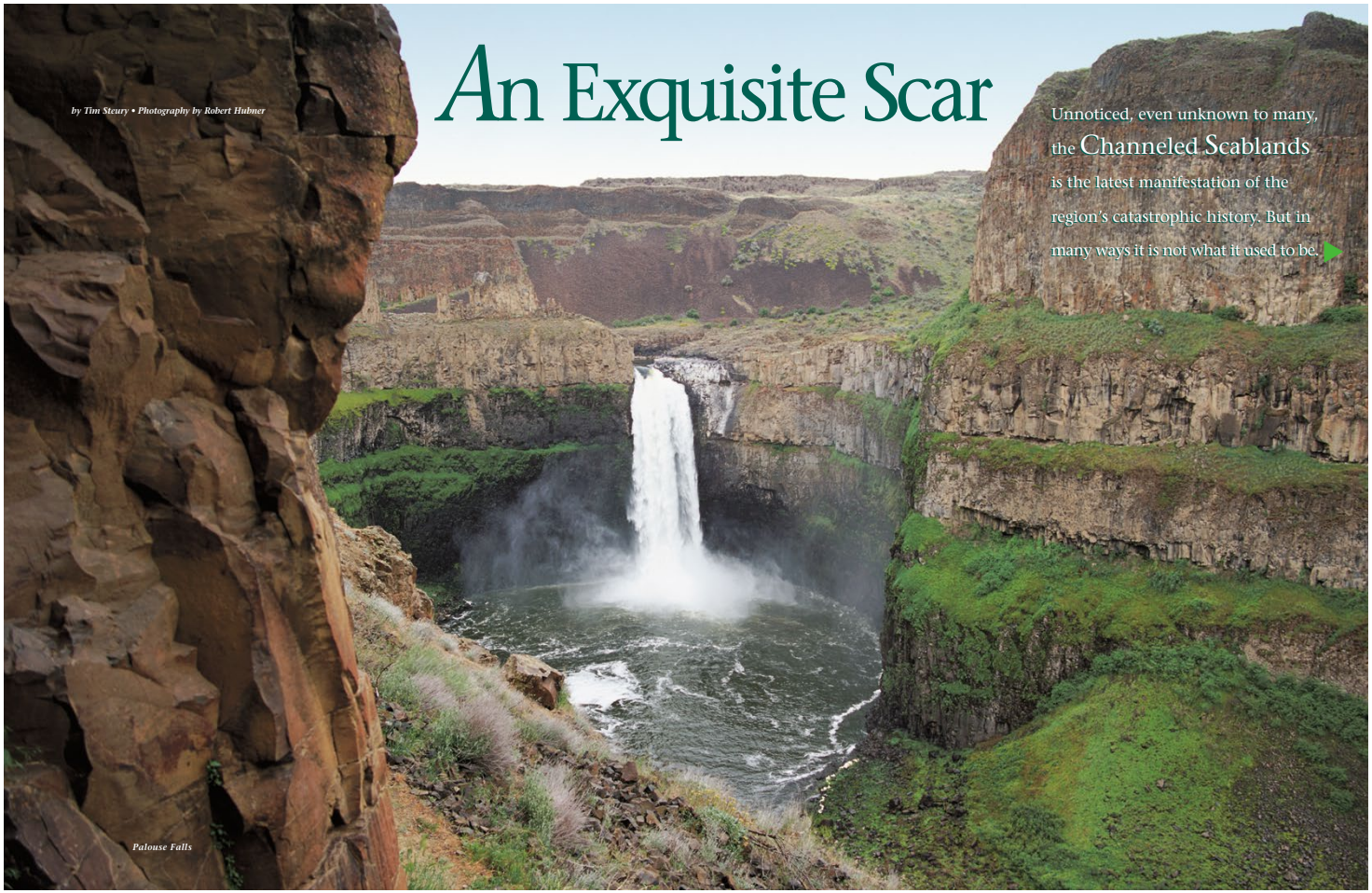
Because I’m the Editor, That’s Why

An Exquisite Scar

by Tim Steury • Photography by Robert Hubner

Unnoticed, even unknown to many, the Channeled Scablands is the latest manifestation of the region's catastrophic history. But in many ways it is not what it used to be.



Palouse Falls

N 47° 21' 36" | W 120° 17' 10"

WENATCHEE HEIGHTS PHOTO BY ZACH MAHAN

Two generalizations and a caveat:

- The editor's job is to see the obvious.
- Beyond that, the editor's job is to define and assign the story, know it inside out, then allow designer and photographer to create their visions of it.
- Consistency is the enemy of beauty.

N 46° 36' 53.21" | W 118° 12' 9.33"

BACK *in the* EARTH

Putting ancestors to rest, *or* destroying the past?

