Lived in Big Houses: Archaeological Perspectives on Large Domestic Structures*, edited by Coupland, G. and Banning, E. B., pp. 131–150. Monographs in World Prehistory Vol. 27. Madison: Prehistory Press.
- 2001 Slaves, Chiefs, and Labour on the Northern Northwest Coast. *World Archaeology*, 33(1):1–17.
- 2002 Going by Boat: the Forager-Collector Continuum at Sea. In *Beyond Foraging and Collecting Evolutionary Change in Hunter-Gatherer Settlement Systems*, edited by Ben Fitzhugh and Junko Habu, pp. 19–52. Kluwer Academic/Plenum Publishers, New York.
- 2008 Slavery, Household Production, and Demography on the Southern Northwest Coast: Cables, Tackling, and Ropewalking. In *Invisible Citizens: Captives and Their Consequences*, edited by Cameron, C. M., pp. 138–158. University of Utah Press, Salt Lake City.
- 2010 On the Evolution of the Human Capacity for Inequality and/or Egalitarianism. In *Pathways to Power*, edited by Price, T. D. and Feinman, G. M., pp. 15–44. Springer.
- Ames, Kenneth and Herbert Maschner
1999 *Peoples of the Northwest Coast, Their Archaeology and Prehistory*. Thames and Hudson, London.
- Angelbeck, William
2007 Conceptions Coast Salish Warfare, or Coast Salish Pacifism Reconsidered: Archaeology, Ethnohistory, and Ethnography. In *Be of Good Mind: Essays on the Coast Salish*, edited by Bruce Granville Miller, pp. 260–283. UBC Press, Vancouver.
- 2009 “They recognize no superior chief”: Power, practice, anarchism, and warfare in the Coast Salish past. Unpublished PhD dissertation. Department of Anthropology, University of British Columbia. Vancouver, British Columbia.
- 2016 The Balance of Autonomy and Alliance in Anarchic Societies: The Organization of Defenses in the Coast Salish Past. *World Archaeology*, 48(1):51–69.
- Angelbeck, William and Ian Cameron
2014 The Faustian Bargain of Technological Change: Evaluating the Socioeconomic Effects of the Bow and Arrow Transition in the Coast Salish Past. *Journal of Anthropological Archaeology*, 36:93–109.
- Angelbeck, William, and Colin Grier
2012 Anarchism and the Archaeology of Anarchic Societies: Resistance to Centralization in the Coast Salish Region of the Pacific Northwest Coast. *Current Anthropology*, 53(5):547–587.
- 2014 From Paradigms to Practices: Pursuing Horizontal and Long-Term Relationships with Indigenous Peoples for Archaeological Heritage Management. *Canadian Journal of Archaeology*, 38(2):519–540.

- Angelbeck, William and Eric McClay
2011 The Battle at Maple Bay: The Dynamics of Coast Salish Political Organization through Oral Histories. *Ethnohistory*, 58(3):359–392.
- Arnett, Chris and Jesse Morin
2018 The Rock Painting/Xela:ls of the Tsleil–Waututh: A Historicized Coast Salish Practice *Ethnohistory*, 65(1):101–127.
- Ball, Bruce F.
1979 Archaeological Investigation of the Beach Grove Site: A Site Evaluation. Manuscript on file, BC Archaeology Branch, Ministry of Tourism, Culture and the Arts, Permits 1979–017 and 1979 017V1, Victoria, BC.
- Ballantyne, Colin
2002 A General Model of Paraglacial Landscape Response *Quaternary Science Reviews*, 21(18):1935–2017.
- Barrett J. C., Ilhong Ko
2009 A phenomenology of landscape: A crisis in British landscape archaeology? *Journal of Social Archaeology*, 9(3):275–294. doi:10.1177/1469605309338422.
- Benn, Douglas and David Evans
1998 *Glaciers and Glaciation*. Arnold, London.
- Bilton, David
2014 Northern, Central, Diversified, Specialized: The Archaeology of Fishing Adaptations in the Gulf of Georgia (Salish Sea), British Columbia. Unpublished PhD Dissertation. Department of Anthropology. University of Toronto.
- Blodgett, Mary E.
1976 Cherry Point: A Strait of Georgia Fishing Station. Unpublished MA Thesis, Department of Anthropology, Western Washington University. Bellingham.
- Blukis Onat, A. (editor)
1987 The Duwamish No. 1 Site: 1986 Data Recovery. A Mitigation Program for Construction of the Renton Effluent Transfer System. Produced for METRO, Municipality of Metropolitan Seattle. Manuscript on file, Washington Department of Archaeology and Historic Preservation, Seattle.
- Blumenthal, Richard W. (editor)
2004 *The Early Exploration of Inland Washington Waters: Journals and Logs from Six Expeditions, 1786–1792*. McFarland & Company, Jefferson, North Carolina.
- Booth, Derek, Kathy Goetz Troost, John Clague, and Richard B. Waitt
2002 The Cordilleran Ice Sheet Development in *Quaternary Science*, (1):17–43.
- Booth, Derek
1987 Timing and Process of Deglaciation along the Southern Margin of the Cordilleran Ice Sheet. In *The Geology of North America Vol. K–3 North America and Adjacent Oceans during the Last Deglaciation*, pp. 71–90. The Geological Society of America.
- Borden, Charles E.
1947 Preliminary report on the archaeology of Point Grey, British Columbia, Vancouver. Unpublished draft copy on file, University of British Columbia, Laboratory of Archaeology Archives, Vancouver.
1968 Prehistory of the lower mainland. In *Lower Fraser Valley: Evolution of a Cultural Landscape*, B. C. Geographic Series No. 9, edited by Siemens, A. H., pp. 9–26. University of British Columbia.
1970 Culture History of the Fraser Delta Region: An Outline. In *Archaeology in BC, New Discoveries*, edited by Carlson, R. L., pp. 95–112. BC Studies Special Issue 6–7.
1975 Origins and development of early Northwest Coast culture to about 3000 B.C. National Museum of Man, Mercury Series, *Archaeological Survey of Canada Paper No. 45:1–128*
- Bovy, Kristine
2002 Differential Avian Skeletal Part Distribution: Explaining the Abundance of Wings. *Journal of Archaeological Science*, (29):965–978.

- 2005 Effects of Human Hunting, Climate Change and Tectonic Events on Waterbirds along the Pacific Northwest Coast during the Late Holocene. Unpublished Ph.D. Dissertation. Department of Anthropology, University of Washington, Seattle.
- Box, George. and Norman Draper
1987 *Empirical Model Building and Response Surfaces*. Wiley, New York.
- Boxberger, Daniel L.
1984 The Introduction of Horses to the Southern Puget Sound Salish. In *Western Washington Socio-Economics*, edited by Herbert C. Taylor and Garland F. Grabert, pp. 103–119. Western Washington University, Bellingham.
- Boyd, Robert
1990 Demographic History, 1774–1874. In *Northwest Coast*, edited by Wayne Suttles, pp. 135–148. Handbook of North American Indians Vol. 7. Washington: Smithsonian Institution.
1999 The Coming of the Spirit of Pestilence Introduced Infectious Diseases and Population Decline Among Northwest Indians 1774, 1874. Vancouver: UBC Press.
- Boyd, Robert and Cecilia Gregory
2007 Disease and Demography in the Plateau. *Journal of Northwest Anthropology*, 41(1):37–70.
- Bowie, Kristi and Kira Kristensen
2011 Preliminary Investigation Results from DcRu-1151: A Locarno-Age Living and Processing Site at Esquimalt Lagoon. Archaeological Society of British Columbia Public Talk.
- Brown, James W., and James W. Chatters
2017 Revisiting the Old Cordilleran Tradition in the Puget Sound: Reanalysis of Bifaces from the Olcott Type Site. Paper presented at the 70th Annual Northwest Anthropology Conference, Spokane, WA.
- Bryan, Alan Lyle
1963 An Archaeological Survey of Northern Puget Sound. Occasional Papers of the Idaho State University Museum, Number 11. Pocatello, Idaho.
- Butler, B. Robert
1961 *The Old Cordilleran Culture in the Pacific Northwest*. Occasional Papers No. 5, Idaho State College Museum, Pocatello.
- Butler, Virginia L., Kristine M. Bovy, Sarah K. Campbell, Michael A. Etnier, and Sarah L. Sterling
2019 The Čixwicən Project of Northwest Washington State, U.S.A.: Opportunity lost, opportunity found. *Journal of Archaeological Science: Reports*, 23:1095–1103.
- Butler, Virginia L., and Sarah K. Campbell
2004 Resource Intensification and Resource Depression in the Pacific Northwest of North America: a Zooarchaeological Review. *Journal of World Prehistory*, 18:327–405.
- Burley, Dave
1988 Senewelets. Culture History of the Nanaimo Coast Salish and the False Narrows Midden. Royal British Columbia Museum Memoir No. 2.
- Caldwell, Megan E., Dana Lepofsky, Georgia Combes, Michelle Washington, John R. Welch, and John R. Harper
2012 A Bird's Eye View of Northern Coast Salish Intertidal Resource Management Features, Southern British Columbia, Canada. *Journal of Island and Coastal Archaeology*, 7(2):219–233. doi: 10.1080/15564894.2011.586089
- Campbell, Sarah K.
1981 The Duwamish Site No.1. University of Washington Office of Public Archaeology Research Report 1, Seattle.
1989 Postcolumbian Culture History in the Northern Columbia Plateau: A.D. 1500–1900. Doctoral dissertation, University of Washington, Seattle.
2005 Shell Middens. In *Encyclopedia of Coastal Science*, editor M.L. Schwartz. Encyclopedia of Earth Science Series.
- Campbell, Sarah K. and Virginia L. Butler
2010 Archaeological Evidence for Resilience of Pacific Northwest Salmon Populations and the Socioecological System over the last ~7,500 years. *Ecology and Society*, 15(1):17.

- Campbell, Sarah, Dianna Barg, Brett Meidinger, and Todd Koetje
2010 Report of 2005 Field Investigations at Woodstock Farm, Chuckanut Bay, Washington. Report on File at the Washington State Department of Archaeology and Historic Preservation (DAHP), Olympia, Washington.
- Cannon, Aubrey
2002 Sacred Power and Seasonal Settlement on the Central Northwest Coast. In *Beyond Foraging and Collecting: Evolutionary Change in Hunter-Gatherer Settlement Systems*, edited by Fitzhugh, B. and J. Habu, J., pp. 311–338. Kluwer-Plenum Press, New York.
- Carlson, Roy
1960 Chronology and Culture Change in the San Juan Islands. *American Antiquity*, 25:562–586.
1970 Excavations at Helen Point on Mayne Island. *BC Studies*, 6–7:113–125.
1990 Cultural Antecedents. In *Northwest Coast*, edited by Wayne Suttles, pp. 60–69. Handbook of North American Indians, Vol. 7. Smithsonian Institution, Washington, D.C.
2008 Projectile Points from the Gulf and San Juan Islands. In *Projectile Point Sequences in Northwestern North America*, edited by R.L. Carlson and M.P.R. Magne, pp. 131–160. Archaeology Press, Simon Fraser University, Burnaby.
- Carlson, Roy and P. M. Hobler
1993 The Pender Canal Excavations and the Development of Coast Salish Culture. *BC Studies*, 99:25–52.
- Carney, Molly
2016 Paleoethnobotany on the Columbia Plateau: A Case Study from the Pend Oreille River Valley. Molly Carney. Presented at The 81st Annual Meeting of the Society for American Archaeology, Orlando, Florida. 2016
- Carriere, E., and Dale R. Croes
2018 *Re-awakening Ancient Salish Sea Basketry: Fifty years of Basketry Studies in Culture and Science*, Memoir no. 15, *Journal of Northwest Anthropology*, Northwest Anthropology, Richland, WA.
- Chatters, James, James Brown, Steven Hackenberger, Patrick McCutcheon, and Jonathan Adler
2017 Calcined Bone As a Reliable Medium for Radiocarbon Dating A Test Using Paired North American Samples. *American Antiquity*, 82(3):593–608.
- Chatters, James
1989 The Antiquity of Economic Differentiation within Households in the Puget Sound Region, Northwest Coast. In *Households and Communities*, edited by MacEachern, S., Archer, D., and Garvin, R., pp. 168–178. University of Calgary Archaeological Association, Calgary.
- Chatters, James C., and Jason B. Cooper
2016 Eagle Gorge Terrace (45KI1083) an Upland Hunting Camp and Its Place in the Economic Lives of the Precontact Puget Salish. *Journal of Northwest Anthropology*, 50:192–211.
- Chatters, James C., Jason B. Cooper, Phillippe D. LeTourneau, and Laura C. Rooke
1990 Tualdad Altu (45KI59): A Prehistoric Riverine Village in Southern Puget Sound. *Archaeology in Washington*, 2:23–48.
2011 *Understanding Olcott: Data Recovery at 45SN28 and 45SN303, Snohomish County, Washington*. AMEC Environment and Infrastructure. Submitted to Department of Public Works, Snohomish County, Washington. Copies available from AMEC Foster Wheeler, Bothell, Washington.
- Chatters, James C., and James W. Brown
2016 The Age of Marymoor and its Place in the Cultural Chronology of Puget Sound. Paper presented at the 69th Annual Northwest Anthropology Conference, Tacoma, WA.
- Church, Michael and June Ryder
1972 Paraglacial Sedimentation: A Consideration of Fluvial Processes Conditioned by Glaciation. *GSA Bulletin*, 83(10):3059–3072.
- Claasen, Cheryl
1991 Normative Thinking and Shell Bearing Sites, In *Archaeological Method and Theory*, Vol. III, edited by Michael Schiffer, pp. 249–298. University of Arizona Press, Tucson.

- Clague, John J.
1981 *Late Quaternary Geology and Geochronology of British Columbia Part 2: Summary and Discussion of Radiocarbon-Dated Quaternary History*. Geological Survey of Canada, Paper 80-35.
- Clark, Terence
2000 Prehistoric Culture Change on Southern Vancouver Island: The Applicability of Current Explanations of the Marpole Transition. Unpublished Master's thesis. Department of Anthropology, University of Victoria.
2010 Rewriting Marpole: The Path to Cultural Complexity in the Gulf of Georgia, Unpublished PhD Dissertation. Department of Anthropology, University of Toronto.
2013 *Rewriting Marpole: The Path to Cultural Complexity in the Gulf of Georgia Mercury Series Book 172*. Canadian Museum of Civilization, Ottawa.
- Coupland, Gary, David Bilton, Terence Clark, Jerome Cybulski, Gay Frederick, Alyson Holland, Bryn Letham, and Gretchen Williams
2016 A Wealth of Beads: Evidence for Material Wealth-Based Inequality in the Salish Sea Region, 300–3500 CAL B. P. *American Antiquity*, 81(2):294–315.
- Coupland, Gary
1991 The Point Grey Site: A Marpole Spring Village Component. *Canadian Journal of Archaeology*, 15:73–96.
- Croes, Dale R.
2014 The *Qwu?gwe*s Archaeological Site and Fish Trap (45TN240) and Tested Homestead (45TN396). South Puget Sound Community College Department of Anthropology and the Squaxin Island Tribe Cultural Resources Department.
2016 The Salish Sea: Using Wet and Dry Site Archaeology to Explore the Defining Temporal Characteristics of this Inland Sea. *Journal of Wetland Archaeology*, 15(1):72–108.
- Daniels, Phoebe
2009 A Gendered Model of Prehistoric Resource Depression: A Case Study on the Northwest Coast of North America. Unpublished Ph.D. dissertation. Department of Anthropology, University of Washington, Seattle.
- Davis, Loren G.
2011 The North American Paleocoastal Concept Reconsidered. In *Trekking the Shore: Changing Coastlines and the Antiquity of Coastal Settlement*, edited by N. Bicho, J. Haws, and L. Davis, pp. 3–26. Springer Publishing Co.
- Deo, Jennie N., John O. Stone, and Julie Stein, J.
2004 Building Confidence in Shell: Variations in the Marine Radiocarbon Reservoir Correction for the Northwest Coast over the past 3,000 years. *American Antiquity*, 69:771–778.
- Derr, Kelly M
2012 Intensifying with Fire: Floral Resource Use and Landscape Management by The Precontact Coast Salish of Southwestern British Columbia. Unpublished PhD Dissertation. Department of Anthropology. Washington State University.
- Dethier, D.P., F. Pessl, Jr., R.F. Keuler, M.A. Balzarini, and D.R. Pevear
1995 Late Wisconsinan Glaciomarine Deposition and Isostatic Rebound, Northern Puget Lowland, Washington. *GSA Bulletin*, 107(11):1288–1303.
- Deur, Douglas and Nancy J. Turner, eds.
2005 *Keeping it Living: Traditions of Plant Use and Cultivation on the Northwest Coast of North America*. University of Washington Press, Seattle.
- Dolan, Patrick
2015 Economics and Integration in a Marpole Phase Plank-House Village. Unpublished PhD Dissertation. Department of Anthropology. Washington State University.

- Dragovich, Joe D., Patrick Pringle, and Timothy J. Walsh
1994 Extent and Geometry of the Mid-Holocene Osceola Mudflow in the Puget Lowland—Implications for Holocene Sedimentation and Paleogeography. *Washington Geology*, 22(3):3–26.
- Dubeau, Matthew
2012 An Interpretation of Mammal Remains from the Cherry Point Site (45WH1), Ferndale, Washington. Unpublished Master's thesis, Department of Anthropology, Western Washington University.
- Dugas, Amy E.
1996 Metapodial Reduction: A Case Study from a Northwest Coast Shell Midden. Unpublished Master's thesis, Department of Anthropology, Western Washington University.
- Easterbrook, Don
1986 Stratigraphy and chronology of Quaternary deposits of the Puget Lowland and Olympic Mountains of Washington and the Cascade Mountains of Washington and Oregon. *Quaternary Science Reviews*, 5:145–159.
- Elder, J. Tait, Daniel M. Gilmour, Virginia L. Butler, Sarah K. Campbell, and Aubrey Steingraber
2014 On the Role of Coastal Landscape Evolution in Detecting Fish Weirs: A Pacific Northwest Coast Example from Washington State. *Journal of Island and Coastal Archaeology*, 9:45–71.
- Fedje Daryl, Ian Sumpter, and John R. Southon
2009 Sea levels and archaeology in the Gulf Islands National Park Reserve *Canadian Journal of Archaeology*, 33:234–253.
- Fedje, Daryl, Duncan McLaren, Thomas S. James, Quentin Mackie, Nicole Smith, John R Southon, and Alexander Mackie
2018 A Revised Sea Level History for the Northern Strait of Georgia, British Columbia, Canada. *Quaternary Science Reviews*, 192:300–316.
- Fitzpatrick, Scott M.
2004 Synthesizing Island Archaeology. In *Voyages of Discovery: The Archaeology of Islands*, edited by Scott M. Fitzpatrick, pp. 3–17. Praeger, Westport, CT.
- Fladmark, Knut R.
1982 An Introduction to the Prehistory of British Columbia. *Canadian Journal of Archaeology*, 3:131–144.
- Gaston, Jeanette L.
1975 The Extension of the Fraser Delta Cultural Sequence Into Northwest Washington. Unpublished MA Thesis, Department of Anthropology, Western Washington University, Bellingham.
- Gibbs, George
1970 [1897] Tribes of Western Washington and Northwestern Oregon. *Contributions to North American Ethnology, United States Geographical and Geological Survey of the Rocky Mountain Region*, 1(2):157–361.
- Gillis, Nichole A.
2007 An Investigation of Charles Culture Housepit Deposits at the Ferndale Site (45WH34). Unpublished MA Thesis, Department of Anthropology, Western Washington University, Bellingham.
- Gough Barry M.
2012 *Juan de Fuca's Strait: Voyages in the Waterway of Forgotten Dreams*. Harbour Publishing, Madeira Park, BC.
2017 Charles Duncan, Cape Flattery, and the Strait of Juan de Fuca: A Voyage to the Waterway of Forgotten Dreams. *Terrae Incognitae*, 49(1):37–49. doi:10.1080/00822884.2017.1295597
- Graesch, Anthony
2006 Archaeological and Ethnoarchaeological Investigations of Households and Perspectives on a Coast Salish Historic Village in British Columbia. Unpublished Ph.D. dissertation, Department of Anthropology, University of California Los Angeles.

- 2007 Modeling Ground Slate Knife Production and Implications for the Study of Household Labor Contributions to Salmon Fishing on the Pacific Northwest Coast. *Journal of Anthropological Archaeology*, 26:576–606.
- Grabert, Garland F.
1988 45WH1 Cherry Point. Manuscript on file, Department of Anthropology, Western Washington University, Bellingham, Washington.
- Grayson, Donald K. and David J. Meltzer
2002 Clovis Hunting and Large Mammal Extinction: A Critical Review of the Evidence. *Journal of World Prehistory*, 16(4):313–359.
- Greengo, Robert E.
1968 *Archaeological Investigations at the Marymoor Site (45KI9)*. A Report National Park Service, Region Four, for the Sammamish Flood Control Project. Department of Anthropology, University of Washington, Seattle.
- Grier, Colin
2001 The Social Economy of a Prehistoric Northwest Coast Plankhouse. Unpublished Ph.D. dissertation. Department of Anthropology, Arizona State University, Tempe, Arizona.
2003 Dimensions of Regional Interaction in the Prehistoric Gulf of Georgia. In *Emerging from the Mist*, edited by Matson, R. G., Coupland, G., and Mackie, Q., pp. 170–188. University of British Columbia Press. Vancouver, British Columbia.
2006 Temporality in Northwest Coast Households. In *Household Archaeology on the Northwest Coast*, edited by Sobel, E. A., Trieu Gahr, D. A., and Ames, K. M., pp. 97–119. International Monographs in Prehistory, Ann Arbor.
2007 Consuming the Recent for Constructing the Ancient: The Role of Ethnography in Coast Salish Archaeological Interpretation. In *Be Of Good Mind: Essays on the Coast Salish*, edited by Miller, Bruce G., pp. 384–307. UBC Press, Vancouver, B.C., Canada.
2014 Landscape Construction, Ownership, and Social Change in the Southern Gulf Islands of British Columbia. *Canadian Journal of Archaeology*, 38:211–249.
- 2017 Expanding Notions of Hunter-Gatherer Diversity: Identifying Core Organisational Principles and Practices in Coast Salish Societies of the Northwest Coast of North America. In *The Diversity of Hunter Gatherer Pasts*, edited by Bill Finlayson and Graeme Warren, pp.16–33. Oxbow Books, Oxford.
- Grier, Colin and William Angelbeck
2017 Tradeoffs in Coast Salish Social Action: Balancing Autonomy, Inequality, and Sustainability. In *New Directions in Sustainability and Society*, edited by Michelle Hegmon, pp. 198–213. Cambridge University Press. Cambridge.
- Grier, Colin and Jangsuk Kim
2012 Resource Control and the Development of Political Economies in Small-Scale Societies. Contrasting Prehistoric Southwestern Korea and the Coast Salish Region of Northwestern North America. *Journal of Anthropological Research*, 68(1):1–34.
- Grier, Colin and Margo Schwadron
2017 Terraforming and monumentality in hunter-gatherer-fisher societies. Towards a conceptual and analytical framework. *Hunter Gatherer Research*, 3(1):1–8.
- Grier, Colin and Lisa Shaver
2008 The Role of Archaeologists and First Nations in Sorting Out Some Very Old Problems in British Columbia, Canada. *The SAA Archaeological Record*, 8(1):33–36.
- Grier, Colin, Patrick Dolan, Kelly Derr, and Eric McLay
2009 Assessing Sea Level Changes in the Southern Gulf Islands of British Columbia Using Archaeological Data from Coastal Spit Locations. *Canadian Journal of Archaeology*, 33(2):254–280.
- Grier, Colin, William Angelbeck, and Eric McLay
2017 Terraforming and monumentality as long-term social practice in the Salish Sea region of the Northwest Coast of North America. *Hunter Gatherer Research*, 3(1):107–132.

- Gustafson, Carl E., Delbert Gilbow, Richard D. Daugherty
1979 The Manis Mastodon Site: Early Man on the Olympic Peninsula, *Canadian Journal of Archaeology*, 3:157–164.
- Hanson, D.
1990 Prehistoric Subsistence at the Pender Canal Sites at Surrounding Region. *Northwest Anthropological Research Notes*, 24:195–212.
- Ham, Leonard C., A. J. Yip, and L. V. Kuller
1983 The 1982/83 Archaeological Excavations at the St. Mungo Site (DgRr-2), North Delta, British Columbia. Report on file with the Heritage Conservation Branch, Victoria.
- Henry, Edward R., William Angelbeck, and Uma Z. Rizvi
2017 Against Typology, A Critical Approach to Archaeological Order. *The SAA Archaeological Record*, 17(1):28–31.
- Hodder, Ian
1985 Postprocessual Archaeology. *Advances in Archaeological Method and Theory*, 8:1–26.
1995 *Theory and Practice in Archaeology*. Routledge, New York.
- Hoffman, Tanja, Natasha Lyons, Debbie Miller, Alejandra Dias, Amy Homan, Stephanie Huddleston, and Roma Leon
2016 Engineered Feature Used to Enhance Gardening at a 3800-year-old Site on the Pacific Northwest Coast. *Science Advances*, 2(12):e1601282.
- Hopt, Justin and Colin Grier
2017 Continuity Amidst Change: Village Organization and Fishing Subsistence at the Dionisio Point Locality in Coastal Southern British Columbia. *Journal of Island and Coastal Archaeology*, 13(1):21–42.
- Hutchings, Richard M.
2004 Mid-Holocene River Development and South-Central Pacific Northwest Coast Prehistory: Geoarchaeology of the Ferndale Site (45WH34), Nooksack River, Washington. Unpublished MA Thesis, Department of Anthropology, Western Washington University, Bellingham.
- Huthchings, Richard M. and Scott Williams
2020 Salish Sea Islands Archaeology and Precontact History. *Journal of Northwest Anthropology*, 54(1):22–61.
- Hutchinson, Ian, Thomas S. James, Paula J. Reimer, Brian D. Bornhold, and John J. Clague
2004 Marine and Limnic Radiocarbon Reservoir Corrections for Studies of Late and Postglacial Environments in Georgia Basin and Puget Lowland, British Columbia, Canada, and Washington, USA. *Quaternary Research*, 61(2):193–203.
- Ingold, Tim
1993 The Temporality of the Landscape. *World Archaeology*, 93(25):152–174.
- Johnson, M.
2012 Phenomenological Approaches in Landscape Archaeology. *Annual Review of Anthropology*, 41(41):269–284. doi:10.1146/annurev-anthro-092611-145840.
- Johnstone, David P.
1991 The Function(s) of a Shell Midden Site from the Southern Strait of Georgia. Unpublished Master's thesis, Department of Archaeology, Simon Fraser University, Burnaby, BC.
2003 Early Architecture from the Southern Georgia Strait Region. In *Archaeology of Coastal British Columbia: Essays in Honour of Professor Phillip M. Hobler*, edited by Carlson, R. L., pp. 109–112. Archaeology Press. Simon Fraser University, Burnaby, BC.
- Keddie, Grant
1992 Asking the Right Questions. *The Midden*, 24(3):3–4.
- Kenady, Stephen M., Michael C. Wilson, Randall F. Schalk, and Robert R. Mierendorf
2011 Late Pleistocene Butchered Bison Antiquus from Ayer Pond, Orcas Island, Pacific Northwest: Age Confirmation and Taphonomy. *Quaternary International*, 233(2):130–141.

- Kenady, Stephen M., Randall F. Schalk, M. Wolverton, M. C. Wilson, and R. R. Mierendorf
2008 A New Perspective on the DeStaffany Site, an Early Lithic Site in the San Juan Islands, Washington. *Current Research in the Pleistocene*, 25:105-108.
- Kenady, Stephen M., Susan A. Saastamo, and Rod-erick Sprague
1973 Environmental and Functional Change in Garrison Bay. In *Miscellaneous San Juan Island Reports 1970–1972*. University of Idaho Anthropology Manuscript Research Series 7. Pullman. pp. 39–83.
- Kidd, Robert Stuart
1964 A Synthesis of Western Washington Prehistory from the Perspective of Three Occupation Sites. Unpublished MA Thesis, Department of Anthropology, University of Washington, Seattle.
- King, Arden
1950 Cattle Point: A Stratified Site in the Southern Northwest Coast Region. *American Antiquity*, Memoir 7, 15:1–94.
- Kopperl, Robert E. (Ed.)
2016 Results of Data Recovery at the Bear Creek Site (45KI839) Prepared for the City of Redmond and David Evans and Associates, Inc. SWCA Environmental Consultants, Seattle Washington.
- Kornbacher, Kimberly
1989 Shell Midden Lithic Technology: An Investigation of Change at British Camp (45SJ24), San Juan Island. Unpublished Master's thesis, Department of Anthropology and Sociology, University of British Columbia, Vancouver.
- Larson, Lynn L., and Dennis E. Lewarch
1995 *The Archaeology of West Point, Seattle, Washington: 4,000 Years of Hunter–Fisher–Gatherer Land Use in Southern Puget Sound*. Larson Anthropological/Archaeological Services, Seattle.
- LaSalle, Marina, and Rich Hutchings
2016 What Makes Us Squirm—A Critical Assessment of Community–Oriented Archaeology. *Canadian Journal of Archaeology*, 40:164–180.
- LeClair, Ron
1976 Investigations of the Maurer Site near Agassiz. In *Current Research in Archaeology*, edited by Roy Carlson, pp. 33–42. Department of Archaeology Publication No. 3, Simon Fraser University, Burnaby.
- Lepofsky, Dana, David. M. Schaepe, Anthony P. Graesch, Michael Lenert, Patricia Ormerod, Keith Thor Carlson, Jeanne E. Arnold, Michael Blake, Patrick Moore, and John J. Clague
2009 Exploring Sto:lo–Coast Salish Interaction and Identity in Ancient Houses and Settlements in the Fraser River Valley, British Columbia. *American Antiquity*, 74(4):595–626.
- Lepofsky, D., M. Blake, D. Brown, S. Morrison, N. Oakes, and N. Lyons
2000 The Archaeology of the Scowlitz Site, SW British Columbia. *Journal of Field Archaeology*, 27(4):391–416.
- Lepofsky, Dana, Nicole F. Smith, Nathan Cardinal, John Harper, Mary Morris, Gitla (Elroy White), Randy Bouchard, Dorothy I. D. Kennedy, Anne K. Salomon, Michelle Puckett, Kirsten Rowell, and Eric McLay
2015 Ancient Shellfish Mariculture on the Northwest Coast of North America. *American Antiquity*, 80:236–259.
- Letham, Bryn, Andrew Martindale, Kisha Supernant, Thomas J. Brown, Jerome S. Cybulski, and Kenneth M. Ames
2017 Assessing the Scale and Pace of Large Shell-Bearing Site Occupation in the Prince Rupert Harbour Area, British Columbia. *The Journal of Island and Coastal Archaeology*, 14(2):163–197.
- Letham, Bryn, Andrew Martindal, Nicholas Waber, and Kenneth M. Ames
2018 Archaeological Survey of Dynamic Coastal Landscapes and Paleoshorelines: Locating Early Holocene Sites in the Prince Rupert Harbour Area, British Columbia, Canada. *Journal of Field Archaeology*, 43(3):181–199.

- Lewis, Ian R.
2013 Chasing Clusters: Analysis of Activity Areas to Determine Site Type at the Locarno Beach Phase (3500–2400 BP) Site 45WH55, Chuckanut Bay, Washington. Unpublished MA Thesis, Department of Anthropology, Western Washington University, Bellingham.
- Lindo, John, Alessandro Achilli, Ugo A. Perego, David Archer, Cristina Valdosera, Barbara Petzelt, Joycelynn Mitchell, Rosita Worl, E. James Dixon, Terence E. Fifield, Moretn Rasussen, Eske Willselev, Jerome Cybulski, Brian M. Kemp, Michael DeGiorgio, and Ripan S. Malhi.
2017 Ancient Individuals from the North American Northwest Coast Reveal 10,000 Years of Regional Genetic Continuity. *PNAS*, 114(16):4093–4098.
- Linklater, Eva Mary Mina
1994 The Footprints of Wasahkacahk: The Churchill River Diversion Project and Destruction of the Nelson House Cree Historical Landscape. M.A. Thesis, Simon Fraser University. *Canadian Journal of Archaeology*, 40:181–204.
- Lucas, Gavin
2005 *The Archaeology of Time*. Routledge, New York.
- Lyman, Richard Lee, Michael J. O'Brien, Robert L. Dunnell
1997 *The Rise and Fall of Culture History*. Plenum Press, New York.
- Lyons, N. and M. Ritchie
2017 The Archaeology of Camas Production and Exchange on the Northwest Coast: With Evidence from a Sts'ailes (Chehalis) Village on the Harrison River, British Columbia. *Journal of Ethnobiology*, 37(2):346–367. doi:10.2993/0278-0771-37.2.346.
- Markham, M. Virginia
1993 A Historic Euroamerican Fish Trap Camp at Cherry Point (45WH1). Unpublished MA Thesis. Department of Anthropology. Western Washington University. Bellingham.
- Martindale, Andrew, and Natasha Lyons
2014 Introduction: "Community-Oriented Archaeology." *Canadian Journal of Archaeology*, 38(2):425–433.
- Martindale, Andrew, Natasha Lyons, George Nicholas, Bill Angelbeck, Sean P. Connaughton, Colin Grier, James Herbert, Mike Leon, Yvonne Marshall, Angela Piccini, David M. Schaepe, Kisha Supernant, and Gary Warrick
2016 Archaeology as Partnerships in Practice: A Reply to La Salle and Hutchings. *Canadian Journal of Archaeology*, 40:181–204.
- Martindale, Andrew and Bryn Letham
2011 Causalities and Models within the Archaeological Construction of Political Order on the Northwest Coast of North America. In *The Archaeology of Politics: the Materiality of Political Practice and Action in the Past*, edited by Johansen, P. G. and Bauer, A. M., pp. 323–353. Cambridge Scholars Press, Newcastle.
- Mason, Andrew Robert
1994 The Hatzic Rock Site: a Charles Culture Settlement. Unpublished MA Thesis, Department of Anthropology and Sociology, University of British Columbia, Vancouver.
- Matson, Richard G
1980 Prehistoric Subsistence Patterns in the Fraser Delta: The Evidence from the Glenrose Cannery Site. *BC Studies*, 48:64–85.
2003 The Coast Salish House: Lessons from Shingle Point, Valdez Island, British Columbia. In *Emerging from the Mist: Studies in Northwest Coast Culture History*, edited by Coupland, G., Matson, R. G., and Mackie, Q. University of British Columbia Press, Vancouver.
- Matson, Richard G. and Gary Coupland
1994 *The Prehistory of the Northwest Coast*. San Diego, CA, Academic Press.
- Matson, Richard G., Heather Pratt, and Lisa L. Rankin
2008 1991 1989 and 1990 Crescent Beach Excavations, Final Report: the Origins of the Northwest Coast Ethnographic Pattern: the Place of the Locarno Beach Phase. Unpublished report,

- conducted under HCA Permit No. 1990–067. Copy on file, Archaeology Branch, Ministry of Forests, Lands, and Natural Resource Operations, Victoria. Copy available at the Museum of Anthropology, Audrey and Harry Hawthorn Library and Archives, University of British Columbia, Vancouver.
- Matthes Whitney N.
2016 The Relationship between Plants and People: An Ethnobotanical Study in Partnership with the Muckleshoot Tribe. Masters thesis, University of Idaho. ProQuest Dissertations Publishing.
- Matthews, John A.
1992 The Ecology of Recently Deglaciated Terrain: A Geocological Approach to Glacier Forelands and Primary Succession. Cambridge University Press, Cambridge.
- Mackie, Quentin, Daryl Fedje, Duncan McLaren, Nicola Smith, and Iain McKechnie
2011 Early Environments and Archaeology of Coastal British Columbia. In *Trekking the Shore: Changing Coastlines and the Antiquity of Coastal Settlement*, edited by Bicho, Nuno, Haws, Jonathan, and Loren Davis, pp. 51–103. Springer Science.
- McKechnie, Iain
2014 An Archaeology of Food and Settlement on the Northwest Coast. Unpublished PhD Dissertation. Department of Anthropology. University of British Columbia.
- McLaren, Duncan
2003 Uncovering Historical Sequences in Central Coast Salish Oral Narratives. In *Archaeology of Coastal British Columbia Essays in Honour of Professor Philip M. Hobler*, edited by Roy L. Carlson, pp. 189–202. Archaeology Press, Simon Fraser University, Burnaby B.C.
- McLaren, Duncan, Daryl Fedje, Quentin Mackie, Loren Davis, Jon Erlandson, and Alisha Gavreau
2020 Late Pleistocene Archaeological Discovery Models on the Pacific Coast of North America. *PaleoAmerica*, 6(1):43–63.
- McLay, Eric
2004 To Preserve and Protect the Archaeological Heritage of the Southern Gulf Islands. *The Midden*, 36(3–4):12–17.
- McLay, Eric, Kelly Bannister, Lea Joe, Brian Thom, and George Nicholas
2004 ‘Alhut tu tet Sul’hweentst [Respecting the Ancestors]: Understanding Hul’qumi’num Heritage Laws and Concerns for the Protection of Archaeological Heritage. In *First Nations Cultural Heritage and Law Case Studies, Voices, and Perspectives*, edited by Catherine Bell and Van Napoleon, pp. 150–202. UBC Press, Vancouver, B.C.
- 2008 Alhut tut et Sul’hweentst [Respecting the Ancestors]: Understanding Hul’qumi’num Heritage Laws and Concerns for the Protection of Archaeological Heritage. In *First Nations Cultural Heritage and Law*, edited by Bell, Catherine and Val Napoleon, pp. 150–202. University of British Columbia Press, Vancouver.
- McNiven I.
2004 Saltwater People: spiritscapes, maritime rituals and the archaeology of Australian indigenous seascapes. *World Archaeology: Seascapes*, 35(3):329–349. doi:10.1080/0043824042000185757.
- 2008 Sentinent Sea: Seascapes as Spiritscapes. In *Handbook of Landscape Archaeology*, edited by Bruno David and Julian Thoman, pp. 149–157. Routledge.
- Meltzer, Donald J
2009 First Peoples in a New World: Colonizing Ice Age America. University of California Press, Berkeley.
- Miller, Jay
1999 Lushootseed Culture and the Shamanic Odyssey: An Anchored Radiance. University of Nebraska Press, Lincoln.
- 2011 First Nations Forts, Refuges, and War Lord Champions Around the Salish Sea. *Journal of Northwest Anthropology*, 45(1):71–88.

- Mierendorf, Robert R.
2015 Cascade Pass: A Pre-Mazama alpine Camp in the Northern Cascade Range of Washington State. Paper presented at the 68th Annual Meeting of the Northwest Anthropological Association, Eugene, Oregon.
- Mierendorf, Robert R., and Kevin E. Baldwin
2015 Toolstone Geography in the Northern Cascades of Washington and Adjacent Areas. In *Toolstone Geography of the Pacific Northwest*, edited by T. L. Ozbun and R. L. Adams, pp. 76–106. Archaeology Press, Simon Fraser University, Burnaby, B.C.
- Mierendorf, Robert R., and Franklin F. Foit Jr.
2018 *Holocene Geochronology and Archaeology at Cascade Pass, Northern Cascade Range, Washington*, Memoir no. 16, *Journal of Northwest Anthropology*, Northwest Anthropology, Richland, WA.
- Mitchell, Donald
1967 Archaeological Investigations, Summer 1966. Manuscript on file with the British Columbia Archaeological Sites Advisory Board. Victoria.
1971 Archaeology of the Gulf of Georgia Area, A Natural Region and Its Culture Types. *Syesis 4* (Supplement 1). The British Columbia Provincial Museum: Victoria.
- Monks, Gregory G.
1987 Prey as Bait: the Deep Bay Example. *Canadian Journal of Archaeology*, (11):119–142.
- Monks, Gregory G. and Trevor Orchard
2011 Comment on Cannon and Yang: Early Storage and Sedentism on the Pacific Northwest Coast. *American Antiquity*, 76(3):573–585.
- Montgomery, David R.
2003 King of Fish: The Thousand Year Run of Salmon. Westview Press, Boulder Colorado.
- Morgan, Vera E.
1996 Results of Cultural Resource Survey and testing for the Washington State Department of Transportation's Planned SR 101 Sequim bypass project, Clallam County, Washington.
- Eastern Washington University Reports in Archaeology and History 100-92, Archaeological and Historical Services, Eastern Washington University, Cheney, WA
1998 The Locarno Beach Component at Site 45CA426, Sequim, Washington. Paper presented at Canadian Archaeological Association Conference, Victoria, B.C.
- Morin, Jesse
2014 Rewriting Marpole: The Path to Cultural Complexity in the Gulf of Georgia Regions. *BC Studies*, 182:218–222.
- Mosher, David C and Antony T. Hewlett
2004 Late Quaternary deglaciation and sea-level history of eastern Juan de Fuca Strait, Cascadia. *Quaternary International*, 121:23–39.
- Moss, Madonna
2011 *Northwest Coast: Archaeology as Deep History*. SAA Contemporary Perspectives. Society for American Archaeology Press, Washington D.C.
2012 Understanding Variability in Northwest Coast Faunal Assemblages: Beyond Economic Intensification and Cultural Complexity. *Journal of Island and Coastal Archaeology*, 7(1):1–22.
2016 The Nutritional Value of Pacific Herring: An Ancient Cultural Keystone Species on the Northwest Coast of North America. *Journal of Archaeological Science Reports*, 5:649–655.
- Moss, M.L. and J.M. Erlandson
1998 A Comparative Chronology of Northwest Coast Fishing Features. In *Hidden Dimensions: the Cultural Significance of Wetland Archaeology*, edited by K. Bernick, pp. 180–198. UBC Press, Vancouver.
- Moss, Madonna, Dorothy Peteet, and Cathy Whitlock
2007 Mid-Holocene Culture and Climate on the Northwest Coast of North America. In *Climate Change and Cultural Dynamics: a Global Perspective on Mid-Holocene Transitions*, edited by Anderson, David G., Maasch, Kirk A., and Sandweiss Daniel H., pp. 491–529. Elsevier, Amsterdam.

- Moss, Madonna and Aubrey Cannon (Eds.)
2011 *The Archaeology of North Pacific Fisheries*.
University of Alaska Press, Fairbanks.
- Nelson, Charles. M.
1962 Stone Artifacts From SN100. *Archaeology in
Washington*, 6(4):2–31.
1976 The Radiocarbon Age of the Biederbost Site
(45SN100) and its Interpretive Significance
for the Prehistory of the Puget Sound Basin.
The Washington Archaeologist, 20(1):1–17.
- Nims, Reno
2016 Sablefish (*Anoplopoma fimbria*) Scarcity and
Zooarchaeological Data Quality in Northwest
Coast Archaeological Sites. PhD Dissertation,
Portland State University, Oregon.
- Nordquist, Delmar
1976 45SN100- The Biederbost Site, Kidd's Duval
Site. In *The Excavation of Water-saturated
Sites (Wet Sites) on the Northwest Coast of
North Coast of North America*. edited by
Croes, D., pp. 186–200. National Museum of
Man, Mercury Series, Archaeological Survey
of Canada Paper No. 50, Ottawa.
- Nicholas, George P.
1997 Education and Empowerment: Archaeology
with, for, and by the Shuswap Nation, British
Columbia. In *At a Crossroads: Archaeology and
First Peoples in Canada*, edited by George P.
Nicholas and Thomas D. Andrews, pp. 85–104.
Simon Fraser University Archaeology Press,
Burnaby, B.C.
2000 Archaeology, Education, and the Secwepemc.
In *Working Together: Native Americans and
Archaeologists*, edited by Kurt E. Dongoske,
Mark Aldenderfer, and Karen Doehner, pp.
155–163. The Society for American Archaeology,
Washington, D.C.
2006 Decolonizing the Archaeological Landscape:
The Practice and Politics of Archaeology in
British Columbia. *American Indian Quarterly*,
30(3&4):350–380.
2008 Policies and Protocols for Archaeological
Sites and Associated Cultural and Intellectual
Property. In *Protection of First Nations Cultural
Heritage: Laws, Policy, and Reform*, edited by
Catherine Bell and Robert K. Paterson, pp.
203–220. UBC Press, Vancouver, B.C.
- Oland, Maxine, Siobhan M. Hart, and Liam Frink eds.
2012 *Decolonizing Indigenous Histories Exploring
Prehistoric/Colonial Transitions in Archeology*.
University of Arizona Press, Tucson.
- Orchard, Trevor
2007 Otters and Urchins: Continuity and Change
in the Haida Economy During the Late
Holocene and Maritime Fur Trade Periods.
Unpublished PhD Dissertation. Department
of Anthropology. University of Toronto.
- Orchard, Trevor and Terence N. Clark
2006 Was Salmon Specialization a Northwest Coast
Universal?: Intensification and Generalization
of Prehistoric Northwest Coast Economies.
Poster presented at the 39th Annual Meeting
of the Canadian Archaeological Association,
Toronto, ON.
- Orwin, John F. and C. C. Smart
2004 Short-term Spatial and Temporal Patterns of
Suspended Sediment Transfer in Proglacial
Channels, Small River Glacier, Canada.
Hydrological Processes, 18:1521–1542.
- Percy, Richard
1974 The Prehistoric Cultural Sequence at Crescent
Beach, British Columbia. Unpublished MA
Thesis. Department of Archaeology. Simon
Fraser University, Burnaby, BC.
- Pestle, William J., L. Antonio Curet, Reniel Rodriguez
Ramo, and Miguel Rodriguez Lopez
2013 New Questions and Old Paradigms:
Reexamining Caribbean Culture History
Latin American Antiquity, 24(3):243–261.
- Porter, Stephen C. and Terry W. Swanson
1998 Radiocarbon Age Constraints on Rates of
Advance and Retreat of the Puget Lobe of
the Cordilleran Ice Sheet during the Last
Glaciation. *Quaternary Research*, 58:205–213.
- Pratt, Heather
1992 The Charles Culture of the Gulf of Georgia: A
Reevaluation of the Charles Culture and its
Three Sub-phases. Unpublished Master's thesis,
Department of Anthropology and Sociology,
University of British Columbia, Vancouver.

- Rainbird, Paul
2007 *The Archaeology of Islands*. Cambridge, UK, Cambridge University Press.
- Reimer, Rudy
2012 *The Mountains and Rocks are Forever: Lithics and Landscapes of Skwuxú7mesh Uxumixw*. Unpublished PhD Dissertation, Department of Anthropology, McMaster University, Hamilton, Ontario.
2018 *The Social Importance of Volcanic Peaks for the Indigenous Peoples of British Columbia* *Journal of Northwest Anthropology*, 52(1):4–36.
- Ritchie, Morgan, Dana Lepofsky, Sue Formosa, Marko Porcic, and Kevan Edinborough
2016 *Beyond Culture Historic: Coast Salish Settlement Patterning and Demography in the Fraser Valley, BC*. *Journal of Anthropological Archaeology*, 43:140–154.
- Robinson, Stephan W. and Gail Thompson
1981 *Radiocarbon Corrections for Marine Shell Dates with Application to Southern Pacific Northwest Coast Prehistory*. *Syesis*, 14:45–57.
- Rorabaugh, Adam N.
2017 *Investigating Restricted Knowledge in Lithic Craft Traditions Among the Precontact Coast Salish of the Pacific Northwest Coast of North America*. BAR International Series 2863. BAR Publishing, Oxford.
- Rorabaugh, Adam N. and Kate Shantry
2016 *Credibility Enhancing Displays and the Signaling of Coast Salish Resource Commitments*. *Journal of Island and Coastal Archaeology*, 12(3):380–397.
- Schaepe, David
2003 *Validating the Maurer House*. In *Archaeology of Coastal British Columbia: Essays in Honour of Professor Phillip M. Hobler*, edited by Carlson, R. L., pp. 113–152. Archaeology Press. Burnaby, BC.
2009 *Pre-colonial Sto:Lo-Coast Salish community organization: an archaeological study*. Unpublished PhD thesis, University of British Columbia.
- Schalk, Randall F., and Margaret A. Nelson
2010 *The Archaeology of the Cama Beach Shell Midden (45IS2)*. Report prepared for Washington State Parks and Recreation. Cascadia Archaeology, Seattle.
- Shantry, Kate
2014 *The Distribution and Meaning of Labrets in the Salish Sea*. *Journal of Northwest Anthropology*, 48(1):11–45.
- Smith, Geoffery M., Alexander. Cherkinsky, Carla S. Hadden and Aaron P. Ollivier
2016 *The Age and Origin of Olivella Beads from Oregon LSP-1 Rockshelter: The Oldest Marine Shell Beads in the Northern Great Basin*. *American Antiquity*, 81(3):550–561.
- Smith, Harlan I.
1921 *Unpublished Notes*. BC File 55 Box 10. Ottawa: National Archives of Canada.
- Smith, Nicole, Dana Lepofsky, Ginerva Toniello, Keith Holmes, Louie Wilson, Christina Neudorf, Christine Roberts
2019 *3500 Years of Shellfish Mariculture on the Northwest Coast of North America*. *PlosOne*, 14(2):e0211194.
- Snyder, Sally
1964 *Skagit Society and Its Existential Basis: An Ethnofolkloristic Reconstruction*. Unpublished Ph.D. dissertation. Department of Anthropology, University of Washington, Seattle.
- Springer, Chris, Dana Lepofsky, and Michael Blake
2018 *Obsidian in the Salish Sea: An Archaeological Examination of Ancestral Coast Salish Social Networks in SW British Columbia and NW Washington State*. *Journal of Anthropological Archaeology*, 51:45–66.
- Stein, Julie
1992 *Deciphering a Shell Midden*. Academic Press. San Diego, CA.
2000 *Exploring Coast Salish Prehistory: The Archaeology of San Juan Island*. Burke Museum Monograph, No. 8. Seattle.

- Stein, Julie K. and J. N Deo
2003 Big Sites- Short Time: Accumulation Rates in Archaeological Sites. *Journal of Archaeological Science*, 30:297–316.
- Stein, Julie K. and Laura S. Phillips (editors)
2002 Vashon Island Archaeology. *Burke Museum of Natural History and Culture Research Report*, No. 8. Burke Museum, Seattle.
- Stern, Bernhard Joseph
1934 *The Lummi Indians of Northwest Washington*. Columbia University Press, New York.
- Suttles, Wayne
1951 The Economic Life of the Coast Salish of Haro and Rosario Straits. Unpublished PhD Dissertation. University of Washington. Seattle.
1987 *Coast Salish Essays*. University of Washington Press, Seattle.
- Suttles, Wayne and Barbara Lane
1990 Southern Coast Salish. In *Northwest Coast*, edited by Wayne Suttles, pp. 485–502. Handbook of North American Indians, Vol. 7. Smithsonian Institution, Washington, D.C.
- Taylor, Amanda K., Julie K. Stein, and Stephanie Jolivet
2011 Big Sites, Small Sites, and Coastal Settlement Patterns in the San Juan Islands, Washington, USA. *Journal of Island and Coastal Archaeology*, 6:287–313.
- Thom, Brian
1992 Archaeological Investigations at the Whalen Farm Site (DfRs3), 1949–50: Re-contextualizing Borden's Whalen Farm. Unpublished BA Honors Thesis. Department of Anthropology and Sociology. University of British Columbia, Vancouver.
1995 The Dead and the Living: Burial Mounds and Cairns and the Development of Social Classes in the Gulf of Georgia Region. Unpublished MA thesis, University of British Columbia.
1998 The Marpole–Late Transition in the Gulf of Georgia Region. *The Midden*, 30(2):3–7.
- 2005 Coast Salish Senses of Place: Dwelling, Meaning, Power, Property and Territory in the Coast Salish World. Unpublished PhD Dissertation, Department of Anthropology, McGill University.
- Thompson, Laurence C. and M. Dale Kinkade
1990 Language. In *Northwest Coast*, edited by Wayne P. Suttles, pp. 30–51. Handbook of North American Indians, Vol.7. Smithsonian Institution Press, Washington, D.C.
- Tilley, CY
1994 *A Phenomenology of Landscape: Places, Paths, and Monuments*. Berg, Oxford, U.K; Providence, R.I.
- Trace, Andrew
1981 An Examination of the Locarno Beach Phase as Represented at the Crescent Beach Site, DgRr1, British Columbia. Unpublished MA Thesis. Department of Archaeology. Simon Fraser University, Burnaby, BC.
- Troost, Kathy Goetz
2016 Chronology, Lithology and Paleoenvironmental Interpretations of the Penultimate Ice-Sheet Advance into the Puget Lowland, Washington State. Unpublished PhD Dissertation. Earth and Space Sciences, University of Washington. Seattle, WA.
- Trost, Teresa, Randall Schalk, Mike Wolverton, and Margaret A. Nelson
2011 Patterns of Fish Usage at a Late Prehistoric Northern Puget Sound Shell Midden. In *The Archaeology of North Pacific Fisheries*, edited by Madonna Moss and Aubrey Cannon, 265–280. University of Alaska Press, Fairbanks.
- Walker, Deward E.
1997 The Yakama System of Trade and Exchange. *Northwest Anthropological Research Notes*, 31(1–2):71–95.

- Walker, Sarah L. ed.
2003 Archaeological Investigations at Sites 45SJ165 and 45SJ169, Decatur Island, San Juan County, Washington. *Eastern Washington University Reports in Archaeology and History*, 100–118, Archaeological and Historical Services, Cheney.
- Waters, Michael R. and Thomas W. Stafford
2007 Redefining the Age of Clovis: Implications for the Peopling of the Americas. *Science*, 315(5815):1122–1126.
- Waters, Michael R., Thomas W. Stafford, H. Gregory McDonald, Carl Gustafson, Morten Rasmussen, Enrico Cappellini, Jesper V. Olsen, Damian Szklarczyk, Lars Juhl Jensen, M. Thomas P. Gilbert, and Eske Willerslev
2011 Pre-Clovis Mastodon Hunting 13,900 Years Ago at the Manis Site, Washington. *Science*, 334:351–353.
- Wyatt, Glenda Joan
2015 Sea Level Change in the Gulf Islands National Park Reserve, Southern British Columbia: Implications for the Interpretation of Nearshore Archaeological Features. M.S. thesis, Royal Roads University, Victoria.

ABOUT THE AUTHORS

Adam N. Rorabaugh is an archaeologist for the Washington State Department of Fish and Wildlife. He completed his Ph.D. at Washington State University in 2015. His research focuses on the emergence of hereditary social inequality and modeling social learning in complex hunter-gathering-fishing societies. He works in the Salish Sea and Columbia Plateau.

Kate Shantry is a professional archaeologist currently in the doctoral program at Washington State University. Kate bears 20 years of experience in Puget Sound and her research explores disaster response and effects in Southern Puget Sound during the middle Holocene using a landscape approach. Her expertise includes cultural resources management, labrets, thermal features, and western Washington archaeology.

James W. Brown is a staff archaeologist at Stell and a doctoral candidate in anthropology at Washington State University. His dissertation research focuses on the scale and pace of large shell middens and the spatial and temporal variability in the marine reservoir in the San Juan Islands of Washington State. His expertise includes radiocarbon dating and lithic analysis, and his interests involve Coastal and Plateau Household archaeology.

Historical Archaeology of Fort Boise's Surgeon's Quarters Porch Evidences the Behavior of Children

Nathan J. May

Correspondence
303-585-1378
nmay1453@gmail.com

Abstract *An archaeological excavation underneath the wooden porch of the former Surgeon's Quarters on Fort Boise, Idaho (in Boise, Idaho and now the site of the Boise Veterans Administration Medical Center) has provided an opportunity to explore the archaeology of children on a military fort. The archaeological excavation has recovered children's items dating from the mid-nineteenth to early twentieth centuries. In addition, archival research has provided support for children making unexpected contributions—namely lithic and munitions artifacts—to the archaeological record.*

Keywords

Fort Boise, children, military fort, historical archaeology

Introduction

Military fortifications are a prominent theme of archaeological research because they are typically the most visible remains of conflict. Recent trends in archaeology have shifted from addressing general questions regarding structural trends or military accoutrements to inquiries that explore a wide range of issues regarding class, colonialism, race, economics, and gender, but largely have not focused on the contributions of children (Scott and McFeaters 2011:105). The presence of children, while documented archaeologically (Ferring 1978; Herskovitz 1978; Scott 1989; Walker 1998; Starbuck 2011; Wilson and Langford ed. 2011), has tended to focus on broad patterns and has neglected to address the individual actions of children.

An archaeological excavation underneath the Surgeon's Quarters wooden porch, on the former grounds of Fort Boise, Idaho (1863–1913) (Figure 1), afforded an opportunity to explore the lives of children on a military fort. Archival research—specifically the letters of Emily Fitzgerald, the wife of Post Surgeon John A.

Fitzgerald, who lived in the Surgeon's Quarters from November 1877 to October 1878—has provided intriguing explanations for children's contributions to the archaeological record in the form of toys (both purchased and homemade), lithic materials, and munitions artifacts.

Children on Fort Boise, Idaho

The presence of children on a military fort is not surprising, as they were part of, and integral to, the nineteenth century settlement of the American West (Swords and Kisling 2014:95; Willey and Scott 2015:353). The children of officers and enlisted men were prevalent on Fort Boise and were often featured in daily life and special occasions.

On Fort Boise, children were often the cause of celebration or consternation. In celebration, children received Christmas gifts and participated in birthday parties and family activities; children even marched in Fourth of July parades with the soldiers (Schwantes 1991:116). Children were not just participants, but were often the cause of celebration. One of the first recorded events of Fort Boise was a party for the birth of

FORT BOISE'S SURGEON'S QUARTERS PORCH

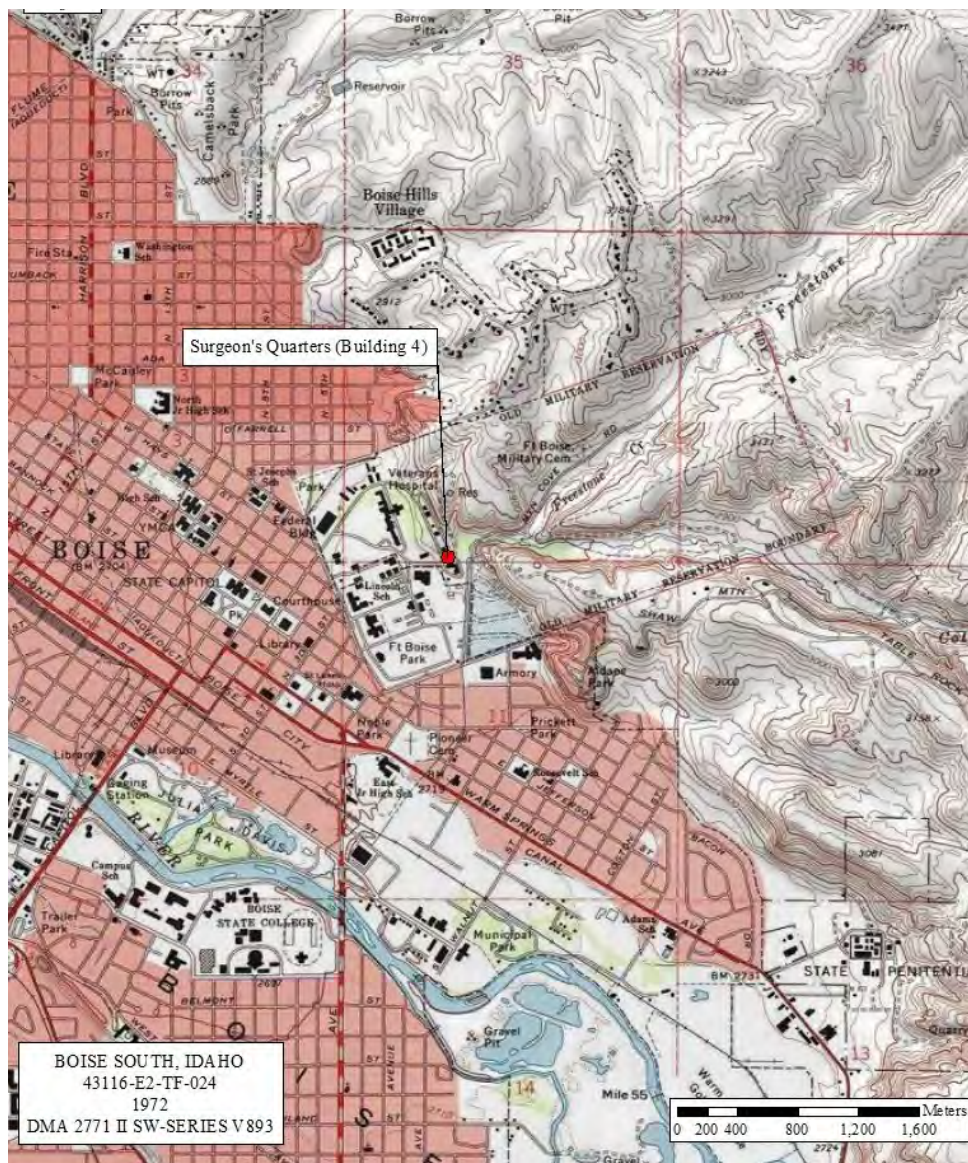
Corporal Stafford's daughter on August 12, 1864 (Idaho Tri-Weekly-Statesman August 12, 1864:2). The frequency of parties for special occasions led William Hilleary, an enlisted man with the Oregon Volunteers, to remark that the officers always had "something new to keep the whiskey running" (Hilleary et al. 1965:154).

A detailed account of the activities of children come from the letters of Emily Fitzgerald, wife of Post Surgeon John A. Fitzgerald. Emily regularly wrote about her two children Bessie Fitzgerald (age five) and Bertie Fitzgerald (age three). Bessie and Bertie were often observed playing with their toys (dolls, marbles, and jacks) on the porch of the Surgeon's Quarters, learning their letters, or playing outside from dawn to dusk.

Emily noted it was not uncommon in warmer weather for the children to be outside all day for several weeks playing on the hillsides, picking wildflowers, digging holes, going on hikes with their father, and hunting for lithic materials or "Indian artifacts" (Laufe ed. 1962:328-330). Hunting for "Indian artifacts" was a pastime John A. Fitzgerald taught to his children. In a letter to her mother, Emily Fitzgerald wrote that:

Bess brought her Papa a piece of stone or glass and said, "See, Papa, I found a piece of flint or glass. I found it in some ashes by the creek. I guess somebody has been camping there and had a fire. Don't you think so?" What pleased John was the idea of

Figure 1. Location of Fort Boise's Surgeon's Quarters in Section 2 of Township 3 North, Range 2 East, Boise Meridian (BM).



a child her age reasoning from the ashes there had been a camp there. It is too funny to hear these children. You know the doctor is always poking into and taking an interest in everything when we are out-of-doors wandering around, and, as he often has the children with him, they, too, gather up stones and roots and bones, etc. and discuss what they are. Bess, and Bert, can talk as learnedly about rocks with mica in them, and gold ore, and flint arrowheads etc. as an old man. Little Indian Arrowheads, flints, and obsidian are found around here, and as the Doctor has often picked up little scales of flint and told the children about the Indians who scaled off those pieces when they are making arrowheads and told them other things about it. Now Bessie picks them up often, and knows them, too, and discusses flint scales with other children, and tells them about Indians. Bert hunts stones and tells other children, who all go with him, which is mica, and which is not, just like an old geologist. (Laufe ed. 1962:328–329)

Hunting for lithic artifacts is an activity in which Bessie and Bertie excelled, and may have resulted in their deposition under the Surgeon's Quarters wooden porch.

The play of children, like Bessie and Bertie, also occurred to the consternation of their parents. The antics of Bessie and Bertie often frustrated Emily, who after witnessing them destroy several toys, admitted while she loved her children she would often “feel like taking their heads off” (Laufe ed. 1962:325). Bessie and Bertie were not the only children whose actions bewildered their parents.

The children of Fort Boise grew up in a social context defined by the military; because of this, they were exposed to firearms. An alarming

accident involving Sergeant Falkner's daughter playing with munitions highlights the trouble to which children at play were exposed. The unnamed six-year-old-daughter of Sergeant Falkner was observed collecting military cartridges, removing the powder from them, placing them into a heap, and lighting the powder pile with a match (Idaho-Tri-Weekly-Statesman May 20, 1882:3). Thankfully the girl only received minor injuries. The anecdote about Sergeant Falkner's daughter demonstrates the access children had to dangerous objects on Fort Boise.

Children of officers and enlisted men, like Bessie and Bertie Fitzgerald, were often featured in daily life and special occasions. Their playful activities with purchased, homemade, and manufactured playthings are discernable in the archaeological record.

The Surgeon's Quarters

The Surgeon's Quarters that Emily, John, Bessie, and Bertie Fitzgerald called home from November 1877 to October 1878, like the grounds of Fort Boise, has changed over time. An 1868 General Land Office (GLO) map (Figure 2) of Township 3 North, Range 2 East, Boise Meridian (BM) does not depict any structures, but does record landforms and roads (Bureau of Land Management n.d.). A road labelled “Road to Idaho City” runs to the northeast across the grounds of Fort Boise and Boise crossing Sections 2, 10, and 14.

Historically, Freestone Creek, fed by Dry Creek and an unnamed creek, ran just north of the Surgeon's Quarters in Section 2, 10, and 14 (Figure 2). By the 1880s, the creeks had been diverted to flow around the buildings (Noll and Bertram 2014:23). Cottonwood Creek historically ran just south of the Surgeon's Quarters (Polk et al. 1984:11). It may have been these creeks that Bessie and Bertie Fitzgerald played around or hunted for lithic artifacts.

The Surgeon's Quarters resides on a hill with the rest of officers' row, faces southwest, and overlooks the parade ground (Figure 3). The two-room sandstone portion of the modern

FORT BOISE'S SURGEON'S QUARTERS PORCH

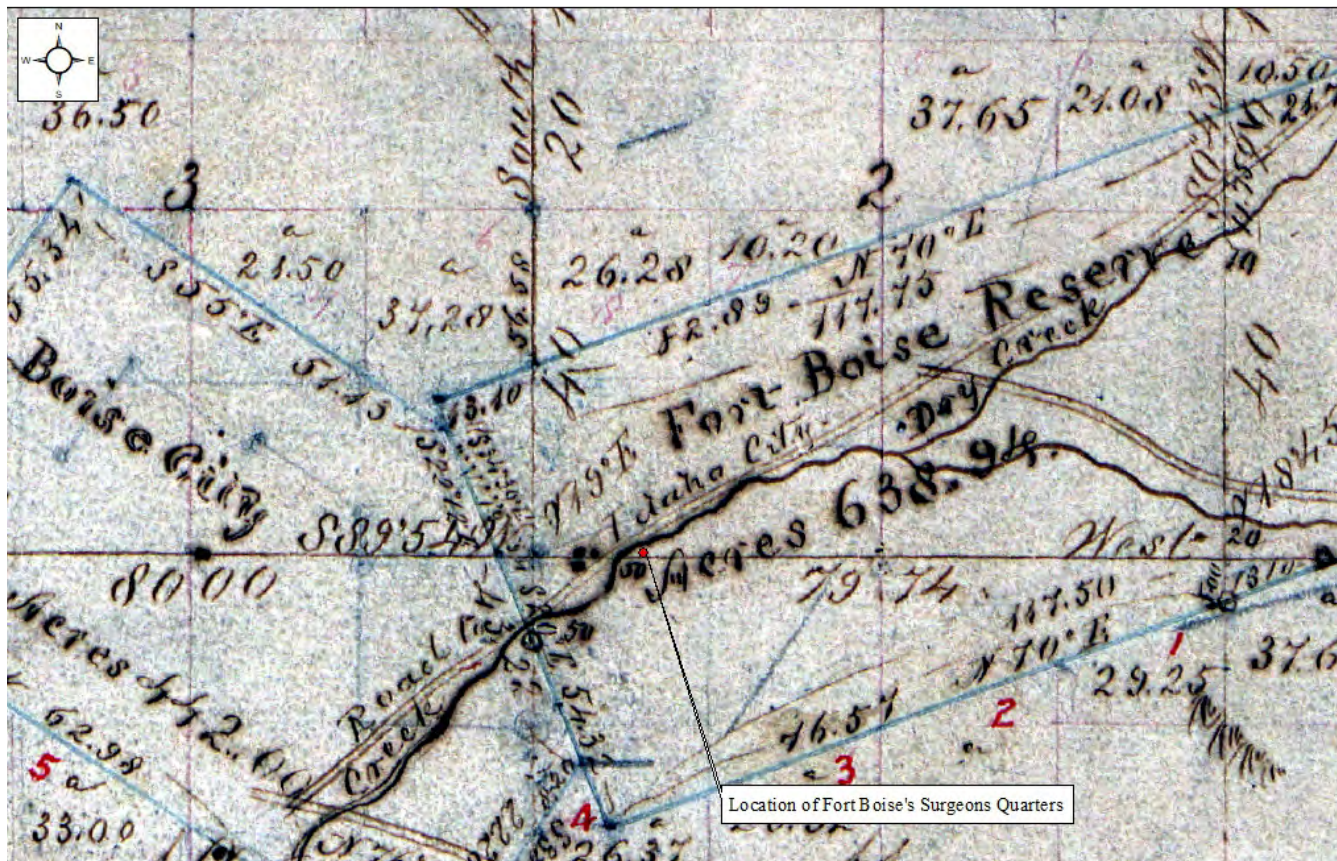


Figure 2. 1868 GLO map showing Fort Boise's Surgeon's Quarters in Sections 2 of Township 3 North, Range 2 East, BM with Boise (to the left of the fort) in Sections 3, 10, and 11 (BLM n.d.).



Figure 3. Plat of Fort Boise Idaho. Building 1: Commanding officer's quarters, single; 2: Commanding officer's quarters, double; 3: Commanding officer's quarters, double; 4: Surgeon's Quarters, single; 5: Post Hospital; 32: flagstaff and parade ground (Patten 1884).

Surgeon's Quarters was completed in the fall of 1863 and remains one of the oldest standing structures in Boise, Idaho (Noll and Bertram 2014:20–21; May 2018b:13). Initially, this sandstone structure (measuring 31 feet long by 16 feet wide) was comprised of two interior rooms and a porch—the subject of the 2014 archaeological excavation. The original sandstone structure was used as the Quartermaster's office from 1863 to 1871, after which time it was converted into a residence (Billings 1875:426; Anonymous 1965).

Early in the 1870s, a two-story brick addition was added to the north elevation of the Surgeon's Quarters; the addition was a front-hip-gable design that intersected with the original stone building to make an 'L' plan (Figure 4) (Noll and Bertram 2014:21). From the 1870s, until the closure of Fort Boise in 1913, the Surgeon's Quarters housed the post surgeon and their family (Noll and Bertram 2014:21). After the fort's closure, the Surgeon's Quarters was subject to reuse.

In the 1950s, after periodically laying vacant, a fire destroyed most of the Surgeon's

Quarters two-story brick addition. After the fire, the two-story brick addition was reconfigured to have a gable roof and was on a reduced footprint (Figure 5). The porch area was also extended northward to cover the front of the brick addition—a configuration it holds to this day (Noll and Bertram 2014:21). The Surgeon's Quarters has shifted from being used as an office space to lying vacant in recent years (May 2018b:39).

Archaeology of Fort Boise's Surgeon's Quarters

Since its addition to the National Register of Historic Places on November 9, 1972 (Wells 1972), Fort Boise has been subjected to numerous renovations, demolitions, and construction projects. Many of these projects have resulted in numerous cultural resource projects, with over 6,000 artifacts related to the U.S. Army recovered (May 2018b:30–31). Of interest to this study is the 2014 excavation underneath the wooden porch of Fort Boise's Surgeon's Quarters.



Figure 4. View of Fort Boise's Surgeon's Quarters circa 1890s—note the two-story brick addition on the left and the porch (Idaho State Historical Society Archives, Boise, Idaho).



Figure 5. Surgeon's Quarters porch prior to excavation—note the reduced two-story brick addition. (Photograph by Mark Warner)

To commemorate the 150th anniversary of the founding of Fort Boise, the Veterans Administration and Preservation Idaho (a local historic preservation organization) sought to renovate the Surgeon's Quarters with the intent of reinstating it to its original integrity. In response to the 2014 renovation, the University of Idaho was able to conduct an excavation underneath the Surgeon's Quarters porch in an area that measured 60 feet long by 7 feet wide (Figure 6).

The porch was gridded into twenty-two one meter units. Levels were arbitrarily excavated in 10cm levels labeled A to D. Level D was the layer the excavation was terminated, as it was largely devoid of artifacts with only a dozen cut nails (likely used in the construction of the Surgeon's Quarters) recovered. The excavation recovered approximately 1,200 artifacts, with most being from levels B through C and relating to mid-nineteenth to early twentieth century domestic life; the lithic materials, munitions, and toys were found in these levels.

Children's Toys, Lithic Items, and Munitions Artifacts

A substantial portion of the artifacts recovered from the 2014 excavation underneath the Surgeon's Quarters porch were related to nineteenth century domestic life on Fort Boise. Two hundred and eight artifacts can be attributed to children, comprised of manufactured, homemade, and found objects of play (Table 1) (May 2018b).

Marbles. Eight marbles were recovered from underneath the wood floorboards of the Surgeon's Quarters porch (Table 2). Marbles are the most common artifacts attributed to children on nineteenth century sites. The United States was a major market for these toys with millions imported into the country from Germany in the nineteenth century (Carksadden and Gartley 1990:55). It should be noted that marbles had a variety of uses in the nineteenth century, such as hem weights and gambling (Swords and Kisling 2014:98); however, the context of the marbles and archival research strongly suggests those



Figure 6. View of Surgeon's Quarters porch being roped off into grid units prior to excavation in 2014. (Photograph by Mark Warner)

recovered from the underneath the Surgeon's Quarters porch were used for play.

Three porcelain marbles were recovered. These marbles were manufactured from the 1850s–1890s and are denoted by their “bull's eye” banding pattern, a common decoration and maker's mark for porcelain marbles made in Germany (Carskadden and Gartley 1990:57, 63). The porcelain marbles are hand painted—one is glazed while the other two are unglazed.

Two crockery, or clay-based, marbles were recovered. The crockery marbles were also likely manufactured in Germany, though marbles of this type were also commercially produced on a small scale in the U.S. from 1884 to roughly

1919 (Randall 1971:103). Crockery marbles are identified by their blue or brown glaze. They generally have small pock marks on their sides where they rest against other marbles during the firing process (Randall 1971:103), as is exhibited in the two marbles recovered (Figure 7). The two crockery marbles recovered from underneath the Surgeon's Quarters porch have a blue glaze giving them a tie-dyed look.

Three handmade glass marbles recovered were also likely manufactured in Germany, where they were produced from 1846 to 1914. United States manufacturers were late to the production of glass marbles and were only able to overtake German production with the advent

Table 1. Children's Toys Recovered from Under the Surgeon's Quarters Porch

Type	Count
Marbles	8
Dolls and related toys	17
Writing utensils	19
Game pieces	3
Cast-iron toys	2
Rubber toys	3
Paper toys	143
Homemade toys	13
Total	208

Table 2. Seriation of Marbles Recovered from Under the Surgeon's Quarters Porch

Marble Type	Date Range	Count	Comments	Reference
Hand-made glass	1846–1914	3	Likely imported from Germany; identifiable by two indistinguishable spots.	Randall 1971:104
Porcelain; also called "Chinas"	1850s–1890s	3	Bullseye pattern on marble, was common made in Germany stamp; hand painted; one glazed, two unglazed.	Carskadden and Gartley 1990:57, 63
"Crockery" clay based marble	1870s–1920s	2	Crockery marbles; clay based; small pock marks on their sides where they rested against the other during firing process.	Randall 1971:103
Total	-	8	-	-



Figure 7. Sample of marbles from left to right: one crockery (note the pock marks), one unglazed porcelain, one crockery, and one glazed porcelain.

of the First World War (Randall 1971:104). It would not be until the 1920s that the United States was able to make major inroads into the domestic market when M. F. Christensen of Akron, Ohio invented the glass marble-making machine (Carskadden and Gartley 1990:55). Handmade marbles are distinguishable from machine-made by the presence of two irregular spots at opposite sides of the marble; these spots occur at points where the marble was twisted and cut from a glass rod and then ground to a rough finish (Randall 1971:104). Three glass marbles were recovered. One glass marble is cracked, crazed, and chipped—a possible sign of use—and has one irregular spot. The other two glass marbles also have signs of use; they also have two irregular spots indicating they were handmade (Figure 8).

Dolls and Related Toys. Twenty-one doll parts and doll-related artifacts were recovered. Dolls

and related toys were ubiquitous playthings that were homemade or manufactured from a variety of material such as wood, cloth, or porcelain bisque (Gilchrist 1981:96; Ketchum Jr. 1981:31). Related doll toys included doll houses, clothes, ceramic dish sets, or any other everyday item to accompany a doll (Ketchum Jr. 1981:53).

One Frozen Charlotte doll was recovered. Frozen Charlotte dolls are made of a single-bodied porcelain and were popular from the mid-nineteenth to early twentieth century. These dolls were common, mass-produced, and cost a penny (Schroeder and Cohen 1971:36; Swords and Kisling 2014:99). Nine fragments of dolls (unglazed porcelain bisque making up the eyes, face, and other body parts) were recovered from underneath the Surgeon's Quarters porch. Five of these fragments are likely associated with the face and body parts of the doll.

Four fragments are dolls eyes; two are loose eyes while the other two are fragments.

FORT BOISE'S SURGEON'S QUARTERS PORCH

All four dolls eyes are different sizes and are likely from more than one doll. Two ceramic doll teacups (Figure 9) and one pewter saucer were recovered. One leather doll shoe was also recovered; detachable doll shoes were a relatively new trend for the toy and one that “nearly sent her [Bessie] wild” (Laufe ed. 1962:321) (Figure 10). Three articles of doll clothing were also recovered; one is a blouse, the other possibly a dress (Figure 11), and the last a small sock.

Writing Utensils. Twenty-one writing utensils were recovered. While undoubtedly speaking to the activities of enlisted men, along with officers and their wives, the assemblage may also evidence literacy or educational play of children. Four slate pencils and six wood pencils were recovered. Eleven crayons were recovered and likely date to the early twentieth century (Grover 1992).

Games. Three gaming pieces, two iron jacks, and one puzzle piece were also recovered. The jacks are rusted and the puzzle piece is made of paper. Puzzles and games were activities both parents and children participated in together (Ketchum Jr. 1981:97).

Cast-Iron Toys. Two cast-iron toy wheels were recovered and are heavily oxidized and rusted. Cast-iron toys were common in the nineteenth century and took a variety of forms as accessories for other toys, such as dolls and soldiers, or as trains, boats, and automobiles (Schroeder and Cohen 1971:100–114; Ketchum Jr. 1981:64–69). Either cast-iron toy wheel may have been from a toy wagon, automobile, train, or a cast-iron cannon (Ketchum Jr. 1981:69–70).

Rubber Toys. Three rubber toy animals (a lion, a dog, and one unidentified animal) were recovered from the Surgeon's Quarters. Animal figures as toys were common inexpensive playthings made of composite material, wood, or rubber (Ketchum Jr. 1981:25). The rubber toy animals likely date to mid to late nineteenth century to

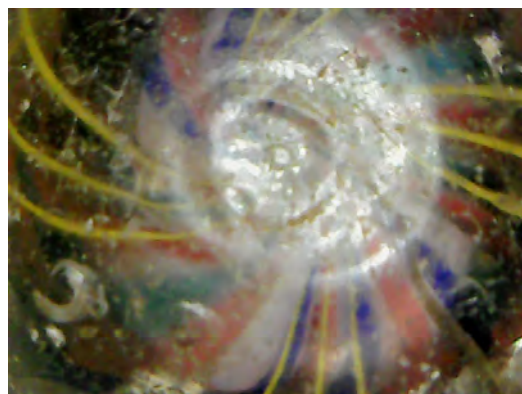


Figure 8. Close-up view of irregular spot on a glass marble indicating it was handmade.

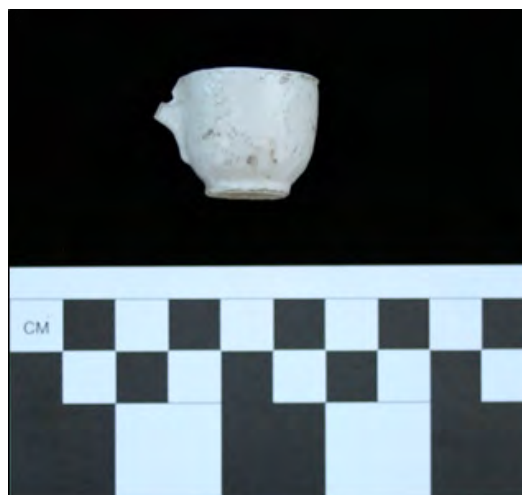


Figure 9. View of a doll's ceramic tea cup with a broken handle.



Figure 10. Leather doll shoe recovered and not unlike the one that may have sent Bessie “wild” (Laufe 1962:321).

early twentieth century (Schroeder and Cohen 1971:45). These toys may have been played with individually or in groups, such as in a Noah's ark toy set which was popular in the nineteenth century (Schroeder and Cohen 1971:45; Ketchum Jr. 1981:18–19).

Paper Toys. One hundred and forty-three paper toy fragments were recovered from underneath the Surgeon's Quarters porch. Paper toys were inexpensive, mass-produced, and sold in a large quantity in a variety of playthings, such as paper or dressing dolls, shadow puppets, construction sheets, cardboard figures, board games, and lithographed or engraved paper theaters (Ketchum Jr. 1981:91–97).

Several of the paper toys, decayed and fragmentary, have yarn, indicating some of the assemblage may have been paper dolls (Figure 12). Some of the paper toys have a faded "Made in Germany" stamp indicating they were likely made between 1890 and 1914 (Schroeder and Cohen 1971; Ketchum Jr. 1981:91). As with marbles, Germany dominated the toy industry in the nineteenth and early twentieth century (Schroeder and Cohen 1971:11; Ketchum Jr. 1981:91; Carskadden and Gartley 1990).

While many patterns have since faded, some motifs are discernible—letters and patterns still appear on several fragments (Figures 13 and 14). Some of the paper toy fragments may have had crayon or pencil markings on them indicating these toys may have been from books or education sheets as late nineteenth century attitudes towards play often centered on constructive outlets (Howe 1976; Foy and Schlereth 1992).

Handmade Toys. Thirteen handmade toys were recovered. Handmade, or folk, toys were common playthings; many thrifty parents crafted their own or altered purchased toys for their children (Ketchum Jr. 1981:8). Some of the handmade toys appear to be accessories for manufactured toys such as dolls. These fragments may simply have been found objects that were incorporated into play. It was not uncommon for children to



Figure 11. View of a doll clothing—possibly a dress—recovered.



Figure 12. View of a sample of the paper toy fragments with yarn.

play with discarded objects (Swords and Kisling 2014:103). A hand whittled bayonet/dagger was recovered. This piece is carved of milled wood and is distinctly shaped (Figure 15). The hand whittled bayonet/dagger may reflect childhood on a military fort.

Lithic Items. Twenty-five lithic flakes were recovered from a built environment and amongst mid-nineteenth and early twentieth century domestic artifacts (Table 3; Figures 16 and 17). The initial find proved puzzling, but archival research has provided an intriguing explanation for Bessie and Bertie's role in the deposition of the twenty-five lithic flakes. Twenty-two obsidian flakes were recovered with most being percussion flakes. Two chert flakes were recovered. One of the chert flakes may have been utilized as a scraper. One flint lithic flake was recovered.

Munitions. Forty-nine munitions (cartridges, cartridge cases, and projectiles) were recovered from underneath the Surgeon's Quarters porch. While this is unsurprising, given that the Surgeon's Quarters is on a military fort and the building was initially used as the Quartermaster's office, it is interesting when archival research provides another possible explanation, such as children



Figure 13. Zoomed view of an “f” letter on a paper toy fragment.



Figure 14. View of bullseye pattern on paper toy.



Figure 15. View of handmade bayonet/dagger.

Table 3. Lithic Items from Under the Surgeon's Quarters Porch

Type	Count	Percent	Comments
Obsidian	22	88	Percussion flakes present
Chert	2	8	Percussion flakes; one possible scraper
Flint	1	4	Worked edges
Total	25	100	-



Figure 16. Sample of lithic items recovered from the Surgeon's Quarters. From left to right: flint, chert (potential scraper), and two obsidian flakes.



Figure 17. View of obsidian flakes recovered.

at play, for the assemblage's deposition amongst domestic artifacts (May 2018a:77).

Analysis of munitions include shape, primer technology, head stamps, measurement of projectile (bullet) or cartridge diameter, and identification of cartridge type (Mathews 1962). Variations in cartridge size, typically denoted by short or long categories, represents grams of gunpowder contained within the cartridge (Herskovitz 1978:50). Head stamps on cartridge cases were adopted in the 1870s to denote various manufacturers (Barber 1987:1). Rifling marks appear on projectiles when fired from a gun that is barreled with distinct grooves.

Nineteen projectiles (referring to any bullet that is discharged from a firearm) were recovered from underneath the Surgeon's Quarters porch (Table 4).

Two .45-405 grain caliber projectiles recovered are associated with a Model 1873 Springfield

carbine and the Model 1873 Springfield rifle (Herskovitz 1978:46; McChristian 2007:200; Barnes 2012:96; Scott 2013:137). One of the .45-405 grain projectiles has extraction marks on either side of the bullet's head (Figure 18).

Two .45 caliber conical bullets were recovered (Figure 19). These projectiles are associated with a Colt Single Action Army Revolver Model 1873 or a Smith and Wesson Schofield revolver; .45 caliber conical bullets are discernible by their weight of 143 grains (Herskovitz 1978:52; Barnes 2012:364-365).

Three heavily oxidized .44 caliber round balls associated with a Colt Model 1860 Army revolver, percussion pistols, or muzzle loading rifles were recovered (Herskovitz 1978:46; Carlson-Drexle et al. 2008:62, 127). These may have been surplus from the Civil War, but the .44 caliber round balls were commonly used throughout the 1870s (McChristian 1995:116-117).

Table 4. Surgeon's Quarters Projectiles (May 2018a)

Caliber	Associated Firearm(s)	Count	Comments	References
.45-405	Model 1873 Springfield carbine and Model 1873 Springfield rifle	2	Extraction marks present on one	Poyer and Reisch 2011:224; Scott 2013:139
.45	Colt .45 and Smith and Wesson Schofield	2	One is impacted	Herskovitz 1978:42; Barnes 2012:364-365; Scott 2013:98
.44	Percussion Pistol; Colt Model 1860 Army revolver	3	Spherical ball; cast marks	Herskovitz 1978:52; McChristian 1995; Carlson-Drexle et al. 2008:62, 127
.30	Model 1816 Springfield Musket or one of many variations including converted flintlocks, or one of numerous shotguns	1	Spherical ball; may have been used in a buck and ball load or as a shotgun	Carlson-Drexle et al. 2008; Scott et al. 2008:39; Haecker 2014:67
.22	Multiple	1	One shot; impacted	Suydam 1960; Barber 1987
Shotgun pellets	Shotgun/Foraging Gun	8	Small	Herskovitz 1978:52
N/A	-	2	Impacted; too damaged	-
Total	-	19	-	-



Figure 18. View of 45-405 Springfield projectile with an extraction mark on its head.



Figure 19. View of two .45 caliber bullet associated with a Colt .45 and a Smith and Wesson Schofield sidearm – note the impacted bullet on the right.

One .30 caliber round ball, potentially associated with a buck and ball load, was recovered (Figure 20). The .30 caliber round ball has a dimpled impression—a common attribute for the buck and ball load (Carlson-Drexle et al. 2008:127; Scott et al. 2008:39). The .30 caliber round ball, in the buck and ball load, was used in a Springfield Model 1842 and saw continued use as a hunting round through the 1880s (McChristian 2007:173; Haecker 2014:67). It is also possible that the .30 caliber round ball is shot from a shotgun shell which may also leave a dimple impression (Barnes 2012:512).

One .22 caliber projectile was also recovered and may evidence recreational activities.

Eight shotgun pellets were recovered (Figure 21). Shotgun pellets likely represent hunting activities. The shotgun pellets may have been privately supplied, as prior to 1881, the U.S. Army had no policy of issuing a standard shotgun with many regiments or officers privately procuring shotguns for foraging (McChristian 2007:173).

Two other projectiles recovered are not identifiable as both were shot and distorted from impact.

Thirty cartridges and cartridge cases (metallic cases designed to hold the primer, powder, and bullet [Suydam 1960:14]) were recovered from under the Surgeon's Quarters porch (Table 5).