:: *by Tim Steury* ::

THE MOOD IS DECIDEDLY UPBEAT on this beautiful June day on a bluff above the confluence of the Snake and Palouse rivers. Sixty or so people have gathered, a diverse bunch, tribal members from the Nez Perce, Colville, Yakama, Wanapum, the regional commander and other representatives from the Army Corps of Engineers, a number of archaeologists from across the Northwest. Earlier this morning, a few of the Indians had gathered in the basement of College Hall, the home of WSU's anthropology department, with Wanapum leader Rex Buck Jr. as he blessed the remains of their ancestors they were about to rebury.

SCOTT SPEAKES/CORBIS *PHOTO OVERLAYS COURTESY WSU MUSEUM OF ANTHROPOLOGY*

NOW, ON THE BLUFF, while Buck and other elders sing, a couple of younger men pass boxes of bones to another man in a freshly dug grave. He gently sets the boxes down and covers them with tule mats. He climbs out and various men take shovels and start reburying the ancestors, this time they hope for good. Some of these remains had lain just upriver from here for 10,000 years. But their original graves are now deep under the waters backed by the Lower Monumental Dam. At least, say the elders, now they are back in the ground where they belong.

If you climb the rise to the east of the burial site and look down on the Palouse River, you can see a curved hollow of basalt, all that remains above water of the ancestors' home. From the floor of the rock shelter, now 40 feet underwater, and the floodplain before it, WSU archaeologists in the 1960s recovered the remains of at least 45 people, some more than 10,000 years old. After measurement and study, the remains had been stored, under the authority of the U.S. Army Corps of Engineers, on the WSU campus.

Across the country, over the last two decades the movement of native remains has reversed, moving since the passage of the Native American Graves Protection and Recovery Act (NAGPRA) of 1990 from storage back to the Earth. NAGPRA legislation requires federal agencies and entities that receive federal funding to return human remains and cultural items in their possession to their affiliated people. According to NAGPRA figures, as of last year more than 38,000 human remains had been repatriated. However, it is estimated that another 118,000 are still in museum storage.

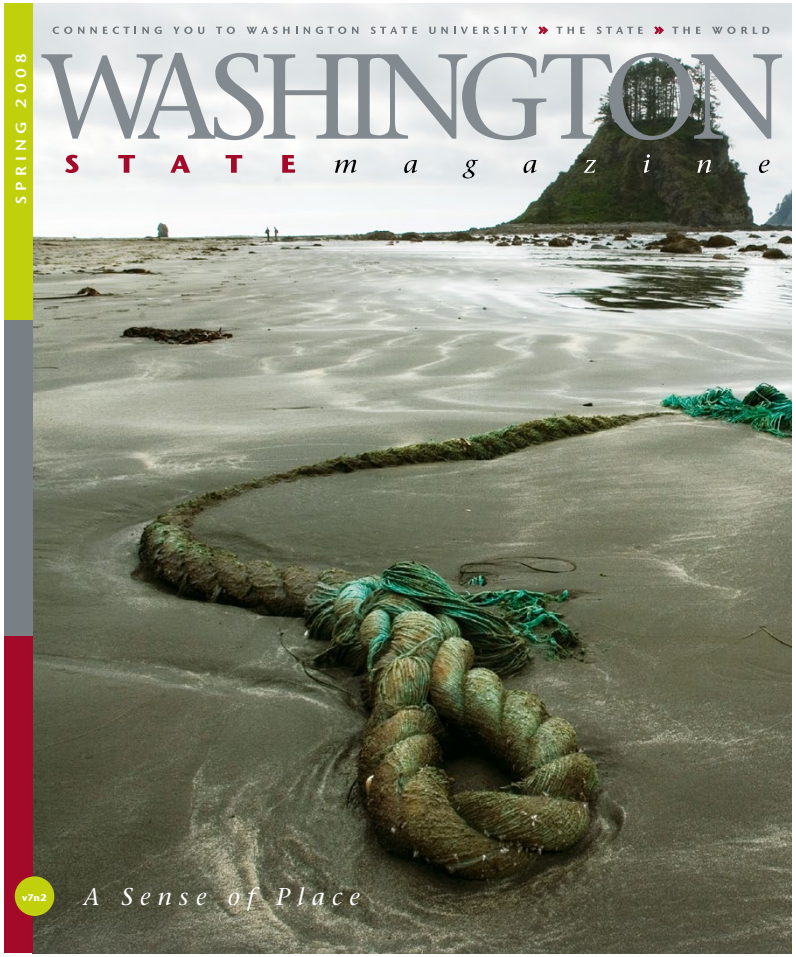
Although archaeologists now use careful protocols for handling human remains, earlier practice was not so discreet. Convinced that the collection of Indian skeletons could serve science, early archaeologists and other collectors gathered bones from battlefields and old cemeteries and sold them or sent them back east to the Smithsonian Institution. As Franz Boas, the "father" of American anthropology, wrote, "It is most unpleasant work to steal bones from a grave, but what is the use, someone has to do it."

The Marmes remains were recovered and stored at WSU under less cavalier circumstances, part of an intense campaign to save them and other remains from inundation.