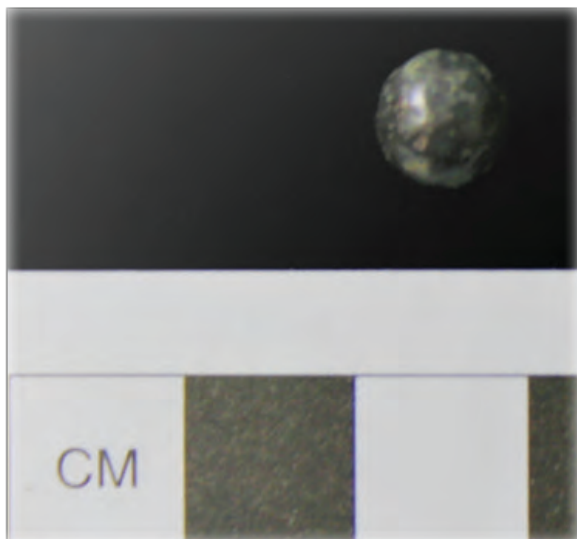


Figure 20. View of .30 caliber round ball – note the dimple impression.

Five .45-70 caliber cartridge cases recovered are associated with the Model 1873 Springfield carbine and rifle. All five cartridges are manufactured by the Frankford Arsenal, as denoted by an “F” head stamp, from the 1870s to mid-1880s. Three of the cartridge cases are head stamped with a ‘C’ for carbine while the other two have an impressed ‘R’ for rifle (Herskovitz 1978:50; Poyer and Reisch 2011:224). Four of the five have been fired with a fifth, a likely misfire retaining its projectile (Figure 22).

Eight .45 caliber cartridge cases recovered correlate with the Colt Model Single Action Army Revolver Model 1873 or a Smith and Wesson Schofield revolver (Barnes 2012:364–365). All eight .45 caliber cartridge cases are internally primed and bear no head stamp, suggesting they were manufactured in the 1870s (Herskovitz 1978:49). One cartridge case recovered is a .45 Colt (Figure 23) while the other seven are a .45 Smith and Wesson Schofield cartridge case. Differences between the two are discernable by length, with the .45 Smith and Wesson Schofield being shorter than the .45 Colt cartridge case (Barnes 2012:364–365). The .45 Smith and Wesson Schofield also has a slightly larger rim diameter than the Colt .45 cartridge case (Herskovitz 1978:49; Barnes 2012:364–365, 562).

One .45 Automatic Colt Pistol caliber cartridge case, manufactured by the Frankford Arsenal, was recovered and dates to 1911 based



Figure 21. View of shotgun pellets recovered.

Table 5. Surgeon's Quarters Cartridges and Cartridge Cases (May 2018a)

Caliber	Associated Firearm(s)	Count	Comments	Reference
.45-70	Model 1873 Springfield carbine and Model 1873 Springfield rifle	5	Five fired; one with projectile intact. Denoted as a carbine because of the impressed "C" on the head stamp	Poyer and Riesch 2011:225; Scott 2013:139
.45	Colt Single Action Army Revolver Model 1873 or Smith and Wesson Schofield revolver	8	All fired; seven Colt-Schofield, one Colt cartridge case.	Barnes 2012:364-365; Scott 2013:98
.45	Colt Government Model auto-pistol and its copies and Colt's and Smith and Wesson Army Model 1917 revolvers	1	Fired; oxidized;	Barnes 2012:361
.38	Colt M1892 Army and Navy Revolver	1	Long Colt; manufactured by the Frankford Arsenal	Barnes 2012:345
.38	Multiple	2	Rimfired; both with an impressed "U" for Union Metallic Cartridge Company	Suydam 1960:67-69; Barber 1987:48; Barnes 2012:500
30-06	Model 1903 Springfield service rifle	3	Heavy oxidization on two; one identified as Frankford Arsenal May 1910	Barnes 2012:62
.22	Multiple	10	Four without head stamp; three with impressed "H"; two with impressed "R"; one exploded. All are .22 short	Suydam 1960:49-63; Barber 1987:1, 55, 69
Total	-	30	-	-



Figure 22. View of .45-70 misfired cartridge associated with the Model 1873 Springfield carbine and rifle.

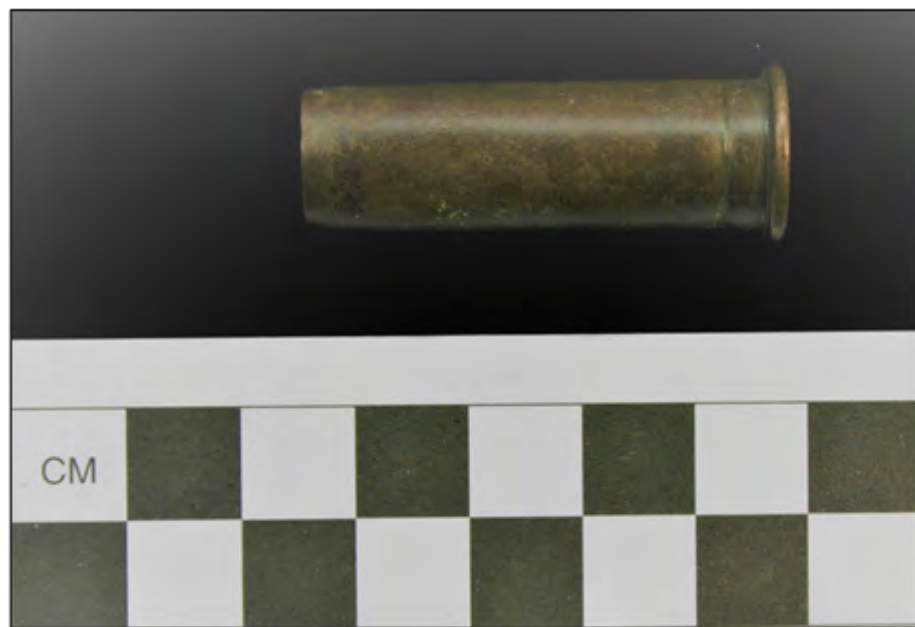


Figure 23. View of .45 Colt cartridge case associate with the Colt Model Single Action Army Revolver Model 1873 or a Smith and Wesson Scofield revolver.

on the head stamp. The .45 caliber cartridge, a solitary find, may date to Fort Boise's later period as the cartridge was military-adopted and issued by the United States in the waning years of Fort Boise (Anonymous, Post Returns, Boise Barracks 1910; Polk et al. 1984; Barnes 2012:361). The .45 Automatic Colt Pistol caliber cartridge case is associated with the Colt Government Model auto-pistol and its copies along with Colt's and

Smith and Wesson Army Model 1917 revolvers (Barnes 2012:361).

One .38 Long Colt caliber cartridge recovered highlights changes in the late-nineteenth century U.S. Army arms starting with the Colt Model 1892 Army and Navy Revolver (Barnes 2012:345). The head stamp of the .38 Long Colt caliber cartridge indicates it was manufactured by the Frankford Arsenal in 1902. The .38 Long

Colt retains its projectile and may be the result of a misfire (Figure 24).

Two .38 caliber rimfire cartridge cases recovered were popular recreational rounds used throughout the West before adoption by the U.S. Army (Suydam 1960:82). These cartridge cases differ from the centerfire military round being distinctly rimfire. The .38 rimfire cartridge was used recreationally in revolvers or sporting rifles (Barnes 2012:500). One .38 caliber rimfire cartridge case has an impressed “U” head stamp, indicating it was manufactured by the Union Metallic Cartridge Corporation (Figure 25). This particular cartridge dates to the middle period of Fort Boise (1870–1880 [Barber 1987:48]).

Three 30-06 cartridge cases recovered also date to the early twentieth century and are associated with a Model 1903 Springfield service rifle (Barnes 2012:62). One of the 30-06 cartridge cases has a head stamp indicating it was made in May 1910 by the Frankford Arsenal in Philadelphia, Pennsylvania. Two other cartridges are still too oxidized after cleaning for analysis.

Ten .22 caliber cartridge cases, typically associated with recreational firearms use (Suydam 1960:69), were recovered. Four .22 caliber cartridge cases lack any head stamp, indicating that they are amongst the earliest manufactured. Three have an impressed “H,” indicating that

they were manufactured by the Winchester Repeating Arms Company. Two cartridge cases have an impressed “R,” indicating they were manufactured by the Robin Hood Ammunition Company from 1906 to 1915 (Barber 1987:69). One .22 caliber cartridge case exploded and is too damaged for analysis.



Figure 24. View of .38 Long Colt caliber cartridge.

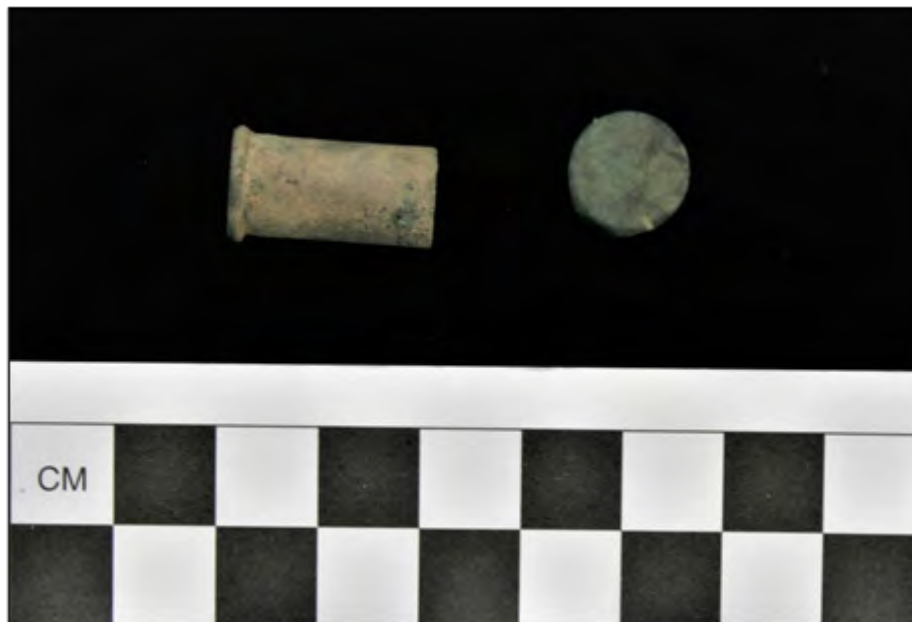


Figure 25. View of two .38 caliber rimfire cartridge cases—note the faded impressed “U” head stamp and the firing pin mark on the rim of the cartridge case.

Discussion

Archival research and an archaeological excavation underneath the Surgeon's Quarters porch has provided an opportunity to explore the lives of children, such as Bessie and Bertie Fitzgerald, on a military fort. The archaeological and historical records documented that children possessed and played with a diverse range of toys, both purchased and handmade, and also incorporated found objects, such as lithic artifacts and cartridges, into their play.

Constructive forms of play were common in the late-nineteenth century. Playful activities associated with educational development, such as singing, reading, and writing, were believed to be crucial to the moral and physical development of children (Grover 1992:9). Writing utensils recovered from the Surgeon's Quarters suggests children engaged in constructive play. Emily Fitzgerald wrote that Bessie and Bertie were often engaged in learning their letters and practicing their penmanship with blocks, paper toys, and on slate boards (Laufe 1962:329).

Children were not limited to constructive forms of play—the eight marbles, paper toys, handmade bayonet/dagger, and dolls suggest there were several purchased and handmade items provided to children. Purchased toys could also be repurposed. On December 25, 1877, Emily wrote that toys for the children were not only purchased or handmade, but that an old doll of Bessie's was being turned into Zouave Soldier for Bertie (Laufe ed. 1962:321). It is not without reason to see some toys, like those of the doll assemblage, as subjected to homemade alteration to fit the gender or interest of the child—something not always discernable archaeologically. Consequently, artifacts such as those of the doll assemblage could have held different meanings for different children at different times.

Some toys, such as the dolls and handmade bayonet/dagger, indicate children emulated adult roles. Toys had an aspect of socializing children into their assumed societal roles—much of which was defined by their surroundings and

the social context in which children grew up (Baxter 2005). The handmade bayonet/dagger in particular likely reflects a childhood spent on a military fort. Bessie and Bertie, as well as other children on Fort Boise, undoubtedly observed cavalry and infantry drill on the parade ground. At the outset of the Bannock War in 1878, Emily was astonished by the constant stir of troops coming and going (Laufe ed. 1962:337). It is likely that children mimicked the marching, drills, and soldiers handling weapons that they observed; perhaps some children even pretended they too were marching off on campaign.

Similarly, the two ceramic doll teacups and the pewter saucer may have also allowed for children to emulate other adult roles. Emily and John often entertained guests. Governor Mason Brayman and his wife Marry Williams Brayman frequently spent time at the Surgeon's Quarters for tea and other social activities (Laufe ed. 1962:333). These types of social events may have been observed and practiced by the children mimicking adult activities.

Children often include found objects in their play. As noted in the previous section, twenty-eight lithic flakes were recovered. Initially the lithic artifacts proved to be a puzzling find due to the Surgeon's Quarters porch-built environment (being a constructed feature in 1863), domestic context, and only one other archaeological investigation at Fort Boise documenting two lithic artifacts (See Campbell et al. 2017). Although it is possible the lithic flakes were the result of a precontact camp along the Freestone or Cottonwood Creeks, it is more probable that, given the context of the lithic artifacts (amongst mid-nineteenth and early twentieth century domestic artifacts), in a built environment, and as the letters of Emily Fitzgerald suggest, some were collected and deposited by Bessie and Bertie.

Emily describes how her husband John often picked up "little scales" to describe to Bessie and Bertie how projectile points were made. In turn, Emily observed that Bessie and Bertie had learned what to look for and had gone off on

their own “adventures” to find lithic artifacts. Subsequently, Bessie and Bertie taught the other children of Fort Boise (Laufe ed. 1962:328–329). It is possible other children engaged in this pastime and included lithic flakes in their play or, as Bessie and Bertie did, demonstrated their mental prowess to their parents and other children. It is likely that the accumulation of some of the lithic artifacts amongst mid to late nineteenth century artifacts were the result of Bessie and Bertie at play.

Cartridges, cartridge cases, and projectiles were also likely found objects used in play. Forty-nine munitions-related artifacts were recovered from the Surgeon’s Quarters. Some of this assemblage, such as shotgun pellets or the ten .22 caliber cartridges recovered, are the likely result of recreational firearms use (May 2018a:82). The rest of the assemblage, associated with military firearms, may have been used for play. Finding munitions-related artifacts on a military fort is not surprising, and while the sandstone structure had been used as the Quartermaster’s office during the 1860s, most of these military firearms postdate this use of the structure.

Cartridges, cartridge cases, and projectiles may have been gathered in a similar manner to the lithic assemblage, with children being instructed in the principles of firearms use after they brought cartridges, cartridge cases, and projectiles back to show their parents (or vice versa). The alarming accident of Sergeant Falkner’s daughter demonstrates that children interacted with munitions-related artifacts through play or curiosity. Children were often exposed to situational learning defined by their social context (Baxter 2005:51), here defined by the military and including firearms. It is likely that some of the munitions assemblage may have been the result of children.

Children created some idiosyncrasies to the archaeological record recovered from underneath the Surgeon’s Quarters porch on Fort Boise as attested by the toys, lithic items, and munitions artifacts. At play, children were not only provided with constructive outlets, but were also able to roam the grounds of Fort Boise, interacting with and incorporating items from their surroundings into their play. The result was unique contributions to the archaeological record that are discernable when the erratic behavior of children is considered.

Conclusion

The contributions of children to the archaeological record have been examined through archival research, the letters of Emily Fitzgerald, and material recovered from underneath Fort Boise’s Surgeon’s Quarters wooden porch. The children of the Surgeon’s Quarters were supplied with a diverse set of manufactured toys, which speaks to the class, values, and purchasing power of their parents. However, the children still used found and homemade objects of play. The acquisition of lithic and munitions artifacts demonstrates children’s ability to involve found or discarded objects in play.

The patterns of behavior of children on Fort Boise led to unlikely contributions to the archaeological record. Though other aspects of the forty years of archaeological investigations at Fort Boise have established broad patterns, the excavated material recovered from under the Surgeon’s Quarters porch provides insight into the archaeology of childhood.

ACKNOWLEDGMENTS

This article has benefited from comments, criticisms, and encouragement from a number of individuals. Specifically, I would like to thank Skylar Bauer, Charles M. Haecker, Renae Campbell, Molly Swords, Douglas D. Scott, Lee Sappington, and Mark Warner. Research on this collection would not have been possible without the University of Idaho, the John Calhoun Smith Memorial Fund, and the Idaho State Historical Society. Lastly, but by no means least, I would like to thank my mother, Donna, and my father, Anthony.

REFERENCES CITED

- Anonymous
1965 National Archives Microfilm Publications: Microcopy No. 617, Roll 122–125: Returns from U.S. Military Posts, 1800–1916; Boise Barracks. Washington D.C., National Archives and Records Administration.
- Barber, John L.
1987 *The Rimfire Cartridge in the United States and Canada; an illustrated history of its manufacturers and their products, 1857 to 1984*. Tacoma, Washington, Armory Press.
- Barnes, Frank C.
2012 *Cartridges of the World. Rev. 15th ed.* Northfield, Illinois, Digest Books.
- Baxter, Jane Eva
2005 *The Archaeology of Childhood: Children, Gender, and Material Culture*. Walnut Creek, California, Altmira Press.
- Billings, John S.
1875 *A Report on the Hygiene of the United States Army, with Descriptions of Military Posts*. Washington D.C., Government Printing Office.
- Bureau of Land Management
n.d. 1868 General Land Office Cadastral Plat Map, Township 3 North, Range 2 East, Boise Meridian. Electronic Document <https://glorerecords.blm.gov/LandCatalog/Catalog>, accessed May 22, 2020.
- Campbell, Renae, Nathan Allison, Victoria Bochniak, Rachel Falzon, Nathan J. May, Emma Scott, and Mark Warner.
2017 *Phase II Excavation and Public Archaeology Mitigation, Site 10-AA-161 Fort Boise Military Reserve, Ada County, Idaho*. Report on File at the Idaho State Historic Preservation Office.
- Carskadden, Jeff and Richard Gartley
1990 A Preliminary Seriation of 19th-century Decorated Porcelain Marbles. *Historical Archaeology*, 24(2):55–69.
- Carlson-Drexle, Carl G., Douglas D. Scott, and Harold Roeker
2008 “*The Battle Raged...with Terrible Fury.*” *Battlefield Archaeology of Pea Ridge National Military Park*. Lincoln, Nebraska, National Park Service, Midwest Archaeological Center.
- Ferring, C. Reid
1978 An Archaeological Reconnaissance of Fort Sill, Oklahoma. *Contributions of the Museum of the Great Plains*, No. 6. Museum of the Great Plains: Lawton, Oklahoma.
- Foy, Jessica H. and Thomas J. Schlereth
1992 *American Home Life, 1880–1930: A Social History of Spaces and Services*. Knoxville, University of Tennessee Press.
- Gilchrist, Brenda ed.
1981 *The Smithsonian Illustrated Library of Antiques: Pottery*. New York, Cooper-Hewitt Museum.

- Grover, Katherine
1992 *Hard at Play: Leisure in America, 1840–1940*. Amherst, University of Massachusetts Press.
- Haecker, Charles M.
2014 An Archaeological Study of the Battlefield of Palmito Ranch: “The Last Conflict of the Great Rebellion.” In *From These Honored Dead: Historical Archaeology of the American Civil War*, edited by Clarence R. Geier, Douglas D. Scott, and Lawrence Babits, pp. 57–71. Gainesville, University of Florida Press.
- Herskovitz, Robert M.
1978 Fort Bowie Material Culture. Anthropological Papers of the University of Arizona, Number 31. Tucson, Arizona, University of Arizona Press.
- Hilleary, William M., Herbert Nelson, and Preston E. Onstad ed.
1965 A Webfoot Volunteer: The Diary of William M. Hilleary, 1864–1866. *Oregon State Monographs. Studies in History*, Number 5. Corvallis, Oregon State University Press.
- Howe, Daniel Walker
1976 *Victorian America*. Philadelphia, University of Pennsylvania Press.
- Idaho Tri-Weekly Statesman*
1882 “Sergeant Falker’s Daughter Burned,” 20 May: 3.
1864 “Birth of Corporal Stafford’s Daughter,” 12 August: 2.
- Ketchum Jr., William C.
1981 *The Smithsonian Illustrated Library of Antiques: Toys and Games*. New York, Cooper-Hewitt Museum.
- Laufe, Abe ed.
1962 *An Army Doctor’s Wife on the Frontier: The Letters of Emily McCorkle Fitzgerald from Alaska and the Far West, 1874–1878*. Pittsburg, University of Pittsburg Press.
- Mathews, J. Howard
1962 *Firearms Identification*. Springfield, Illinois, Thomas.
- May, Nathan J.
2018a Top Shot: Recreational and Military Firearms of Fort Boise, Idaho. *Idaho Archaeologist*, 41(1):61–84.
2018b *Companions of our Exile: An Archaeology of Domestic Life on Fort Boise, Idaho*. Unpublished Master’s Thesis. University of Idaho. On File at the Alfred A. Bowers Laboratory.
- McChristian, Douglas C.
1995 *Uniforms, Weapons, and Equipment: the U.S. Army in the West, 1870–1880*. Norman, University of Oklahoma.
2007 *Uniforms, Arms, and Equipment: the U.S. Army on the Western Frontier, 1880–1892*. Norman, University of Oklahoma.
- Noll, Christopher D. and John Bertram
2014 *A Historical and Archaeological Assessment of Proposed Building 4 Renovation Project, Veterans Administration Medical Center, Ada County, Idaho*. Prepared for the Veterans Administration and Preservation Idaho. Prepared by Versar Inc. Report on file at the Idaho State Historic Preservation Office, Boise, Idaho.
- Patten, F. Jarris
1884 Plat of the Post Reservation of Boise B’K’S, Idaho. Map on file at the VA Medical Center, Boise, Idaho.
- Polk, Michael R., Bradford Cole, and S. Alan Skinner
1984 *A Cultural Resource Overview, Survey, and Evaluation of the Veterans Administration Medical Center, Boise, Idaho*. Prepared for the Veterans Administration, Office of Construction, Washington D.C. Prepared by A.R. Consultants, Dallas, Texas. On file, Idaho State Historic Preservation Office, Boise, Idaho.
- Poyer, Joe and Craig Riesch
2011 *The .45-70 Springfield*. Tustin, California, North Cape Publications.
- Randall, Mark E.
1971 Early Marbles. *Historical Archaeology*, 5:102–105.

- Starbuck, David R.
2011 *The Archaeology of Forts and Battlefields*. Gainesville, University of Florida Press.
- Schroeder, J.J. and Barbara Cohen
1971 *The Wonderful World of Toys Games and Dolls, 1860–1930*. Chicago, Illinois, Follet.
- Schwantes, Carlos A.
1991 *In Mountain Shadows: A History of Idaho*. Lincoln, University of Nebraska Press.
- Scott, Douglas D.
1989 An Officers Latrine at Fort Larned and Inferences on Status. *Plains Anthropologist*, 34(123):23–34.
2013 *Uncovering History: Archaeological Investigations at the Little Bighorn*. Norman, University of Oklahoma Press.
- Scott, Douglas D., Harold Roeker, and Carl G. Carlson-Drexler
2008 “The Fire upon Us Was Terrific:” *Battlefield Archeology of Wilson’s Creek National Battlefield, Missouri*. Lincoln, Nebraska, National Park Service, Midwest Archeological Center.
- Scott, Douglas D. and Andrew P. McFeaters
2011 The Archaeology of Historic Battlefields: A History and Theoretical Development in Conflict Archaeology. *Journal of Archaeological Research*, 19:103–132.
- Swords, Molly E. and Breanne Kisling
2014 “Come Out, Come Out, Wherever You Are: Seeking Sandpoint’s Children.” In *The Other Side of Sandpoint: Early History and Archaeology beside the Tracks: The Sandpoint Archaeology Project 2006–2013, Volume 2: Material Culture of Everyday Life*, edited by Mark Warner. Prepared for the Idaho Transportation Department, District 1 Coeur d’Alene, Idaho. Prepared by SWCA Environmental Consultants.
- Suydam, Charles R.
1960 *The American Cartridge: an Illustrated Study of the Rimfire cartridge in the United States*. Alhambra, California, Borden Publishing.
- Walker, Danny N.
1998 *Archaeology of Fort Laramie Quartermaster Dump Area, 1994–1996*. Cultural Resource Selections Number 13. Denver, Colorado, Rocky Mountain Region, National Park Service.
- Wells, Merle
1972 Fort Boise (United States Army). National Register of Historic Places Inventory–Nomination Form. Record on file at the Idaho State Historic Preservation Office, Boise, Idaho.
- Wiley, Patrick and Douglas D. Scott ed.
2015 *Health of the Seventh Cavalry: A Medical History*. Norman, University of Oklahoma Press.
- Wilson, Douglas C. and Theresa E. Langford
2011 *Exploring Fort Vancouver*. Seattle, University of Washington Press.

ABOUT THE AUTHOR

Nathan J. May is an archaeologist who received his B.A. in history with an archaeology minor at Colorado Mesa University (2015) and his M.A. in anthropology from the University of Idaho (2018). Nathan has worked on sites of conflict in the Columbia Plateau, Rocky Mountains, and the Great Plains. His research interests include the Santa Fe and Oregon Trails, the fur trade, metal detection, and conflict archaeology. Nathan works for the Confederated Tribes of the Umatilla Indian Reservation’s Cultural Resources Protection Program.

**Abstracts from the 72nd Annual Northwest
Anthropological Conference, Kennewick, Washington,
20–23 March 2019¹**

Conference Committee: Margaret Clark, Lindsay Kiel, Tom Marceau,
Mary Petrich-Guy, Molly Swords

Symposia ¹

Slices of History and Culture of the Tri-Cities and the Hanford Site

Organizers: Mary Petrich-Guy and Stephanie Simmons

The Tri-Cities is predominantly associated with the Manhattan Project and Cold War Era activities of the Hanford Nuclear Reserve and subsequent clean-up activities. These periods impacted the prehistory, history, and culture of the area dramatically. This session will explore these periods as well as take a broader look into the complex past of this area.

Public Archaeology at Hanford and the Tri-Cities Region before the Era of Public Funding
Rice, David

Hanford Cultural Resources Program Overview, or How I Learned to Love the Atomic Bomb
Mendez, Keith

Hanford Archaeology: A Precontact View
McFarland, Doug

An Intra-Site Analysis of the Faunal Assemblage from the Lewis Canal Site (45BN606) on the Hanford Site, Washington
Marceau, Thomas

Homesteading Before Hanford: Survey Results of the Department of Energy Land Conveyance
Morton, Ashley M.

Soldier Settlements of the Department of Energy's Hanford Site, Benton County, Washington
Simmons, Stephanie

Documenting African American History at Hanford and the Tri-Cities through Oral History
Franklin, Robert

In No-Man's Land: Army Camp Hanford
Clark, Margaret

Preparing Manhattan Project and Cold War Era Historic Artifacts from the Hanford Site for Public Access
Petrich-Guy, Mary

¹ This printed issue provides session abstracts, titles, and participants. Titles and authors of posters are also included. Abstracts of individual papers and posters can be found in the digital version of *JONA* 54(2) at <http://www.northwestanthropology.com>.

Deconstructing the Master Narrative: Archaeology of the Asian Pacific Diaspora in the Pacific Northwest

Organizers: Chelsea Rose and Don Hann

As articulated by Ronald Takaki, the Master Narrative of American History is the dominant presumption that the United States was “settled by European immigrants, and Americans are white.” Early popular histories, based on the memories of white citizens presented Asian immigrants as bit players in a world dominated by Euro-American hero-actors carving a new nation out of the wilderness. This western movie model of American history is being deconstructed on a number of fronts, notably through the archaeology of the Asian Pacific diaspora. We present a selection of ongoing research which illustrates the magnitude, complexity, and significance of the contribution of Asian immigrants to the development of modern American society. This archaeology, informed through analysis of period sources, is confirming Takaki’s rebuttal of the Master Narrative—“America is a nation peopled by the world, and we are all Americans.”

From Guangdong to Oregon: Transnational History, Archaeology and the Oregon Chinese Diaspora Project
Rose, Chelsea

And I Dig my Life Away: 19th Century Chinese Mining Kongsu Partnerships in the Pacific Northwest
Hann, Don

Stacked Rock Features: Archaeological Evidence of Chinese Occupied Sites on the Malheur National Forest
Withee, Katee R.

Radar Love: Archaeology and Remote Sensing at the Kam Wah Chung State Heritage Site
Johnson, Katie and Lew Somers

Faunal Remains from 10BO779: Analysis of Chinese Foodways from the Boise Basin
Cockerille, Kristina

Lost History Discovered: Salem’s Chinese Shrine
Fitzgerald, Kimberli and Jamie French

Introducing the HJCCC: A Digital Comparative Collection of Historical Japanese Ceramics
Campbell, Renae

“The Barneston Menace”: Anti-Japanese Hysteria and Health Care Practices at an Early 20th Century Nikkei Sawmill Town Community (1898–1924)
Carlson, David

New Ways of “being American” during the Asian Diaspora: Zooarchaeological Inferences on Assimilation and Transnationalism from the Yama Site, Bainbridge Island, WA
Endacott, Neal

The Formation of Japanese-American Cultural Identity in the Pacific Northwest: Perspectives from Archaeology and Archival Research.
Aranyosi, E. Floyd

A Motley Crew of Experimentors

Organizers: Kate Shantry

This past fall semester, the National Science Foundation provided funding for Dr. Shannon Tushingam's graduate class in experimental archaeology and residue analysis. Presenters in this symposium are working in the American Southwest, California, the Columbia Plateau, MesoAmerica, Mexico, Puget Sound and subarctic Alaska. We explore processes and effects of boiling, brewing, fermenting, grinding, scraping, and smoking using a variety of artifact proxies. Analysts used chemical, macroscopic, and microscopic methods to interpret results. Papers include residue studies of chili, chocolate, and tobacco as well as attribute analyses of cooled and quenched hot rocks, and lithic cutting and scraping tools.

Experimental Beverage Brewing of T. cacao and I. vomitoria: Palmitodiolen as an Additional Biomarker?
Ellyson, Laura, Shannon Tushingam, and David Gang

Drunk on Cacao: Experimental Testing of Residue Chemical Compounds of Fermented Cacao Pulp and Cacao Beans

Rumberger, Jacklyn D., Shannon Tushingam, Anna Berim, David R. Gang

Experimenting with Stone Use from a Yup'ik enet: Macro Analysis of Experimental Use-wear on Basalt and Chert Utilized Flakes

Scanlan, Kathleen

Pyromania: How Many Times Can You Cook and Quench a Rock until it Breaks?

Shantry, Kate

The Archaeology of Smoking in Northwestern North America: Synthesis of Archaeological Pipe Data and Evidence from Chemical Residue Studies

Damitio, William and Shannon Tushingam

A Motley Crew of Experimentors: Preliminary Residue Analysis of Created Molcaxitl Artifacts

Zavala, Brisa Sanchez, Shannon Tushingam, Anna Berim, Jorgen Gang, and David Gang

Colville Confederated Tribes History/Archaeology Program General Session: A confluence of traditions and resources.

Organizers: Adam N. Rorabaugh and Roderick K. Donald

For members of the Confederated Tribes of the Colville Reservation Colville Confederated Tribes (CCT)], there is continuity between past and present. The presenters in this symposium demonstrate the efforts of the CCT History/Archaeology (CCT H/A) program in preserving the traditional practices of the constituent tribes of the CCT. CCT H/A works cooperatively with federal, state, other Tribal, and local agencies to ensure our history is not forgotten or diminished. This session also depicts the importance of protecting tribal rights and sovereignty within the context of professional cultural resource management.

A Brief Introduction to the Confederated Tribes of the Colville Reservation's History and Archaeology Program

Donald, Roderick

Re-evaluating Chronology, Houses, and Villages at the Cassimer Bar Locality on the Upper Columbia River
Rorabaugh, Adam

Reservoir Archaeology: Quantifying Erosion at Three Sites in Lake Roosevelt Reservoir, North Central Washington
Gleason, Eric, Jacqui Cheung, and Brenda Covington

Processing and Creating with Indian Hemp: A Versatile, Traditional Fiber
Peasley, Sylvia and Pendleton Moses

Colville Tribes Engaged in the Basin: FY2018 in Retrospect
Sloma, Robert

**Exploring Residential Variability Across the Columbia-Fraser: following-up on the
“Plateau House Party”**

Organizers: Molly Carney, James Brown, and Dakota Wallen

The Columbia-Fraser Plateau is perhaps most well-known for its perplexing archeological record of houses, residences, and domiciles. Pithouses are thought to have been adopted in two successive waves across the region, and on the Columbia Plateau, abandoned in favor of more mobile lifeways with long and conical mat lodges. The timing and nature, however, for these shifts in residential choices vary greatly across watersheds throughout the region, leading to a somewhat fragmented record of the Plateau cultural area. Such changes in residential decisions hint at complex and shifting social relations, with a mix of environmental, demographic, and social processes posited as explanations for cultural change. After last year’s initial “house party” lightning round discussion, this 2019 follow-up session aims to dive deeper into dwellings in the Plateau past. Like the villages often located at the confluence of rivers, this session seeks to bring together diverse voices to discuss and synthesize the inter- and intra-household record of the Columbia-Fraser Plateau.

It’s in the Archives: Doing Archaeology On the Columbia Plateau
Neller, Angela J. and Lourdes Henebry-DeLeon

Sedentism and Salmon Intensification along the Lower Snake River as seen at 45-FR-42, the Fish Hook Jim Site
Solimano, Paul S., Todd B. Ogle, Daniel Gilmour, Donald Shannon, Breanne Taylor, and Kanani Paraso

Women and Leadership in the Columbia Plateau
Tushingam, Shannon and Tiffany Fulkerson

An Overview of Pre-Contact Residential Structures in the Clearwater River Region, North Central Idaho
Sappington, Lee

Inhabiting the Impassable: The Archaeology of Precontact Houses in Hells Canyon
Wallen, Dakota

Observations on Columbia Plateau Contemporaneous Individual and Group Structures, 1600 BP–Present
Carney, Molly

Modern Living on the John Day River Revisited: Historic Housepits at 35GM22
Endzweig, Pam

Manifesting Membership: Understanding Housepit Space-Use Utilizing GIS
Hampton, Ashley

Conceptualizing the Relationship between Structures and 'Households' on the Columbia-Fraser Plateau

Brown, Thomas J., Jonathan Duelks, and Paul Solimano

Homescapes of the Columbia Plateau: Radiocarbon Chronologies of House Settlements

Brown, James W. and Steven Hackenberger

ODOT/WSDOT Annual Transportation Session and Panel

Organizers: Scott Williams and Carolyn Holthoff

ODOT and WSDOT partner again for a session on transportation related cultural resources management. A variety of papers will be presented, to be followed by a panel discussion on culverts and fish-passage issues.

The National Register Eligibility of a Transportation Icon

Williams, Scott

The Neon illumination of Grants Pass

Rudnicki, Larissa

The Botanical Assemblage at 35CL19: A Clackamas Chinook Village in the I-205 Corridor

Kennedy, Jaime L. and Thomas J. Connolly

Diatoms, Cordage, and a Brewery: Results of Archaeological Investigations and Monitoring for the Tacoma Trestle Project

Stevenson, Alex and Michele Punke

Pacific Northwest Consortium for Geophysics in Archaeology and CRM: Advancing Processing, Imaging, and Interpretation

Organizers: Rory Becker, Colin Grier, Steven Hackenberger, Lewis Somers

Earth Resistance Tomography in Archaeological Applications

Becker, Rory

Modelling and Ground-Truthing Approaches to Geophysical Survey Interpretation: Mapping Archaeological Plankhouses in the Pacific Northwest

Grier, Colin and Andrew Martindale

Multi-method Geophysical Survey: Yakima Army Training Center Site Evaluation

Lew Somers, Steven Hackenberger, James McLean, Christy Johnson, and Donald VanHeel

Magnetometry in Pend Oreille County, Washington

Maroney, Kendra

“Yes, The River Knows”: Narratives of the Duwamish

Organizers: Amanda Taylor

As the Seattle landscape continues to urbanize, several recent cultural resources investigations along the Duwamish and Black Rivers converge with the narrative presented by Sarah Campbell at Duwamish No. 1 (45KI23) in the 1980s, Dennis Lewarch at the Allentown Shell Midden (45KI431) in the 1990s, and Astrida Blukis-Onat at the Duwamish River Bend site in the 2000s. In some cases, discoveries of archaeological deposits have provided new insights about how people lived along the waterway. Cultural resources investigations in high sensitivity areas have also failed to recover archaeological materials, in itself important data about past landscape use and depositional processes. Indigenous peoples of the Duwamish today have reinforced protection of culturally sensitive places and addressed archaeologists' perspectives on cultural deposits. Interpretations have also been influenced by historical information about river channelization, agriculture, and industry. This symposium provides an opportunity to fit archaeological data from discrete investigations into a larger narrative about the past millennium along Seattle's only river.

Busybody, One More Time: Contributions of Research in the Lower Duwamish Embayment to the Development of Western Washington Archaeology
Lewarch, Dennis

Ripple in Still Water: Contextual Themes, Research Opportunities and Historical Archaeology near the Duwamish and Black Rivers—Perspectives from Phase III of King County's Cultural Resources Protection Project. Part 2: Archaeological Perspectives
Miss, Christian, Johonna Shea, and Sharon Boswell

Ripple in Still Water: Contextual Themes, Research Opportunities and Historical Archaeology in the Duwamish/Black River Drainages—Perspectives from Phase III of King County's Cultural Resources Protection Project
Boswell, Sharon

Not to Touch the Earth: The Death of the Black River and the Effects on the Duwamish People and Archaeological Record
Shong, Mike

Place-based Learning with Elementary Students in Seattle
Stonehocker, Thomas

This Must Be the Place: Recollections and Realizations at the Renton High School Indian Site
Shantry, Kate

Results of Archaeological Survey along the Upper Chehalis River Drainage
Ostrander, Tom and Chris Lockwood

General Sessions

Prophylactics Etcetera
Ross, Kayla and Ray von Wandruszka

Stone Drugs and Dragon Bones
Scott, Carly and Ray von Wandruszka

Bad Medicine

Robinette, Samantha and Ray von Wandruszka

Development and Application of an Economic Model of Fish Rank for Late Nineteenth-Century Pacific Northwest Households

Taber, Emily and Virginia L. Butler

Coast Salish Social Complexity, Community Ties, & Resistance: Using Mortuary Analysis to Identify Changes in Coast Salish Society Before, During, & After the Colonial Period

Peck, Alexandra

The King County Potter's Field: Mismanagement, Malfeasance and Corruption at 45-KI-1158

Anderson, Erik D.

History and Foodways on Samuel H. Smith Site in Nauvoo, Illinois

Codling, Chelsea

Material Culture and the Social Dynamics of Residential Life at a Company Town: Archaeological Investigations at the Fairfax Townsite (45PI918), Pierce County, Washington

Taylor, Breanne

Scorched Earth: The Military Campaign on the Lower Rogue River, 1856

Tveskov, Mark Axel

"They Expected a Hard Fight": Fire Line Metal Detecting Survey of the Rosebud Battlefield State Park Montana

May, Nathan

The Cultural Heritage of the Palouse Prairie Restoration Project, Cheney, Washington

Buchanan, Brian

National Register Listed Archaeological Sites within the State of Oregon: Statistics and what they mean for Oregon Archaeology

Lopez, Kirsten

Aipax-kan-ishchit - the Yakama Trail: History, Archaeology, and an Approach to Evaluation

McClure, Rick

A Cultural Resources Management Plan for Marymoor Park

Rinck, Brandy and Philippe LeTourneau

Deconstructing Disaster: When Ontological Understanding of Natural Disasters and Archaeological Research, Provide Key Information for Past and Present Disaster Response

Pickard, Ashley

Landscapes, Consultations, Archaeologies: Global Dynamics, Local Leadership, and the Promise of Full-Spectrum Heritage Resource Management

Welch, John

Farming on the Spokane Reservation—Case Studies of Indian Allotments No. 246, No. 247, and the Patrick W. Lawlor Homestead
Luttrell, Charles T.

An Ancient Human and Extinct Megafauna in Hoyo Negro, Quintana Roo, Mexico
Chatters, James

Were There Blade Workshops at Coatlan del Rio: A Technological and Comparative Review
Farrell, Ian

Persistent Places in Southwestern Oregon
Helmer, Emily

Basketry: Now as Always
Humphries, Sarah J. and Kelly R. Bush

Plateau Analogues for Precontact Basketry from Coastal Sites
Bernick, Kathryn

A Zooarchaeological Analysis of Hole-in-the-Wall Canyon (45KT12) and French Rapids (45KT13) Sites: Ginkgo State Park, Washington
Johnson, Matt

Successes and Limitations of the Piecemeal Approach to Archaeology on Utsalady Bay
Boersema, Jana, Teresa Trost, and Jonathan Haller

Neanderthals, Denisovians and Modern Humans: What Material Culture Differences can we see during their Overlap?
Koetje, Todd

Standing at the Confluence of Western Empire and Indigenous Knowledge: Decolonizing the Account of the Journey of Monchat- Apé, First American Anthropologist
Carroll, Marna

A Campus Community of Confluence: A Visual FYE Ethnography
Etnol, PJ

Sweat Lodge on Campus: Examining Barriers of Communication of a Project between Native Students and the University of Idaho
Moon, Jonathan

Applied Ethnographic Work with the Confederated Tribes of Grand Ronde to Document Places of Cultural Significance: Mary's Peak
Shannon, Don

Confluent Anthropologies: The Political Anthropologies of Phinney and Boas in Contemporary Contexts
Smith, Joshua

Transient Professionals: Asian Employees and the American Transnational Corporation
Wu, Shuxi

Insights from Absence: Methods in Examining Silences while Researching Northwest Coast Tumplines in Museum Collections

Leischner, Emily

New Radiocarbon Dating of the Earliest Component of the Roadcut Site (35WS4) at The Dalles, Oregon

Chatters, James

Generationally-linked Archaeology: Northwest Coast of North America Example

Croes, Dale and Ed Carriere

The Manufacture of Notched Net Sinkers from the Columbia Plateau: An Experimental Approach

Hannold, Cynthia

Experimental Archaeology and Groundstone Technology: Understanding Manufacturing and Usewear Attributes through Replication and Tool Use

Martinez, Kelley

ILLUMINATED ROCKS: Paleoindian Use of Quartz Crystal in the Western United States

Meatte, Daniel

Investigations into Glacially Rafted Nephrite Boulders in Northern Washington

Schultze, Carol and Jennifer Huff

California Creek Quarry: Insights from Drone Mapping and Ethnohistory

Schwab, Alex

LiDAR Predictive Modeling of Kalapuya Mound Sites in the Calapooia Watershed, Oregon

Cody, Tia and Shelby Anderson

The Hustle and Bustle of the Coast Salish Potlatch An Exploratory Case Study of Gift Economic Exchange and Bird Resources at the Village of Xwe'Chi'eXen, 45WH1

Sholin, Carl

Comparing A Surface Collection to An Excavated Collection in The Lower Skagit River Delta At 45SK51

Middleton, Sherri and Patrick T. McCutcheon

Pre-Mazama Mammal Remains from Reanalysis of Bernard Creek Rockshelter: Early Results

Lubinski, Patrick and Lianne Bradshaw

Intra- and Inter-Site Heterogeneity as a Source for Faunal Assemblage Variability in the Prince Rupert Harbour, British Columbia

Johnson, Raini

The Scale of Plant Intensification in the Absence of Abundant Salmon Runs in the Upper Willamette Valley, Oregon

Wardle, Weston

Exploring Faunal Assemblages to Identify Ethnic Groups: Makahs, Quileutes, and Shell Middens on the Northwestern Olympic Peninsula of Washington

Wessen, Gary and Stephen Samuels

Memory at The Confluence of Family and Nation: Shishalh Photographic Archives in the 21st Century
Solomonian, Adam

New Information on Horse Heaven Hills Pleistocene Turbidite Archaeological Find
Rice, David

Only the Lonely: Magnetic Analyses to Address Function and Burn/use History of Non-feature Burned Rock
McFarland, Doug, Cristina Garcia Lasanta, Zach Allen, Bernard Housen, Mike Valentine, and David Brownell

Techniques for Production of Yarns and Threads for Warmth: Spinning Tools and Protein Fiber Sources in the Northwest.
Simmons, Kim

AT THE ROOT OF THE MATTER: Basketry Construction Materials from the 2,000-year-old Biderbost Archaeological Wet Site (45SN100)
Hawes, Kathleen

Poster Sessions

Pre-contact use of Mesa Landforms on the Columbia Plateau: Results from Aggregate Lithic Analysis
Allen, Josh

Putting Walla Walla on the Map: A Study of Trade Routes to the Northwest
Costigan, Lindsay and Stephanie O'Brien

The Summers Collection: Keeping Cultural Inspiration Alive
Curteman, Jessica, Chris Bailey, and Alex Nyers

Archaeological Investigation of Site 45KI449 at the Van Gasken Property, Des Moines, Washington
Dellert, Jenny and Tom Ostrander

Emphatic Modulation of Chimpanzee Signing
Dombrasuky, Kailie, Grace Coffman, E. Chadwick de Bree, Emily Patton, and Mary Lee Jensvold

The Bridal Veil Lumbering Company: A Glimpse into an Intact Early Logging System in the Columbia River Gorge
Donnermeyer, Chris, Trent Skinner, Michelle N. North, and Nicholas Guest

Intersectional Archaeological Approaches to Burial Practices: A Case Study from the Southern Plateau, Northwest North America
Fulkerson, Tiffany and Lourdes Henebry-DeLeon

Measuring Trace Element Concentrations in Artiodactyl Cannon Bones using Portable X-Ray Fluorescence
Henderson, Joshua and Meaghan Emery-Wetherell

Initial Stone Tool Classification of Non-Professionally Assembled Lithic Collections
Hughes, Mackenzie, Dennis Wilson, Nik Harkins, Mallory Triplett, and Patrick McCutcheon

Seventeen More Syllables: Further Investigations into the Shinjiro Honda Memorial Stone (45-KI-1256) and the Life of Poetry Master Shinjiro Honda
Johnson, Paula

Picture This: An Exploration of Photogrammetry and Digital Curation of Grand Ronde Belongings
Muro, Sophie

Silver Creek Archaeological Context—Harney County, Oregon
Muschal, Marlis and Mike Shimel

Invisible Photography: Examining Groundstone Art Production Processes Using Multispectral and Digital Imaging Techniques
Ngandali, Yoli

Fold Along the Dotted Line: A Symmetry Analysis of Projectile Points from HP-54
Smyrl, Anne

Relocating a Hopkins Site in Southwest Oregon Using GPR, Magnetometry, and LiDAR
Snyder, Daniel and Jessica Curteman

Investigating the Potential for Deeply Buried Occupation Surfaces in the Moses Lake Dune Field, Grant County, Washington
Stcherbinine, Sean

Sustaining Collections Research and Management: Tryon Creek House 2 (35WA288), Hells Canyon National Recreation Area.
Wyatt, Noella and Cindy Morales

Tekison Cave Sample Faunal Analysis
Anderson, Jackey

A Community-based Approach to Archaeological Site Preservation in a Changing Climate: A Lower Columbia Case Study
Daily, Phillip

Expanding Research Accessibility of Archaeological Collections: Development of a Geospatial Database for the Washington State University Museum of Anthropology
Damitio, William, Andrew Gillreath-Brown, and Shannon Tushingham

Subsurface Investigations along the St. Maries River (10BW237, 10BW238, and 10BW240), Benewah County, Idaho
Dampf, Steven and Ayla Aymond

19th Century Consumerism in an Institutionalized Setting: Analysis of Ceramic Ware Consumption at Fort Davis
Eldredge, Kaitlyn and Katrina C. L. Eichner

Precontact Use of Pine Valley: Results from Site Mitigations at 35BA1495
Frierson, Andrew and Stephanie A. O'Brien

Preliminary Analysis Results: Sampling Fishes from 1976 Excavations at the Sam Israel House Pit (45GR76) near Soap Lake
Frugé, Adam

Mapping Settler Colonialism: The Cartography of the Rogue River War, 1855–56
Johnson, Katie and Mark Axel Tveskov

Story Map—Confederated Tribes of the Colville Reservation – A Brief History

Johnson, Trisha

*Individual Variation in the Response of Captive Javan Gibbons (*Hylobates moloch*) to Visitor Presence.*

Kohnen, Kalli

Archaeological Investigation on Landscapes of Survivance

Kretzler, Ian

A Functional Analysis of Pre-contact Sites and their Microenvironments on Lopez Island, Washington

Kunas, Julia and Patrick T. McCutcheon

Soft Gold! How the Fur Trade Shaped Early Gold Rushes in the Pacific Northwest

Litzkow, Jamie

The Virginia Lake Stake Feature, Sauvie Island, OR: Updates from Fieldwork and AMS Dating

North, Michelle and Virginia L. Butler

Ehler's Danlos Syndrome: Overlooked, Mistreated and Misunderstood

Owen, Amber

Use of Backwards Design to Assess Public Engagement at the Archaeology Roadshow, Portland, Oregon

Sukau, Dana and Virginia L. Butler

Exploring the Role of Historic China-town in a Coastal Community in Western Washington

Syvertson, Laura and Kelly R. Bush

A Hard Kind of Labor: An Archaeological Analysis of Small-scale Hard Rock Mines in Northeast Washington

Thiel, Samantha

Got Peel? Identifying Cambium Peeled Trees in the Malheur National Forest

Arnzen, Jacob

LiDar and Ground Penetrating Radar Imaging: Yakama Nation and CWU Collaborations

Hackenberger, Steven, Jon Shellenberger, Nick Finley, Autumn Adams, and Cindy Morales

Investigating Variation in Nasal Shape among Prehistoric Populations in North and South America

Kuzminsky, Susan, Rylee Robertson, and Kristina Cockerille

Seeds of Survivance: Investigating Grand Ronde Foodways through Archaeobotany

Leonard-Doll, Katy and Paloma Sanchez

Basque Shepherding Landscapes in Washington State: Assessing Potential and Identifying Features

Litzkow, Jamie

Wood Selection for Fish Trap Stakes in Southeast Alaska

Lorain, Michael, Jane Smith, Madonna Moss, Claire Alix, and Joshua Reuther

Washington Women Homesteaders: Finding the Underrepresented History of Land Claimants in Early Washington State
Mathews, Bethany

Is Old Dirt Worth It? Geochemistry of Bulk Sediment Collections from Cape Krusenstern National Monument, Alaska.
Reed, Patrick and Shelby Anderson

A Women's Right to Choose: An Outsiders View on the Role of a Female Jehovah's Witness and Her Right to Choose to Accept It
Riley, Ashley

Archaeologists, the Public, and Collectors: Establishing a Regional Database of Archaeological Sites on Private Land and Collections in Private Hands in the Portland Area
Tipton, Katherine and Shelby Anderson

Preliminary Study on the Context and Movement of Tachylyte, a Unique Volcanic Glass in Washington State
Triplett, Mallory

Mapping Fort Douglas: Georeferencing Historic Maps
Burningham, Tessie

*The Role of Social Interaction and Nearest Neighbor Preferences in Juvenile *Alouatta Palliata* Social Development*
Coggeshall, Elizabeth, Amy L. Schreier, Carrie Merrigan-Johnson, and Laura M. Bolt

Subsurface Investigation at the Sandy Heron Site (45SP485), Spokane County, Washington
Dampf, Steven, Ayla Aymond, and Sylvia Tarman

Demographic Trends in North American Archaeology: A Longitudinal Analysis of Gender and Occupational Affiliation Trends in the Register of Professional Archaeologists (RPA)
Fulkerson, Tiffany, Alexis Evans, and Shannon Tushingam

Sacred and Profane: Site Organization and Abandonment Processes at the Late Paleoindian Sentinel Gap Site
Galm, Jerry, Stan Gough, and Julia Furlong

Archaeological Dating of Late Holocene Barrier Beach Development at 45IS298, Oak Harbor
Gargett, Robert H.

Essentialism in Lesbian Separatist Collectives
Gently, Mary

Finn Town 45KII325, An Historic Coal Mining Community
Middleton, Sherri

Obsidian Biface Cache Site 35MA375: New Flintknappers Help Reveal Old Technology
Monaco, Marci

Rock Imagery Viewshed Results: The Central Washington Cultural Landscape
Morris, Jessica

*Mapping Indian Hemp (*Apocynum cannabinum*) in the Traditional Territories of the Colville Confederated Tribes*
Moses, Pendleton, Sylvia Peasley and Trisha Johnson

A New Look at the Excavations at the Forts Okanogan, Cassimer Bar Locality
Rorabaugh, Adam and Karen Capuder

Oregon Archaeological Sensitivity Model Based on Surficial Geology and Landform Analysis
Sisneros, Mathew

Investigating Mobility and Subsistence Organization through Lithic Technology at 48PA551
Vance, Emma and Anna Prentiss

Tools of the Trade: Hand tools from a Chinese Mining Site in Idaho's Boise Basin
Weygint, Conner and Josh Krause

Journal of Northwest Anthropology
List of Reviewers
2018-2019

The editors of the *Journal of Northwest Anthropology* thank the following people for their assistance in conducting peer reviews of manuscripts submitted in 2018 and 2019. *JONA's* single-blind peer review process is key to maintaining a high quality regional journal.

- Kenneth M. Ames
- E. Floyd Aranyosi
- Daniel L. Boxberger
- Dale R. Croes
- Jonathan Driver
- Rodney Frey
- Jolyn Amrine Goertz
- Colin Grier
- Megan Harris
- Charles Hodges
- Eugene S. Hunn
- George Last
- Dennis Lewarch
- Patrick Lubinski
- R Lee Lyman
- Rick McClure
- Bruce G. Miller
- Jay Miller
- Jesse Morin
- Ashley Morton
- Guy Moura
- Angela Neller
- Terry Ozbun
- James H. Payne
- Mark G. Plew
- Kara Powers
- Annie Presler
- Laura Putsche
- David Quinn
- Rudy Reimer
- Brandy Rinck
- Craig E. Skinner
- Darby C. Stapp
- Megan Walsh
- Gary C. Wessen

Erratum for *Salish Sea Islands Archaeology and Precontact History*

The *Journal of Northwest Anthropology* Staff

In Hutchings and Williams (2020), Figure 1 (p.23) identified a Clovis find on Orcas Island that does not exist. The corrected figure is included below. Text on page 37 has been corrected to read: “Other evidence of human activity in Salish Sea I comes from nine Clovis points found around the Central and Southern Salish Sea (Figure 1), some with little or no provenience; only one comes from an island: Whidbey Island (Croes et al. 2008:106, Figure 1).” The corrected figure and text have been updated in the current digital version of *JONA* 54(1), found on our website at www.northwestanthropology.com; any hard copies of this volume sold after April 22, 2020 will also include the corrected figure and text.



Figure 1. The Salish Sea and its islands showing Northern, Central, and Southern Salish Sea subdivisions and other localities mentioned in the text. Base map: ERMA 2015.

REFERENCE CITED

Hutchings, R. M., and Scott Williams
2020 Salish Sea Islands Archaeology and Precontact History. *Journal of Northwest Anthropology*, 54(1):22–62.

Journal of Northwest Anthropology

Memoir Series

Memoir 7—Festschrift in Honor of Max G. Pavesic (2012)

Kenneth C. Reid and Jerry R. Galm, Editors

Memoir 8—Action Anthropology and Sol Tax in 2012: The Final Word? (2012)

Darby C. Stapp, Editor

Memoir 9—Rescues, Rants, and Researches: A Re-View of Jay Miller's Writings on Northwest Indian Cultures (2014)

Darby C. Stapp and Kara N. Powers, Editors

Memoir 10—Tribal Trio of the Northwest Coast (2015)

Kenneth D. Tollefson, Author; Jay Miller and Darby C. Stapp, Editors

Memoir 11—An Ethnographic Assessment of Some Cultural Landscapes in Southern Wyoming and Idaho (2015)

Deward E. Walker, Jr., Pamela Graves, Joe Ben Walker, and Dan Hutchison, Editors

Memoir 12—The Contemporary Coast Salish: Essays by Bruce Granville Miller (2016)

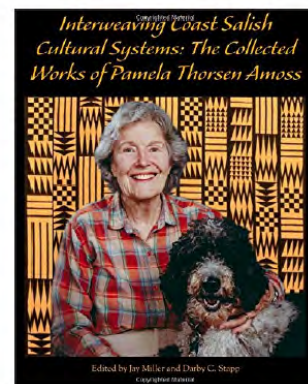
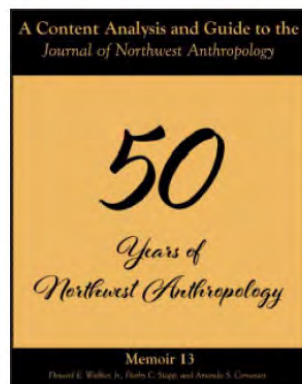
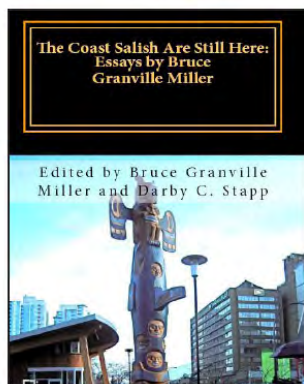
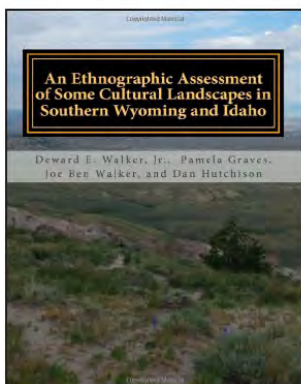
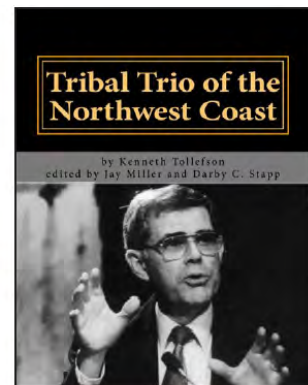
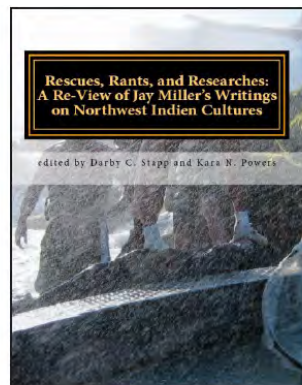
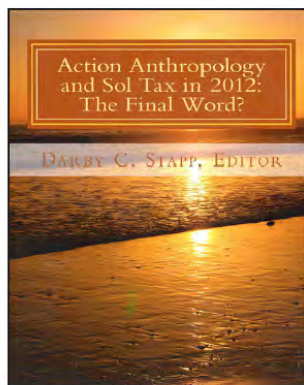
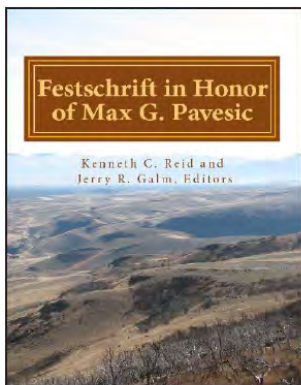
Bruce Granville Miller and Darby C. Stapp, Editors

Memoir 13—50 Years of Northwest Anthropology: A Content Analysis and Guide to the Journal of Northwest Anthropology (2017)

Deward E. Walker, Jr., Darby C. Stapp, and Amanda S. Cervantes

Memoir 14—Interweaving Coast Salish Cultural Systems: The Collected Works of Pamela Thorsen Amoss (2017)

Jay Miller and Darby C. Stapp, Editors



Journal of Northwest Anthropology

Memoir Series

Memoir 15—Re-Awakening Ancient Salish Sea Basketry: Fifty Years of Basketry Studies in Culture and Science (2018)

Ed Carriere and Dale R. Croes

Memoir 16—Holocene Geochronology and Archaeology at Cascade Pass, Northern Cascade Range, Washington (2018)

Robert R. Mierendorf and Franklin F. Foit, Jr.

Memoir 17—Basketry from the Ozette Village Archaeological Site: A Technological, Functional, and Comparative Study (2019)

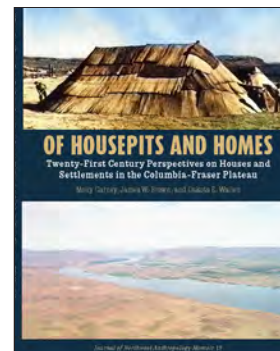
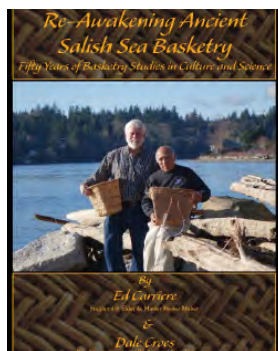
Dale R. Croes, Edited by Darby C. Stapp, Designed by Alexandra L. C. Martin

Memoir 18—Excavations at Givens Hot Springs: A Middle to Late Archaic Pithouse Settlement on the Snake River in Southwest Idaho (2020)

Thomas J. Green

Memoir 19—Of Housepits and Homes: Twenty-First Century Perspectives on Houses and Settlements in the Columbia-Fraser Plateau (2020)

Molly Carney, James W. Brown, and Dakota E. Wallen



Subscribe to the *Journal of Northwest Anthropology*

The *Journal of Northwest Anthropology (JONA)* is a peer-reviewed scholarly, biannual publication. We welcome contributions of professional quality concerning anthropological research in northwestern North America. Theoretical and interpretive studies and bibliographic works are preferred, although highly descriptive studies will be considered if they are theoretically significant. The primary criterion guiding selection of papers will be how much new research the contribution can be expected to stimulate or facilitate.

JONA's Memoir Series publishes works of a thematic nature. The topics of these memoirs range from collected works of distinguished anthropologists in the Pacific Northwest, Native American language dictionaries, reprints of historical anthropological material, and efforts of Native American and academic collaboration.

To subscribe to *JONA*, visit
www.northwestanthropology.com/storefront



EXCAVATIONS AT GIVENS HOT SPRINGS

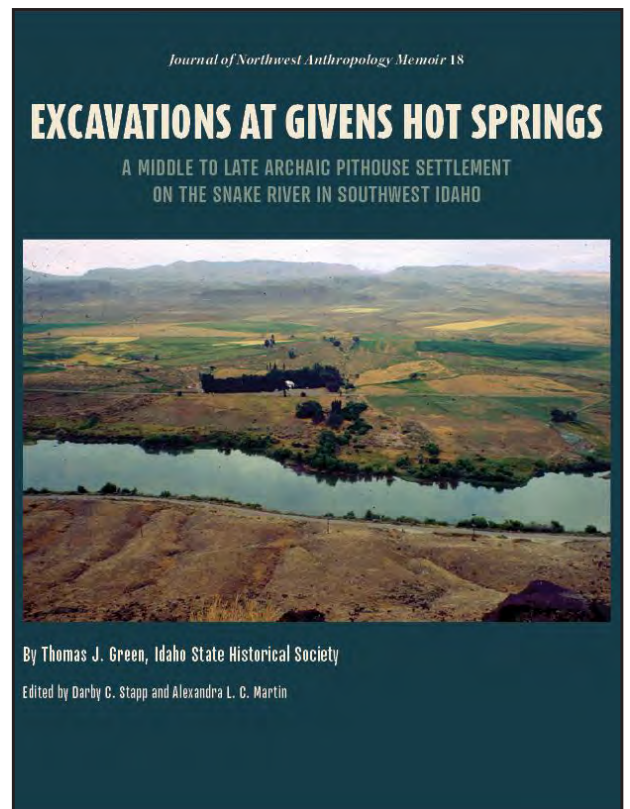
A MIDDLE TO LATE ARCHAIC PITHOUSE SETTLEMENT ON THE SNAKE RIVER IN SOUTHWEST IDAHO

By Thomas J. Green

Edited by Darby C. Stapp and Alexandra L. C. Martin

This monograph reports on four seasons of archaeological excavation at three separate localities at Givens Hot Springs. Givens Hot Springs is located on the south bank of the Snake River in Owyhee County in southwest Idaho between the modern towns of Murphy and Marsing. Map Rock, one of Idaho's most famous petroglyphs, is located directly across the Snake River from Givens. The area was also a preferred camping spot for emigrants traveling the southern route of the Oregon Trail.

The excavations at Givens were an outgrowth of a project started in 1975 by Dr. Peter Schmidt, the first Idaho State Archaeologist. In conjunction with the Great Basin Chapter of the Idaho Archaeological Society, Schmidt began a project to record archaeological sites in western Owyhee County and to document collections from the area. The initial goal of the project was to gather general information so that detailed archaeological projects could be planned. The project continued under Thomas J. Green's supervision, as the second Idaho State Archaeologist, after Schmidt left Idaho in 1976 to conduct field work in East Africa. The formal sponsor of the project was the Idaho State Historical Society.



Journal of Northwest Anthropology Memoir 18



Between 1975 and 1978 a number of sites and collections were recorded. Everett Clark, member of the Idaho Archaeological Society, former stockman, and a local public official in Owyhee County, reported the owners of Givens Hot Springs planned to subdivide the land and develop it. Knowing the importance of the sites around the springs, Mr. Clark was concerned that important information would be lost if they were destroyed. For these reasons, further survey and testing in the Owyhee Mountains was abandoned and plans were made to work at Givens.

Available for \$29.99 on

www.NorthwestAnthropology.com and Amazon.com

OF HOUSEPITS AND HOMES

Twenty-First Century Perspectives on Houses and Settlements in the Columbia-Fraser Plateau

By Molly Carney, James W. Brown, and Dakota E. Wallen

Edited by Darby C. Stapp and Alexandra Martin

What does “home” mean? Cultural connotations of home, habitation, and residence vary but usually encompass a physical place where individuals live, with accompanying notions of comfort, security, and attachment to place. This concept is wide; for many, the idea of home operates at multiple scales and could refer to a physical house, a particular piece of land, drainage or valley, topographic landmarks, or even a specific room or landscape feature. What constitutes home might not even be a set physical space but could shift throughout the year or an individual’s lifetime. Given this variability, there is one constant: home is usually the place that is returned to, and the place that is the center of daily life for an individual or group. For this reason, archaeologists have long sought these loci as a means of understanding the economic, adaptive, social, and ritual elements of past human lifeways.

This volume focuses on archaeological houses, features, and places which may have constituted “home” to the inhabitants of the Columbia-Fraser Plateau. While boundaries of this cultural and physiographic area vary according to author, it generally encompasses the area drained by the Fraser and Columbia rivers and their tributaries. The Cascade Range bounds this region to

the west, the Blue Mountains and central Idaho ranges to the south, and to the north and the east by the Rocky Mountain range. The Canadian Plateau consists of the Fraser, Thompson, and Okanagan drainages and adjacent mountains and features north-south trending narrow valleys and steep mountains. To the south, much of the interior Columbia Plateau consists of rolling hills, broad plains, buttes, mesas, and deeply dissected canyons. This region is home to diverse groups of people who have lived here since time immemorial, and who continue to live, use, and create spaces and places today. This region is variously referred to as the intermontane west, the interior northwest, or even simply the Plateau. We rely on the terms Columbia-Fraser Plateau or simply Plateau to refer to the general region, acknowledging that the area spans modern political borders between Canada and the United States. We further acknowledge that past peoples ascribed to their own spatial conceptions and that modern political boundaries between the United States and Canada did not exist until 1818 and were not established nor enforced for many decades after that date.



OF HOUSEPITS AND HOMES

Twenty-First Century Perspectives on Houses and Settlements in the Columbia-Fraser Plateau

Molly Carney, James W. Brown, and Dakota E. Wallen
Edited by Darby C. Stapp and Alexandra Martin

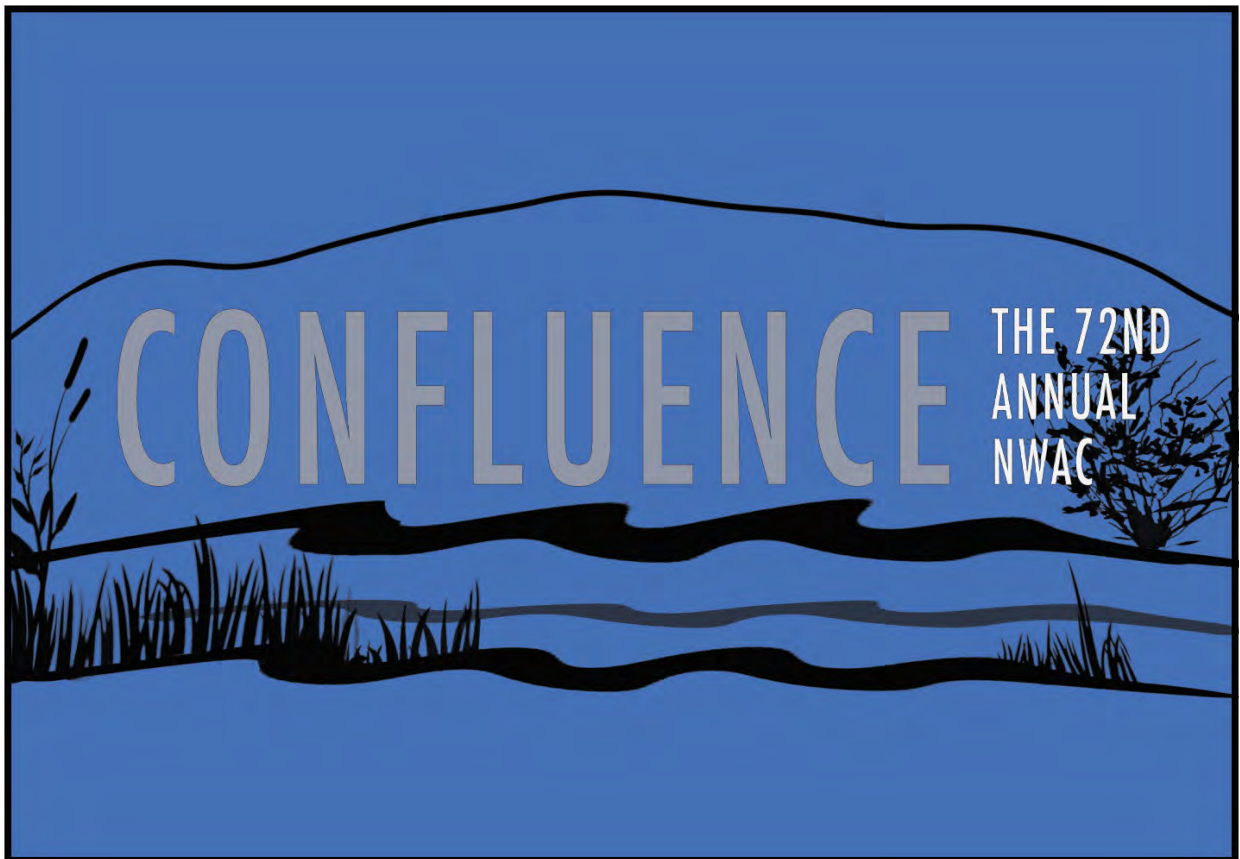


Journal of Northwest Anthropology Memoir 19

Available for \$29.99 on

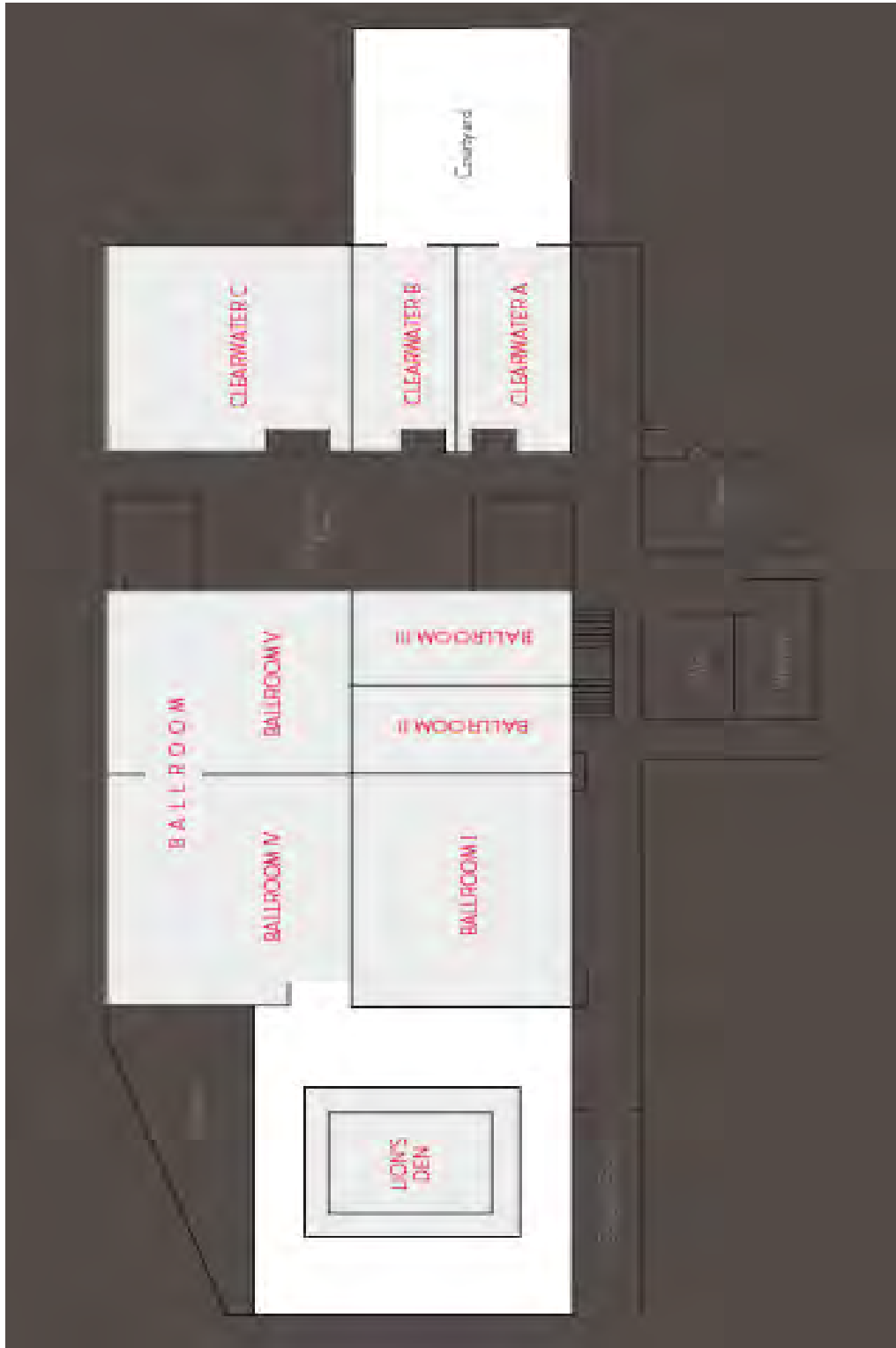
www.NorthwestAnthropology.com and Amazon.com

72nd Northwest Anthropological Conference



March 20–23, 2019, Kennewick, Washington

Hotel Map



Program

72nd Annual Meeting Northwest Anthropological Association

March 20–23, 2019

Red Lion Hotel Kennewick Columbia Center Kennewick, Washington

Conference Committee

Margaret Clark, Lindsay Kiel, Tom Marceau, Mary Petrich-Guy, Molly Swords

Northwest Anthropological Association Officers

Lee Sappington, President

James Bard, Vice-President

Jessica Curteman, Secretary

Laura Putsche, Treasurer

Conference Sponsors

Archaeological Investigations Northwest, Inc.; Architectural History and Archaeology! LLC; Association of Oregon Archaeologists; Cultural Resource Consultants; Central Washington University Anthropology and Museum Studies; Cultural Resources Protection Summit; Washington State Department of Archaeology and Historic Preservation; Direct AMS; Idaho Archaeological Society; Kevin Lyons; Lower Columbia Research and Archaeology; North Wind Resource Consulting; Pertee; Portland State University Anthropology Department; Simon Frasier University Heritage Resource Management; TRC; Visit Tri- Cities; Willamette Cultural Resources Associates, LTD; Washington State Department of Transportation Environmental Services

Confluence

This year's theme of confluence celebrates the concept of merging histories, identities, landscapes, theories, and techniques that together we use to better interpret our past. We invite you to explore confluence and consider how converging ideas influence our work in the Pacific Northwest.

Meet Our Keynote Speaker!

Rex Buck, Jr. is a spiritual leader and Elder of the Wanapum people. Like his father and grandfather before him, Rex, or more suitably Puck-Hyah-Toot, assumed the role of spiritual leader of the Wanapum in 1988. Rex was 33 years old at the time. This role derives from Rex's direct line of descent from Smohalla, the great 19th century Wanapum prophet. Rex is not just the spiritual leader for the Wanapum, but like his father and grandfather, is considered a leader for all the followers of the Wáashani religion and travels throughout the Northwest leading special Wáashat services, both for the living and the dead. Earlier in 1980, Rex had already taken on the role of being a teacher to the young Wanapum, passing on the language, culture, and traditions of the people to the next generation, much as his Elders had taught him, with particular emphasis on the centrality of religion in their life, and their long connection to the land.

Rex Buck, Jr. is of this land and speaks from the heart for both the people and the land itself. He has been at the center of negotiations with numerous Federal and state agencies, including the Department of Energy, the Army Corps of Engineers, and the Washington State Historic Preservation Office, to protect and preserve cultural resources important to the Wanapum. His unfailing commitment to maintaining traditional lifeways to the fullest extent possible makes him a sought-after speaker for the native community at the local and national level. He is well respected by those with whom he engages; an honest spokesman who can be trusted to say what he means and mean what he says. It is never about him, but rather always about his people and their long-term survival. He brings a unique perspective to the management of cultural resources on the Hanford Site and elsewhere throughout the Columbia Basin. His words live on long after being spoken.

Table of Contents

Conference Events and Meetings	285
Thursday Sessions	286
Friday Sessions	296
Saturday Events	304
Full Abstracts	305
Sponsors	362

Conference Events and Meetings

Conference Registration Location: Prefunction Area

Wednesday- March 20, 2019	4:00pm–7:30pm
Thursday- March 21, 2019	7:30am–4:00pm
Friday- March 22, 2019	7:30am–2:00pm

Exhibitors Room Location: Lion’s Den

Thursday- March 21, 2019	8:00am–4:00pm
Friday- March 22, 2019	8:00am–4:00pm

Meetings

<i>Association of Oregon Archaeologists (AOA), Clearwater C Thursday, March 21, 2019</i>	5:00pm–6:30pm
<i>NWAC Business Meeting, Ballroom IV Friday, March 22, 2019</i>	12:00pm–1:15pm
<i>Association of Washington Archaeologists (AWA), Clearwater A, B, C Friday, March 22, 2019</i>	5:00pm–6:30pm

Banquet and Keynote Speaker

Ballroom IV and V

Friday, March 22, 2019	7:00pm–9:30pm
------------------------	---------------

Sessions

Thursday Morning

Symposium: Slices of History and Culture of the Tri-Cities and the Hanford Site

Room: Clearwater C

Organizers: Mary Petrich-Guy and Stephanie Simmons

Symposium Abstract: The Tri-Cities is predominantly associated with the Manhattan Project and Cold War Era activities of the Hanford Nuclear Reserve and subsequent clean-up activities. These periods impacted the prehistory, history, and culture of the area dramatically. This session will explore these periods as well as take a broader look into the complex past of this area.

8:00 Rice, David

Public Archaeology at Hanford and the Tri-Cities Region before the Era of Public Funding

8:20 Mendez, Keith

Hanford Cultural Resources Program Overview, or How I Learned to Love the Atomic Bomb

8:40 McFarland, Doug

Hanford Archaeology: A Precontact View

9:00 Marceau, Thomas

An Intra-site Analysis of the Faunal Assemblage from the Lewis Canal Site (45BN606) on the Hanford Site, Washington

9:20 Morton, Ashley M.

Homesteading before Hanford: Survey Results of the Department of Energy Land Conveyance

9:40 Simmons, Stephanie

Soldier Settlements of the Department of Energy's Hanford Site, Benton County, Washington

10:00 BREAK

10:20 Franklin, Robert

Documenting African American History at Hanford and the Tri-Cities through Oral History

10:40 Clark, Margaret

In No-Man's Land: Army Camp Hanford

11:00 Petrich-Guy, Mary

Preparing Manhattan Project and Cold War Era Historic Artifacts from the Hanford Site for Public Access

11:20 Discussants: Warren Hurley

Symposium: Deconstructing the Master Narrative: Archaeology of the Asian Pacific Diaspora in the Pacific Northwest

Room: Ballroom V

Organizers: Chelsea Rose and Don Hann

Symposium Abstract: As articulated by Ronald Takaki, the Master Narrative of American History is the dominant presumption that the United States was “settled by European immigrants, and Americans are white.” Early popular histories, based on the memories of white citizens presented Asian immigrants as bit players in a world dominated by Euro-American hero-actors carving a new nation out of the wilderness. This western movie model of American history is being deconstructed on a number of fronts, notably through the archaeology of the Asian Pacific diaspora. We present a selection of ongoing research which illustrates the magnitude, complexity, and significance of the contribution of Asian immigrants to the development of modern American society. This archaeology, informed through analysis of period sources, is confirming Takaki’s rebuttal of the Master Narrative—“America is a nation peopled by the world, and we are all Americans.”

8:00 Rose, Chelsea

From Guangdong to Oregon: Transnational History, Archaeology and the Oregon Chinese Diaspora Project

8:20 Hann, Don

And I Dig my Life Away: 19th Century Chinese Mining Kongsu Partnerships in the Pacific Northwest

8:40 Withee, Katee R.

Stacked Rock Features: Archaeological Evidence of Chinese Occupied Sites on the Malheur National Forest

9:00 Johnson, Katie and Lew Somers

Radar Love: Archaeology and Remote Sensing at the Kam Wah Chung State Heritage Site

9:20 Cockerille, Kristina

Faunal Remains from 10BO779: Analysis of Chinese Foodways from the Boise Basin

9:40 Fitzgerald, Kimberli and Jamie French

Lost History Discovered: Salem’s Chinese Shrine

10:00 BREAK

10:20 Campbell, Renae

Introducing the HJCCC: A Digital Comparative Collection of Historical Japanese Ceramics

10:40 Carlson, David

“The Barneston Menace”: Anti-Japanese Hysteria and Health Care Practices at an Early 20th Century Nikkei Sawmill Town Community (1898–1924)

11:00 Endacott, Neal

New Ways of “being American” during the Asian Diaspora: Zooarchaeological Inferences on Assimilation and Transnationalism from the Yama Site, Bainbridge Island, WA

11:20 Aranyosi, E. Floyd

The Formation of Japanese-American Cultural Identity in the Pacific Northwest: Perspectives from Archaeology and Archival Research.

Symposium: A Motley Crew of Experimentors

Room: Ballroom I

Organizers: Kate Shantry

Symposium Abstract: This past Fall semester, the National Science Foundation provided funding for Dr. Shannon Tushingam's graduate class in experimental archaeology and residue analysis. Presenters in this symposium are working in the American Southwest, California, the Columbia Plateau, MesoAmerica, Mexico, Puget Sound, and subarctic Alaska. We explore processes and effects of boiling, brewing, fermenting, grinding, scraping, and smoking using a variety of artifact proxies. Analysts used chemical, macroscopic, and microscopic methods to interpret results. Papers include residue studies of chili, chocolate, and tobacco as well as attribute analyses of cooled and quenched hot rocks, and lithic cutting and scraping tools.

8:00 Ellyson, Laura, Shannon Tushingam, and David Gang

*Experimental Beverage Brewing of *T. cacao* and *I. vomitoria*: Palmitodiolen as an Additional Biomarker?*

8:20 Rumberger, Jacklyn D., Shannon Tushingam, Anna Berim, David R. Gang

Drunk on Cacao: Experimental Testing of Residue Chemical Compounds of Fermented Cacao Pulp and Cacao Beans

8:40 Scanlan, Kathleen

Experimenting with Stone use from a Yup'ik enet: Macro Analysis of Experimental Use-wear on Basalt and Chert Utilized Flakes

9:00 Shantry, Kate

Pyromania: How Many Times Can You Cook and Quench a Rock until it Breaks?

9:20 Damitio, William and Shannon Tushingam

The Archaeology of Smoking in Northwestern North America: Synthesis of Archaeological Pipe Data and Evidence from Chemical Residue Studies

9:40 Zavala, Brisa Sanchez, Shannon Tushingam, Anna Berim, Jorgen Gang, and David Gang

A Motley Crew of Experimentors: Preliminary Residue Analysis of Created Molcaxitl Artifacts

Symposium: Colville Confederated Tribes History/Archaeology Program General Session: A confluence of traditions and resources.

Room: Ballroom I

Organizers: Adam N. Rorabaugh and Roderick K. Donald

Symposium Abstract: For members of the Confederated Tribes of the Colville Reservation Colville Confederated Tribes (CCT)], there is continuity between past and present. The presenters in this symposium demonstrate the efforts of the CCT History/Archaeology (CCT H/A) pro-

gram in preserving the traditional practices of the constituent tribes of the CCT. CCT H/A works cooperatively with federal, state, other Tribal, and local agencies to ensure our history is not forgotten or diminished. This session also depicts the importance of protecting tribal rights and sovereignty within the context of professional cultural resource management.

10:20 Donald, Roderick

A Brief Introduction to the Confederated Tribes of the Colville Reservation's History and Archaeology Program

10:40 Rorabaugh, Adam

Re-evaluating Chronology, Houses, and Villages at the Cassimer Bar Locality on the Upper Columbia River

11:00 Gleason, Eric, Jacqui Cheung, and Brenda Covington

Reservoir Archaeology: Quantifying Erosion at Three Sites in Lake Roosevelt Reservoir, North Central Washington

11:20 Peasley, Sylvia and Pendleton Moses

Processing and Creating with Indian Hemp: A Versatile, Traditional Fiber

11:40 Sloma, Robert

Colville Tribes Engaged in the Basin: FY2018 in retrospect

Workshop: State Funded Projects-A Workshop for Cultural Resources Professionals

Room: Clearwater A&B

Time: 8:00 am to 10:00 am

Organizers: Sarah Thirtyacre

Workshop Abstract: Navigating cultural resources review for state funded projects that occur on public, private and tribal lands is often complicated and confusing. This workshop features an orientation by staff that have experience balancing the complexities of regulation and resource protection with project implementation.

Sponsoring Agencies:

Recreation and Conservation Office (RCO): Since the agency began in 1964, RCO has awarded over \$2.3 billion in grants and contracts to fund recreation, conservation, and salmon recovery projects in Washington State. The majority of RCO's funded projects require some type of cultural resources oversight or study.

Washington Department of Fish and Wildlife (WDFW): The agency manages over a million acres for the purposes of preserving, protecting, and perpetuating fish, wildlife, and ecosystems, while providing sustainable fish and wildlife recreational and commercial opportunities.

Sponsoring Agency Staff:

- Sarah Thirtyacre, Washington State Recreation and Conservation Office Cultural Resources Program Manager
- Katherine Kelly, Washington Department of Fish and Wildlife Lands Archaeologist

Panelists:

- Brandy Rinck, Archaeologist, King County Parks
- Steven Mullen-Moses, Director of Archaeology & Historic Preservation for the Snoqualmie Tribe
- Brian Carpenter, Outdoor Grants Manager, Washington State Recreation and Conservation

Office Workshop: Panel Discussion on Ethnographic Work with Northwest Tribes

Room: Clearwater A&B **Time:** 10:20 am to 12:00 pm **Organizers:** Donald Shannon Workshop

Abstract: This informal panel discussion will highlight the importance of ethnographic research with Tribes in the Pacific Northwest, and show how the Federal compliance process can generate ethnographic work.

Panelists will include Federal Agencies who fund ethnographic research, academicians who work with regional Tribes, and representatives from Tribal cultural resource programs. We will discuss some of the differences between academically driven ethnography and compliance ethnography, both through consultants and research done by Tribes. Compliance ethnographic work highlights the living culture of Tribes in the Pacific Northwest, exemplified by issues such as impacts of development and restricted use of traditional homelands to hunt and to gather culturally significant plants, the complex dynamics of access to salmon and salmon fishing, and many more. The importance of ethnographic research, specifically related to Traditional Cultural Properties, is increasingly acknowledged in management documents generated by land-managing agencies.

One of the goals will be to highlight opportunities for students of anthropology to work with regional Tribes and to discuss the relevance and contributions of ethnographic research. This is an informal event, and students are especially encouraged to attend to evaluate professional opportunities in anthropology.