What also sets the Marmes remains apart from most repatriated remains is their great age. Most repatriated remains are relatively recent. It is not unusual for a modern Indian to have attended the reburial of his or her great-grandparents. The extraordinary age of the Marmes remains tested the NAGPRA language that requires establishment of "cultural affiliation" for the remains to be reclaimed by tribal representatives.

Nevertheless, in 2006, the Confederated Tribes of the Colville Reservation, the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes and Bands of the Yakama Nation, and the Wanapum Band joined in submitting a NAGPRA claim for the return of all human remains and funerary objects from the Marmes collection. The remains, under the jurisdiction of the U.S. Army Corps of Engineers, were stored at WSU. At first, the Corps denied the request for certain remains because they did not fall under the act's definition of "Native American."

The tribes disputed the ruling and insisted there was a clear affiliation to the Palus people—and therefore to the claimant tribes, all of whom had clear relations to the Palus, whose main village was long located at the confluence of the Snake and Palouse rivers.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A Sense of Place


A Sense of Place

The HOME of MY FAMILY:
Ozette, *the* Makahs, *and* Doc Daugherty

In spite of the four-mile hike in to the site, thousands of people visited.

Daugherty was adamant that the work be accessible to the public. He believed that if the public was paying for archaeology, they should be able to visit and participate in the revealing of our collective history.

Greg Colfax, a Makah artist and fisherman who grew up in Neah Bay, was a teenager when the dig began.

"I went down there and was looking around," he says. "They said 'you can come down here. Makahs are welcome.'"

So Colfax went to Seattle, bought himself a backpack and sleeping bag, and lived in the new Ozette for the summer.

"It was the home of my family," he says. "I'd come back home and tell my grandpa about it. He'd say, 'You're going home, boy.' He had a lot of Ozette stories. He lived down there. He hunted out of there, hunted fur seals."

Makahs had lived in Ozette for 2,000 years and probably much longer. The village had been abandoned for only 60 years, and many Makahs still went there to fish and hunt. Many had lived in Ozette, or had parents or

In the summer of 1948, with his wife and young daughter, Richard Daugherty began working his way up the Washington coast, interpreting a proud story of a beautiful land.

grandparents who had lived there. One elder called the exposure of the longhouses by the storm "a gift from the past."

When the archaeologists would find something they couldn't identify, says Colfax, "they came back to Neah Bay and talked with the old folks.

"What did you use this for? What is this? That's a game. That's a paddle. The kids were playing games by where the fish were hanging and kept the birds away."

There was much occasion to confer with the elders, as the contents of the three longhouses eventually excavated were incredibly diverse and plentiful. According to *Archaeology in Washington*, coauthored by Daugherty and Ruth Kirk, "By the time the excavation closed in 1981, the printout for the site listed 40,000 structural remains varying from entire support posts and beams, wall planks, and roof planks to fragments as small as splinters; uncounted wood chips and other debris; a million animal and bird bones and shells; and 55,000 whole artifacts and pieces of artifacts …; catalog entries … enumerate 1,434 arrow shafts; 103 bows; 110 harpoon shafts; 629 halibut hooks and hook shanks; 324 canoe paddles; 840 wooden boxes; 112 wooden bowls; 46 game paddles; 1,160 wedges; 579 whetstones; 30 iron blades (the metal probably from disabled ships that drifted across the Pacific from the Orient); 1,000 baskets (half of them intact); 80 tumplines; 41 cedar-bark harpoon sheaths; 13 looms."

Three houses. And this is just a partial list. What it reveals is an extraordinarily complex culture. The numbers do not indicate the beauty and artistry of many of the items, even the most mundane.

The artifacts also reveal a rare glimpse of coastal culture in general. Nearly all coastal native technology before European contact was based on wood. As it decays so quickly, a wet preserved site such as Ozette offers extraordinary insight into that technology.

Wood, of course, was also the construction material for the longhouses themselves, built of long cedar planks up to three feet wide.

Canoes of all sorts—whale-hunting canoes, seal-hunting canoes—were carved from whole cedar trunks. Canoe accessories, the paddles, bailers, storage boxes, were all wood.

Stopping briefly on the trail down to Ozette, Gleeson, who wrote his dissertation on the wood technology, speaks with wonder and excitement of co-worker Jan Friedman's first realization decades ago of how the Ozette people made the wedges they used to split the cedar planks.

The wedges were not made from harder inland yews, but rather from local spruce, assumed to be much too soft for such a use, even with cedar. What Friedman finally realized, Gleeson explains, spreading his arms like spruce limbs to demonstrate, is that they used the compression wood, the denser wood that makes up the bottom of the limb, which makes it possible for a limb to span seemingly impossible distances.

The expertise and knowledge the Makah had gained from centuries of observation and experimentation were revealed throughout the houses. Carving knives were made from beaver teeth embedded in a wooden shank. Mussel-shell harpoon blades and elkhorn barbs were swathed in cherry bark strips.

Another fortuitous gift was the fact that portions of the longhouses were workshops, with tools and other household objects in various stages of production, thus giving Gleeson and others an unprecedented opportunity to understand the manufacturing process of many of the artifacts.

A FREQUENT VISITOR to the Ozette site was Ruth Kirk, who, often, with photographer husband Louis, documented much of Northwest archaeology and natural history, including, eventually, Ozette.

"I first went out in 1966," says Kirk. "I already had many Makah friends."

What attracted Kirk to the enterprise was the interdisciplinary effort, all focused on one question. That, and the powerful sense of camaraderie. "There's something about working in dust and mud," she says. "The Ozette people were like family."

Kirk wrote, with Daugherty, the most comprehensive account of Ozette, *Hunters of the Whale*, a book for juvenile readers. She published the book in 1974, not even halfway into the whole expedition. Still, it captures beautifully the complexity and wonder of the site, also expressing an approach and attitude she stated recently. "The more we know about the state in which we have our dance with life, the more invigorated and content and responsible we are."

The author of nearly 30 books, many about the Northwest, Kirk often wrote about and collaborated with Daugherty. After their respective spouses died, Kirk and Daugherty married, in a ceremony in a longhouse at Neah Bay.

The HOME of MY FAMILY:
Ozette, *the* Makahs, *and* Doc Daugherty

PHOTO/ILLUSTRATION

JANINE BOWECHOP was a little girl when the Ozette longhouses were unearthed. She is now the executive director of the Makah Cultural and Research Center, as well as the Tribal historic preservation officer. As we talk at the center in August, she worries that it will rain tomorrow, the beginning of the annual Makah Days. The school gym, where the dancing usually occurs, is being renovated, so the dancing will have to take place outside.

Bowechop must have guessed that I started out with the premise that the Ozette dig revived Makah culture, which I believed before I knew anything about the Makahs. I had long since abandoned that notion; nevertheless, Bowechop politely, but firmly, makes sure that I am disabused of such a misperception.

"The Makah were not fading away before the excavation," she begins. "The Makahs would not have stopped singing family songs, wouldn't have stopped preserving the language if it weren't for the excavation."

Apparently satisfied that her point has been made, she talks about what the 11-year excavation did do. It drew young people into "the process of excavating our past. They learned the science of archaeology."

The experience was one of acceleration, she says. By visiting the site, and living with its presence, and working with the artifacts, many learned much about Makah fishing and hunting technology and ritual in a short period.

"It was an intensified learning process," maybe generating more meaningful questions than would have arisen otherwise. "But I would never go so far as to say that it caused a revival of Makah culture."

As unique as the Ozette excavation was in so many ways, it also stood apart, at least from more traditional archaeology, in that nothing from the site left the Makah reservation. Everything discovered there is either displayed here in the cultural center or stored in the state-of-the-art storage warehouse. The museum is expertly curated and beautiful, the artifacts mesmerizing.

One would assume that there was occasional friction, as was often the rule in earlier Native archaeology. But Bowechop attributes a large share of credit to Daugherty for the project's success with the tribe.

"Doc Daugherty was brilliant with PR," she says. "He knew to create relationships among the whole tribe, not just work with two or three people. He knew he had to connect with a wide range of elders."

She turns now to Paul Gleeson. "Paul knows as much about Makah prehistory as anybody. He's the perfect person to be working for the park. When it comes to cultural resource management, I think the Makahs and the Olympic National Park have a better relationship than you might see across the whole country. So much of it has to do with the time he [Gleeson] spent at Ozette."

SHARON KANICHY, who was born the month of the auspicious storm, now teaches history at the high school in Neah Bay.

"Growing up, I thought, well, Ozette was this archaeological dig. I didn't realize it was this great find. I didn't realize it was a temporary deal. I didn't realize the impact on fishing rights for all the Indians of Washington. It was just a part of my life."

But now, as a history teacher, she marvels at the added dimension to the history of her people and of Washington.

"I teach Washington history," she says. "Kids will see something [from Ozette] in the textbook, and they'll say, oh look, that's in the museum."

Above, left to right: Janine Bowechop is executive director of the Makah Cultural and Research Center in Neah Bay. Sharon Kanichy *(back row, right)* teaches high school history in Neah Bay. She was born the month of the storm that exposed Ozette to the world.

For more photos of Ozette and Neah Bay, visit *Washington State Magazine Online*, wsm.wsu.edu.

Interpretations of a culture

The archaeological wealth of the Ozette dig produced an extraordinary nine doctoral dissertations and many master's theses. The titles of the dissertations suggest just how much the site had to offer:

The prehistoric uses of wood at the Ozette archeological site. Janet Friedman. 1975. :: *An archaeological survey of Makah territory*. Edward Friedman. 1976. :: *Basketry from the Ozette Village archaeological site*. Dale Ross Croes. 1977. :: *Shed roof houses at the Ozette archaeological site*. Jeffrey E. Mauger. 1978. :: *Ozette woodworking technology*. Paul F. Gleeson. 1980. :: *Shell middens as cultural deposits*. Gary Charles Wessen. 1982. :: *Ethnobotany of the Makah and Ozette People, Olympic Peninsula, Washington (USA)*. Steven J. Gill. 1983. :: *Mammals and fish in the subsistence economy of Ozette*. David R. Huelsbeck. 1983. :: *Spatial patterns and cultural processes in three northwest coast longhouse floor middens from Ozette*. Stephan Richard Samuels. 1983.