Thursday Morning Poster Session Room: Ballroom IV 8:00am to 12:00pm

Allen, Josh

Pre-contact Use of Mesa Landforms on the Columbia Plateau: Results from Aggregate Lithic Analysis

Costigan, Lindsay and Stephanie O'Brien

Putting Walla Walla on the Map: A Study of Trade Routes to the Northwest

Curteman, Jessica, Chris Bailey, and Alex Nyers

The Summers Collection: Keeping Cultural Inspiration Alive

Dellert, Jenny and Tom Ostrander

Archaeological Investigation of Site 45KI449 at the Van Gasken Property, Des Moines, Washington

Dombrasuky, Kailie, Grace Coffman, E. Chadwick de Bree, Emily Patton, and Mary Lee Jensvold
Emphatic Modulation of Chimpanzee Signing

Donnermeyer, Chris, Trent Skinner, Michelle N. North, and Nicholas Guest
The Bridal Veil Lumbering Company: A Glimpse into an Intact Early Logging System in the Columbia River Gorge

Fulkerson, Tiffany and Lourdes Henebry-DeLeon
Intersectional Archaeological Approaches to Burial Practices: A Case Study from the Southern Plateau, Northwest North America

Henderson, Joshua and Meaghan Emery-Wetherell
Measuring Trace Element Concentrations in Artiodactyl Cannon Bones using Portable X-Ray Fluorescence

Hughes, Mackenzie, Dennis Wilson, Nik Harkins, Mallory Triplett, and Patrick McCutcheon
Initial Stone Tool Classification of Non-Professionally Assembled Lithic Collections

Johnson, Paula
Seventeen More Syllables: Further Investigations into the Shinjiro Honda Memorial Stone (45-KI-1256) and the Life of Poetry Master Shinjiro Honda

Muro, Sophie
Picture This: An Exploration of Photogrammetry and Digital Curation of Grand Ronde Belongings

Muschal, Marlis and Mike Shimel
Silver Creek Archaeological Context—Harney County, Oregon

Ngandali, Yoli
Invisible Photography: Examining Groundstone Art Production Processes Using Multispectral and Digital Imaging Techniques

Smyrl, Anne
Fold Along the Dotted Line: A Symmetry Analysis of Projectile Points from HP-54

Snyder, Daniel and Jessica Curteman
Relocating a Hopkins Site in Southwest Oregon using GPR, Magnetometry, and LiDAR

Stcherbinine, Sean
Investigating the Potential for Deeply Buried Occupation Surfaces in the Moses Lake Dune Field, Grant County, Washington

Wyatt, Noella and Cindy Morales
Sustaining Collections Research and Management: Tryon Creek House 2 (35WA288), Hells Canyon National Recreation Area.

Thursday Afternoon

General Session: A

Room: Ballroom V

1:30 Ross, Kayla and Ray von Wandruszka
Prophylactics Etcetera

1:50 Scott, Carly and Ray von Wandruszka
Stone Drugs and Dragon Bones

2:10 Robinette, Samantha and Ray von Wandruszka
Bad Medicine

2:30 Taber, Emily and Virginia L. Butler
Development and Application of an Economic Model of Fish Rank for Late Nineteenth-Century Pacific Northwest Households

2:50 BREAK

3:10 Peck, Alexandra
Coast Salish Social Complexity, Community Ties, & Resistance: Using Mortuary Analysis to Identify Changes in Coast Salish Society Before, During, & After the Colonial Period

3:30 Anderson, Erik D.
The King County Potter's Field: Mismanagement, Malfeasance and Corruption at 45-KI-1158

3:50 Codling, Chelsea
History and Foodways on Samuel H. Smith Site in Nauvoo, Illinois

4:10 Taylor, Breanne
Material Culture and the Social Dynamics of Residential Life at a Company Town: Archaeological Investigations at the Fairfax Townsite (45PI918), Pierce County, Washington

4:30 Tveskov, Mark Axel
Scorched Earth: The Military Campaign on the Lower Rogue River, 1856

4:50 May, Nathan
"They Expected a Hard Fight": Fire Line Metal Detecting Survey of the Rosebud Battlefield State Park Montana

General Session: B

Room: Ballroom I

1:30 Buchanan, Brian
The Cultural Heritage of the Palouse Prairie Restoration Project, Cheney, Washington

- 1:50 Lopez, Kirsten
National Register Listed Archaeological Sites within the State of Oregon: Statistics and what they mean for Oregon Archaeology
- 2:10 McClure, Rick
Aipax-kan-ishchit - the Yakama Trail: History, Archaeology, and an Approach to Evaluation
- 2:30 Rinck, Brandy and Philippe LeTourneau
A Cultural Resources Management Plan for Marymoor Park
- 2:50 BREAK
- 3:10 Pickard, Ashley
Deconstructing Disaster: When Ontological Understanding of Natural Disasters and Archaeological Research, Provide Key Information for Past and Present Disaster Response
- 3:30 Welch, John
Landscapes, Consultations, Archaeologies: Global Dynamics, Local Leadership, and the Promise of Full-Spectrum Heritage Resource Management
- 3:50 Luttrell, Charles T.
Farming on the Spokane Reservation - Case Studies of Indian Allotments No. 246, No. 247, and the Patrick W. Lawlor Homestead

General Session: C

Room: Clearwater C

- 1:30 Chatters, James
An Ancient Human and Extinct Megafauna in Hoyo Negro, Quintana Roo, Mexico
- 1:50 Farrell, Ian
Were There Blade Workshops at Coatlan del Rio: A Technological and Comparative Review
- 2:10 Helmer, Emily
Persistent Places in Southwestern Oregon
- 2:30 Humphries, Sarah J. and Kelly R. Bush
Basketry: Now as Always
- 2:50 BREAK
- 3:10 Bernick, Kathryn
Plateau Analogues for Precontact Basketry from Coastal Sites
- 3:30 Johnson, Matt
A Zooarchaeological Analysis of Hole-in-the-Wall Canyon (45KT12) and French Rapids (45KT13) Sites: Ginkgo State Park, Washington
- 3:50 Boersema, Jana, Teresa Trost, and Jonathan Haller
Successes and Limitations of the Piecemeal Approach to Archaeology on Utsalady Bay

4:10 Koetje, Todd

Neanderthals, Denisovians and Modern Humans: What Material Culture Differences can we see during their Overlap?

General Session: D

Room: Clearwater A & B

1:30 Carroll, Marna

Standing at the Confluence of Western Empire and Indigenous Knowledge: Decolonizing the Account of the Journey of Monchat- Apé, First American Anthropologist

1:50 Etnol, PJ

A Campus Community of Confluence: A Visual FYE Ethnography

2:10 Moon, Jonathan

Sweat Lodge on Campus: Examining Barriers of Communication of a Project between Native Students and the University of Idaho

2:30 Shannon, Don

Applied Ethnographic Work with the Confederated Tribes of Grand Ronde to Document Places of Cultural Significance: Mary's Peak

2:50 BREAK

3:10 Smith, Joshua

Confluent Anthropologies: The Political Anthropologies of Phinney and Boas in Contemporary Contexts

3:30 Wu, Shuxi

Transient Professionals: Asian Employees and the American Transnational Corporation

3:50 Leischner, Emily

Insights from Absence: Methods in Examining Silences while Researching Northwest Coast Tumplines in Museum Collections

Thursday Afternoon Poster Session Room: Ballroom IV 1:30pm to 4:30pm

Anderson, Jackey

Tekison Cave Sample Faunal Analysis

Daily, Phillip

A Community-based Approach to Archaeological Site Preservation in a Changing Climate: A Lower Columbia Case Study

Damitio, William, Andrew Gillreath-Brown, and Shannon Tushingam

Expanding Research Accessibility of Archaeological Collections: Development of a Geospatial Database for the Washington State University Museum of Anthropology

Dampf, Steven and Ayla Aymond

Subsurface Investigations along the St. Maries River (10BW237, 10BW238, and 10BW240), Benewah County, Idaho

Eldredge, Kaitlyn and Katrina C. L. Eichner

19th Century Consumerism in an Institutionalized Setting: Analysis of Ceramic Ware Consumption at Fort Davis

Frierson, Andrew and Stephanie A. O'Brien

Precontact Use of Pine Valley: Results from Site Mitigations at 35BA1495

Frugé, Adam

Preliminary Analysis Results: Sampling Fishes from 1976 Excavations at the Sam Israel House Pit (45GR76) near Soap Lake

Johnson, Katie and Mark Axel Tveskov

Mapping Settler Colonialism: The Cartography of the Rogue River War, 1855–56

Johnson, Trisha

Story Map—Confederated Tribes of the Colville Reservation—A Brief History

Kohnen, Kalli

*Individual Variation in the Response of Captive Javan Gibbons (*Hylobates moloch*) to Visitor Presence.*

Kretzler, Ian

Archaeological Investigation on Landscapes of Survivance

Kunas, Julia and Patrick T. McCutcheon

A Functional Analysis of Pre-contact Sites and their Microenvironments on Lopez Island, Washington

Litzkow, Jamie

Soft Gold! How the Fur Trade Shaped Early Gold Rushes in the Pacific Northwest

North, Michelle and Virginia L. Butler

The Virginia Lake Stake Feature, Sauvie Island, OR: Updates from Fieldwork and AMS Dating

Owen, Amber

Ehler's Danlos Syndrome: Overlooked, Mistreated and Misunderstood

Sukau, Dana and Virginia L. Butler

Use of Backwards Design to Assess Public Engagement at the Archaeology Roadshow, Portland, Oregon

Syvertson, Laura and Kelly R. Bush

Exploring the Role of Historic China-town in a Coastal Community in Western Washington

Thiel, Samantha

A Hard Kind of Labor: An Archaeological Analysis of Small-scale Hard Rock Mines in Northeast Washington

Friday Morning

Symposium: Exploring Residential Variability Across the Columbia-Fraser: Following-up on the “Plateau House Party”

Room: Ballroom V

Organizers: Molly Carney, James Brown, and Dakota Wallen

Symposium Abstract: The Columbia-Fraser Plateau is perhaps most well-known for its perplexing archeological record of houses, residences, and domiciles. Pithouses are thought to have been adopted in two successive waves across the region, and on the Columbia Plateau, abandoned in favor of more mobile lifeways with long and conical mat lodges. The timing and nature, however, for these shifts in residential choices vary greatly across watersheds throughout the region, leading to a somewhat fragmented record of the Plateau cultural area. Such changes in residential decisions hint at complex and shifting social relations, with a mix of environmental, demographic, and social processes posited as explanations for cultural change. After last year’s initial “house party” lightning round discussion, this 2019 follow-up session aims to dive deeper into dwellings in the Plateau past. Like the villages often located at the confluence of rivers, this session seeks to bring together diverse voices to discuss and synthesize the inter- and intra-household record of the Columbia-Fraser Plateau.

8:00 Neller, Angela J. and Lourdes Henebry-DeLeon

It's in the Archives: Doing Archaeology on the Columbia Plateau

8:20 Solimano, Paul S., Todd B. Ogle, Daniel Gilmour, Donald Shannon, Breanne Taylor, and Kanani Paraso

Sedentism and Salmon Intensification along the Lower Snake River as seen at 45-FR-42, the Fish Hook Jim Site

8:40 Tushingam, Shannon and Tiffany Fulkerson

Women and Leadership in the Columbia Plateau

9:00 Sappington, Lee

An Overview of Pre-contact Residential Structures in the Clearwater River Region, North Central Idaho

9:20 Wallen, Dakota

Inhabiting the Impassable: The Archaeology of Precontact Houses in Hells Canyon

9:40 Carney, Molly

Observations on Columbia Plateau Contemporaneous Individual and Group Structures, 1600 BP–Present

10:00 BREAK

10:20 Endzweig, Pam

Modern Living on the John Day River Revisited: Historic Housepits at 35GM22

10:40 Hampton, Ashley

Manifesting Membership: Understanding Housepit Space-use Utilizing GIS

11:00 Brown, Thomas J., Jonathan Duelks, and Paul Solimano

Conceptualizing the Relationship between Structures and 'Households' on the Columbia-Fraser Plateau

11:20 Brown, James W. and Steven Hackenberger

Homescaping of the Columbia Plateau: Radiocarbon Chronologies of House Settlements

11:40 Discussant: Chatters, James

Workshop: Association for Washington Archaeology Workshop: Archaeological Parenting

Room: Clearwater A&B

Time: 8:00 am to 10:00 am

Organizers: Amanda Taylor

Workshop Abstract: In this workshop, we will have a conversation about the challenges of pursuing a career in CRM, agency, museum, and academic archaeology while simultaneously trying to raise small humans. We troubleshoot some of the issues specific to the archaeology profession such as fieldwork and travel, and we hear from discussion leaders with a range of different parenting and work experiences.

Discussion leaders include Shelby Anderson, Naomi Brandenfels, Michelle Hannum, Lorelea Hudson, Sarah Johnson Humphries, Bob Kopperl, Paula Johnson, Alex Stevenson, Amanda Taylor, and Scott Williams. Parents and guardians of all varieties, aunts, uncles, and fellow travellers welcome. Children welcome to join us and voice their opinions and advice.

Workshop: The Washington Information System for Architectural and Archaeologicals Records Data... Help Me!!!

Room: Clearwater C

Time: 8:00 am to 10:00 am

Organizers: Allyson Brooks

Workshop Abstract: For some using Washington State's WISAARD system is easy. For others, it is complicated and not intuitive. DAHP staffers are here to help!!! Bring your questions and concerns about the system and DAHP staffers will assist you with any questions or problems you may have. We are here to help!

Workshop: FREE: Thesis Ideas!

Room: Ballroom I

Time: 8:00 am to 10:00 am

Organizers: John Pouley

Workshop Abstract: Attention current, future, and career graduate students. Do you still need a thesis topic? Are you tired of being laughed at? Are you disenchanted with your current topic

(probably not a good sign, but who are we to judge)? If your answer is yes to any of these, please come listen to ideas and opportunities to study with area tribes, state and federal agencies and universities at the first ever NWAC thesis topic lightening round. We've got GIS. We've got Chinese collections. We've got faunal and zooarchaeological analysis. We've got lithic studies. We've got GOLD mining. We've got a fricken Spanish Galleon! Stick around after for a mixer to meet the presenters and ask questions.

Panel: Cultural Resources, Technology, and the Public: Organizing Looting-focused Outreach Efforts for the Protection and Management of Cultural Resources

Room: Clearwater A&B

Time: 10:20 am to 12:00 pm

Moderator: Julia Furlong

Panel Abstract: This Panel Discussion will focus on public outreach with talking points including: how agencies educate the public about cultural resources, the law, and cultural resource protection, and how we can improve upon current education strategies using modern technology. The use of modern technology focused on better documentation and management of cultural resources, both prehistoric and historic, as well as looting prevention is an important step forward in cultural resources management (CRM). The panel is comprised of CRM professionals from a variety of backgrounds including consulting agencies, land managers, and tribal organizations who will provide a broad overview of current strategies and future goals. One key take-away of this panel discussion will be brainstorming the development of a free app for public use used to track when and where cultural resources are encountered by nonprofessionals as well as provide on-the-spot educational resources to those individuals.

Panelists: Carla Burnside, Zone Archaeologist, Eastern Washington and Northern Idaho, US Fish and Wildlife Service; James Jenks, Historian/Architectural Historian, Archaeological and Historical Services, EWU; Stephanie Jolivette, Local Government Archaeologist, Washington DAHP; Kristen Martine, State Archaeologist & Deputy Preservation Officer, OR/WA Bureau of Land Management; Dan Meatte, Archaeologist, Washington State Parks and Recreation Commission; Guy Moura, THPO, Confederated Tribes of the Colville Reservation; John Pouley, Assistant State Archaeologist, Oregon SHPO

Symposium: ODOT/WSDOT Transportation Session and Panel

Room: Clearwater C

Organizers: Scott Williams and Carolyn Holthoff

Symposium Abstract: ODOT and WSDOT partner again for a session on transportation related cultural resources management. A variety of papers will be presented, to be followed by a panel discussion on culverts and fish-passage issues.

10:20 Williams, Scott

The National Register Eligibility of a Transportation Icon

10:40 Rudnicki, Larissa

The Neon illumination of Grants Pass

11:00 Kennedy, Jaime L. and Thomas J. Connolly

The Botanical Assemblage at 35CL19: A Clackamas Chinook Village in the I-205 Corridor

11:20 Stevenson, Alex and Michele Punke

Diatoms, Cordage, and a Brewery: Results of Archaeological Investigations and Monitoring for the Tacoma Trestle Project

11:40 Discussion

12:00 Discussion

Friday Morning Poster Session Room: Ballroom IV 8:00am to 12:00pm

Arnzen, Jacob

Got Peel? Identifying Cambium Peeled Trees in the Malheur National Forest

Hackenberger, Steven, Jon Shellenberger, Nick Finley, Autumn Adams, and Cindy Morales

LiDar and Ground Penetrating Radar Imaging: Yakama Nation and CWU Collaborations.

Kuzminsky, Susan, Rylee Robertson, and Kristina Cockerille

Investigating Variation in Nasal Shape among Prehistoric Populations in North and South America

Leonard-Doll, Katy and Paloma Sanchez

Seeds of Survivance: Investigating Grand Ronde Foodways through Archaeobotany

Litzkow, Jamie

Basque Shepherding Landscapes in Washington State: Assessing Potential and Identifying Features

Lorain, Michael, Jane Smith, Madonna Moss, Claire Alix, and Joshua Reuther

Wood Selection for Fish Trap Stakes in Southeast Alaska

Mathews, Bethany

Washington Women Homesteaders: Finding the Underrepresented History of Land Claimants in Early Washington State

Reed, Patrick and Shelby Anderson

Is Old Dirt Worth It? Geochemistry of Bulk Sediment Collections from Cape Krusenstern National Monument, Alaska.

Riley, Ashley

A Women's Right to Choose: An Outsiders View on the Role of a Female Jehovah's Witness and Her Right to Choose to Accept It

Tipton, Katherine and Shelby Anderson

Archaeologists, the Public, and Collectors: Establishing a Regional Database of Archaeological Sites on Private Land and Collections in Private Hands in the Portland Area

Triplett, Mallory

Preliminary Study on the Context and Movement of Tachylyte, a Unique Volcanic Glass in Washington State

Poster Symposium: Pacific Northwest Consortium for Geophysics in Archaeology and CRM: Advancing Processing, Imaging, and Interpretation

Organizers: Rory Becker, Colin Grier, Steven Hackenberger, Lewis Somers

Location: Ballroom IV

Time: 8:00am to 12:00pm

Becker, Rory

Earth Resistance Tomography in Archaeological Applications

Grier, Colin and Andrew Martindale

Modelling and Ground-truthing Approaches to Geophysical Survey Interpretation: Mapping Archaeological Plankhouses in the Pacific Northwest

Lew Somers, Steven Hackenberger, James McLean, Christy Johnson, and Donald VanHeel
Multi-method Geophysical Survey: Yakima Army Training Center Site Evaluation

Maroney, Kendra

Magnetometry in Pend Oreille County, Washington

Friday Afternoon

Symposium: “Yes, The River Knows”: Narratives of the Duwamish

Room: Clearwater A&B

Organizers: Amanda Taylor

Symposium Abstract As the Seattle landscape continues to urbanize, several recent cultural resources investigations along the Duwamish and Black Rivers converge with the narrative presented by Sarah Campbell at Duwamish No. 1 (45KI23) in the 1980s, Dennis Lewarch at the Allentown Shell Midden (45KI431) in the 1990s, and Astrida Blukis Onat at the Duwamish River Bend site in the 2000s. In some cases, discoveries of archaeological deposits have provided new insights about how people lived along the waterway. Cultural resources investigations in high sensitivity areas have also failed to recover archaeological materials, in itself important data about past landscape use and depositional processes. Indigenous peoples of the Duwamish today have reinforced protection of culturally sensitive places and addressed archaeologists’ perspectives on cultural deposits. Interpretations have also been influenced by historical information about river channelization, agriculture, and industry. This symposium provides an opportunity to fit archaeological data from discrete investigations into a larger narrative about the past millennium along Seattle’s only river.

1:30 Lewarch, Dennis

Busybody, One More Time: Contributions of Research in the Lower Duwamish Embayment to the Development of Western Washington Archaeology

1:50 Miss, Christian, Johonna Shea, and Sharon Boswell

Ripple in Still Water: Contextual Themes, Research Opportunities and Historical Archaeology near the Duwamish and Black Rivers—Perspectives from Phase III of King County's Cultural Resources Protection Project. Part 2: Archaeological Perspectives

2:10 Boswell, Sharon

Ripple in Still Water: Contextual Themes, Research Opportunities and Historical Archaeology in the Duwamish/Black River Drainages—Perspectives from Phase III of King County's Cultural Resources Protection Project

2:30 Shong, Mike

Not to Touch the Earth: The Death of the Black River and the Effects on the Duwamish People and Archaeological Record

2:50 Stonehocker, Thomas

Place-based Learning with Elementary Students in Seattle

3:10 Shantry, Kate

This Must Be the Place: Recollections and Realizations at the Renton High School Indian Site

3:30 Ostrander, Tom and Chris Lockwood

Results of Archaeological Survey along the Upper Chehalis River Drainage

3:50 Discussant: Phil LeTourneau

General Session: E

Room: Clearwater C

1:30 Chatters, James

New Radiocarbon Dating of the Earliest Component of the Roadcut Site (35WS4) at The Dalles, Oregon

1:50 Croes, Dale and Ed Carriere

Generationally-linked Archaeology: Northwest Coast of North America Example

2:10 Hannold, Cynthia

The Manufacture of Notched Net Sinkers from the Columbia Plateau: An Experimental Approach

2:30 Martinez, Kelley

Experimental Archaeology and Groundstone Technology: Understanding Manufacturing and Usewear Attributes through Replication and Tool Use

2:50 BREAK

3:10 Meatte, Daniel
ILLUMINATED ROCKS: Paleoindian Use of Quartz Crystal in the Western United States

3:30 Schultze, Carol and Jennifer Huff
Investigations into Glacially Rafted Nephrite Boulders in Northern Washington

3:50 Schwab, Alex
California Creek Quarry: Insights from Drone Mapping and Ethnohistory

4:10 Cody, Tia and Shelby Anderson
LiDAR Predictive Modeling of Kalapuya Mound Sites in the Calapooia Watershed, Oregon

General Session: F

Room: Ballroom: I

1:30 Sholin, Carl
The Hustle and Bustle of the Coast Salish Potlatch An Exploratory Case Study of Gift Economic Exchange and Bird Resources at the Village of Xwe'Chi'eXen, 45WHI

1:50 Middleton, Sherri and Patrick T. McCutcheon
Comparing a Surface Collection to an Excavated Collection in the Lower Skagit River Delta at 45SK51

2:10 Lubinski, Patrick and Lianne Bradshaw
Pre-Mazama Mammal Remains from Reanalysis of Bernard Creek Rockshelter: Early Results

2:30 Johnson, Raini
Intra- and Inter-Site Heterogeneity as a Source for Faunal Assemblage Variability in the Prince Rupert Harbour, British Columbia

2:50 BREAK

3:10 ~~Wardle, Weston~~
The Scale of Plant Intensification in the Absence of Abundant Salmon Runs in the Upper Willamette Valley, Oregon

3:30 Wessen, Gary and Stephen Samuels
Exploring Faunal Assemblages to Identify Ethnic Groups: Makahs, Quileutes, and Shell Middens on the Northwestern Olympic Peninsula of Washington

General Session: G

Room: Ballroom V

1:30 Solomonian, Adam
Memory at the Confluence of Family and Nation: Shishalh Photographic Archives in the 21st Century

1:50 Rice, David
New Information on Horse Heaven Hills Pleistocene Turbidite Archaeological Find

2:10 McFarland, Doug, Cristina Garcia Lasanta, Zach Allen, Bernard Housen, Mike Valentine, and David Brownell
Only the Lonely: Magnetic Analyses to Address Function and Burn/use History of Non-feature Burned Rock

2:30 Simmons, Kim
Techniques for Production of Yarns and Threads for Warmth: Spinning Tools and Protein Fiber Sources in the Northwest.

2:50 BREAK

3:10 Hawes, Kathleen
AT THE ROOT OF THE MATTER: Basketry Construction Materials from the 2,000-year-old Biderbost Archaeological Wet Site (45SN100)

Friday Afternoon Poster Session Room: Ballroom IV 1:30pm to 4:30pm

Burningham, Tessie
Mapping Fort Douglas: Georeferencing Historic Maps

Coggeshall, Elizabeth, Amy L. Schreier, Carrie Merrigan-Johnson, and Laura M. Bolt
*The Role of Social Interaction and Nearest Neighbor Preferences in Juvenile *Alouatta Palliata* Social Development*

Dampf, Steven, Ayla Aymond, and Sylvia Tarman
Subsurface Investigation at the Sandy Heron Site (45SP485), Spokane County, Washington

Fulkerson, Tiffany, Alexis Evans, and Shannon Tushingham
Demographic Trends in North American Archaeology: A Longitudinal Analysis of Gender and Occupational Affiliation Trends in the Register of Professional Archaeologists (RPA)

Galm, Jerry, Stan Gough, and Julia Furlong
Sacred and Profane: Site Organization and Abandonment Processes at the Late Paleoindian Sentinel Gap Site

Gargett, Robert H.
Archaeological Dating of Late Holocene Barrier Beach Development at 45IS298, Oak Harbor

Gently, Mary
Essentialism in Lesbian Separatist Collectives

Middleton, Sherri
Finn Town 45KI1325, An Historic Coal Mining Community

Monaco, Marci

Obsidian Biface Cache Site 35MA375: New Flintknappers Help Reveal Old Technology

Morris, Jessica

Rock Imagery Viewshed Results: The Central Washington Cultural Landscape

Moses, Pendleton, Sylvia Peasley and Trisha Johnson

*Mapping Indian Hemp (*Apocynum cannabinum*) in the Traditional Territories of the Colville Confederated Tribes*

Rorabaugh, Adam and Karen Capuder

A New Look at the Excavations at the Forts Okanogan, Cassimer Bar Locality

Sisneros, Mathew

Oregon Archaeological Sensitivity Model Based on Surficial Geology and Landform Analysis

Vance, Emma and Anna Prentiss

Investigating Mobility and Subsistence Organization through Lithic Technology at 48PA551

Weygint, Conner and Josh Krause

Tools of the Trade: Hand tools from a Chinese Mining Site in Idaho's Boise Basin

Saturday Morning

Field Trip: Kennewick Man Ancient One Site Visit Meet in the Hotel Lobby to Caravan to the Site

Time: 9:30 am to 11:00 am

Talk on Site by Thomas Marceau

Tour: Alphabet House Walking Tour

Time: 1:00 pm to 3:00 pm

Cost: \$15 (Tickets still available and can be purchased at the Registration Desk) Personal Transportation Required

Tour Information: Wander the streets of Richland for this walking tour! Participants will walk through neighborhoods studded with houses designed and constructed by the U.S. Government to help rapidly accommodate the influx of thousands of Hanford Site workers who came to the area as part of the top secret Manhattan Project. During World War II, the Manhattan Project developed the first nuclear weapons, the plutonium for which was produced north of Richland at the Hanford Site. Starting in 1943, the small farming community of Richland was transformed into one of the Manhattan Project's "Secret Cities", with the U.S. Corp of Engineers ultimately building almost 5,000 houses. Design of houses was undertaken by the Spokane architect Albin Pherson, who developed a series of house styles named after the letters of the alphabet. In addition to the alphabet houses, prefabricated housing was installed to meet urgent housing needs. This tour will visit several different house types, and along the way you will learn about their construction, architecture, and the part they played in the community's development and culture. Participants will be required to wear sturdy walking shoes and provide their own transportation to the tour departure location. Water and sunscreen is recommended.

Full Abstracts

Allen, Josh Central Washington University

Pre-contact use of Mesa Landforms on the Columbia Plateau: Results from Aggregate Lithic Analysis

The mesa landforms of the Mid-Columbia Plateau are unique and isolated geomorphic features, some of which were occupied by pre-contact peoples for nearly 4,000 years. Initial excavation and analysis at three Mesa sites (45-GR-162, 45-GR-144, and 45-GR-188) recovered over 15,000 chipped stone debitage and tools, most of which remain unanalyzed. Our research is focused on aggregate debitage analysis and other lithic object morphologies (bifaces, cores, etc) to derive assemblage types. The new results are compared to other Mesa and non-Mesa sites to assess variation in assemblage composition.

Co-authors: Jackey Anderson (Central Washington University), Nik Harkins (Central Washington University), and Patrick McCutcheon (Central Washington University)

Anderson, Jackey Central Washington University

Tekison Cave Sample Faunal Analysis

The Tekison Cave site, located in Kittitas County, central Washington, was excavated by avocational archaeologists in the 1970s, and later listed on the National Register of Historic Places. Excavators recovered chipped stone tools and debitage, basketry and other perishable artifacts, and faunal remains. Materials from the site have not been examined in detail by professional archaeologists, but projectile points appear dominated by the Columbia Corner-Notched arrow style based on an anonymous point inventory. Earlier materials may persist in undisturbed lower layers. I will be conducting a sample faunal analysis to determine if there is material present as a result of human activity. In addition to taxonomic analysis, I will observe taphonomic characteristics including digestion, burning, and fragmentation. As this material has still been in original field bags, completing this analysis will also result in part of the collection being properly curated for the first time. This project is part of my larger research into collections rehabilitation and accessibility. Research for Zooarchaeology course with Dr. Patrick Lubinski.

Anderson, Erik D. Wood Environment and Infrastructure Solutions

The King County Potter's Field: Mismanagement, Malfeasance and Corruption at 45-KI-1158

The King County Potter's Field was decommissioned in 1912 as a part of the Duwamish Waterway Project. Supposedly, over 3,000 sets of remains were disinterred and cremated over a six-week period. Those involved had less than stellar reputations and accusations of corruption eventually led to a grand jury investigation from Washington State. These questions involving said alleged mismanagement and corruption could indicate an increased likelihood of human archaeological material presently remaining at the site.

Aranyosi, Floyd Olympic College

The Formation of Japanese-American Cultural Identity in the Pacific Northwest: Perspectives from Archaeology and Archival Research.

Immigration from East Asia to the Americas dates back to the 19th century and earlier, but the experience of Issei and Nisei (first and second generation) Japanese Americans has

received little attention until recently. The history of Japanese Americans that is depicted in popular narratives usually starts with the internment in concentration camps during World War II. Our research at the site of 45KP105, “Yama Village,” on Bainbridge Island, Washington helps to fill in the “backstory” of Japanese Americans, and provides insights into the formation of a culture that is both distinctly Japanese and unequivocally American.

Arnzen, Jacob Malheur National Forest

Got Peel? Identifying Cambium Peeled Trees in the Malheur National Forest

Cambium peeled trees are unique resources on the Malheur National Forest, but can be difficult to identify. These features are Historic Properties of Religious and Cultural Significance to Indian Tribes (HPRCSIT) and can be determined NRHP eligible. This poster discusses the physical characteristics, association, and settings of cambium peeled trees within the Emigrant Creek Ranger District of the Malheur National Forest. Cambium peeled trees have important cultural significance, and the purpose of this poster is to provide insight how the Malheur National Forest identifies and evaluates these cultural features.

Becker, Rory Eastern Oregon University

Earth Resistance Tomography in Archaeological Applications

Earth Resistance Tomography (ERT) is a geophysical prospection technique that produces 2D depth profiles similar to a single ground penetrating radar (GPR) slice with the same potential for creating 3D imagery from the 2D data. While earth resistance is a technique commonly employed during archaeological prospection surveys, the tomography method is infrequently utilized though the same equipment can be used to collect the data. ERT has the capacity to model sediment depths and identify archaeological features making it a useful method for subsurface geophysical investigations. However, the questions archaeologists ask of tomography data are inherently different than those explored through more common earth resistance techniques. This discussion provides an overview of the ERT technique and its applications within archaeology.

Bernick, Kathryn Royal British Columbia Museum

Plateau Analogues for Precontact Basketry from Coastal Sites

Recent discoveries of distinctive basketry expand our appreciation of coast-plateau connections in antiquity while raising new questions. Representative samples recovered with associated materials have better potential, but even isolated specimens may provide insights. Three examples illustrate current research: (1) an exquisite 750-year-old Plateau-style coiled basket cradle found in Coast Salish territory indicates the corridor of contact but not the place of manufacture; (2) a 1,900-year-old specimen from the Fraser Delta differs significantly from known basketry, anywhere, ethnographic or archaeological—I lean toward a Columbia Plateau origin, and further suggest that it may be ancestral to corn-husk bags; (3) the 2000 BP Biderbost site in the western foothills of the Cascade Mountains yielded numerous plateau-style stone artifacts and baskets that are like Klickitat baskets in size, shape, and selvage, but more closely resemble same-age coastal basketry from southwestern British Columbia.

Boersema, Jana Cascadia Archaeology

Successes and Limitations of the Piecemeal Approach to Archaeology on Utsalady Bay

Two shell midden sites, 45IS7 and 45IS8, span the two-mile length of the Utsalady Bay shoreline on Camano Island. Today the shoreline is subdivided into more than 200 parcels, and the sites have been subject to piecemeal archaeological investigations controlled by the development projects of private landowners. Analysis of these investigations suggests revisions to the site boundaries, but provides little information about the function of the two sites. Since 2011, Cascadia Archaeology has conducted a series of investigations on one parcel at 45IS8 and several parcels at 45IS7. Our investigations provide a glimpse into activities that took place in slivers of each site. When compared with other investigations at the sites, it is possible to begin to understand site activities and the period of occupation of the sites. However, piecemeal archaeology significantly limits the potential for understanding the function of complex archaeological sites in a larger subsistence and settlement system.

Co-authors: Jana Boersema (Cascadia Archaeology); Teresa Trost (Cascadia Archaeology); Jonathan Haller (Stateline GIS)

Boswell, Sharon Washington Department of Fish and Wildlife

Ripple in Still Water: Contextual Themes, Research Opportunities and Historical Archaeology in the Duwamish/Black River Drainages—Perspectives from Phase III of King County's Cultural Resources Protection Project

Phase III of King County's Cultural Resources Protection Project provided the opportunity to review past studies, explore research sources, and develop historical themes and property types that may serve as a framework for understanding the county's historical archaeology. This presentation will briefly explore those historic themes and particularly focus on the context of settlement as it relates to the Duwamish/Black River watershed. The Duwamish River played a central role in settlement, subsistence, and cultural interactions as newcomers came into the region during the 19th and early 20th centuries. Over time, the dynamism and unpredictability of the river led to changing perceptions of potential uses and efforts to reimagine and reshape the waterway itself. Despite being among the most studied rivers in the region from an environmental perspective, there remains much to learn about the human history of the Duwamish/Black River drainage during the more recent past.

Historical Perspectives: Sharon Boswell; Archaeological Perspectives: Christian Miss.

Brown, James Washington State University

Homescaping of the Columbia Plateau: Radiocarbon Chronologies of House Settlements

Semi-sedentary and sedentary households have produced mosaic settlement patterns based on foraging and collecting strategies. The known distribution and organization of residential features appear to represent cycles of viable construction and/or differential preservation. The summed probability distributions of 150 radiocarbon dates from houses are used to compare settlement along the Upper Columbia, Upper Middle Columbia, and Middle Columbia River. Interpretation of this record requires explicit assumptions and multiple working hypotheses. If Bayesian representation of dates for house features can be used as proxies for resident populations, then two periods of less frequent house construction are evident 4500–3500 cal.

BP and 3000–1500 cal. BP. Models of population movement and growth must be combined using agent-based simulations with broad geographic contexts in order to understand the effects of population pressure and environmental change in the adaptive strategies of the pre-contact Plateau inhabitants.

Co-author: Steven Hackenberger (Central Washington University)

Brown, Thomas University of British Columbia
Conceptualizing the Relationship between Structures and ‘Households’ on the Columbia-Fraser Plateau

Within the Columbia-Fraser Plateau culture-historical frameworks and theories of social/political change have relied extensively on data largely deriving from excavations on domestic structures. This emphasis on domestic structures is justifiable given the important changes to mobility and/or social organization implied by their appearance and proliferation. However, despite the central role of domestic structures in discussions of Plateau history, the relationship between individual structures and the ‘household’ (sensu Wilk and Rathje 1982) has not been sufficiently explored. As such, research in the region often implicitly assumes a 1:1 relationship between structure and ‘household’ without a theoretical or empirical basis for doing so. We argue that spatio-temporal variability in size, form, investment, and function among structures on the plateau indicates a need to more explicitly evaluate how structures relate to the ‘household’ and that doing so will facilitate more sophisticated and nuanced understanding of socio-political, economic, and settlement/mobility pattern change in the region.

Co-authors: Jonathan Duelks (Willamette CRA) and Paul Solimano (Willamette CRA)

Buchanan, Brian Eastern Washington University
The Cultural Heritage of the Palouse Prairie Restoration Project, Cheney, Washington

The Palouse Prairie Restoration Project (PPRP) is a multi-year undertaking by Eastern Washington University to restore c. 150 acres of farmland to native vegetation and habitat. The project will develop educational, research, and recreational opportunities by converting wheat cultivation fields into native grasslands. The proposed project design details restoration of the biodiversity of the area, constructing multi-use trails, and developing research plots for faculty-led research and hands on learning experiences for students and the public. Ongoing research is being conducted on the natural and cultural history of the parcel. This presentation presents the preliminary results of student and faculty research on the cultural heritage of the project area and places our understanding of this parcel’s past into a wider context of how the landscape around Cheney was utilized in the pre-contact and historic periods. In addition, this paper presents potential future research opportunities the department will conduct at the parcel in the years to come.

Burningham, Tessie University of Idaho
Mapping Fort Douglas: Georeferencing Historic Maps

This poster presents research findings related to the georeferencing of historically hand drawn maps. The Fort Douglas Military Museum in Salt Lake City, Utah houses dozens of maps

of the historic fort panning the decades between its founding in 1862 to the present day. The presentation focuses on six of these maps that were digitized and georeferenced in ArcGIS. The accuracies of the Fort Douglas maps were mixed, but they proved that georeferencing historical maps can be a powerful resource for archaeologists, architectural historians, and development companies. The process reveals how accurate these historic maps are and provides spatial coordinates for archaeological features on the landscape. Furthermore, I show how digitized maps are an invaluable development management tool that can be used to protect historical resources.

Campbell, Renae University of Idaho

Introducing the HJCCC: A Digital Comparative Collection of Historical Japanese Ceramics

The Historical Japanese Ceramic Comparative Collection (HJCCC) is a new online resource for identifying and describing nineteenth- and twentieth-century Japanese ceramics that are commonly found at North American archaeological sites. Launched in October of 2018, the HJCCC was created in partnership with the Asian American Comparative Collection (AACC) and the Center for Digital Inquiry and Learning (CDIL) at the University of Idaho, and the Burke Museum of Natural History and Culture in Seattle. This presentation introduces the HJCCC, its collaborative and educational underpinnings, and our goals for the future.

Carlson, David University of Washington

“The Barneston Menace”: Anti-Japanese Hysteria and Health Care Practices at an Early 20th Century Nikkei Sawmill Town Community (1898-1924)

In 1904, the Seattle Star published a series of articles on what it called “The Barneston Menace”: the presence of a Japanese immigrant community close to the Cedar River, one of Seattle’s major fresh water sources. Singling out the Japanese workers from the rest of the multiethnic company town of Barneston, Washington, the Star sought to frame them as a uniquely dangerous threat to the health and security of the city’s residents. This coverage was apparently serious enough that it led to several changes in the Nikkei community, the most notable of which was their resettlement to a more permanent location away from the river. This paper will provide some preliminary thoughts on what this event might imply for the meaning and significance of artifacts—particularly glassware—recovered from the Nikkei community at Barneston and contextualize these results within the historical development of early 20th century public health, United States racism, and Meiji-period health care in Japan.

Carney, Molly Washington State University

Observations on Columbia Plateau Contemporaneous Individual and Group Structures, 1600 BP–Present

Archaeological investigations of dwellings see structures as both adaptive responses to environmental and social change, as well as manifestations of worldview and identity. In this paper, I focus on the long lodges and smaller conical lodges adopted across the central and eastern Columbia Plateau region from about 1600 BP onwards. How was interior and exterior space used in these structures? Is there any spatial patterning indicative of past lifeways and social organization? I explore these questions by examining several examples of both long lodges and smaller lodges from published reports. Drawing on quantitative, qualitative, and

ethnographic data, I argue that while both the individual conical and longer mat lodges were occupied simultaneously, they illustrate a fundamentally different use of space. I conclude with some cautionary thoughts about the uncritical use of the term “house,” in a region and time period in which notions of structures and dwelling may not fit into our etic categories of houses and households.

Carroll, Marna

Central Washington University

Standing at the Confluence of Western Empire and Indigenous Knowledge: Decolonizing the Account of the Journey of Monchat-Apé, First American Anthropologist

In 1758, the *Histoire de la Louisiane*, part memoir of the author, M. Page du Plat, and part ethnographic miscellany, was published. Within was an account of a cross continental journey undertaken by a Yazoo/Natchez man Monchat-Apé. His narrative, first used by the French to extend imperial claims to the Pacific Ocean, later passed to Meriwether Lewis and William Clark as a guide across Louisiana Purchase. The French and Americans paid scant attention to the scientific quest at the heart of Monchat-Apé's journey. Indeed, the narrative presents an approach recognizable as social science and Monchat-Apé's methodology, utilizing direct observation of phenomena, informant interviews and survey, presage scientific process and methodology that only later become the Western science paradigm. Monchat-Apé's quest delved into the origins of his people and discovered a new field of inquiry. Monchat-Apé is the first anthropologist, his account of incalculable value to anthropology today as it offers a new direction for the field.

Chatters, James

Applied Paleoscience/ DirectAMS

An Ancient Human and Extinct Megafauna in Hoyo Negro, Quintana Roo, Mexico

The submerged caves of the Yucatan Peninsula are a treasure trove of new information about the first people and megafauna of Central America. One of the most exciting discoveries is Hoyo Negro, an immense natural trap found deep underground. Over the last 7 years, an international team of archaeologists, paleontologists, and geochemists has been exploring this site. It has so far revealed the most complete of the earliest human skeletons in the western hemisphere and near-perfect remains of 15 mammalian species, including gomphotheres, four species of giant sloth, saber teeth, and extinct South American carnivores. Most exciting are the remains of “Naia” a young woman who fell in nearly 13,000 years ago. The technical challenges have been immense and how we have addressed them provides useful lessons for archaeologists working in any region. Through methods we have developed, we are gaining new insights into the lives of Americas first inhabitants.

New Radiocarbon Dating of the Earliest Component of the Roadcut Site (35WS4) at The Dalles, Oregon

In the 1950s the Five-Mile Rapids Roadcut Site produced the first-known early Holocene occupation in the Columbia Plateau. The basal strata, I and II, contained a diverse toolkit belonging to what we now call the Western Stemmed Tradition and a rich, well-preserved fauna containing an abundance of salmon and many species of birds. As important as this early assemblage to this region's archaeological record, it is not well dated. During the dawn of radiocarbon dating, composite charcoal from Stratum I produced an age of 9785±200; an overlying age of 7875±100

was obtained for Stratum II. More recently, Butler and O'Connor dated what they saw as upper Stratum II at 8090±90. The early assemblage begged for better dating. During a study of early Holocene isotopic ecology, 23 radiocarbon dates were obtained on bone from mammals and birds. The results both establish the age of deposit and allow computation of the marine reservoir effect for this time in the Early Holocene.

Clark, Margaret CH2M HILL Plateau Remediation Company, a Jacobs' Company
In No-Man's Land: Army Camp Hanford

Historically, the Hanford Site is best known for its role in the Manhattan Project. It was the first site in the U.S. to manufacture weapons grade plutonium, some of which fueled the atomic bomb dropped on Nagasaki, Japan, in 1945. Less well documented is the decade the U. S. Army spent guarding the site from 1951 to 1961. Oral histories combined with artifacts recovered from a barracks' dump site provide insight into the Army's occupation. This paper's title is taken from one veteran who described his experience on the desert site—"We were out in No- Man's land...and I was so homesick."

Cockerille, Kristina University of Idaho
Faunal Remains from 10BO779: Analysis of Chinese Foodways from the Boise Basin

Beginning in the late 1860s, Chinese immigrants entered Southern Idaho's Boise Basin in search of gold. In the late nineteenth and early twentieth centuries, as much as half of the population in the region was of Chinese descent and a large portion of this population worked in the mining industry. Archaeological sites now located in the Boise National forest can help to better understand what daily life and conditions were like for these miners. Foodways and food preferences are an integral part of gaining this broader understanding. This paper will discuss the faunal remains from a Chinese mining site, 10BO779, located along Ophir Creek near Placerville. Of the approximately 7,500 artifacts found at this site, nearly 25 percent are faunal remains. Through the analysis of these remains, we can work to acquire a deeper knowledge of the customs and daily life of Boise Basin's Chinese miners.

Codling, Chelsea University of Idaho
History and Foodways on Samuel H. Smith Site in Nauvoo, Illinois

Nauvoo, Illinois is a small town, known today as a summer tourist destination because of rich religious history of the Church of Jesus Christ of Latter-day Saints (Mormons) and the splintering factions such as the Community of Christ churches. Archaeological excavations in Nauvoo began in the 1970s and continues today as a renovation project to restore the town as it looked during the Mormon occupation era from 1839 to 1846. The last five summers of the project were spent excavating the property of Samuel H. Smith, brother to Joseph Smith, the first LDS prophet of the church. This excavation revealed a foundation to a Mormon period structure along with about 35,000 artifacts. A closer look at the faunal remains and other artifacts for analysis will help to understand pieces of Samuel Smith's lifestyle and others living on the frontier during the Mormon occupation of Nauvoo.