The tribes commissioned independent archaeologist Darby Stapp, who has three decades of archaeological experience in the Columbia River drainage, to assess the Corps's determination that the remains were not Native American. As the assessment was nearly finished, however, the Corps reversed its decision and determined that the remains were affiliated to the Palus people and were also "Native American," though it should be noted that NAGPRA considers these as two separate designations.

The establishment of cultural affiliation is based on several factors. Geography is a major one. The Palouse River canyon, as Stapp points out in his report, is "one of the longest occupied and culturally rich landscapes in the southern Plateau." The Palus have long occupied the area, and the main village at the confluence of the Palouse and Snake was still occupied at the turn of the 20th century.

Biological evidence for affiliation relied mainly on the simple description of remains by WSU physical anthropologist Grover Krantz:

"The remains are of modern *Homo sapiens* anatomy and do not differ in any determinable way from recent North American Indians. They are meso- to brachycephalic, rather thick vaulted, and had shovel-shaped incisors." The "shovel-shaped" incisors are a trait shared by most American Indians.

In addition, cremation burial, which was practiced at the Marmes site, is recognized as a long tradition in the mid-Columbia River region. Other recognized practices found at the site are the use of red ochre and Olivella shells as adornment in burials.

Finally, an additional cultural artifact that led to determining affiliation was an owl foot. Perhaps some kind of talisman, the foot had a hole drilled at one end. As Brent Hicks argues in his 2004 report on the project, "Something must have held the bones together such that they remained articulated." Not only was the owl foot obviously important to whomever had modified it, it was a common symbol throughout Plateau cultures.

Archaeological and oral tradition also figured into the conclusion, and in June, the remains were reburied.

A LATE-PLEISTOCENE NORTHWEST

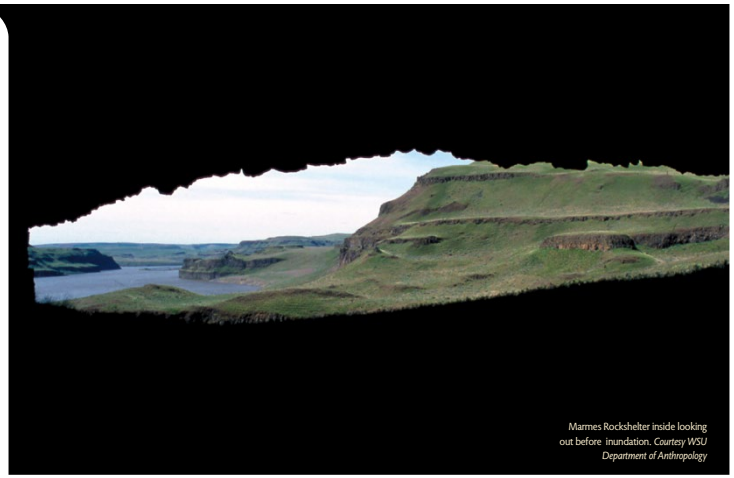
Authorized, along with the three other Lower Snake River dams, by the River and Harbors Acts of 1945, then blocked by President Eisenhower in 1953, but restored through efforts by Washington senator Warren Magnuson, construction of Lower Monumental Dam began in 1961. The next year, Washington State University archaeologist Richard Daugherty and his colleagues received a federal grant to explore the archaeological significance of the Palouse River Canyon, which would be flooded by the dam's reservoir.

Daugherty had first explored the lower Palouse River in 1952 with local rancher John McGregor. McGregor showed him a number of rock shelters and caves. One of them was on land owned by Roland Marmes.

Daugherty began work in the canyon in 1962, with the intention of excavating the Palus village site near the confluence of the Snake and Palouse. But he soon decided that the village site was too disturbed to yield an accurate study.

After some further exploration Daugherty was drawn back to the Marmes site and, with geologist Roald Fryxell and a student crew, began excavating.

Over the next few field seasons, workers uncovered nearly 800 artifacts, food storage pits, and 11 human burials. In 1965, in order to better understand the timescale beneath them, Fryxell had Roland Marmes dig a trench with his bulldozer into the floodplain in front of the shelter. When the bulldozer had dug down 12 feet, Fryxell noticed a chip of bone.



Marmes Rockshelter inside looking out before inundation. *Courtesy WSU Department of Anthropology*

He soon found a concentration of two dozen small pieces, some of them charred. Bones that deep must be very old. But there was no way to prove that they had not been dislocated by the bulldozer. Fryxell returned later with help, and they found more fragments, these clearly in their original context. Still, they were small and difficult to identify. But finally, a year and a half after the first bulldozed discovery, Carl Gustafson, the faunal expert on the dig, was able to identify many of them, including a skull fragment, as human. It was clear by now that this was a very old habitation.

Meanwhile, construction of the dam proceeded.

In 1968, Fryxell and students unearthed bone tools, animal bone, and human bones, between layers of Glacier Peak ash estimated to have been deposited 10,000 years B.P. (before present). Radiocarbon dating of shells in the same level was 10,750 +/- 100 BP.

By this time, the Marmes remains had become the best documented human remains of the late Pleistocene in the new world.

In a quest for more federal support, Daugherty and Fryxell took "Marmes Man" bones to Washington, D.C. An announcement of the find was made public through Senator Magnuson's office.

Back at the dig, by August the ensuing publicity resulted in extensive media coverage and thousands of visitors to the site every week. This at a location that is not exactly on the road to anywhere.

Regardless, a federal supplemental appropriations bill for protecting the site was defeated in committee. But Daugherty and Fryxell enlisted Magnuson's help to win support from the Corps of Engineers to continue the dig. Magnuson also persuaded President Lyndon Johnson to sign an executive order authorizing $1.5 million to the Corps of Engineers to build a coffer dam around the site to protect it from the impending flooding.

Unfortunately, a layer of gravel beneath the site compromised the coffer dam. When the Lower Monumental Dam closed in February 1969, the water within the coffer dam rose nearly as quickly as the main reservoir. The WSU crew frantically began lining excavation pits with plastic and then backfilling to protect the surfaces against the water's turbulence.

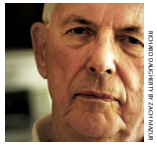
An enormous amount of knowledge had been gleaned from the Marmes Rockshelter. Even with the tragic curtailment of its exploration, the site still gave an extraordinary picture of the region's last 10,000 years of climate and environmental change and cultural history.

It can only be surmised how much more could have been learned had Lower Monumental Dam not flooded the site. On the other hand, the damming of the lower Snake River actually provided much of the impetus, both scientific and financial, for exploring the Marmes Rockshelter as well as other sites doomed to flooding.

Now, 40 years later, the human remains that gave the dig its meaning are beyond further study, reburied on a hill just downriver from their original resting place.

WHO OWNS THE PAST?

Richard Daugherty, who retired from WSU in 1985 after an iconic career, now lives in Lacey, Washington, with his wife Ruth Kirk. Kirk was the first to chronicle the Marmes dig in her 1970 book *The Oldest Man in America*. With her then-husband Louis Kirk, she had built a career documenting the natural and native history of the West. In 1978, they had co-authored *Exploring Washington Archaeology* (revised edition released in 2007 as *Archaeology in Washington*, University of Washington Press), the most comprehensive treatment of the state's remarkable archaeology.



RICHARD DAUGHERTY // ARCHIVAL

Following the deaths of their spouses, Daugherty and Kirk expanded their professional relationship into marriage.

I visited with them at their home this summer. Even though I had explained the reason for my visit, it was clear that Daugherty had not known that the Marmes remains had actually been reburied, and a long silence followed my account of the reburial.

The Marmes remains, he began, with considerable emotion in his voice, shed light on "the population of the whole new world. And to destroy that evidence, to me, is just unacceptable."

The Marmes remains were very fragile when they were removed from the site. Because of soil acidity and moisture, putting them back directly in the ground guarantees their final disintegration.

"I understand it if you're looking at it from an emotional point of view. But look at it from the standpoint of cultural history, of Native Americans in the New World. These things should be protected at all costs."

Daugherty suggests the idea of building a mausoleum, "where these things can be placed under proper conditions for survival." Assign caretakers. Make the place sacred.

Over his career, Daugherty has encountered many human remains. In fact, with the Ozette dig on the Olympic Peninsula, by working closely with Ed Claplanhoo '56, leader of the Makah Tribe at the time, and other tribal members, Daugherty helped establish a new standard for cooperation between archaeologists and tribes.

"When we'd start on a project," he recalls, "I'd make it clear that we were not looking for human remains, but there was a good chance we will find them."

At Ozette, when the archaeologists encountered remains, "We would examine them for evidence of violence, of age, et cetera." Then the Makahs would retrieve the remains for a burial ceremony.

There is a distinction, however, as Kirk points out. The Ozette remains were no more than 300-400 years old. The affiliation with the Makahs was clear, and many in Neah Bay were directly related to the residents of Ozette. Above all, Ozette was not a burial ground, as was much of the Marmes area.

What if, asks Daugherty, we come up with a new analytical technique that could help place the Marmes people in a genetic context. If the bones were preserved, we could negotiate some protocol for re-examining them, possibly shedding more light on the populating of the New World.

"This is something I spent my whole life working on, and I can understand yes, when you get human remains, they become a sacred thing. But I think there can be an accommodation. If they build a structure, a facility that will house this material, it's available a thousand years from now.