Cody, Tia Portland State University

LiDAR Predictive Modeling of Kalapuya Mound Sites in the Calapooia Watershed, Oregon

This presentation details the development, testing, and results of a LiDAR and remote sensing predictive model to locate precontact mound sites in the Calapooia Watershed in the Willamette Valley, Oregon. Not much is known about these mound sites archaeologically, including where they are located in the 234,000 acre watershed. Additionally the watershed is 94% privately owned, making traditional archaeological survey impractical. To address this problem, I used ArcMap, LiDAR data, and aerial photography to develop a Kalapuyan mound predictive model. Development of the model included filtering the LiDAR dataset to remove “noise”/ non-mound features, as well as inverting and digitally flooding the LiDAR dataset to identify inverted mounds. Testing included lab verification of the models ability to identify previously recorded mound sites and a focused pedestrian survey of the project area to assess whether the model identified previously unrecorded mounds. Four land parcels were surveyed and 22 model-identified sites were visited, with seven sites verified as newly recorded Kalapuyan mounds.

Co-author: Shelby Anderson (Portland State University)

Coggeshall, Elizabeth Central Washington University and Maderas Rainforest Conservancy

*The Role of Social Interaction and Nearest Neighbor Preferences in Juvenile *Alouatta Palliata* Social Development*

Primates' extended juvenile period allows essential time for socializing that may help develop social skills necessary for survival and reproduction in adulthood. While juveniles continue to rely on their mothers after weaning, they also explore independently and socialize with others to build relationships. In this study we examine juvenile *Alouatta palliata* social behavior and nearest neighbor preferences. We hypothesize that juveniles will (1) spend more time engaged in social behavior than adults and (2) will demonstrate a spatial preference for adult females compared to other age-sex classes because females are known to facilitate social development more than males or other juveniles. This study took place at the La Suerte Biological Research Station, Costa Rica from May- August 2018. We conducted scan sampling of focal juveniles, adult females, and adult males to collect data on activity and nearest neighbor distance and identity. As predicted, juveniles spent significantly more time in social behavior (3.4% of the time) than both adult females (0.5%) and adult males (0.1%). Juveniles were significantly more likely to be nearest neighbors with adult females (66.4% of the time) than with adult males (10.4%) or other juveniles (7.5%). In addition, juveniles were significantly closer to adult females (1.6m) than adult males (2.8m), but there was no difference between juveniles' proximity to adult females compared to other juveniles (1.5m). These results suggest that the juvenile period allows for increased social time and that juveniles rely on their mothers and other adult females for social opportunities, including social access to other juveniles.

Co-authors: Amy L. Schreier (Central Washington University, Regis University, and Maderas Rainforest Conservancy), Carrie Merrigan-Johnson (Maderas Rainforest Conservancy and University of Toronto at Mississauga), and Laura M. Bolt (Maderas Rainforest Conservancy and University of Toronto)

Costigan, Lindsay Anderson Perry & Associates, Inc.

Putting Walla Walla on the Map: A Study of Trade Routes to the Northwest

In March 2017, the removal of a sidewalk panel during construction exposed a mélange of historic period artifacts. A subsurface investigation into turn-of-the-century Walla Walla by archaeologists at Anderson Perry & Associates, Inc., revealed artifacts imported from near and far. Oysters from the Olympic Peninsula, ceramics from China, and glass bottles from Europe highlight not only increasingly complex and far-reaching transportation methods but also Walla Walla's prominence and importance as a transportation and agricultural hub in the Pacific Northwest during the late 19th and early 20th centuries. This archaeological site was determined to be a secondary deposit composed of several dumping episodes of refuse from developed areas of the city as this area developed into a residential neighborhood. Artifacts from this site speak to the tastes of Walla Wallans of multiple classes and ethnicities. This research addresses similar archaeological sites in the vicinity and their contents' intriguing origins.

Co-author: Stephanie O'Brien (Anderson Perry & Associates, Inc.)

Croes, Dale Washington State University

Generationally-linked Archaeology: Northwest Coast of North America Example

Ed Carriere and I have spent the last four years doing what is often called experimental archaeology, replicating 2,000 year old baskets from the Biderbost wet site east of Seattle, Washington and reporting this in our new book. After pondering what and why we were doing this, Ed as a cultural expert and myself as an archaeological scientist, decided our approach was more than experimental archaeology, and beyond ethnoarchaeology and the direct historical approach. Through our lives we approached the artifacts of basketry from different perspectives and temporal directions. I focused from deep-time forward, statistically tracing ancient traditions over the course of more than 3,000 years, while Ed, worked from the present backwards, initially from what he learned from relatives and museum examples and now through archaeological examples from over 200 generations of his ancestors/grandparents. Our work tests my hypotheses explaining on-going cultural continuity in three regions of the Northwest Coast, and especially in Ed's inner Salish Sea region.

Co-author: Ed Carriere (Suquamish Elder and Master Basketmaker)

Curteman, Jessica The Confederated Tribes of Grand Ronde

The Summers Collection: Keeping Cultural Inspiration Alive

The 1870s are a point in time when the people of the Grand Ronde Reservation were in rapid transition as a result of extreme hardships. These are also the years wherein Rev. Robert W. Summers made significant collections of the material culture of the Grand Ronde people; in his words "As a way to preserve their drastically fading way of life". Today, the items in the Summers Collection have the power to educate and inspire modern generations about the skills, designs, devices, and deep knowledge their ancestors used for thousands of years. The sixteen items currently exhibited at Chachalu Museum and Cultural Center of The Confederated Tribes of Grand Ronde are on loan from the British Museum. To keep the power and inspiration alive

in community after the items leave, the Tribe is devoting efforts to learn, teach, and model the practices embedded in their construction.

Co-authors: Chris Bailey (The Confederated Tribes of Grand Ronde) and Alex Nyers (The Confederated Tribes of Grand Ronde)

Daily, Phillip Portland State University

A Community-Based Approach to Archaeological Site Preservation in a Changing Climate: A Lower Columbia Case Study

Global climate change is an increasing threat to cultural resources, especially in coastal areas. Archaeologists have responded with risk assessments that gauge these threats and create preservation priorities for land managers. However, most assessments do not include input from descendant communities, which limits their potential value and relevance to archaeologists and tribal partners. We are in the initial stages of developing a risk assessment model for the Lower Columbia that includes a process for collaborating with tribes. In addition to incorporating the existing archaeological and ethnohistorical data typically used in risk assessments, our project will also incorporate indigenous stakeholder priorities through peer-to-peer partnerships. This poster outlines our work so far.

Damitio, William Washington State University

The Archaeology of Smoking in Northwestern North America: Synthesis of Archaeological Pipe Data and Evidence from Chemical Residue Studies

In this paper we synthesize recent research on ancient smoking practices in northwestern North America. We include a discussion of our current knowledge on the spatiotemporal distribution of smoking in the past as well as our understanding of past tobacco and other smoke plant use based on a review of the ethno-historic literature and numerous chemical residue studies performed on smoking artifacts from the region. The evidence at this time demonstrates that smoking was a widely distributed practice in the Inland Northwest over the past several thousand years—with the earliest known pipes dating to around 4,500 cal BP—but not on the Coast. Published and unpublished biochemical studies are discussed, with results that point to indigenous tobacco being an important smoke plant in the region as early as around 1,410 years ago at least as far north as the mid-Columbia region, far in advance of the introduction of trade tobacco in the northwest.

Co-author: Shannon Tushingam (Washington State University)

Expanding Research Accessibility of Archaeological Collections: Development of a Geospatial Database for the Washington State University Museum of Anthropology

Researchers at the Washington State University Museum of Anthropology are designing a synthetic research program through the creation of a geospatial database of archaeological collections curated at the museum. While significant progress has been made rehabilitating collections, no unified database had been developed that contained summary information on all of the collections. We describe the process of creating a geospatial database for the Museum of Anthropology sites and present the results. The Museum of Anthropology manages materials

from 1,635 archaeological sites, 1,073 of which are associated with artifact collections. We present the first phase of a dynamic and evolving resource that will grow and change in the future. We hope that the spatio-temporal and other data will aid in the advancement of archaeological research in the State of Washington and beyond.

Co-authors: Andrew Gillreath-Brown (Washington State University and Shannon Tushingham (Washington State University)

Dampf, Steven

Historical Research Associates, Inc.

Subsurface Investigations along the St. Maries River (10BW237, 10BW238, and 10BW240), Benewah County, Idaho

Following the requirements of FERC's Programmatic Agreement for relicensing, HRA assisted Avista Corporation in developing Historic Properties Management Plans for the Spokane River Project in eastern Washington and northern Idaho. HRA conducted archaeological testing at three sites (10BW237, 10BW238, and 10BW240) over two drawdown seasons along the lower stretch of the St. Maries River as part of the implementation measures presented in the HPMP for the Idaho portion of the Project. All three sites contain fire-modified rock (FMR) features partly intact in the cutbank, indicating intact deposits likely occur behind the cutbank and possibly in the drawdown zone. Preliminary results indicate that excavation units from at least two sites (10BW237 and 10BW238) may yield enough information to answer questions about NRHP eligibility, integrity, and soils to accomplish the goals of the study. This information will be used to assist in determining the NRHP eligibility and the most effective measures for the treatment of cultural resources adversely affected by the Project.

Co-author: Ayla Aymond (Historical Research Associates, Inc.)

Subsurface Investigation at the Sandy Heron Site (45SP485), Spokane County, Washington

Following the requirements of FERC's Programmatic Agreement for relicensing, HRA assisted Avista Corporation in developing Historic Properties Management Plans for the Spokane River Project in eastern Washington and northern Idaho. Implementation procedures include formal evaluation to determine a site's eligibility for listing in the NRHP. Site 45SP485 consists of numerous deflated fire-modified rock features, shell concentrations, possible housepit depressions, and an assemblage of lithic tools. The site contains intact deposits with high archaeological potential, but suffers from impacts due to shoreline erosion, deflation of sediments, and recreational artifact collecting. HRA utilized magnetometry in 2016 to identify the presence of buried archaeological features for further investigation and to address the integrity of those features and the remaining buried site. Subsurface excavation in 2019 was directed at high magnetic targets identified during the first phase of the evaluation. This information will not only be used to help establish site eligibility, but also assist in determining the most effective protective measures for 45SP485.

Co-authors: Ayla Aymond (Historical Research Associates, Inc) and Sylvia Tarman (Historical Research Associates, Inc)

Dellert, Jenny Environmental Science Associates (ESA)

Archaeological Investigation of Site 45KI449 at the Van Gasken Property, Des Moines, Washington

The City of Des Moines unintentionally trenched through a largely intact precontact shell midden. Many of the trenches were backfilled and spoils spread across the yard. ESA's phased investigation utilized shovel probes and test units to delineate the site. Then, after DAHP and tribes concurred that the midden was an extension of 45KI449, ESA obtained a permit to conduct spoils screening efforts in order to recover the disturbed artifacts. Precontact materials included lithic flakes, tools, faunal bone and bone tools, charcoal, and FMR. The bone tools indicate fishing, wood working, weaving or basketry, and possibly for ritual purposes. The faunal assemblage includes large and medium terrestrial mammal, sea mammal, bird, and several fish species. The lithics indicates initial and late stage bifacial reduction. The bluff-top location is unusual. Shell density, midden thickness, variety of faunal, lithic, and personal/ritual artifacts, suggest long-term occupation. Reports of human remains and ethnographic places nearby may support Site 45KI449 as a winter village.

Co-author: Tom Ostrander (Environmental Science Associates (ESA))

Dombrowsky, Kailie Central Washington University

Emphatic Modulation of Chimpanzee Signing

Human signers modulate form of signs and cheremes to alter meaning. Emphatic signs co-occur with modulations of reiteration (repeated), duplication (2 hands), held sign (hands held in sign position), and enlarged size (outside signing space) (Klima & Bellugi, 1979). Five signing chimpanzees modulated signs in questions and other ways. Chimpanzee caregivers recorded into sign logs chimpanzees' signs, cheremes, and modulation notes. This study queried sign logs for records of listed modulations and notes on emphatic (e.g. makes sound). Of a corpora of 2,729 signs, 882 were modulated: 92% involved reiteration, 2% involved duplication, 2.44% involved held, 0.22% involved enlarged, 2% involved reiteration and duplication, 1% involved reiteration and held, and 0.55% involved reiteration and enlarged. Ten percent of modulated signs had note of emphatic. Of the emphatic signs, 82% included modulations. This highlights the role of modulation in emphatic signing and adds to our understanding of the patterns of sign modulation in chimpanzees and human signers.

Co-authors: Grace Coffman (Central Washington University), E. Chadwick de Bree (Central Washington University), Emily Patton (Central Washington University), and Mary Lee Jensvold (Central Washington University)

Donald, Roderick Colville Confederated Tribes History/Archaeology Program

A Brief Introduction to the Confederated Tribes of the Colville Reservation's History and Archaeology Program

The History and Archaeology Program at the Confederated Tribes of the Colville Reservation (Colville Confederated Tribes [CCT]) began in 1976 and the twelve tribes were one of the first to become a Tribal Historic Preservation Office (THPO) in 1996. There are now over 150 THPOs throughout the US. The program has grown to more than 40 employees and participates in more than 50 projects per year. A major aim of the History/Archaeology program is to promote tribal sovereignty through the identification and preservation of cultural resources within the reservation as well as tribal traditional lands.

Donnermeyer, Chris USFS - Columbia River Gorge National Scenic Area
The Bridal Veil Lumbering Company: A Glimpse into an Intact Early Logging System in the Columbia River Gorge

Logging was an economic and cultural pillar of the Pacific Northwest. The Bridal Veil Lumbering Company, a logging company operating in the Columbia River Gorge in Oregon State, was the longest continuously operating early lumber mill west of the Mississippi. The company spanned a timeframe that encompassed a wide range of technologies, immigration trends, and safety regulations. Until recently it was thought that the Bridal Veil system was not intact - broken up by roads, previous development, and looting. USFS Archaeologists working in the vicinity during the Eagle Creek Fire in 2017 documented previously unknown portions of the system. Later research revealed that LiDAR technology could be utilized in targeting further documentation. In 2018 a Passport in Time project was coordinated to identify and document more of the system and assess it for integrity. The project is expected to continue for several more field seasons. This poster documents the preliminary results of the project.

Co-authors: Trent Skinner, Michelle N. North (Portland State University), Nicholas Guest

Eldredge, Kaitlyn University of Idaho
19th Century Consumerism in an Institutionalized Setting: Analysis of Ceramic Ware Consumption at Fort Davis

This poster summarizes analysis of ceramic ware consumption patterns in the context of a 19th century U.S. military fort. Specifically, this poster discusses a sample assemblage of ceramics recovered during a surface survey conducted on private property in Fort Davis, Texas. The sheet midden materials we are discussing were deposited by military personnel from the mid-1880s through the fort's official abandonment around the turn of the twentieth century. Consideration of domestically and institutionally produced refuse offers a unique perspective into the construction of an American presence on the Western American frontier. Ceramics are used to consider how daily practice reinforced ethno-racial, gendered, and national identities amongst residents at the fort. Of particular interest to the project are the experiences of African-American enlisted soldiers, women, and Hispanic civilians, and the changing ways in which these communities related to one another and the white, Euro-American community on a shifting frontier landscape.

Co-Author: Katrina C. L. Eichner (University of Idaho)

Ellyson, Laura Washington State University
*Experimental Beverage Brewing of *T. cacao* and *I. vomitoria*: Palmitodiolen as an Additional Biomarker?*

Archaeological detection of beverages derived from cacao (*Theobroma cacao*) and yaupon holly (*Ilex vomitoria*) relies upon the detection and composition of three methylxanthines: caffeine, theobromine, and theophylline. Recent experimental studies have challenged archaeological detection methods based on the presence of these compounds and instead propose methods based upon measured proportions of these compounds, particularly caffeine/theobromine ratios; however these proportions are affected by various beverage preparation methods such as roasting which challenge archaeologists' ability to confidently detect ceramic vessels used to brew beverages derived from these plants. This study presents the results of a controlled series of

beverage-brewing experiments comparing the methylxanthine ratios of beverages brewed from roasted and unroasted samples of cacao and yaupon holly. Additionally, this study explores the ability to detect palmitodiolen, a triglyceride found in cacao and absent from yaupon holly, in beverages brewed from cacao as a potential biomarker in archaeological ceramic residues.

Co-authors: Shannon Tushingham (Washington State University) and David Gang (Washington State University)

Endacott, Neal Central Washington University

New Ways of “being American” during the Asian Diaspora: Zooarchaeological Inferences on Assimilation and Transnationalism from the Yama Site, Bainbridge Island, WA

The Yama Site (45KP105), on Bainbridge Island, WA was a village occupied by Japanese immigrants, and their first-generation descendants, from about 1887 to 1929. Extensive surface survey and limited test excavations, by the Yama Archaeology Project, from 2015 to 2017 recovered a sizable zooarchaeological assemblage. The people of Yama village were among the first Japanese-Americans. A common perception of Issei is that they lived a traditional Japanese lifestyle in a new location. Most of the faunal specimens from Yama are domestic cattle, despite traditional Japanese diet including little beef. Burnt deer and rabbit remains indicate food procurement through hunting local wildlife, an uncommon practice in Buddhist cultures. Fish remains, a common food item in Japanese diets, are scarce. These data suggest the Yama residents were creating a new way of “being Japanese” (which included eating beef), and a new way of “being American” (which included traditional Japanese foods).

Endzweig, Pamela University of Oregon Museum of Natural and Cultural History

Modern Living on the John Day River Revisited: Historic Housepits at 35GM22

Excavation of housepits at 35GM22 on the lower John Day River prior to inundation by the John Day Reservoir uncovered two superposed living floors dating to the second half of the 19th century. Recovered materials reflect social changes the site’s occupants were undergoing, evidenced by shell disc beads co-occurring with shell buttons, a leather shoe with a leather legging, and an abalone shell pendant with a locket and a military buckle, among others. An additional test pit revealed pre-contact use of the site. Reported by Cole and Cressman in 1961 and by Endzweig in 1985, the earlier findings are here revisited and placed within a broader regional context.

Etnol, PJ Eastern Oregon University

A Campus Community of Confluence: A Visual FYE Ethnography

Cultural anthropologists traditionally communicate about culture through the written word. Visual anthropologists are interested in communicating anthropological data in new, visual ways. Increasingly, anthropologists use visual techniques to present their data. The purpose of this research project is to produce a visual ethnography of Eastern Oregon University (EOU) students’ first-year experience(s) (FYE). Visual ethnography allows researchers to create

narratives of cultural experiences and life. These narratives may be shared with potential and future students to make them aware of what it is like to be a “Moutie.” In addition, university administrators may be able to use these narratives to design better policies and procedures for EOU students. As part of this project, we are following students that come from different communities and cultures. The theme of this year’s NWAC, “Confluence,” can be related to the merging histories, identities, and experiences of this varied group as they make EOU their home, where they come together to make a unique campus community.

Farrell, Ian Pacific Lutheran University

Were There Blade Workshops at Coatlan del Rio: A Technological and Comparative Review

This paper addresses the question of whether there were any blade manufacturing workshops at the Aztec-period polity of Coatlan del Rio in Western Morelos, Mexico. First, I outline the technological characteristics of the artifacts collected from the surface sites surveyed by the Proyecto Coatlan in 1976. This analysis is specifically interested in the distribution of artifacts referred to as primary and secondary indicators of onsite blade production. I discuss the distribution of these items to see if they cluster enough to support the inference of any possible rural workshops at Coatlan del Rio. I incorporate comparative information pertaining to this issue from the Aztec sites of Capilco and Cuexcomate in Western Morelos, Calixtlahuaca in the Valley of Toluca, and Classic-period Teotihuacan in the Basin of Mexico. This study builds upon recent research on specialized craft production to help understand how the organization of Mesoamerican blade production varied over space and time.

Franklin, Robert Washington State University, Tri-Cities

Documenting African American History at Hanford and the Tri-Cities through Oral History

This project documents the African American history at the Hanford Engineer Works and the surrounding Tri-Cities (Kennewick, Pasco, Richland) through the themes of migration, segregation, and civil rights from 1943-1968. Oral histories with former Hanford workers, their families, and residents of segregated East Pasco illuminate a Jim Crow-like community in the inland Northwest.

French, Jamie Oregon SHPO

Lost History Discovered: Salem’s Chinese Shrine

The Pioneer Cemetery in Salem, Oregon, contains a Chinese Shrine, used by the Chinese community during the Chinese Exclusionary Period (1882-1940). As demonstrated through Salem’s public archaeology project, the practice of community centered public archaeology can be a valuable way to work within an existing community to develop effective understanding and historic interpretation about archaeological sites associated with marginalized communities.

Co-Author: Kimberli Fitzgerald (City of Salem)

Frierson, Andrew Anderson Perry & Associates

Precontact Use of Pine Valley: Results from Site Mitigations at 35BA1495

The precontact record of Pine Valley in northeastern Oregon is primarily defined by archaeological investigations that have taken place outside the valley on surrounding public lands since land within the valley is predominantly privately owned. Recent excavations at 35BA1495, located near the town of Halfway, revealed a primarily Late Archaic record of occupation that may extend into the Paleoarchaic based on artifacts previously found within the site boundary. This poster presents the results of several analyses conducted on artifacts from 35BA1495 including XRF analysis of obsidian artifacts, protein residue analysis of diagnostic projectile points, and pollen and starch analysis of ground stone implements and FCR fragments. Results from the excavation and subsequent analyses provided much insight into the precontact use of Pine Valley such as raw material conveyance patterns, trade networks, and subsistence practices that all transcend the boundary zones of the Columbia Plateau and northern Great Basin culture area in an understudied valley on the periphery of these areas.

Co-author: Stephanie A. O'Brien (Anderson Perry & Associates)

Frugé, Adam Central Washington University

Preliminary Analysis Results: Sampling Fishes from 1976 Excavations at the Sam Israel House Pit (45GR76) near Soap Lake

The Sam Israel site is a precontact archaeological complex excavated at the north end of Soap Lake, Washington in 1976, with a large proportion of fish remains dating ~400 BP. The fish fauna is of particular interest due to the alkalinity and lack of resident fish in Soap Lake today. A sample of the fauna (including ~2,000 fish bones) was reported in 1997, but fish were not identified to species. As such, this inland Columbia Plateau site has the potential to enhance our understanding of the local procurement of fish with a more detailed analysis. My work cataloging this assemblage has already resulted in positive identifications for pikeminnow, Tui chub, sucker, and salmonid. This project is an analysis of 341 fish specimens from unit 9J, a part of my thesis research of a sample of 3,000 fish bones. My work involved taxonomy, taphonomy, and skeletal parts analysis of fish from screened and flotation contexts in unit 9J.

Fulkerson, Tiffany Washington State University

Demographic Trends in North American Archaeology: A Longitudinal Analysis of Gender and Occupational Affiliation Trends in the Register of Professional Archaeologists (RPA)

Recent trends in the demographic landscape of North American archaeology indicate that women now outnumber men in the number of PhDs awarded, but continue to be inadequately represented among tenure-track and Research-1 faculty, in leadership positions in compliance professions, and within the realm of peer-reviewed publishing. These trends point to a “leaky pipeline” effect, whereby there is an attrition of women in the more advanced and prestigious levels of archaeology. One aspect of the professional pipeline that has not been well explored is the demographic makeup of members of national professional associations like the Society of Professional Archaeologists (SOPA)/Register of Professional Archaeologists (RPA), which serves as a proxy for more broad-scale demographic trends in the general workforce of archaeology. In this study we explore the gender and professional affiliation makeup of SOPA/RPA members from 1976–2018. This poster will present the results of our study and provide recommendations for improving equity in archaeology.

Co-Authors: Alexis Evans (Washington State University) and Shannon Tushingam (Washington State University)

Archaeological Approaches to Burial Practices: A Case Study from the Southern Plateau, Northwest North America

Archaeological studies of status and mortuary behavior on the southern Plateau suggest that rather than being fixed and dichotomous, past gender systems may have been considerably dynamic. Recent inquiries into funerary behavior and identity have advanced the archaeological understanding of mortuary practices by engaging with Indigenous, feminist, and queer knowledge systems and critiques—particularly those that challenge Western and normative assumptions which bias scientific interpretation. Building from these frameworks, this study reexamines the relationship between gender and mortuary behavior in the archaeological record of the southern Plateau through an analysis of the distribution of grave objects across sex and age classes from numerous burial sites. Our analytical approach relies on a critical review of primary literature in combination with data derived from previous research conducted by Lourdes Henebry-DeLeon wherein numerous individuals from archaeological burials were determined to have been incorrectly sexed when they were originally reported. This poster will offer the preliminary results of our study.

Co-author: Lourdes Henebry-DeLeon (Central Washington University)

Galm, Jerry

Eastern Washington University

Sacred and Profane: Site Organization and Abandonment Processes at the Late Paleoindian Sentinel Gap Site

Abandonment of the Sentinel Gap site is minimally represented by the intentional breakage of different categories of artifacts, the deliberate redistribution of some “killed” artifacts across the occupation surface, and the burning of two probable domestic structures. This final phase of the site record can be understood as an extension of the highly structured and ritualized organization of the occupation. Embedded in this pattern of site abandonment is a duality characteristic of classification of the natural world into binary oppositions. A separation of the world into the classic categories of sacred and profane is characteristic of a system of religion. A system of fundamental religious beliefs undoubtedly would have permeated all elements of daily life represented in the Sentinel Gap site occupation record.

Co-authors: Stan Gough (Eastern Washington University) and Julia Furlong (Eastern Washington University)

Gargett, Robert H.

Equinox Research and Consulting International Inc. (ERCI)

Archaeological Dating of Late Holocene Barrier Beach Development at 45IS298, Oak Harbor

Radiometric age estimates from intact deposits of precontact archaeological site 45IS298—the Windjammer Park Site—are used to propose a timeline for the Meghalayan (Late Holocene) evolution of the barrier beach that fronts Oak Harbor on Whidbey Island in the Salish Sea. During work for the City of Oak Harbor’s Clean Water Facility Project, ERCI has accumulated 15 AMS radiocarbon dates ranging between 495 and 1710 cal BP. These provide a proxy for the last

1,500-or-so years of the landform's growth. Its easternmost and narrowest point has migrated eastward at the same time as the foreshore built southward into the harbor.

Gently, Mary Southern Oregon University
Essentialism in Lesbian Separatist Collectives

This work highlights the history, motivations, and outcomes of lesbian separatist collectives, highlighting land-based collectives in Southern Oregon and the Roseburg area. The research focuses on the political and personal motivations of the women involved and the ways in which the ideologies that drove them also often undermined their ability to effect lasting change and maintain healthy communities. This work incorporates the author's interviews with members of local collectives and data analysis regarding communal longevity, reasons for dissolution, membership numbers, and publications to highlight patterns in regard to success and failure. In addition, the work utilizes sources from the UO archives including the WomensShare Collective Records and the Ruth Mountaingrove Papers as well as local collective member's personal files. This work provides insights into ideological and structural distortions that work to undermine radical movements. The original data analysis and filmed interviews add new information to the existing literature.

Gleason, Eric Colville Confederated Tribes History/Archaeology Program
Reservoir Archaeology: Quantifying Erosion at Three Sites in Lake Roosevelt Reservoir, North Central Washington

During spring 2018, the Colville Confederated Tribes History/Archaeology Program intensively surveyed and mapped three sites in the drawdown zone of Lake Roosevelt reservoir: 45LI224, 45ST45, and 45ST60. These sites experience reservoir induced erosion caused by daily operation of Grand Coulee Dam and seasonal fluctuations of Lake Roosevelt. Erosion has resulted in irreparable loss of archaeological data through displacement of intact culture bearing deposits and cultural features. In most cases, evidence of erosion now consists of historic photographs and maps, pre-dam descriptive narratives, remnant tree stumps and root wads, and dispersed artifacts and deflated and lagged features scattered across the barren drawdown zone. Archaeological data loss varies from site to site. Quantifying it is compounded by the cyclic nature of reservoir induced erosion and deposition seemingly exposing cultural materials one year and burying them the next. Using a variety of techniques, we have attempted to quantify the current extent of erosion at these three sites and extrapolate potential archaeological data loss.

Coauthors: Jacqui Cheung (Colville Confederated Tribes History/Archaeology Program) and Brenda Covington (Colville Confederated Tribes History/Archaeology Program)

Grier, Colin Washington State University
Modelling and Ground-Truthing Approaches to Geophysical Survey Interpretation: Mapping Archaeological Plankhouses in the Pacific Northwest

Near-surface geophysical survey, a staple of archaeological investigations in some areas of the world, has been underutilized in Northwest Coast archaeology. Heterogeneous shell-

rich deposits and perishable features make up much of the archaeological record of the region, posing particular challenges for geophysical interpretation. We are taking on these challenges by developing a systematic and reproducible approach to geophysical feature interpretation involving (1) repeated survey under varying conditions, (2) creating statistical models for predicting feature identity, and (3) conducting a program of archaeological ground-truthing. We outline our methodology, illustrating how it can be applied in service of mapping the remains of ancient cedar plankhouses across the Pacific Northwest, focusing on our recent work at Lamalchi Bay in the southern Gulf Islands of coastal British Columbia, a long-standing Hul'q'umi'num village that was destroyed by British Colonial forces in 1863.

Co-author: Andrew Martindale (University of British Columbia)

Hackenberger, Steven Central Washington University

LiDar and Ground Penetrating Radar Imaging: Yakama Nation and CWU Collaborations

Some 15 years of formal collaborations between Central Washington University (CWU) Department of Anthropology and the Yakama Nation Cultural Resource programs (YNRP) have included: contracts, learning agreements, lecture programs, internships, and field school sessions. Two recent initiatives are: 1) LiDar and ground mapping of house settlements, and 2) ground penetrating radar studies of sites with cooking features and house features. Airborne LiDar coverage has grown and improved in resolution due to extensive wildlife and fisheries studies and habitat improvements. This coverage is aiding mapping and monitoring of house settlements that remain threatened by looting, grazing and fire management. Pilot projects using ground penetrating radar are proving useful for evaluating type and number of cooking/heating features outside and inside of small and large house features.

Co-authors: Jon Shellenberger (Yakama Nation), Nick Finley (Yakama Nation), Autumn Adams (Central Washington University and Yakama Nation), and Cindy Morales (Central Washington University)

Hampton, Ashley University of Montana

Manifesting Membership: Understanding Housepit Space-Use Utilizing GIS

This paper focuses on examining ways lineage-based and clan-based connections structured intra-household labor patterns and access to power within a multi-generational housepit (HP54) over time. The Bridge River site (EeRl4)—located in the Mid-Fraser Canyon, British Columbia, Canada—was generally egalitarian, but saw the manifestation of situated power-differentials in terms of access to wealth and prestige during times of resource stress. Through an examination of changing patterns in space-use and resource access/management across these occupational floors, we may understand micro- and macro-scale shifts in lineage-based connections or alliances at the household level. Utilizing a GIS-based approach, this paper will illuminate spatial patterns of household membership and how inter-household connections affect the development of prestige-based social distinctions. Ultimately, by understanding the interplay of environmental, demographic, and social processes within a singular housepit over multiple generations we may better understand the recursive relationship between culture, environment, and individual agency.

Hann, Don Malheur National Forest

And I Dig my Life Away: 19th Century Chinese Mining Kongsu Partnerships in the Pacific Northwest

Chinese immigrant gold miners in North America have generally been portrayed as unskilled laborers in both popular and academic descriptions. They were believed to have made a basic subsistence living scouring placer deposits previously worked and abandoned by white miners. Archaeological evidence and historic documentation suggests this is a gross oversimplification. Contemporaneous mine claim records in Grant County Oregon refer to the Chinese entities buying or leasing placer claims as “copartnerships.” That is an apt description of kongsu- a type of business partnership that was the basis of Chinese mining companies operating in Southeast Asia for a full century before the discovery of gold in California. Members of a kongsu shared in the risks and profits, generally commensurate with the level of skills or capital they contributed. Evidence for kongsu partnerships among Chinese gold miners in the southern Blue Mountains of Oregon will be presented.

Hannold, Cynthia University of Idaho

The Manufacture of Notched Net Sinkers from the Columbia Plateau: An Experimental Approach

Fishing has long been an important subsistence activity for Native groups in the Columbia Plateau. With the exception of lithic net sinkers, traditional fishing technology was manufactured from organic materials that have rarely survived in the archaeological record. The recovery of net sinkers can determine whether net fishing was employed at an archaeological site. Types of net sinkers include grooved-stone, perforated, and notched. Notched net sinkers appear in abundance throughout the Columbia Plateau. Understanding how these net sinkers were manufactured can provide archaeologists with insights into seasonal toolmaking activities, which can lead to a better understanding of the time and energy expended during these processes. This paper describes an archaeological experiment that records the steps involved in making notched net sinkers, the physical effects on the knapper, and the implications for understanding past human lifeways.

Hawes, Kathleen Central Washington University

AT THE ROOT OF THE MATTER: Basketry Construction Materials from the 2,000-year-old Biderbost Archaeological Wet Site (45SN100)

Conducted in 2015-2016, microscopic identification by cellular analysis of the 2,000-year-old Biderbost wet-site (45SN100) pack baskets revealed that split Western red cedar roots (*Thuja plicata*) were used in the construction of the majority of these beautiful ancient baskets. The baskets were recovered from the banks of the Snoqualmie River near Duvall, WA in the early 1960's, one of the earliest Northwest Coast wet-site excavations. My presentation will discuss the process of cellular analysis and identification of the cedar root used at this ancient site; and continue with the proposed comparison of the Biderbost material with material from two early Salish Sea basket collections: the stylistically and temporally similar DgRs-30 Water Hazard collection (~2,000 BP); and the DhRt-4 Musqueam Northeast collection (~3,000 BP). Both collections were recovered from archaeological wet-sites located in the Fraser River Delta, B.C. I will also provide an update from a recent analysis and preliminary identification of samples from one of the Water Hazard baskets (DgRs-30:44).

Helmer, Emily Washington State University

Persistent Places in Southwestern Oregon

This study takes a Geographic Information Systems approach to understanding the role of place in determining settlement patterns in southwestern Oregon. Persistent use of settlement locations transforms these spaces in places, or locations where memory and identity become embedded. In order to test how this phenomena influences settlement location, density-based spatial clustering of applications with noise (DBSCAN) was used to analyze the patterning of sites over time and determined that sites are clustered near previously existing sites, even when equally suitable land occurs nearby. True site locations were compared to randomized site data to further investigate this pattern. This analysis demonstrates a region-wide pattern of persistence in particular places despite the wide availability of environmentally suitable land, which suggests that places with previous human occupation were chosen preferentially for settlement.

Henderson, Joshua Central Washington University

Measuring Trace Element Concentrations in Artiodactyl Cannon Bones using Portable X-Ray Fluorescence

Artiodactyl bones are the most common faunal remains found in Washington prehistoric archaeology sites, but are often too fragmented to accurately identify to taxon. Traditional faunal analysis can only assign unidentifiable bone fragments to size class, and chemical methods often require bone destruction. In this thesis research, we tested a non-destructive faunal analysis technique using portable X-ray fluorescence (pXRF) to measure trace element concentrations in comparative collection and archaeological bone samples. Using cannon bones from five different artiodactyl species, we collected trace element data from 50 comparative collection specimens and 18 archaeological specimens previously identified to species. We used a Random Forest classification analysis to predict the family and species of modern comparative and archaeological specimens based on collected trace element data. Species identification accuracy was 70% for modern specimens and 22% for archaeological specimens, with family accuracy at 82% and 67%, respectively. These results suggest that the identification by pXRF is promising, but require further work to be definitive.

Co-author: Meaghan Emery-Wetherell (Central Washington University)

Hughes, Mackenzie Central Washington University

Initial Stone Tool Classification of Non-Professionally Assembled Lithic Collections

With a growing number of lithic artifact collections accumulating from throughout the northern Great Basin, identifying what first steps to take in collections management is becoming increasingly crucial. Though new excavations continue, it is necessary to develop an initial paradigmatic classification scheme if non-professionally assembled lithic collections are to be studied for scientific purpose. The objective of this research is to develop a general lithic classification scheme to encompass the traits and variability encountered in some Great Basin lithic artifacts, including projectile points. The Wild/Clymer stone tool collection includes 4, 461 stone tool artifacts, many of which are highly variable, including stemmed points, crescents, and overshot flakes. High resolution provenience is lacking, but general geography is

present. Before attempting to determine provenience of a subset of these artifacts labeled from Frenchglen, OR (n=1052), we found it necessary to develop a classification scheme to identify shared characteristics in the collection. This allows us to proceed with typological classification and develop future research questions.

Co-Authors: Dennis Wilson (Central Washington University), Nik Harkins (Central Washington University), Mallory Triplett (Central Washington University), and Patrick McCutcheon (Central Washington University)

Humphries, Sarah J ERCI

Basketry: Now as Always

Two basketry fragments found deeply buried in washover deposits in Oak Harbor on Whidbey Island, Washington, provides an opportunity to compare modern and ancient weaves. By some estimates, durable artifacts (stone, bone, antler, shell) comprised only 5% to 10% of Northwest Coast material culture, which limits archaeologists' ability to appreciate the richness of past cultures. The 90% of artifacts that are perishable, which we so rarely see, contribute deeply to the stories revealed during archaeological investigations—babies are carried in blankets and baskets; food is stored for winter in baskets and boxes. These are everyday things, which can be more personal, more intimate. This paper explores the details captured in the fully stabilized pair of basketry fragments and compares them with modern analogs as we add to our understanding of the last two millennia of life along the shoreline of Whidbey Island.

Co-author: Kelly R. Bush, ERCI

Johnson, Katie Southern Oregon University

Mapping Settler Colonialism: The Cartography of the Rogue River War, 1855-56

Settler colonialism rapidly impacted southern Oregon with the onset of the gold rush. The Shasta, Takelma, and Athapaskan people accommodated the mass immigration of prospectors and settler families in various ways, but ultimately many turned to armed rebellion. The Rogue River War of 1855-56 was a concerted effort by indigenous leaders to resist this incursion by military means, an effort that ultimately failed due to the actions of the United States Army. This poster presents a series of maps produced through primary document and archaeological research using GIS technology that allows for a broader presentation of the Rogue River War than previously available.

Co-author: Mark Axel Tveskov, Southern Oregon University

Radar Love: Archaeology and Remote Sensing at the Kam Wah Chung State Heritage Site

In the fall of 2018 the Southern Oregon University Laboratory of Anthropology and Lew Somers of Archaeo-Physics conducted remote sensing at the Kam Wah Chung State Heritage Site, across the historical John Day Chinatown. This project complements years of documentary and archaeological research at the site, allowing for a more complete interpretation of the subsurface resources and providing new insight for future management of the archaeological site.

Co-author: Lewis Somers (Archaeo-Physics LLC)

Johnson, Matt Wanapum Heritage Center
A Zooarchaeological Analysis of Hole-in-the-Wall Canyon (45KT12) and French Rapids (45KT13)
Sites: Ginkgo State Park, Washington

A taxonomic and taphonomic faunal analysis was completed for the entire zooarchaeological collection (n=5,354) for two house feature sites, Hole-in-the-Wall Canyon (45KT12) and French Rapids (45KT13). Both sites are located near Vantage, Washington within the inundated area of the Wanapum Reservoir, and were excavated as part of large scale archaeological salvage work prior to dam construction in the summers of 1961–62. Radiocarbon dates between both sites range from 10,000 cal B.P. to present, with most occupation postdating 2750 cal B.P. Faunal analysis results indicate utilization of large mammals, river mussels, carnivores, and an assortment of fish and small mammals. Results of faunal analysis from 45KT12 and 45KT13 were compared to 16 other analyzed faunal assemblages from the Priest Rapids-Wanapum Reservoirs. Faunal assemblages are largely similar in represented taxa, with the most ubiquitous fauna being salmonids, leporids, cervids, bovids, and Western Pearlshell mussel. Additionally, this work helps to demonstrate the utility of rehabilitation and analysis of aging archaeological collections.

Johnson, Paula WillametteCRA
Seventeen More Syllables: Further Investigations into the Shinjiro Honda Memorial Stone (45-KI-1256) and the Life of Poetry Master Shinjiro Honda

In 2015 a carved stone was discovered in the brambles behind a residence in Seattle's International District. The stone commemorated Japanese immigrant Shinjiro Honda, a senryu poetry master who lived in Washington between 1905 and 1941. Senryu is a witty and wry Japanese 17 syllable poetry style popular among Japanese immigrants. Based on the inscription, the stone was recorded as a cemetery and was left untouched. In 2018, the landowner sought to redevelop the property and an excavation permit was issued to determine if cremated human remains were beneath the stone; they were not. This poster will highlight further research into the remarkable life and work of Shinjiro Honda and efforts to determine his actual final resting place.

Johnson, Raini University of British Columbia
Intra- and Inter-Site Heterogeneity as a Source for Faunal Assemblage Variability in the Prince Rupert Harbour, British Columbia

This paper focuses on understanding the variability of fauna (dominantly fish) found in coastal shell-based archaeological sites in the Prince Rupert Harbour, British Columbia and asks how sample and site location affects the relative abundance and species diversity of faunal assemblages. By recognizing that site location affects the relative abundance and diversity of species found archaeologically, we can begin to see relationships between site location and species habitat zones and develop a more complete view of both regional subsistence variability and inter-site relationships. Recognizing that sampling location affects relative abundance allows us to examine sampling practices and highlights areas within a site which are more likely to be representative of past subsistence practices than others. Acknowledging the effects of both inter- and intra-site variability allows for the design of best practice sampling methods and regional overviews that will showcase a more complete and diverse faunal record and allow for more accurate, location-specific sampling.

Johnson, Trisha

Story Map - Confederated Tribes of the Colville Reservation—A Brief History

Confederated Tribes of the Colville Reservation—A Brief History story map provides basic introduction into history of the member Tribes of the Colville Reservation. Included are a description and spatial locational map of each Tribe's native territory with a brief explanation of how members of each Tribe arrived on the Colville Reservation. A narrative of each tribe's way of life follows each map with photographs and video. This story map harnesses the power of a GIS and technology to integrate maps, legends, text, photos, videos and provides functionality such as pop-ups and time sliders that help the users explore the rich content that story maps provide.

Kennedy, Jaime L.

University of Oregon Museum of Natural & Cultural History

The Botanical Assemblage at 35CL19: A Clackamas Chinook Village in the I-205 Corridor

The Oregon Department of Transportation (DOT) plans to add lanes to I-205, the Portland Bypass, including the Abernethy Bridge spanning the Willamette River. Site 35CL13, the main village of the Clowewalla Chinook, is on the west bank and 35CL19 at the mouth of Abernethy Creek is on the east bank. Bridge construction in the 1970s re-sculpted much of the corridor and disturbed archaeological contexts along both banks. However, past construction had avoided the historic Abernethy Elm in site 35CL19 (planted ca. 1850 and removed in 2001) around which a 5x5 m curb had been built. Testing within the curb identified intact cultural deposits. The distribution of lithic artifacts and botanical remains indicated two distinct periods of occupation, one at a depth of ca. 70–80 cm and another at a depth of ca. 110 cm. The botanical assemblage, a focus of this report, was especially rich, with acorns, hazelnuts, camas, berries, and tobacco all represented.

Co-author: Thomas J. Connolly (University of Oregon Museum of Natural & Cultural History)

Koetje, Todd

Western Washington University

Neanderthals, Denisovians and Modern Humans: What Material Culture Differences can we see during their Overlap?

The time frame from 50–30 kya contains evidence for at least three distinct human populations spread across northern and western Eurasia. These groups faced serious environmental challenges, and seem to have existed in widely spread, small populations with perhaps very similar basic cultural adaptations. As indicated by shared genes, these groups were evidently in contact. How are these populations represented in material culture? To what extent can we begin to see typological and technological patterns in material culture that might distinguish them? Preliminary comparisons suggest only very subtle distinctions. Is this the Bordes-Binford debate's revenge?

Kohnen, Kalli

Central Washington University

*Individual Variation in the Response of Captive Javan Gibbons (*Hylobates moloch*) to Visitor Presence*

Captive primate caregivers must reconcile diverging ideas regarding the role of the public in primate sanctuaries. One prevailing philosophy states caregivers should minimize stress to captive

primates; another holds that engaging the public in the form of educational tours can increase public involvement in conservation initiatives. In order for both viewpoints to coexist effectively, caregivers must assess the relationship between visitor presence and behavioral indicators of stress. I assessed the impact of visitor presence on the activity budgets of 10 captive Javan gibbons (*Hylobates moloch*) at the Gibbon Conservation Center by comparing their behavior on days when visitors were present versus days when visitors were absent. Individual gibbons varied in which behaviors were impacted by visitor presence and in the directionality of that impact. This indicates sanctuaries should assess each individual primate's reaction to visitors when determining visitor policy.

Kretzler, Ian University of Washington

Archaeological Investigation on Landscapes of Survivance

In the 1850s, the federal government forcibly removed dozens of Native communities to the Grand Ronde Reservation in northwestern Oregon. In the 150 years since the reservation's establishment, the Grand Ronde community has navigated government policies designed to terminate tribal lifeways and political sovereignty. At the same time, the community transformed the reservation into a new home characterized by enduring cultural presence and persistence. Since 2014, Field Methods in Indigenous Archaeology, a community-based research project co-directed by the University of Washington and the Grand Ronde Historic Preservation Office, has explored the material traces of these complex histories. This poster reflects on the obligations and opportunities that arise when conducting archaeological investigation on landscapes of dense historical and contemporary significance. It explores how combining low-impact field methods that incorporate Grand Ronde cultural practices and concerns with holistic, multi-scalar datasets lends new detail to Grand Ronde's ongoing story of survivance.

Kunas, Julia Central Washington University

A Functional Analysis of Pre-contact Sites and their Microenvironments on Lopez Island, Washington

This study investigates the relationship between recorded precontact archaeology on Lopez Island, Washington and the island's microenvironments. Data for the archaeology and microenvironments on Lopez Island were gathered from WISAARD, USGS, and other published sources. We described and sorted data from a sample of 54 sites by variables defined from three categories: previous research, microenvironment, and archaeology. This allowed us to give each site three functional classification codes for each larger category. Previous research like Thompson's (1978) analysis identify the changes in settlement patterns on the Northwest Coast and note the importance of functional analysis in understanding distribution of site types across microenvironments. Taylor et al. (2011) suggest an analysis of resources that may have been affected by climate changes, resulting in changes in settlement patterns. This research shows how information on precontact Lopez Island sites can be further investigated to address research questions for the Salish Sea region like changes in resource extraction and settlement patterns.

Co-Author: Patrick T. McCutcheon (Central Washington University)

Kuzminsky, Susan University of Idaho and University of California, Santa Cruz
Investigating Variation in Nasal Shape Among Prehistoric Populations in North and South America

Features of the human skull have long been used by anthropologists to investigate sexual dimorphism, biological relationships, and climate adaptation. Among the most studied of these features is the nasal region, although there is no agreement as to whether this region is controlled by genetics or reflects an adaptation to differing environments and temperatures. This has important implications, particularly for forensic casework and assessments of population history, which rely on the inclusion of midfacial features for comparative analyses. In this study, we test whether differences can be ascertained by the shape of the nasal region using 3D surface scans and geometric morphometric methods. The skeletal series includes human dry crania from mild, coastal habitats and extreme cold climates throughout the Americas. We discuss the results and their implications for research focused on ancestry, climate and reconstructing population history. This work also highlights the applicability of non-destructive 3D methods to examine human variation among prehistoric and modern populations.

Co-Authors: Rylee Robertson (University of Idaho), Scott Jones (University of Idaho), and Kristina Cockerille (University of Idaho)

Leischner, Emily University of British Columbia
Insights from Absence: Methods in Examining Silences while Researching Northwest Coast Tumplines in Museum Collections

The Smithsonian Institution houses nearly thirty woven tumplines, collected in the late-19th and early-20th century from Northwest Coast Indigenous communities. These intricate and colorful bands of fabric have been used as carrying straps, attached to baskets or bundles and slung across the body or forehead. While researching tumplines at the Smithsonian, I found several that were completely undocumented, still attached to baskets, but unseen in the collections database. Using two tumplines collected from the Yakima Indian Reservation as a case study, this presentation examines how objects can be made invisible through museum practice. Combining archival, object-based and anthropological methodologies, I explore how attending to absences, rather than closing lines of research opens up new questions and insights into the changing meanings that objects hold as they are collected, catalogued, displayed and stored in museums. I argue reading into silences is a necessary practice towards decolonizing museums and imagining the types of institutions we want to exist in the future.

Leonard-Doll, Katy University of Washington
Seeds of Survivance: Investigating Grand Ronde Foodways through Archaeobotany

Few archaeologists have researched daily life, especially foodways, of Native communities on reservations. In collaboration with the Grand Ronde Historic Preservation Office, we used archaeobotany to examine the Grand Ronde community's relationships with land and food during the late nineteenth to early twentieth centuries and the impact colonialism had on their dietary practices. Focusing on one of the reservation's first habitation areas, we identified charred seeds and tracked their prevalence over time and space. This research improves our understanding of plant use and its adaptation within the reservation community. It also supplies

a reference collection of seeds and plants present at Grand Ronde during this period. This research also contributes to ongoing conversations regarding first foods revitalization within the Grand Ronde community, highlighting that the community's use of plants on the reservation is a story of food resiliency that continues to this day.

Co-author: Paloma Sanchez (University of Washington)

Lewarch, Dennis

Suquamish Tribe

Busybody, One More Time: Contributions of Research in the Lower Duwamish Embayment to the Development of Western Washington Archaeology

Since the Duwamish No.1 Site (45KI23) was first recorded in 1975, more than 12 archaeological sites have been identified in the Duwamish River-Black River drainage system. A review of the history of investigations highlights contributions to the discipline over the past 44 years in areas such as field techniques, analytical techniques, and substantive data. Projects helped advance archaeological construction monitoring procedures, coring and other sampling protocols, excavation techniques, field processing procedures, and recording systems. Increased sophistication in geoarchaeology provided useful geomorphological data documenting effects of seismic uplift, complex alluvial floodplain processes, and rates and effects of Duwamish River delta progradation. Substantive archaeological results include regionally important data on time depth of occupations, variation in settlement types, and kinds of adaptations to changing floodplain environments. The presentation will summarize some of the most important contributions made by archaeologists working in the Lower Duwamish Embayment.

Litzkow, Jamie

Bureau of Land Management

Basque Shepherding Landscapes in Washington State: Assessing Potential and Identifying Features

Basques were among the earliest Europeans to arrive in North America, and sheep were one of the first livestock brought into the Northwest by the Pacific Fur Company at the founding of Fort Astoria in 1811. A large population of Basques emigrated from South America during the California gold rush, many settling into sheepherding to provide food for the influx of prospectors swarming the Sierra Nevada Mountains. By the end of the Civil War, California, Oregon, and New Mexico held more than 1/8 of the entire sheep population in the United States; with three Pacific states alone (including Washington) bursting with over three million head. Between 1890 and 1934, the drylands of the Columbia Plateau were inundated with sheep herders seeking public lands for winter and summer range. The industriousness of Basque herders, in particular, was considered synonymous with the development of a successful sheep industry in the west. There are known Basque population centers in the state during this critical period of economic development, but nothing has been researched regarding how early sheepherders (especially those of Basque-descent) adapted their environment to accommodate operations in the Columbia Plateau. Preliminary correlations have been drawn to known Basque-related landscape features across the west with a specific example from south-eastern Washington. These features have no known archaeological analogue reported in the state to date.

Soft Gold! How the Fur Trade Shaped Early Gold Rushes in the Pacific Northwest

By 1821, the Hudson's Bay Company (HBC) had successfully monopolized the fur trade industry in the Columbia River Basin. Well-worn travel routes connecting far flung inland posts had opened once impenetrable areas of present-day British Columbia, Washington, Idaho, and Oregon to commerce, missionary work, scientific exploration, and non-Native settlement. The HBC's push to develop self-sustaining trade centers propelled the sheep, cattle, and agricultural industries west of the Rocky Mountains. As fur sources depleted, HBC traders expanded their geographic reach and diversified their exploratory goals, seeking out supplemental income and targeting the region's precious mineral resources. As a result, the majority of early gold discoveries in the Pacific Northwest were made in concert with fur trading activities and excursions. The frenetic pursuit of gold resulting from these discoveries had resounding geopolitical effects, driving westward expansion, re-sparking international boundary disputes, and further eroding fragile relations with regional tribes.

Lopez, Kirsten Oregon State University

National Register Listed Archaeological Sites within the State of Oregon: Statistics and what they mean for Oregon Archaeology

With thousands of sites in the Oregon Archaeological Records Remote Access (OARRA) database, the number and distribution of these sites that have been listed in the National Parks Service National Register of Historic Places has been unknown. This data was compiled and analyzed during an internship at the Oregon State Historic Preservation Office. The data revealed a lack of (or uneven) representation in certain regions and groups, as well as surprising oversights and discontinuities between the National Register and OARRA databases. Listing oversights may reveal misunderstandings of the benefits of listing, including accurately communicating importance to the public, potentially leading to wider support for the field and the work we do. These data give us an idea of where we as a field can open conversations of completing the listing process for important archaeological sites in the future.

Lorain, Michael University of Alaska Fairbanks

Wood Selection for Fish Trap Stakes in Southeast Alaska

Fish traps were important tools for Northwest Coast populations for providing consistent sources of fish as the tides ebbed and flowed. This project is focused on building baseline data to understand the larger technology of these structures, and how people utilized the environment they reside in to establish and maintain fish trap systems. This study is focusing on part of the decision-making process, the selection of wood species for the stakes that are essential to the trap. Our goal is to better understand whether there is a preference for specific species, and whether these follow a spatial or temporal pattern. Here, we present our initial findings on data from five fish traps on Admiralty, Mitkof, and the Prince of Wales Islands. Twenty-five stakes were sampled and identified providing information about the preferential use of two species, Hemlock (*Tsuga sp. cf. t. heterophylla*) and Alaska Yellow Cedar (*Cupressus nootkatensis*).

Co-authors: Jane Smith (U.S. Forest Service), Madonna Moss (University of Oregon), Claire Alix, (University of Paris Pantheon Sorbonne), Joshua Reuther (University of Alaska Fairbanks)

Lubinski, Patrick Central Washington University

Pre-Mazama Mammal Remains from Reanalysis of Bernard Creek Rockshelter: Early Results

Bernard Creek Rockshelter is one of few Plateau archaeological sites with well-preserved faunal remains in pre- Mazama deposits. The site lies in Hells Canyon in west-central Idaho. Initial faunal analysis was reported in 1977 by Randolph, Dahlstrom, and Boreson for mammals and birds, and by Casteel for fishes. The present study is a reanalysis of mammalian fauna from Pre-Mazama deposits in Block I, 160-370 cmbd, associated with four radiocarbon dates ~7400–7190 BP. To date, 15 of 21 levels have been analyzed (2,978 specimens), largely confirming the taxonomic distribution of the original analysis. The fauna are dominated by fragmentary remains of small artiodactyls, particularly bighorn sheep, but also deer, with small numbers of carnivores and rodents. This apparent big game focus may be tempered when fish and mussel remains are included. There is little doubt the fauna is anthropogenic, given 98% bone breakage, rarity of digestive or gnawing damage (0.3%), and occurrence of butchery, impact, and anvil marks (8%).

Co-author: Lianne Bradshaw (Central Washington University)

Luttrell, Charles T. Washington State Parks and Recreation Commission

Farming on the Spokane Reservation - Case Studies of Indian Allotments No. 246, No. 247, and the Patrick W. Lawlor Homestead

Executive Order-establishment of the Spokane Reservation in 1881 created new opportunities in horticulture- agriculture for local peoples. However, formal allotting did not begin until October 1906 with 647 allotments completed by summer 1909, including two allotments for traditional natives Jonas and Louise Mary Joseph. Political lobbying thereafter by Caucasian settlers resulted in non-Indian homestead entry on reservation lands beginning in 1910. Homesteader Patrick W. Lawlor was one land claimant who settled near the Joseph family. Comparison of these Indian and non-native properties has value in understanding subsistence-level farming on the Spokane Reservation in the early twentieth century.

Marceau, Thomas Washington State University, Tri-Cities

An Intra-Site Analysis of the Faunal Assemblage from the Lewis Canal Site (45BN606) on the Hanford Site, Washington

The Lewis Canal Site (45BN606) is located on a low terrace varying from 3 to 6 meters above the Columbia River. The terrace has been an area of sediment accumulation with discrete intervals of soil development since the start of sand deposition about 6800 B.P. A total of 33 units were excavated at the site. Eleven radiocarbon dates were obtained providing an occupation range of approximately 3400 B.P. to 100 B.P. for the six cultural components identified at the site. This paper focuses on the 1,061 faunal remains, representing 26 taxa, recovered during excavation. Correspondence analysis, based on the number of identified specimens (NISP), is used to examine specifically where and when these remains were deposited within the site assemblage. The analyses demonstrate differential utilization of the site area by age, as well as differences in fauna brought back to the site within these areas through time.

Maroney, Kendra Kalispel Tribe of Indians

Magnetometry in Pend Oreille County, Washington

Now with six years of practical field and analytical experience in the use of various remote sensing methods, the Kalispel Tribe of Indians is providing an annual synopsis of its recent datasets. In 2018, magnetometry was used at two sites in Pend Oreille County: 45PO430 and 45PO493. A Geometrics G-858 magnetometer was used to collect total field gradient data, and was then processed using MagMap2000, Surfer 15, and Oasis Montaj. The surveys were completed prior to excavation of two sites that lacked surface indicators of archaeological features. The magnetometry results guided the placement of the test units, and the excavation of several multi-component prehistoric earth ovens. On a larger scale, these results help to focus on the specific signatures (e.g., earth ovens, residential floors), rather than non-archaeological noise. This poster presents the results of the two magnetometry surveys, needful adaptations throughout the project, and recommendations for future magnetometry surveys.

Martinez, Kelley Portland State University

Experimental Archaeology and Groundstone Technology: Understanding Manufacturing and Usewear Attributes through Replication and Tool Use

Despite the importance of groundstone tools to Indigenous communities in the Pacific Northwest, the technology is analyzed at a coarse level in the region. Detailed analyses of groundstone assemblages inform on regional Indigenous raw material knowledge, resource use, tool manufacturing, and maintenance practices. To build more robust regional analyses of groundstone assemblages, I used standardized analysis methods and terminology, coupled with experimental studies. I experimentally produced and used five common northwest groundstone tool types and analyzed the resulting manufacturing and usewear. I used results from the experimental study to inform my interpretation of usewear on an archaeological groundstone collection from the Lower Columbia River, identifying specific attributes associated with different manufacturing strategies and tool use. These observations can be applied to the analysis of archaeological assemblages to form hypotheses on how the tools were manufactured, used, and repaired prior to deposition. Additionally, experimental tool manufacture and use offer valuable insights into skill level, specialization, and investment associated with groundstone technology.

Co-author: Shelby Anderson (Portland State University)

Mathews, Bethany Undertold Histories Project

Washington Women Homesteaders: Finding the Underrepresented History of Land Claimants in Early Washington State

Under the 1862 Homestead Act, single, divorced, deserted, and widowed American women were eligible to claim up to 160 acres of unappropriated public land for the purpose of settlement and cultivation. No comprehensive study of woman homesteaders has been completed but regional studies indicate that women comprised between 3–21% of homesteaders in the American West. Homesteader demographics varied across the West due to differences in local environments, culture, and settlement politics. The Washington Women Homesteaders project seeks to record the story of female homesteaders in order to build a historic context

of homesteading which includes underrepresented persons and preserve the sites of their homestead experiences. This poster presents the preliminary findings from 2018 historical research, including a summary of Thurston County homesteaders.

May, Nathan

Confederated Tribes of the Umatilla Indian Reservation

"They Expected a Hard Fight": Fire Line Metal Detecting Survey of the Rosebud Battlefield State Park Montana.

A metal detection survey of potential fire lines, visitor trails, and additional parking lots to the Rosebud Battlefield State Park, Montana documented battle-related artifacts. The remnants of conflict were largely documented through firearms related artifacts, such as cartridges and bullets, but one iron arrow point documented speaks to other weapons and tactics implemented by combatants. Although the iron arrow point is the only non-firearm artifact documented through archaeological investigations, indirect evidence, such as historical accounts, supports the use of the bow and arrow at the Battle of the Rosebud. The manufacture and trade has been the subject of several studies, but it is the intent of this paper to elucidate the how the bow and arrow was used in battle, and how the iron arrow point documented at the Rosebud Battlefield evidences said use.

McClure, Rick

Headwaters Historical Services

Aipax-kan-ishchit - the Yakama Trail: History, Archaeology, and an Approach to Evaluation

Trans-montane trails were primary avenues for exchange and social interaction between indigenous peoples east and west of the Cascade Mountains during pre-contact and historic times. The Aipax-kan-ishchit, or "Yakama Trail," ranked among the principal routes in the southern Washington Cascades, connecting Taynapam settlements in the Cowlitz River watershed with Yakama settlements to the east. A group of private, non-profit, tribal, and federal partners initiated efforts in 2018 to begin comprehensive mapping and documentation of the Yakama Trail, while developing a cultural/historical context for National Register evaluation and a strategy for assessing the integrity of the resource. This presentation summarizes research completed to date and addresses potential challenges for nomination and listing.

McFarland, Doug

Pacific Northwest National Laboratory

Hanford Archaeology: A Precontact View

Hanford Because of its nuclear reputation, and limited access, Hanford Reservation is a mostly pristine 560 square mile snapshot of Columbia Plateau precontact archaeology within the mid-Columbia River area. The vast undeveloped landscape offers a unique opportunity to look at changing Holocene climate and cultural land use of river, and of upland and lowland "interior" through time. Only the lonely: Magnetic analyses to address function and burn/use history of non-feature burned rock. By combining geomagnetic and paleomagnetic analyses of fire altered rock (FAR), archaeologists can address function and burn/use history without the context of an intact burn feature. How archaeological FAR was used reflects cultural preference, use and function, and has changed over time. The same heat that makes these artifacts directly dateable with TL and OSL, also leaves a series magnetic signatures in iron bearing rocks. A sequence

of analyses addresses maximum temperature, the movement of the rock (use) during cooling, and the magnetism and mineralogy needed for best results. Preliminary results from analyses compare midden-excavated FAR, and contemporary ethnographic FAR to address function and burn/use history. Planned analyses include but are not limited to, thermal demagnetization, magnetic hysteresis loops, magnetic susceptibility with temperature, Curie temperature analysis, and isothermal remnant magnetization. Discussion will address analyses to this point and next steps. This research would not be possible without the generous cooperation of the Jamestown S'Klallam Tribe and their cultural resources program.

Co-authors: Cristina Garcia Lasanta, (Western Washington University), Zach Allen (Central Washington University), Bernard Housen (Western Washington University), Mike Valentine (University of Puget Sound), Lindsay Kiel (Mission Support Alliance), and David Brownell (Jamestown S'Klallam Tribal Historic Preservation Office)

Meatte, Daniel Washington State Parks

ILLUMINATED ROCKS: Paleoindian Use of Quartz Crystal in the Western United States

Paleoindian sites in western North America occasionally yield tools made of translucent quartz crystal. These crystals can be both practical and visually attractive. Despite their internal crystalline structure, crystals are subject to conchoidal fracture, so they are ideal for tool making. They also have a number of curious aesthetic qualities: optical transparency; a regular hexagonal shape that scales regardless of size; the ability to refract light, which produces visual distortions; and illumination (triboluminescence) when struck or abraded. The size, character and distribution of quartz crystals in the western United States is closely tied to the distribution of granitic batholiths bearing exposed pegmatites. This limited geographic distribution, coupled with several aesthetic properties of quartz crystals, indicates their use is closely tied to underlying symbolic values. Quartz crystals, indeed many mineral types, underlie Paleoindian symbolism as expressed in the making of stone tools.

Mendez, Keith Mission Support Alliance

Hanford Cultural Resources Program Overview, or How I Learned to Love the Atomic Bomb

General overview of the Hanford Site cultural resources management program. The Hanford Site status as a nuclear reservation for 70 years created complex and unique conditions for historic preservation in eastern Washington. Presentation will discuss the history and structure of the cultural program that addresses the multiple contexts of the archaeological record as well as the interaction between federal and state agencies, contractors and consulting parties.

Middleton, Sherri Central Washington University/ Tierra Right of Way

Finn Town 45KI1325, An Historic Coal Mining Community

Tierra ROW conducted site testing for 45KI1325 to determine site eligibility for the National Register of Historic Places (NRHP) in 2018. Located in Bellevue along Coal Creek, Site 45KI1325 corresponds well with the historical coal mining area known as Finn Town. Finn Town, a community of 50 Finnish families, grew around the operation of the Ford Slope mine in 1908. The town was razed

by 1936 when mining operations ended. To determine eligibility, multiple lines of evidence, including historical records and archaeological data, were used to study historic-era chronology, architecture, economic production, and consumption. Subsurface investigations resulted in recording three intact features, one of which is a coal bunker, and 642 historic-era artifacts. Historical archival research confirmed 45KI1325 is the ruins of the razed coal mining community, Finn Town. Tierra ROW recommended that 45KI1325 is eligible for the NRHP under Criterion A and Criterion D.

Comparing a Surface Collection to an Excavated Collection in the Lower Skagit River Delta at 45SK51

The Lower Skagit River Delta is comprised mainly of agriculture fields, and artifacts are commonly found on the surface of the plowed fields. The archaeological data potential of surface collections in this area is unknown as many of those sites remain unstudied or analyzed. The Lower Skagit River Delta Surface Collection (LSRDSC) is from a plow zone context located in Skagit County, Washington. The assemblage has 382 stone, bone, and shell artifacts that exhibit a wide diversity of technological forms representing various states of manufacture. The purpose of this study is to determine if LSRDSC, a surface collection, can be used successfully in a modern research context. Specifically, is the surface collection comparable to the excavated site 45SK51 material culture? Using Brainerd-Robinson correlation coefficient we show that the surface assemblage is comparable to the excavated assemblage, with some exceptions (e.g., bone) making this plow zone sample useful for addressing regional research questions.

Co-author: Patrick T. McCutcheon (Central Washington University)

Miss, Christian

Ripple in Still Water: Contextual Themes, Research Opportunities and Historical Archaeology near the Duwamish and Black Rivers—Perspectives from Phase III of King County’s Cultural Resources Protection Project. Part 2: Archaeological Perspectives

Lands adjacent to the Duwamish and Black Rivers have hosted numerous cultural resources investigations with important results for the study of pre-contact and ethnohistoric land use. The intensity of this investigation is directly related to continued development for primarily industrial purposes. Unfortunately, historical archaeological resources are poorly represented among properties regarded as significant owing to disturbance and to our inability to interpret the remains we do encounter. This situation afflicts much of the county and the urbanized Pacific Northwest. This portion of the presentation will examine past work and suggest ways to improve identification and interpretation of historical archaeological remains.

Co-authors: Johonna Shea, Sharon Boswell

Monaco, Marci

University of Idaho

Obsidian Biface Cache Site 35MA375: New Flintknappers Help Reveal Old Technology

A landowner in Salem, Oregon recovered an obsidian biface cache during excavations of a spring fed pond in 2015. This unique archaeological site (35MA375) is the only recorded obsidian biface cache within Oregon’s Willamette Valley. The cache provided a unique opportunity to examine bifacial blanks and produce data useful for interpreting other biface caches. These obsidian bifacial

blanks had natural and anthropogenic attributes that may hinder further reduction. Assessing a flintknapper's skill level may give us insight into why the bifaces have characteristics and attributes undesirable to an experienced flintknapper. I am working with novice, intermediate, and master flintknappers to produce 15 obsidian bifacial blanks each. The project goal is to determine if skill level can be designated by comparing the technological analysis of the original bifacial blanks to those produced by flintknappers who vary in skill level. This provides information about choices and strategies used by novice flintknappers as they become familiar with stone tool production.

Moon, Jonathan

University of Idaho

Sweat Lodge on Campus: Examining Barriers of Communication of a Project between Native Students and the University of Idaho

The University of Idaho is a land grant university which is located on traditional Nez Perce lands. Located in the city of Moscow, Idaho the university is located with indigenous tribes surrounding it in all directions. Over the past several decades the university has worked to create relationships with the surrounding tribes through collaborative projects. Through these relationships the university has demonstrated a desire to recruit indigenous students and makes continued efforts to improve retention rates among these students. The most recent of these efforts is a collaborative project to set aside space for a sweat lodge for the university indigenous community. In this paper I seek to examine this recent process for possible barriers in communication which if addressed could work towards strengthening the relationships between the U of I and its surrounding native communities as well as its own community of native students and faculty while working to continue the goals of native student recruitment and retention.

Morris, Jessica

Central Washington University

Rock Imagery Viewshed Results: The Central Washington Cultural Landscape

The relationship between rock imagery and the cultural landscape of the Middle Columbia River area provides insight into the style and purposes of rock imagery. The US Army Yakima Training Center (YTC) presents a unique opportunity to analyze the cultural landscape and associated rock imagery. I have visited eleven rock imagery sites for my thesis research for the purposes of analyzing its relationship to the landscape as well as to promote its continued preservation. This study began in summer 2018 with the assistance of the CWU CRM Field School and Stell Environmental LLC. Preliminary results of digital viewshed analyses show landscapes visible from each site type. Discussion will address progress thus far, next steps, consultation, and recommendations. Future research includes additional analysis of configurations of site types across the landscape.

Morton, Ashley M.

Independent Contractor

Homesteading Before Hanford: Survey Results of the Department of Energy Land Conveyance

Between 2013 and 2014, archaeological research and survey work was conducted to support The U.S. Department of Energy- Richland (DOE-RL) in an Environmental Assessment (EA) for conveying land outside of federal ownership. This work resulted in identifying one

historical-period homestead site (the Otto Henry Luelloff homestead) determined eligible for listing on the National Register of Historic Places. As one of the few known domestic and agriculture representations of the Fruitvale community, a small, short-lived farming district that disappeared in 1943 accompanying government occupation, this paper discusses the archaeological remains of the site as it relates to the history of farming development in the area, today, known as Hanford.

Moses, Pendleton Colville Confederated Tribes History/Archaeology Program
*Mapping Indian Hemp (*Apocynum cannabinum*) in the Traditional Territories of the Colville Confederated Tribes*

Indian hemp (*Apocynum cannabinum*) is one of several traditional cultural species being mapped, in part to better understand its abundance and habitat requirements, and also to provide gathering locations for traditional practitioners. The strong fibers in the stems of Indian hemp or hemp dogbane, and the distribution of the species east of the Cascades, made it a valuable item of trade with coastal tribes. Hemp cordage was such a desirable commodity that sites were kept secret and fights broke out over populations that produced the highest quality fibers. We have found that Indian hemp often lives above streams or lakes, and sometimes on roadsides. The Traditional Cultural Plant Team has mapped several populations, including one site mentioned in historic literature that we are also monitoring. There is great variability in size of annual stems, which may have to do with differences in genetics, substrate, moisture availability or a combination of these.

Co-authors: Sylvia Peasley (Colville Confederated Tribes History/Archaeology Program) and Trisha Johnson (Colville Confederated Tribes History/Archaeology Program)

Muro, Sophie University of Washington
Picture This: An Exploration of Photogrammetry and Digital Curation of Grand Ronde Belongings

Existing approaches to artifact modeling focus primarily on analysis of artifact attributes and preservation of excavation contexts. Less attention has been paid to modeling's potential in strengthening connections between descendant communities and their cultural heritage. In collaboration with the Grand Ronde Historic Preservation Office, we created a series of three-dimensional models of excavation units and belongings associated with a late nineteenth and early twentieth century settlement area on the Grand Ronde Reservation in northwestern Oregon. Photogrammetry provides an alternative approach to heritage curation, allowing us to share interactive, three-dimensional models of historic belongings with the tribal community. This not only lends additional transparency to our research process, it can also initiate conversations with tribal members about the functions and meanings of belongings in historic reservation lifeways. Photogrammetry can thus play an important role in the development of community-based research practices.

Co-authors: Bay Loovis (University of Washington) and Ethan Mofidi (University of Washington)

Muschal, Marlis Willamette Cultural Resources Associates, Ltd.
Silver Creek Archaeological Context—Harney County, Oregon

In the spring of 2018, WillametteCRA conducted systematic pedestrian survey of two 300-acre parcels in northern Harney County. We documented 26 sites and 53 isolates, all of which were characterized by surface scatters of obsidian flaked tools and debitage. Shovel probing around sites and isolates indicates these resources are not substantially larger than visible on the surface. The depth of cultural materials appears to be limited to the surface or near-surface. We review archaeological studies conducted in the uplands north of the Silver Creek valley floor to create a regional comparison of precontact site content and age. We draw conclusions on regional and temporal variation in the Silver Creek drainage in order to create explicit test expectations and future avenues of research for regional patterns of precontact land-use.

Co-author: Mike Shimel (Willamette Cultural Resources Associates, Ltd.)

Neller, Angela Wanapum Heritage Center, Grant County PUD
It's in the Archives: Doing Archaeology On the Columbia Plateau

Hydropower has a long history in the Pacific Northwest and the Columbia River is uniquely situated as a hydropower river. With more than 60 dams in the Columbia River watershed the effect to the archaeological record is great. Available resources are limited for understanding households and settlement patterns. Diverse voices speak to this record including those of amateur archaeologists. The prehistory of the Priest Rapids- Wanapum region resides in archaeological collections of both amateur and professional archaeologists. These collections are the remaining site material for sites now inundated. The documentation and study of amateur collections along with that of professional archaeologists help to build regional histories. While much of this data has been sitting for years, these collections have proven to be valuable for research undertaken in cultural affiliation studies for repatriation. Future research projects will demonstrate what a valuable resource these collections are for understanding households and settlement patterns in the interior Northwest along the Middle Columbia.

Co-author: Lourdes Henebry-DeLeon (Central Washington University)

Ngandali, Yoli University of Washington
Invisible Photography: Examining Groundstone Art Production Processes Using Multispectral and Digital Imaging Techniques

Multispectral imaging (MSI) tools are relatively new non-invasive digital techniques in collections-based archaeological research. MSI captures image data at specific wavelengths to reveal hidden materials, pigments, and inks invisible to the naked eye. My research uses MSI and a suite of digital imaging tools to analyze groundstone artifacts held in museum collections. I use digital imaging tools to detect transformations in carving and paint preparation practices by identifying evidence of use-wear, carving, and paint deterioration. My results reveal diagnostic patterns of reduction and retouch with a technical style specific to the Lower Columbia River Region, a Chinookan art tradition still in practice today. These digital techniques provide additional interpretive power to artifacts or belongings with little to no provenance that have been removed from their original context. Furthermore, these data concerning production

processes contribute to the study of object biographies and shared technological knowledge among communities of practice along the Lower Columbia River.

North, Michelle Portland State University

The Virginia Lake Stake Feature, Sauvie Island, OR: Updates from Fieldwork and AMS Dating

This poster presents preliminary results of fieldwork and AMS dating from the Virginia Lake project and discusses future analyses. Our project seeks to expand scholarship on systems of wetland ecosystem engineering and aquaculture in backwater areas of the Lower Columbia, through documentation of a possible fish weir on Sauvie Island, OR. In September 2018, with assistance from up to six volunteers, we recorded the 70 m long alignment of wood stakes and carried out survey, subsurface testing, and sample collection. Field methods were designed to answer these main questions: How old is the feature? What was its function? And what is its cultural affiliation? This project will also have methodological value to future landscape-level studies by creating a template for evaluating features of this kind and placing them within a broader context.

Co-author: Virginia L. Butler (Portland State University)

Ostrander, Tom Environmental Science Associates

Results of Archaeological Survey along the Upper Chehalis River Drainage

The Washington State Department of Ecology is conducting environmental review for a plan to construction a flood water retention facility in the upper reaches of the Chehalis River. As part of the Section 106 compliance ESA conducted a surface and subsurface survey of the 1,300-acre APE. During this effort ESA developed its own predictive model for the APE, and utilized a fully paperless system for in-field updating of the predictive model, surface and subsurface survey, and site form recording. As a result, over 800 shovel probes were excavated, and 13 new archaeological sites were recorded. ESA's results indicate that the precontact use of the drainage focused on both terrestrial mammals and riverine resources. A landscape focused interpretation of the sites location provides key clues to understanding site use, despite relatively sparse artifact density. Testing at these sites may answer long-standing fundamental questions regarding subsistence strategy change, and cultural affiliation of the precontact peoples who utilized upper Chehalis.

Co-author: Chris Lockwood (Environmental Science Associates)

Owen, Amber Whatcom Community College

Ehler's Danlos Syndrome: Overlooked, Mistreated and Misunderstood

Ehler's Danlos syndrome is often overlooked, mistreated and misunderstood. Ehler's Danlos Syndrome is a group of heritable connective tissue disorders that is characterized by joint hypermobility, connective tissue fragility and many other symptoms. For this project I interviewed 36 participants all of whom are diagnosed with Ehler's Danlos Syndrome and are members of local support groups. I asked three questions of the participants, with the third

question having a part two. Respondents reported that it took many years and multiple doctors to receive their diagnosis, and most felt that their symptoms were often minimized by their health care providers. This is a relatively small data pool and warrants more research; this is indicative of larger issues that is not only related to EDS, but many rare or rarely know chronic health issues. Women are also more likely to be dismissed and mistreated by medical providers; this is a cultural issue that must be addressed.

Peasley, Sylvia Colville Confederated Tribes History/Archaeology Program
Processing and Creating with Indian Hemp: A Versatile, Traditional Fiber

Revitalizing ancient skills using traditional materials is an important part of maintaining culture and protecting sovereignty. As the Plant Team mapped various populations of Indian hemp, we became interested in processing the fibers, making cordage, and creating items that have been valued since time immemorial. We noticed that stems from different populations varied in height, and also in shades of the fibers, ranging from straw-colored to reddish. This may have to do with habitat, genetics, or possibly time of harvest. Methods of processing include burying hemp stems in moist ground before splitting them, removing the fibers and combing them with a notched deer rib. Producing cordage is labor-intensive, adding to the value of the finished products, which include bags and nets of various sizes as well as thread, twine and rope used for everything from sewing clothes to catching fish to lashing tule stems together when constructing mats and lodges.

Co-author: Pendleton Moses (Colville Confederated Tribes History/Archaeology Program)

Peck, Alexandra Brown University
Coast Salish Social Complexity, Community Ties, & Resistance: Using Mortuary Analysis to Identify Changes in Coast Salish Society Before, During, & After the Colonial Period

Coast Salish burials grew less elaborate and increasingly egalitarian during the colonial era, despite assumptions that European presence contributed to cultural complexity in Coast Salish communities. This paper employs mortuary evidence to account for Coast Salish social organization and ranked status shifts throughout the 16th- 20th centuries—a period defined by settler colonial and Catholic presence throughout the Northwest. Although previous scholars claim that an influx of foreign goods resulted in stratified Coast Salish communities, funerary data reveals high degrees of tribal complexity present prior to European arrival. Challenging popular accounts, burial evidence demonstrates that Coast Salish society became more unified during the colonial period. Unification resisted strong colonial imposition, functioned as a coping mechanism during political turmoil, and retained tribal identity. I analyze Coast Salish interment methods including burials via middens, rock cairns, sky boxes, cremation, built structures, caves, Catholic cemeteries, and Indian Shaker Church practices to chart changes from an elite/commoner/slave class system to one that revealed social solidarity.

Petrich-Guy, Mary

Mission Support Alliance

Preparing Manhattan Project and Cold War Era Historic Artifacts from the Hanford Site for Public Access

As part of a programmatic agreement and a treatment plan for the maintenance, deactivation, alteration, and demolition of the built environment constructed during the Manhattan Project and Cold War Era periods of the Hanford Site's operations, cultural resource teams identified associated artifacts and media for preservation and public access. This presentation will discuss the identification of items; and screening them for health, safety, and security concerns prior to transferring them off-site for curation and public access.

Pickard, Ashley

University of Durham

Deconstructing Disaster: When Ontological Understanding of Natural Disasters and Archaeological Research Provide Key Information for Past and Present Disaster Response

In order to discuss how distinct past cultures may have understood and reacted to natural disasters, there must first be a common understanding of what disasters, and survival of such disasters, meant to those cultures. These terms might be mistaken as universal norms, while they are actual bound within the ontological perspective of the given individual or society. Diverse geographic and chronological archaeological examples of societies dealing with disasters will highlight the impact that an ontological perspective had on the nuanced concepts of, disasters, resilience, and safety. This paper will discuss the theoretical and methodological approaches that integrate ontology within archaeological and modern disaster research, teasing out their complexities. Finally, these themes will be applied to the conversations of modern disasters; laying a foundation, upon which archaeological research can examine past natural disasters and draw parallels to modern concepts of disasters, resilience, and safety.

Prince Martinez, Kelley

Portland State University

Experimental Archaeology and Ground Stone Technology: Understanding Manufacturing and Use Wear Attributes through Replication and Tool Use

While ground stone tools represent diverse site activities, the technology is analyzed at a coarse level in the Pacific Northwest. Conducting more detailed analyses of ground stone assemblages can inform on regional Indigenous raw material knowledge, resource use, and tool manufacturing and maintenance practices. Using standardized analysis methods and terminology coupled with experimental studies will help build more robust regional analyses of ground stone assemblages. Applying experimental archaeology to ground stone technology analysis offers a means to explore variables in tool manufacture and use through raw material selection, reduction strategies, and use wear. The subsequent analysis of ground stone tool replicates identifies specific attributes associated with different manufacturing strategies and tool use. These observations can be applied to the analysis of archaeological assemblages to form hypotheses on how the tools were manufactured, used, and repaired prior to deposition. Additionally, experimental tool manufacture and use offer valuable insights into skill level, specialization, and investment associated with ground stone technology.

Reed, Patrick

Portland State University

Is Old Dirt Worth It? Geochemistry of Bulk Sediment Collections from Cape Krusenstern National Monument, Alaska

Soil geochemistry has been utilized in archaeological investigations since the early 20th century. Initially simple in-field indicators were used for archaeological prospection. Recent spectrographic analysis (e.g. mass spectrometry (ICP-MS)) projects are gathering detailed information about spatial patterning. Methodologies for soil analysis, primarily developed in the geosciences and environmental contamination testing, emphasize specific collection procedures and rapid sample analysis to prevent introducing post sampling contamination and provide traceability. Archaeology has followed suit, emphasizing new excavations for analysis. Considering the curation crises, can anything be done with the large quantities of previously collected bulk soil samples? Traditional methodologies suggest that samples not “properly” stored (dried and kept in a cool environment) potentially lack viability for meaningful analysis. Here we report results of geochemical analysis of bulk samples collected between 2006-2010 and stored in typical archaeological lab conditions. Our results suggest there is potential in analyzing previously collected bulk samples to gain insights regarding subsistence, and settlement patterns.

Co-author: Dr. Shelby Anderson, Portland State University

Rice, David

Plateau Archaeologist

New Information on Horse Heaven Hills Pleistocene Turbidite Archaeological Find

Long searched-for by archaeologists and geologists for more than 80 years, a single lithic artifact assemblage of 29 diverse specimens found at the eastern terminus of the Horse Heaven Hills remains the only substantive evidence that humans witnessed some of the Missoula Floods across the channeled scablands of southeastern Washington into the Pasco Basin. Rice (2017) described a private find of individual artifacts, and their general location on a steep northeastern facing bank about 75 meters above the current level of the Columbia River (then Glacial Lake Lewis). Their geological context was a Late Pleistocene high-energy turbidite flood deposit, which also contained the nearby West Richland mammoth found in 1978. Since that time more detailed information has been published about the nature of turbidite deposits, along with a tighter analysis of the age and geochronology of the Missoula Flood events in the Pasco Basin. These indicate this archaeological find is probably the oldest known in the state, at earlier than 14,400 Cal Yr B.P. Coincidentally, this geographic setting may correspond to a recent human genomic finding by AAAS which concludes there was a dispersal point for an early, rapid SNN human migration that resided in the interior of Oregon-Washington ~17 to 14 ka years ago, from there, to Central and South America beginning ~15.7 ka.

Public Archaeology at Hanford and the Tri-Cities Region before the Era of Public Funding

This presentation acknowledges the significant role of private citizens of the Tri-Cities region, who as members of the Mid-Columbia Archaeological Society (1967-1987), supported and contributed to the archaeology of southern Plateau prehistory. Their contributions are manifold, and in many different civic areas: site survey, site testing documentation, public education, speaker programs, publications and exhibits, site protection, and conservation of archaeological collections. They have collaborated with professional archaeologists and colleges working in the

area, and supported their projects with labor and advice. Their occupational diversity provided a wide range of technical capability, and professionalism. MCAS efforts have contributed the basis for nomination of seven National Register District nominations at Hanford by the US Department of Energy to the Keeper of the National Register; comment on permit applications for archaeological permits issued by the State Department of Archaeology & Historic Preservation, and support for Native American burial relocation and reburial for inadvertent discoveries. Their contributions to Hanford and regional archaeology are hereby appreciated and acknowledged.

Riley, Ashley

Whatcom Community College

A Women's Right to Choose: An Outsiders View on the Role of a Female Jehovah's Witness and Her Right to Choose to Accept It

There is an abundance of preconceived notions, most of which are negative in nature, about what it is like to be a female Jehovah's Witness. These notions most often result in instantaneous judgments and a feeling of otherness towards the women. Over the course of my research, I attended weekly meetings and conducted interviews with female members of the church. My research demonstrates that the role of women in the church is much more complex. It is my intention with this paper to provide an insight into the choices women make as they identify as a Jehovah's witness in the hopes of engendering understanding and recognition.

Rinck, Brandy

King County Parks & Recreation Operations

A Cultural Resources Management Plan for Marymoor Park

Due to its natural and cultural setting, Marymoor Park is one of the most archaeologically sensitive assets in the King County Parks system. Archaeological investigations and unrestricted development occurred across the park for decades, and records of this work vary in quality. Parks determined that a Cultural Resources Management Plan is needed for long-term preservation of cultural resources in Marymoor Park. The plan begins with a park-specific discussion of the land use history and environmental framework that inform on the potential for encountering cultural resources. The context is followed by a resource inventory, verification of site boundaries, and a summary of previous investigations. Results of recent fieldwork add data to address information gaps and build a sensitivity model. This plan allows for future identification and evaluation of cultural resources following proactive and reactive preservation strategies to minimize impacts. Once complete, Parks will identify stakeholders (i.e., Tribes, SHPO, user groups, the preservation community...) and formalize the plan as an agreement.

Co-Author: Philippe LeTourneau (King County Historic Preservation Program)

Robinette, Samantha

University of Idaho

Bad Medicine

Excavations at 19th and early 20th century archaeological sites frequently produce bottles and other containers with remnants of medicines that were in general use in days gone by. Modern analysis and improved understanding of human physiology has shown that these materials often did more harm than good. In addition, regulations were minimal or non-existent, so that even compounds that were known to be poisonous could be slipped into preparations

with impunity. Chemical analysis, or, if available, ingredient lists, can leave modern observers incredulous about the toxins that people ingested with the purpose of improving their health.

Co-author: Ray von Wandruszka (University of Idaho)

Rorabaugh, Adam Colville Confederated Tribes History/Archaeology Program
A New Look at the Excavations at the Forts Okanogan, Cassimer Bar Locality

The historic (45OK64) Astor Fort and (45OK65) Hudson's Bay Company Forts Okanogan have been subject to concerted archaeological and historic research over the past century. Using a GIS, combining historic aerials and site maps CCT H/A re-examined the past field efforts at these sites to evaluate excavated fort architecture and the presence of noted pre contact features and architecture. This effort clarified the original Stuart party fort at the Fort Astor location and the ambiguity surrounding when the Astor Fort location was abandoned for the Hudson's Bay Company Fort Okanogan. The presence of pre contact occupation including mat lodge houses was confirmed through this re-examination. Additionally, combining the data from these efforts helped to resolve the spatial location and extent of post-fort uses of the Astor and HBC Forts by Okanogan peoples.

Co-author: Karen Capuder (Colville Confederated Tribes History/Archaeology Program)

Re-evaluating Chronology, Houses, and Villages at the Cassimer Bar Locality on the Upper Columbia River

Beginning with Stallard's survey in the 1950s, significant archaeological investigations have occurred in the Cassimer Bar locality of the Upper Columbia River. Many of these efforts, such as the excavations by Grabert are on landforms now inundated by the initial Wells reservoir pool raise. Using a GIS, CCT H/A compiled historic aerials and maps from previous field efforts at Cassimer Bar in an effort to construct a database of pre contact architectural features including house dimensions at the locality. This effort, combined with OxCal4.3 calibrated radiocarbon dates using a Bayesian Kernel Density Estimation (KDE) model, sheds light on the timing of the formation of Cassimer Bar as a landform and changes in habitation on the bar over the Holocene. The combined data suggest continuous occupation of the bar with periods of more intensive use and highlight taphonomic biases resulting from inundation.