"Thinking of it from the standpoint of the Indians themselves, I think they ought to be concerned that the remains of the earliest ancestors really should be preserved … I can see what they might want to do is say, we should take care of these."

Reconsidering the oyster

Coast Seafoods CFO Kay Cogan '79 visits oyster beds frequently in Willapa Bay. Coast is the largest oyster producer in the country.

by Tim Steury :: photography Bill Wagner

FOR AN OYSTER LOVER, speeding down the Willapa River in an open boat toward Willapa Bay and its oyster beds must be like approaching the Celestial City. Even if it is cold for May, and gray, and spitting rain, everyone in the boat is smiling beatifically.

Approximately 15 percent of the oysters consumed in the United States come from Willapa Bay, just north of the mouth of the Columbia River. Ten thousand acres of the bay are devoted to oyster farming. Coast Seafood, whose CFO Kay Cogan '79 and operations manager Tim Morris are escorting me to oyster heaven, is the largest oyster producer in the country, providing nearly 400,000 gallons of shucked oysters per year, not only from Willapa Bay, but also Grays Harbor, Puget Sound, and Humboldt Bay in California. Coast produces better than 25 percent of the state's oysters.

As we emerge from the river's mouth into the bay, Morris notes a workboat beached on a tidal flat off to our left. There are no waves of greeting from the crew, who must be disgusted with their skipper, who apparently misjudged a channel and the tide. There's no money to be made until the tide refloats their boat and they can reach the bed they'd come to harvest.

As we turn south, we pass a large exposed sandbar populated by scores of seals, all eyes on us, a few waddling into the water, but mostly waiting for the same sun we're all expecting to break through the heavy overcast any minute now.

Morris pulls our boat up to the shore of a 15-acre oyster bed exposed by the low tide, and we climb out. Cogan gives me some pointers in walking over the oyster flats. The main goal is to not get both feet stuck at the same time. Keep the main pressure on the balls of your feet, she says.

Long parallel lines of oyster clusters strung on yellow rope stretch across the exposed mud beds. The first thing I'd noticed after the "South Bend: Oyster Capital of the World" sign the night before was the mountain of oyster shells along the highway. These shells will be the mother shells for the babies. Coast has hatcheries in Quilcene, on the Hood Canal, and near Kona, Hawaii. The larvae from Kona are sold to third parties or shipped back to Quilcene. Bags of shells, called "cultch" in the trade, are trucked from the processing plant in South Bend to Quilcene, where they are immersed in tanks with the young oysters, which attach themselves to the shell. The "seed" is moved to Coast's nurseries at Quilcene on Willapa Bay, or Humboldt Bay in northern California for 3-8 months to grow and mature a bit before being transferred to the beds where they'll live out their lives.

Coast is moving much of its oyster production to a "long-line" versus a "bottom-culture" farming system. Bottom-culture is just that, the young oysters spread across a suitable bed. Long-line raises the oysters off the bottom, greatly increasing productivity. The mother shells are threaded onto lines, which are strung on PVC pipes stuck into the bottom. According to Coast figures, long-line requires 136 seed bags per acre to yield 6.7 gallons of oysters per bag, totalling more than 900 gallons of oysters per acre. Hanging the oysters off the bottom makes it easier for the oysters to feed and reduces predation by crabs and other oyster lovers.

But not by us! Morris slips his oyster knife into a cluster of oysters, pries one open, and hands me an oyster on its half-shell, as fresh as it gets.

I recall an earlier instance in which, in the throes of enjoying an Olympia oyster (*Ostrea conchaphila*), I dismissed the Pacific oyster (*Crassostrea gigas*, literally "big oyster") as inferior. I now take that back. Olympias are wonderful. But they are quite different pleasures. Now, slowly chewing a Pacific while standing in the bay from which it came?

This oyster is plump and rich and briny. It is so good.

I actually read an assessment of the Pacific recently in which it was criticized for exactly these qualities. Oh, and for being too "creamy." I believe this criticism came from an admirer of the relatively scrawny, metallic, and austere Eastern oyster.

Easterns were grown here in the early twentieth century, with uneven success, and I understand they're making a minor comeback. The native Olympics had been nearly wiped out by oystermen who had yet to learn that everything is finite—and that oysters prefer oyster shell on which to grow. The Olympics were dredged up and shipped to California and points east, their shells unreturned, until they were no more, except for a few hidden here and there in unnoticed inlets. They are, fortunately, reviving in areas around the Sound. (See "Eating Well to Save the Sound," wsm.wsu.edu/stories/2006/May/eatingwell.html.) Tasty as they are, however, they are slow-growing and generally unprofitable.

As a replacement, the Pacifics were introduced from Japan, back in the days before anyone worried about introducing exotic species into an ecosystem. Fortunate for us oyster-philes. Also fortunate is the fact that they love it here. They do prefer a little warmer water in which to spawn. But that's what hatcheries in Kona are for. This could, it occurs to me, also be a natural curb on their dominance of the ecosytem.