Rose, Chelsea Southern Oregon University Laboratory of Anthropology
From Guangdong to Oregon: Transnational History, Archaeology and the Oregon Chinese Diaspora Project

The Southern Oregon University Laboratory of Anthropology (SOULA) has forged a collaborative partnership with a variety of agencies including the Malheur National Forest, the Medford District BLM, Oregon State Parks, and the Oregon Historical Society in an effort to conduct and share research on Oregon's Chinese diaspora history. The project is currently investigating a variety of sites associated with the Oregon and California Railroad, gold mining in the Blue Mountains, and life in rural communities. In joining forces across the state, the project is exponentially increasing awareness about, and information on, one of Oregon's most historically underrepresented populations.

Ross, Kayla University of Idaho

Prophylactics Etcetera

The use of condoms has a long history in the United States. An early example, dating from around 1730, was recently sent to our laboratory from Maryland. Such early specimens were often made from animal parts, including pig gut, sheep intestine, and fish bladder. After Goodyear's invention of vulcanization (1839), rubber condoms came into use, followed by latex (1919) and polyurethane (1994). Prophylactics are not often recovered in archaeological excavations, but their analysis can be both interesting and chemically challenging. Other means of contraception (and sanitation) used in the 19th and early 20th centuries included post-coital rinses and douches. Remnants of materials used in these practices are occasionally recovered in excavations, often at former brothel sites.

Co-author: Ray von Wandruszka (University of Idaho)

Rudnicki, Larissa ODOT

The Neon illumination of Grants Pass

In the process of updating the Caveman Bridge, over the Rogue River, in Grants Pass, Oregon, a community treasure was uncovered: a defunct neon sign. The sign, which proved to have an illuminative history to the famous Redwood Empire, once again, through this project, was placed in the community limelight. This presentation will discuss the neon sign and its history, and the feel good story of a community that turned to social media and news sources to make sure its importance was remembered, and, ultimately, preserved.

Rumberger, Jacklyn D. Washington State University

Drunk on Cacao: Experimental Testing of Residue Chemical Compounds of Fermented Cacao Pulp and Cacao Beans

The paper presents the preliminary results of an experimental residue analysis project aimed at observing variation in biomarkers among different forms of cacao. Specifically, this analysis will employ liquid chromatography/mass spectrometry to identify theobromine, caffeine, and theophylline in the cacao bean and fermented cacao pulp. This research seeks to identify variations in the biomarkers of fermented cacao pulp, roasted cacao bean, and unroasted cacao bean. Identifying biomarker variation in ceramic residues allows for a more complete understanding of cacao usage in Mesoamerica. Specifically, this analysis will be used to verify the hypothesis that fermented cacao pulp and cacao bean-based cacao beverages can be distinguished chemically. This information can be applied to artifacts to determine whether cacao was consumed as both an alcoholic beverage made from fermented cacao pulp and a chocolate beverage made from the cacao bean as suggested by ethnographic, iconographic, and ceramic typologies.

Co-Authors: Shannon Tushingam (Washington State University), Anna Berim (Washington State University), David R. Gang (Washington State University)

Sappington, Lee University of Idaho

An Overview of Pre-Contact Residential Structures in the Clearwater River Region, North Central Idaho

The investigation of traditional residential structures in the Columbia-Fraser Plateau provides insights into the pre-contact social and political organization of native groups. Numerous historic and ethnographic accounts have reported a variety of pit houses, mat lodges, and other residential structures in the Clearwater River Region. Since the late 1970s, archaeologists have investigated house structures at ten pre-contact sites across the region. Houses are most common along the lower Clearwater River and the Middle Fork with none having been encountered above the South Fork. The settings for houses generally reflect traditional settlement patterns and are frequently associated with ethnographic Nez Perce villages. Houses range in age from approximately 5000 BP to 700 BP. Early houses appear to have been semi-subterranean while late pre-contact and historic houses were shallower mat or hide structures. Spatial analyses have provided evidence of household activities and insights into subsistence and economic tasks including lithic tool use and manufacture, mammal processing, fishing, and storage.

Scanlan, Kathleen Washington State University

Experimenting with Stone Use from a Yup'ik enet: Macro Analysis of Experimental Use-wear on Basalt and Chert Utilized Flakes

Despite a surge in gender studies addressing the idea that human behavior is not synonymous with male behavior, obstacles to identifying archaeological female spaces still exist in southwest Alaska. The identification of use-wear patterning on flakes has the potential to assist in the identification of gendered activity areas in a 1500-year-old enet or women's house. A series of organic materials were subjected to tasks that would potentially occur in a Yup'ik winter village household utilizing lithic tools: hide scraping, wood and antler shaving, and grass cutting. The purpose of the experiment was to determine if edge-damage analysis has the potential to identify tasks ethnographically associated with women. Patterning identified during experimentation provides a reference point for the analysis of the archaeological assemblages. Hide scraping and grass cutting, both strongly associated with women's work in the Yup'ik society, resulted in the most distinct use-wear patterning, meaning that women may have left their mark on the inorganic archaeological record.

Schultze, Carol Tierra Right of Way Services, LLC

Investigations into Glacially Rafted Nephrite Boulders in Northern Washington

Nephrite is recognized as the preferred material for making adze blades (celts) worldwide. In the Pacific NW, the majority of adze production has been located in the vicinity of the Fraser River, BC, Canada. This paper reports the discovery of a previously unknown source of nephrite or nephrite-like stone (jadeite, serpentine, etc) in glacially rafted boulders. This was discovered in Stillaguamish territory, during routine archaeological monitoring of excavations for an electrical substation for the Snohomish County PUD in Arlington, Washington. This paper will discuss the potential for adze production in northern Washington and serve as a case study in the potential benefits of cooperation between utilities, tribes, colleges, and cultural resource management professionals.

Co-author: Jennifer Huff (Edmonds Community College/University of Washington)

Schwab, Alex Ethnotech LLC

California Creek Quarry: Insights from Drone Mapping and Ethnohistory

The California Creek quarry is a large high elevation chert quarry in Western Montana that likely factored prominently into patterns of settlement, trade, subsistence and mobility for past populations in the region. The mining of these lithic resources results in a unique land use area, a prehistoric quarry. Despite the size and extent of this quarry, very little research has been conducted about the site. The goal of this study is to address some information gaps regarding this quarry and to assess its regional significance through two main approaches. The first approach will be to develop a regional context for the quarry in which to better understand how mining at the site factored into regional patterns of trade and subsistence. Ethnohistorical sources are particularly useful in developing this context, especially in the absence of lithic sourcing for the quarry. The second approach is to acquire high resolution spatial data aimed at measuring mining intensity for the site using with drone based remote sensing. These approaches provide baseline information from which to better understand the scale and regional significance of the quarry.

Scott, Carly University of Idaho

Stone Drugs and Dragon Bones

Stone Drugs (minerals used for medicinal purposes) and Dragon Bones (ground up animal bones) play an important role in Traditional Chinese Medicine. It is therefore not surprising that archaeological excavations of historical Chinese labor camps and settlements often turn up remnants of these materials. This is, of course, partially due to the fact that they are very persistent and, unlike plant derived remedies, are not subject to rapid oxidative, hydrolytic, or microbial decay. From a chemical analysis point of view, identification can be challenging because the medical minerals are often similar to, or even indistinguishable from, parts of the soil contaminants that may have entered the vessel as it lay buried.

Co-author: Ray von Wandruszka (University of Idaho)

Shannon, Don Willamette Cultural Resources Associates, Ltd.

Applied Ethnographic Work with the Confederated Tribes of Grand Ronde to Document Places of Cultural Significance: Mary's Peak

This presentation provides the results of a study conducted on behalf of the Bonneville Power Administration (BPA) to determine if Traditional Cultural Properties are present on Mary's Peak, in Benton County, Oregon. BPA has proposed modifications to an existing communications facility on Mary's Peak. The area is in the traditional homeland of the Mary's River Band of Kalapuya, who are today represented by the Confederated Tribes of Grand Ronde and the Confederated Tribes of Siletz Indians. The methodology employed a review of existing literature, a field visit, and interviews with members of the affected Tribes. Using guidelines in National Register Bulletin 38, Mary's Peak is evaluated as a Traditional Cultural Property (TCP), and findings are presented that Mary's Peak is eligible for the National Register of Historic Places under all four criteria. This report recommends consultation with the affected Tribes to discuss possible project effects to the Mary's Peak TCP.

Shantry, Kate

Washington State University

Pyromania: How Many Times Can You Cook and Quench a Rock until it Breaks?

Due to the lack of ceramics in Puget Sound, boiling technology is a two-step process requiring rocks to use as heating elements that are transferred to a container of water. To successfully boil food in a liquid medium, the heating elements must be resistant to thermal shock, or the contraction fracturing that occurs when rocks are heated and quickly cooled, or quenched, in water. In addition to foodstuffs, peoples of Puget Sound boiled an inordinate amount of plants for medicinal and other purposes. This paper discusses the material types available on Puget Sound beaches which are most suitable for boiling technology.

This Must Be the Place: Recollections and Realizations at the Renton High School Indian Site

The behavior of small-scale societies on the Northwest Coast has largely been approached from the aspect of the winter village. The Renton High School Indian Site offers a window into activities at a summer location used repeatedly during the Late Holocene. This paper discusses the salmon signature related to the thermal feature functions including summer fuel wood preferences. Not only did this project make a contribution despite the cultural resource management context of the excavation, but it provided the foundation for my own development as an archaeologist. The legacy of Renton lives on as Puget Sound researchers continue to investigate the unique interactions between humans and the dynamic environment of the Duwamish River valley.

Sholin, Carl

Western Washington University

The Hustle and Bustle of the Coast Salish Potlatch An Exploratory Case Study of Gift Economic Exchange and Bird Resources at the Village of Xwe'Chi'eXen, 45WH1

Predominant paradigms to explain the distribution of archaeological faunal remains primarily focus on diet. The economic structure of the potlatch is an alternative model to account for the presence of avifauna. In the Salish Sea avifaunal materials contribute to a continuous social system as both food and wealth objects. How avian resources were harvested, transformed into commodities, and used to signal rank and prestige in the context of the potlatch are considered. This study explores how these themes are reflected in the archaeological record over the last 3,500 years of occupation at the village of Xwe'Chi'eXen, 45WH1. Over 2,109 bird bones were analyzed from two-time components that correspond with the Locarno Beach and Marpole phases. Increases in frequency of naturally aggregating taxa, and changing patterns of avian diversity over time, are interpreted as increasing reliance on mass harvest hunting techniques. These patterns are interpreted as consistent with formalization of the Coast Salish gift economy.

Shong, Mike

Willamette CRA

Not to Touch the Earth: The Death of the Black River and the Effects on the Duwamish People and Archaeological Record

In 1917 the U.S. Army Corps of Engineers completed the Lake Washington Ship Canal connecting Lake's Washington and Union with Puget Sound. The year before the Corps breached cofferdams that lowered the level of Lake Washington by nine feet which fell below the lake's natural drainage outlet via the Black River, and the river ceased to exist. The Black

River historically connected Lake Washington to the Green/Duwamish River which empties into Elliot Bay approximately 14 miles downstream of the confluence. The Black River was formerly the cultural center of the Duwamish people and an important fishery, travel corridor and place of mythological importance. The presentation will summarize the natural hydrology of the Lake Washington drainage basin and the effects of the ship canal on the native people. The presentation will conclude with implications to the archaeological record from the subsequent infilling of the Black River channel and rerouting of tributary streams.

Simmons, Kim

Techniques for Production of Yarns and Threads for Warmth: Spinning Tools and Protein Fiber Sources in the Northwest.

Northwest archaeological collections and excavation practices have a paucity of tools for the spinning of fibers and production of textiles or the textiles themselves. Exceptions are the preserved cordages in several sites relying on plant based fiber. This is notoriously due to problems with preservation of these materials. However there is clear evidence of cloth making tools in the presence of fine sewing needles at 13000 BP in central Washington and a rich availability of protein fiber sources including mountain goat, bison and most notably a breed of dog specifically engineered for spinning fiber production. An overview of spinning techniques will give an understanding of how these practices might look in activity areas in archaeological sites. The harvesting or collection of the various protein fiber sources are discussed with analysis of their insulating capabilities. These hidden technologies are as important to the understanding of human occupations of the northwest as those better preserved technologies that currently comprise the archaeological collection.

Simmons, Stephanie Mission Support Alliance

Soldier Settlements of the Department of Energy's Hanford Site, Benton County, Washington

The Department of Energy's Hanford Site, located in Benton County, Washington, is historically associated with production of plutonium for atomic bombs during World War II and the Cold War, as well as current clean-up efforts. Prior to 1943, though, the area was home to the farming communities of Hanford and White Bluffs. A number of the area farms were developed as part of the State of Washington's 1919 White Bluffs-Hanford Land Settlement Project. This program provided World War I Veterans a loan to purchase 20 acres of land. Each tract included a house, barn, and a poultry house. Additional financial aid was available for the purchase of irrigation equipment and livestock. This presentation will explore the history of this program, its ultimate outcome, and archaeology of these farmsteads.

Sisneros, Mathew ICF

Oregon Archaeological Sensitivity Model Based on Surficial Geology and Landform Analysis

ICF has previously assisted in the creation of sensitivity models to identify the buried archaeological potential for the states of Washington and California, as well as the territory of Puerto Rico. This approach has now been applied to the state of Oregon by employing geologic landform types and soil age as the main model inputs. Surface geology data was not available to support the entire effort so ICF combined natural resource conservation soil data and attributed the soil parent material with surface geology units at a scale of less than 1:100,000 to cover

soil data gaps. After statewide data coverage was achieved, the landform and parent material types were normalized based on geomorphic origin, and assigned a geologic epoch (Holocene or Pleistocene and older). This poster presents the methods used to develop this model, and discusses the potential it has to be an efficient and practical approach for predicting buried archaeological sensitivity at a large regional scale.

Sloma, Robert Colville Confederated Tribes History/Archaeology Program
Colville Tribes Engaged in the Basin: FY2018 in Retrospect

The Colville Tribes History/Archaeology Program is assisting the Washington State Department of Ecology (Ecology) and Bureau of Reclamation (Reclamation) with cultural resource management in the Columbia Basin based on a cooperative agreement regarding implementation of the Odessa Subarea project. The Odessa Subarea project is a groundwater replacement effort under the Columbia Basin Project in eastern Washington State designed to deliver surface water from the Columbia River to lands that currently rely on an aquifer. Since 2015, one Colville Tribes Resource Specialist has reviewed and considered specific improvements proposed under the Odessa Subarea Special Study Area – Odessa Groundwater Replacement Program, and other undertakings within the broader Columbia Basin Project region to protect cultural resources and assert Tribal interests in Traditional Territory off reservation. A summary of Fiscal Year 2018 highlights goals and accomplishments under this mutual agreement.

Smith, Joshua The University of Western Ontario
Confluent Anthropologies: The Political Anthropologies of Phinney and Boas in Contemporary Contexts

This paper explores the political anthropologies of both Franz Boas and Archie Phinney as it relates to the issues of colonialism/decolonization in their own time and for contemporary challenges/struggles today, especially as it relates to the importance of land, language and Indigenous sovereignty. As a student of Boas', Phinney's work and correspondence reflect and amplify significant theoretical and methodical perspectives vital to Indigenous Sovereignty and Law today.

Smyrl, Anne University of Montana
Fold Along the Dotted Line: A Symmetry Analysis of Projectile Points from HP-54

This project explores the relationship between quantitative analysis of archaeological artifacts and the lived experiences of their original creators. A symmetry index was created and applied to an assemblage of projectile points from the Bridge River archaeological site in order to explore the relationship between knapping skill and point symmetry. Bilateral symmetry of projectile points is generally assumed to be a specifically desired trait, due to its formal advantages and difficulty of manufacture. In order to test this assumption in the case of Bridge River specifically, the selected projectile point assemblage contained points displaying a wide range of knapping skill, and the symmetry index was applied to determine the extent to which symmetry increased in combination with other hallmarks of knapping skill. Going forward, this analysis will contribute to larger questions of how novice knappers at Bridge River learned to perfect their craft.

Snyder, Daniel USDA-NRCS

Relocating a Hopkins site in Southwest Oregon using GPR, Magnetometry, and LiDAR

Remote sensing techniques were used in multiple ways (ground-penetrating radar, magnetometry, and LiDAR) in an attempt to relocate an extensive Pre-Contact site north of Ashland in the territory of the Upper Takelma, and first recorded in the 1970s by a student of Dr. Joseph Hopkins of Southern Oregon University. The site is on property currently owned by Willow-Witt Ranch, who have generously agreed to this ongoing fieldwork which was undertaken through the collaborative effort and resources of a federal agency, an Oregon Tribe, and an independent researcher.

Co-author: Jessica Curteman (The Confederated Tribes of Grand Ronde)

Solimano, Paul S. Willamette Cultural Resources Associates, Ltd.

Sedentism and Salmon Intensification along the Lower Snake River as seen at 45-FR-42, the Fish Hook Jim Site

Based on his work at 45-FR-5, Schalk (1983) presented a model of salmon intensification and reduced mobility during the last ca. 1,500 years along the Lower Snake River. In this paper we review this model using new data from 45-FR-42, the Fish Hook Jim Site. This site, which has a large cemetery and housepit village, was the focus of extensive looting and formal archaeological excavations in the late 1950s. Only burials were reported, however, with the housepits ignored. In a project funded and supported by the USACE and BPA, we analyzed the unreported housepit data. We compared our results to Schalk's model and while our data was not robust enough to test the entire model, we can support parts of it. We suggest other research avenues that would allow more comprehensive testing of Schalk's model.

Co-authors: Todd B. Ogle, Daniel Gilmour, Donald Shannon, Breanne Taylor, and Kanani Paraso

Solomonian, Adam Langara College, Vancouver BC

Memory at The Confluence of Family and Nation: shishalh Photographic Archives in the 21st Century

This paper reflects on recent fieldwork conducted with the shishalh Nation on the Sunshine Coast of British Columbia. The focus is on the digitization of family photograph collections for the purposes of producing a larger community archive. I will speak specifically about the 'act of transfer' (Taylor 2003) that occurs in such circumstances, when family property becomes National patrimony, and what this might reveal about the production of contemporary indigeneity.

Somers, Lew ArchaeoPhysics

Multi-method Geophysical Survey: Yakima Army Training Center Site Evaluation

Ground penetrating radar, magnetometry, and resistivity methods were applied in a pilot study for the US Army Yakima Training Center. This work is in support of minimally destructive evaluation of sites for the National Register of Historic Places. CWU deployed GPR and Lew Somers tested magnetometry and resistivity. Soils were too dry during July to use obtain resistivity

readings. GPR and magnetometry yielded correlated signatures for two features buried at a depth of roughly one meter. Images are processed in two software programs. Ground truthing is underway and survey target areas may be expanded this summer.

Co-authors: Steven Hackenberger (Central Washington University), James McLean (Central Washington University), Christy Johnson (Central Washington University), and Donald VanHeel (Eastern Washington University)

Stcherbinine, Sean Archaeological and Historical Services

Investigating the Potential for Deeply Buried Occupation Surfaces in the Moses Lake Dune Field, Grant County, Washington

The Moses Lake Dune Field formed from sands deposited by terminal Pleistocene outburst floods. Dune sands up to 6 meters deep contain two well understood strata denoting distinct lithologies of the flood path. However, landform evolution and the potential for deeply buried surfaces in the dune field remain unclear. Deep archaeological testing and column sampling were undertaken to investigate the potential for deeply buried cultural materials and occupation surfaces within dune sands active throughout the Holocene. Trench profiles were recorded, and column samples measured for grain size, acidity, and organic content, allowing pedostratigraphy to be documented and depositional history discussed. The Moses Lake Dune Field is increasingly being modified by development, agriculture, and borrowing. Results of this study will aid archaeologists when discussing potential impacts to cultural resources inside the Moses Lake Dune Field, as well as eolian environments of central Washington.

Stevenson, Alex ICF

Diatoms, Cordage, and a Brewery: Results of Archaeological Investigations and Monitoring for the Tacoma Trestle Project

Sound Transit's Tacoma Trestle Track and Signal Replacement Project in Tacoma Washington is wrapping up after nearly six years of cultural resource compliance. Archaeological monitoring of geotechnical bores in 2014 resulted in identification of an approximately 8000-year-old buried surface and cordage thought to be associated with the surface, approximately 60 feet below modern ground level. Subsequent mitigation of adverse effects to this presumed archaeological site (45PI1327) included detailed paleoenvironmental analysis of samples taken from 11 locations within the identified site area. In this presentation we share this paleoenvironmental data, results of cordage analysis, as well as results of near surface archaeological monitoring where remnants of one of Tacoma's earliest breweries were identified during construction activities.

Co-author: Michele Punke (Historical Research Associates, Inc.)

Stonehocker, Thomas Islandwood/University of Washington

Place-based Learning with Elementary Students in Seattle

How do young people think about the natural and human environments of Seattle? Tom Stonehocker proposes an environmental education curriculum that helps upper-elementary

students explore intersections of ecology, geography, and the social landscape of the city. Lessons contain a mixture of experiential outdoor learning and in-class learning grounded in NGSS standards as well as Common Core social studies standards. Each lesson centers around a different aspect of how human communities and ecological communities shape each other in Seattle. Students examine how changes reverberate across ecosystems, piece together local history, and propose solutions to issues faced by local communities. This presentation will chronicle the on-going development of place-based curriculum from the perspective of a Master of Education candidate from Islandwood and the University of Washington.

Sukau, Dana

Portland State University

Use of Backwards Design to Assess Public Engagement at the Archaeology Roadshow, Portland, Oregon

Public archaeology has grown in recent decades with increased recognition of the need to garner public support and increase accessibility of archaeology to a range of publics. While public outreach efforts have been increasing, there have been limited reflections on how we measure the effectiveness of our efforts. One approach used in the field of Education is Backwards Design, which focuses on clearly defining goals and methods of assessment for education or public outreach. We applied the Backwards Design framework to the design and implementation of an outreach activity at the Portland State University Archaeology Roadshow, 2018. The activity's purpose was to encourage visitors to take an active role in their visit to the event through engaging with presenters hosting booths and activities. We proposed this could be accomplished and the activity assessed by giving visitors a card with several questions they could pose at booths. Our poster reviews the promise and challenge of using Backwards Design in public archaeology.

Co-author: Virginia L. Butler (Portland State University)

Syverson, Laura

Equinox Research and Consulting International

Exploring the Role of Historic China-town in a Coastal Community in Western Washington

The historic district in downtown Port Townsend is a celebrated tourist destination that strongly embraces its cultural heritage and Victorian-style architecture. Despite this, there are aspects of downtown heritage that are not as widely shared, including historic Chinatown. In the Fall of 2018, ERCI was presented with the opportunity to highlight this and other lesser known parts of Port Townsend heritage when the need to replace Memorial Field light posts arose. During machine testing to find a suitable location for the new light post, ERCI identified several historic period items associated with the presence of historic Chinatown. The artifacts from 45JE408 are a physical reminder of this often overlooked presence of Chinese-Americans in Port Townsend history. This poster illustrates how these artifacts contribute to our understanding of the lives and experiences of Chinese-Americans in the coastal United States during the historic era.

Co-author: Kelly R. Bush (Equinox Research and Consulting International)

Taber, Emily Applied Archaeological Research, Inc.; Portland State University
Development and Application of an Economic Model of Fish Rank for Late Nineteenth-Century Pacific Northwest Households

Studies of historic fish archaeofaunas can contribute to our understanding of Victorian-era consumer choice and agency. The Pacific Northwest is an ideal setting for such studies, given the importance of fish to the regional economy and identity. Our project used detailed archival research of newspapers (1880-1910) to determine 1) which fishes were part of the market economy, 2) what portions available for sale, and 3) how cultural values impacted fish consumption. Over 60 different fish taxa were sold. We used fish prices to create a simple 2-part cost rank for fishes with multiple listings. Nonnative fish (e.g., bass) were the highest ranked, while Chinook salmon and catfish were among the low-priced fish. Archival results were used to contextualize findings from zooarchaeological analysis of fish remains recovered from features associated with a mostly middle-class neighborhood in Vancouver, WA. Results suggest residents purchased some fish but also acquired fish through sport and subsistence activity.

Co-author: Virginia L. Butler (Portland State University)

Taylor, Breanne Simon Fraser University/Willamette Cultural Resources Associates, Ltd.
Material Culture and the Social Dynamics of Residential Life at a Company Town: Archaeological Investigations at the Fairfax Townsite (45PI918), Pierce County, Washington

Fairfax, Washington was a thriving, company-owned coal mining and lumber town that operated between the late 1890s and 1941 in eastern Pierce County. The documentary record and material culture of Fairfax substantiate that, like most company towns in the western United States the place was an ethnically diverse, male-dominated, and isolated settlement under paternalistic management. The town was shaped by the social dynamism of its residents and their access to opportunity and to the material world. Initial archaeological investigations at Fairfax in the summer of 2018 unearthed more than 4,000 artifacts that reflect the everyday lives of working people, including a large foreign-born population from over twenty countries, including Italy, Germany, Greece, Norway and Japan. Work at the Fairfax Townsite (45PI918) addressed themes of community and division on the basis of race, ethnicity, gender, and class which are visible through demographic and archaeological analysis. At the intersection of these constructs lies a story previously untold about the peoples of Fairfax.

Thiel, Samantha Eastern Washington University
A Hard Kind of Labor: An Archaeological Analysis of Small-Scale Hard Rock Mines in Northeast Washington

Small-scale mining sites are found throughout the Colville National Forest, but relatively few have been explored archaeologically. This paper presents the preliminary results of investigations at the Road 306 Mining Camp, a site comprised of two standing structures, three open cuts, and a scattering of surface artifacts. This ongoing research compares the Road 306 Mining Camp to nine other mines that operated in the forest and its environs during the early 20th century. GIS was used to compare the sites based on spatial location, scale, and types of artifactual materials present to create a hierarchy of mining types in the region. The results place the Road 306 Mining Camp in context with the early industrial use of the Colville National Forest and helps to fill a gap in our understanding of the mining history of the region.

Tipton, Katherine

Portland State University

Archaeologists, the Public, and Collectors: Establishing a Regional Database of Archaeological Sites on Private Land and Collections in Private Hands in the Portland Area

Over the course of daily life, people encounter and engage with archaeology in various ways, including experience with archaeology on their own land and as part of family collections. As a result, members of the public can hold considerable knowledge and insight regarding the location, character, and larger significance of archaeological sites relative to their lives. As a result, the public is a key source of heritage knowledge. Because of the complexities of professional-public relationships in the Portland area, it is critically important that we actively facilitate collaboration to systematically gather information about archaeological sites and collections in this region. The goal of my research is to establish a systematic process for collecting and investigating information about archaeological sites on private land and collections in private hands. My thesis research will build mutual professional-public understanding of local heritage while addressing several questions that surround public archaeology and professional-public collaborations in archaeology.

Co-author: Shelby Anderson (Portland State University)

Triplett, Mallory

Central Washington University

Preliminary Study on the Context and Movement of Tachylyte, a Unique Volcanic Glass in Washington State

Tachylyte is the name for a volcanic glass derived from basalt, as distinguished from obsidian which is rhyolitic. There are six known tachylyte source locations in Washington, but these are underrepresented in the Pacific Northwest toolstone literature, leaving an incomplete picture of the pre-contact toolstone landscape. Due to this lack of literature, my proposed thesis research will address this data gap and compile what is known about tachylyte both in geologic and archaeological contexts. This poster will provide preliminary results. Additional thesis work will include laboratory work identifying characteristics of tachylyte, an analysis of tachylyte occurrence in archaeological assemblages, and potentially identification of tachylyte sources. It is expected that this study will add to the sparse information on tachylyte and help contribute to the literature on the toolstone geography of the Pacific Northwest.

Tushingam, Shannon

Washington State University

Women and Leadership in the Columbia Plateau

Women played a critical role in storage based hunting, gathering, and fishing economies throughout western North America, yet the archaeological literature rarely acknowledges the full reach of their economic contributions “beyond processors” as well as the active role of women in decision making in these societies. In the Columbia Plateau, ethno-historic data clearly show that women filled important leadership roles, were independent property owners, and were key players in household production dynamics, not only in terms of their economic contributions but also as leading actors in the direction of surplus production and settlement. In this paper we argue that women were huge drivers of the pre-contact system as well, and that they fundamentally influenced the development of small autonomous social units and household fluidity in the region. Evolutionary perspectives on leadership, decision making, and

the opportunity costs of childcare are discussed, as well as why such dynamics are important to understanding intensification and house-related developments particularly in the late Holocene.

Co-author: Tiffany Fulkerson (Washington State University)

Tveskov, Mark Axel Southern Oregon University
Scorched Earth: The Military Campaign on the Lower Rogue River, 1856

On February 22, 1856, the Tututni, Joshua, and Mikonotunne of the lower Rogue River of southern Oregon joined the larger rebellion against settler colonialism known as the Rogue River War. After initial successes, the indigenous forces were finally defeated by the United States Army, and most of the survivors were removed to the Coast Indian Reservation. This paper presents the results of ethnohistoric, cartographic, and archaeological research at several sites associated with the lower Rogue Campaign, including a settler fortification and the site of the Battle of Big Bend, where the rebellion ended. Among other insights, this research challenges the long standing trope of this and other indigenous wars as irrational “uprisings” against the advance of the frontier.

Vance, Emma University of Montana
Investigating Mobility and Subsistence Organization through Lithic Technology at 48PA551

The well-known Middle Archaic site, 48PA551, in northwestern Wyoming, was originally described as a single McKean Complex occupation. New data from 2018 now suggest the possibility of two occupations. This provides the opportunity to consider the connection between the organization of lithic technology and mobility/subsistence organization between the two occupation periods. Current data imply a high degree residential stability and likely use of logistical mobility during the early occupation followed by a shift to much less stable residential pattern in the latter occupation. Lithic assemblages excavated in 2018 can provide detailed insight into technological decision-making associated with these alternative organizational scenarios. Thus, this poster explores new insights into Middle Archaic/McKean Complex socio-economic strategies drawing data from analyses of tool manufacture, use, and transport patterns for a variety of raw material sources.

Co-author: Anna Prentiss (University of Montana)

Wallen, Dakota Washington State University
Inhabiting the Impassable: The Archaeology of Precontact Houses in Hells Canyon

Hells Canyon is one of the most rugged places in North America and was deemed impassable by Euro-Americans visiting the area in the early 1800s. Despite the rugged terrain, Hells Canyon was extensively occupied before Euro-American contact. At the northern mouth of the canyon at Hells Gate State Park is located the largest house on the plateau. There are more than 550 reported house depressions within the National Recreation Area that encompasses the area from Hells Canyon Dam to China Gardens at the Idaho, Oregon, Washington borders. Many more house depressions and villages are located between the town of Asotin and the Washington/Oregon state line. Because much of Hells Canyon was never dammed, relatively few

excavations have been carried out in the canyon. What excavations have been carried out, such as at Kirkwood Bar, Pittsburg Landing, and Hells Canyon Creek have been fruitful in providing details about the precontact architecture of the southeastern Columbia Plateau.

Welch, John

Simon Fraser University & Archaeology Southwest

Landscapes, Consultations, Archaeologies: Global Dynamics, Local Leadership, and the Promise of Full-Spectrum Heritage Resource Management

The greatest innovations in historic preservation and cultural resource management have come not from academic or applied archaeologists, but from Indigenous people. Consistent and creative insistence on true consultation and on attention to geographical and social site contexts have been especially consequential, as reflected in federal legislation, in archaeological theory, and in many spheres of professional practice. These advances have positioned archaeology to lead a new era of cultural resource management, a mode of practice dedicated to conserving the full spectrum of values embedded in the full spectrum of cultural resources on the basis of inclusive consultations that leave open options for deploying the full spectrum of management options to engage cultural resources in addressing real-world problems in education, land management, job creation, intercultural reconciliation and whatever else needs attention.

Wessen, Gary

Wessen & Associates, Inc.

Exploring Faunal Assemblages to Identify Ethnic Groups: Makahs, Quileutes, and Shell Middens on the Northwestern Olympic Peninsula of Washington

Ethnographic descriptions of the Makah and Quileute peoples indicate that there were differences in the resources base used by each group which should be detectable in the archaeological record. While a significant amount of data from coastal shell middens is available for this area, the latter are constrained by a number of significant chronological, geographic, and methodological biases. This paper reports initial efforts to address such problems and preliminary findings suggesting that there may be faunal assemblage characteristics which reflect the ethnic identities of their creators. Both bone densities and the relative proportions of some animals - - or groups of animals - - appear to be different in the two territories.

Co-author: Stephen Samuels (Wessen & Associates, Inc.)

Weygint, Conner

University of Idaho

Tools of the Trade: Hand tools from a Chinese mining site in Idaho's Boise Basin

During the summer of 1987, Sagebrush Archaeological Consultants conducted archaeological test excavations and minor surface collection at a historic Chinese mining camp near Idaho City, Idaho, at the request of the Boise National Forest. This excavation was conducted to evaluate site integrity and determine the extent of damage done by modern mining efforts at an adjacent parcel. Although much of the site's surface had been destroyed, several undisturbed subsurface deposits were discovered. Excavations in the undisturbed area of the site revealed a concentrated amount of material culture consisting of Chinese porcelain and stoneware sherds, opium tin fragments, and a small assemblage of tools associated with the camp and mining operations. Among the tools found were shovel blades, wedges, and other hand tools that are

poised to yield additional insights into the lives of Chinese immigrants in the mining industry and the technology they used in the process. This poster presents an analysis of the recovered tool assemblage.

Co-Author: Josh Krause (University of Idaho)

Williams, Scott WSDOT

The National Register Eligibility of a Transportation Icon

The Type 2 Transporter is an engineering marvel and an icon of various counterculture movements in what was perhaps one of the most turbulent periods of cultural change in US history. This paper examines the NRHP eligibility of a unique Type 2 Transporter and what that determination of eligibility means in the broader field of cultural resources management and the application of Criterion A of the National Register to sites, structures, or objects of routine engineering or occurrence.

Withee, Katee US Forest Service, Malheur National Forest

Stacked Rock Features: Archaeological Evidence of Chinese Occupied Sites on the Malheur National Forest

Chinese immigrants found opportunity in the Blue Mountains of Eastern Oregon, including placer mining for gold and residing in nearby camps. Many of these locations are now archaeological sites where stacked rock features have been successfully used for site identification. These features are often archaeological remains of hearths and have associated materials suggestive of 19th century Chinese habitation, including ceramic fragments, canned goods, and other imported items. These features appear unique to Chinese habitation. The volume of these sites indicate that the majority of historic placer mining habitations on the Malheur were occupied by Chinese groups. Western tropes often portray the mining population as solitary white prospectors, when in actuality the majority of placer miners in this area were members of organized Chinese labor and mining companies. The recognition of these unique stacked rock features should contribute to the identification of additional Chinese occupied archaeological sites.

Wu, Shuxi University of Oregon

Transient Professionals: Asian Employees and the American Transnational Corporation

This paper examines skilled migration of corporate employees from developing Asian countries to the United States, using two athletic footwear corporations in Portland, OR as examples. I aim to contextualize this migration in the field of the global commodity chains (GCC) of athletic footwear and point out how this field conditions the identities of migrants by shaping migration channels, with critical implications for post-migration experiences. Drawing on twelve interviews and ethnographic fieldwork conducted over four months, I first examine migrants' motivation and migration process, pointing out how interpretations of mobility is tightly linked to the GCC field. I then interrogate post-migration experiences and show that migration in the GCC generates unique, post-migration identities and thus distinct challenges

in the new workplace. These findings shed light on experiences of skilled corporate migrants from developing countries, rarely discussed in current literature but nevertheless constituting interesting contrast to experiences of “traditional” expatriates.

Wyatt, Noella

Central Washington University

Sustaining Collections Research and Management: Tryon Creek House 2 (35WA288), Hells Canyon National Recreation Area

The USFS continues to provide support for curating the collection generated by two summers of PIT project (1991- 92). CWU students and volunteers continue to rehouse the collection and create digital records for the project. Two example research problems are presented: 1) yellow and red ochre use, and 2) red glassy basalt point production and maintenance. Students continue to learn best practices in collection and data management while developing critical thinking needed to test alternative working hypotheses. Both examples show discrete activity areas within different occupation layers within the house (circa A.D. 500 to 1500). Ongoing work with the collection demonstrates the value of sustained curation activity for improving the organization of materials and quality control for data. Management problems and recommendations are also outlined.

Co-Author: Cindy Morales (Central Washington University)

Zavala, Brisa Sanchez

Washington State University

A Motley Crew of Experimentors: Preliminary Residue Analysis of Created Molcaxitl Artifacts

There is ongoing research focused on the contemporary and past use of traditional medicine in indigenous communities of the Americas; however, there are few comparative studies. This research aims to identify *Psidium guajava* L. (a medicinal plant presently used by Nahua communities in Mexico) in experimental molcaxitl artifacts. Identification of key compounds done through gas chromatography-mass spectroscopy (GC-MS) and liquid chromatography-mass spectroscopy (LC-MS). Positive results could lead to an analysis of additional medicinal plants, the inclusion of additional materials, and analysis of artifacts dated pre-contact to modern times. Residue analysis of a timeline of molcaxitl could lead to determining medicinal plant usage over time. With this knowledge, we could deduce what illnesses and medicinal practices were most prevalent across different periods ultimately leading to theories of varying plant usage due to epidemics, loss of flora, or other internal and external factors, which can then aid in the preservation of traditional medicine in Mesoamerica and beyond.

Co-authors: Shannon Tushingham (Washington State University), Anna Berim (Washington State University), Jorgen Gang (Washington State University), and David Gang (Washington State University)



As one of the nation's largest cultural resource management firms, TRC has worked with a broad range of private- and public-sector clients to identify and address vital cultural resource concerns. We maintain long standing relationships with local, state and federal regulatory agencies, which allows us to guide our clients' projects through the review process swiftly and successfully. Our cultural resource services include:

- Cultural Resource Compliance Planning
- Background Studies & Constraints Analyses
- Historic Preservation Plans
- Tribal Consultation
- Memoranda of Agreement & Reburial/Repatriation Agreements
- Archaeological Surveys
- Site Testing & Mitigation
- Archaeological Monitoring
- Cemetery Delineations & Removals
- Historic Structures Surveys & Evaluations
- Traditional Cultural Properties & Ethnographic Surveys
- Historic American Buildings Surveys (HABS) & Historic American Engineering Record (HAER) Documentation
- Ceramic Analysis
- Lithic Analysis
- Faunal Analysis
- Historic Artifact Analysis
- Dating Studies
- GIS Mapping & Data Analyses

TRC
2701 First Avenue, Suite 400
Seattle, WA 97121
206.757.3223
trcsolutions.com





 @directams
 @directams
 @direct_ams

Graphite	\$99
Pretreated	\$214
Shell	\$239
Sediment	\$279
Organic	\$299
Bone	\$349

Results reported in 4-6 weeks.
Express service available.
Complimentary consultations.

Visit us at DirectAMS.com



ANTHROPOLOGY and MUSEUM STUDIES

at CENTRAL WASHINGTON UNIVERSITY

PROGRAMS:

- Anthropology (BA, BS)
- Anthropology Bridge (BA)
- Minors in General Anthropology, Museum Studies, Anthropology Online
- Certificates in Captive Primate Care, Forensics
- Double major in Primate Behavior
- Graduate programs in Primate Behavior (MS), Cultural and Environmental Resource Management (MS)

2019 FIELD SCHOOLS:

- Archaeology in Washington State
- Bioarchaeology in Ecuador
- Forensic Anthropology
- Primatology in Bhutan

Conduct faculty-mentored research
Learn from award-winning faculty
Enjoy small classes

JOIN US FOR NWAC 2020!



Central Washington University
400 E University Way, Ellensburg, WA 98926-7519
cwu.edu

Anthropology and Museum Studies
anthro@cwu.edu • 509-963-3201
cwu.edu/anthropology

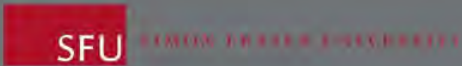
CWU is an EEO/AA/Title IX Institution. For accommodation email: DS@cwu.edu.



????
WISAARD
help desk

✉ support@dahp.wa.gov

Stop by our table and see the new and improved WISAARD!



HERITAGE RESOURCE MANAGEMENT

A professional online master's program built by and for cultural heritage management practitioners.

Choose from a thesis-based MA or a coursework-only certificate, both offering integrated study of HRM's ethical, legal, business, and research priorities. Online coursework accommodates students with family and professional obligations. MA thesis requirements comport with Register for Professional Archaeologists (RPA) and other jurisdictional standards.

SFU is Canada's #1 rated comprehensive university and the only Canadian research university fully accredited in the United States.

SFU Archaeology ranks 3rd in North America in H-Index citations (2018).



ARCHAEOLOGICAL INVESTIGATIONS NORTHWEST, INC.

CULTURAL RESOURCE SERVICES

SERVING THE PACIFIC NORTHWEST FOR 30 YEARS

AINW is one of the most highly qualified cultural resource management firms in the Pacific Northwest. We provide a full spectrum of cultural resource consulting services and specialized archaeological services.



ARCHAEOLOGY



OBSIDIAN HYDRATION
DATING

CONTACT US

Phone : 503-761-6605
Email : info@ainw.com
Web : www.ainw.com



ARCHITECTURAL
HISTORY & HISTORY



GEOARCHAEOLOGY



LITHIC TECHNOLOGICAL
ANALYSIS & WORKSHOPS



ETHNOGRAPHY

AINW
3510 NE 122nd Avenue
Portland, OR 97230



BLOOD RESIDUE ANALYSIS



OSTEOLOGY



206.823.3394 (Seattle)
208.528.8718 (Idaho Falls)

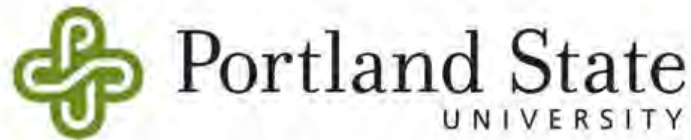
NORTHWIND RESOURCE CONSULTING

Edgar Huber
Principal Investigator
ehuber@northwindgrp.com
520.904.5247



NORTH WIND RESOURCE CONSULTING, LLC – a CIRI company – provides full service cultural resources consulting, geographic information systems, National Historic Preservation Act (NHPA), and National Environmental Policy Act (NEPA) compliance. NWRC maintains offices in Seattle, WA, and throughout the United States – and is comprised of professional cultural resources staff spanning qualifications and experience in various aspects of cultural resources management.

www.northwindgrp.com



Department of Anthropology

BA/BS – MA/MS

**ENVIRONMENT • HEALTH • BUSINESS •
HERITAGE • DISASTER**

AHA!

Architectural History & Archaeology! LLC

Architectural History & Archaeology! LLC
(AHA!)

509.998.5074

206.353.2186

ann@AHAexclamation.com

fran@AHAexclamation.com

109 S. Holiday Road

Spokane Valley, WA 99016



Cultural Resources, Cultural Values

The 2019 Cultural Resource Protection Summit marks our 12th gathering. A dozen years of Summiting! We are still hard at work fulfilling the mission we have had since the Summit's inception: *The primary goal in organizing the annual Summit has been to facilitate amongst all affected parties an open, frank discussion about the intersection between cultural resources and land use. The Summit is designed to promote collaborative cultural resource planning as an effective means of finding resolution to issues before they escalate into emotionally-charged, divisive, and expensive stalemates or law suits.*

Please join us at the Suquamish Tribe's beautiful and inviting House of Awakened Culture for a two-day gathering that will help you improve your technical skills while deepening your connection to why we do this work. Leave with more tools for protecting cultural resources and sharing the important stories they tell, not to mention new allies and friends.

- Early Bird Registration Now Open - Visit www.theleadershipseries.info for special rates and to register online!
- Students: Email Mary Rossi at Mary@eppardvision.org for information about student rates!
- Go to the website and enter to win a free registration!! One award will be made in each of these categories: Tribes, agencies, consultants, students



Providing award-winning consulting for more than 30 years.

Cultural Resources Management services include:

- ▶ Cultural Resources Assessments to comply with Section 106, Executive Order 05-05, NEPA, & SEPA
- ▶ Cultural Resources monitoring during construction
- ▶ Cultural Resources testing and data recovery
- ▶ Historical GIS map progressions
- ▶ Historical research



Engineering • Transit • Planning/Traffic • Environmental • Construction Management
Emergency Preparedness • Cultural Resources Management • Energy Services • perteet.com



Bag Sponsor



Student Paper Prize



Ice Cream Social

Thank you Kevin Lyons!