Coast, which sells its oysters under the "Hilton's Willapoint" brand, also grows the plump and fruity Kumamoto (*Crassostrea sikamea*), also from Japan, as well as Manilla clams and mussels. But the piece de resistance for the lover of the oyster who has no patience with the travails of procreation is the triploid oyster.

You've no doubt heard the truism that oysters must be eaten only in months that have an "r" in them. There is a grain of truth in this, but not for the health reasons commonly imagined.

Oysters spawn in the summer months (no r's), in the process of which they produce millions of sperm and eggs (one of the reasons, perhaps, for the oyster's reputation as an aphrodisiac). As a result they become watery and flaccid, losing as much as a quarter of their mass. In other words, during the non-r months, they aren't as tasty as they are the rest of the year.

Enter the triploid. Coast uses a simple heating process to increase the number of a larva's chromosomes. The result, a triploid, is sterile. In other words when all the other oysters in the sea are wasting themselves in rampant reproduction, the triploids are doing nothing more than they do the rest of the year, getting fat and sweet. There is indeed such a thing as progress.

In spite of the good time we're having, Cogan and Morris are actually doing inventory. With records of past yields of a bed and an accounting of its seeding, Cogan can calculate the next crop. What they're doing today is checking simply to make sure the bed's health and growth meet their expectations.

Cogan has been with Coast for 21 years, Morris for nearly the same time. They both clearly love their work. Morris hands me another oyster.

These are beautiful, says Cogan, surveying the object of her inventory, the long-lines of *Crassostrea gigas* stretching across the beds in perfectly sumptuous symmetry. «

Identity

by Tim Stewry :: photos by Zach Mazur

A DIALOGUE *with the* PAST

Modern archaeology in the Pacific Northwest and what we are

A FIERCE PACIFIC STORM IN FEBRUARY 1970 revealed early remains of Ozette, on the Olympic Coast between Cape Flattery and La Push. Worried about the site's vulnerability to looters and further storms, Makah tribal leader Ed Claplanhoo '56 called archaeologist Richard Daugherty at Washington State University, commencing an 11-year excavation of the site. The excavation yielded thousands of well-preserved artifacts and a wealth of clues to the history and culture of Makahs and other coastal tribes.

Sheryl Hagen-Zakarison and Eric Zakarison—and their three Belgian mules—at their farm north of Pullman. *Photo Zach Mazur*

Eric Zakarison '81 and Sheryl Hagen-Zakarison '83, '91

Thinking small

by Tim Steury :: Somewhere along the Norwegian-Swedish border in the 1920s, Eric Zakarison's grandfather and his family decided it was time to leave.

"They literally put on their packs, with everything they owned on their backs, skied down to the fjord, got on a boat, and came to Minnesota," says Zakarison. After farming there for three or four years, they picked up and moved again, to the Havre/Chinook Hi-Line area of Montana.

Tired of northern Montana, Eric's aunt ran away. She married a wealthy railroad man and they bought land north of Pullman. She invited the rest of the family to come further west, which they did, settling on the land where Eric and Sheryl Zakarison now live.

"As they say, farming the Hi-Line, you have a three-year rotation," says Eric. "You get a crop the first year, second year the grasshoppers get it, and the third year the hail takes it out."

The Palouse has been much kinder to the Zakarison family since they settled here in 1935.

The Zakarisons currently farm 1,300 acres, which is a bit over the median size in Whitman County. Eric notes that their farm, just a few miles north of Pullman, originally was five smaller farms. Even so, much grander consolidation throughout the Palouse can be measured by the number of abandoned homesteads and homesteads separated from their land to become commuter retreats. Counter to a trend toward consolidation and steady growth, Eric's father Russell '54 and uncle Walt "decided to stay more moderate in size, for whatever reason."

The Zakarisons have also bucked another trend, one of dedicating all the land to the standard wheat rotation to the exclusion of animals, a trend that USDA official, formerly a Washington State College scientist, William Jasper Spillman decried already in 1924. Spillman believed that the steeper land should be given over to grazing rather than erosive tillage. Few listened to him.

But some like-minded souls have heeded that observation. "We have always had livestock on our farm," says Eric. And he and Sheryl keep adding more.

Currently, they raise about 800 broiler chickens a year along with 100 turkeys, all on pasture. They process the poultry under a permit from the Washington Department of Agriculture, and customers pick them up on site.

They also have a flock of White Dorper sheep, which have hair instead of wool, and from which they raise locker lamb. And there's a small dairy goat herd.

FINALLY A *Washington* APPLE

:: *by Tim Steury*

A Washington apple? you say. You might respond, correctly, that Washington and apples are almost synonymous. After all, we produce more than half of the nation's eating apples. Visit a market in Mexico, Thailand, Houston, or Saudi Arabia, and there, you will find Washington apples.

Still prominent among the selection is the iconic Red Delicious. Up through the 1980s, it represented more than three-quarters of Washington production. But now, other varieties, the sweet Gala, the tart Granny Smith, the intensely sweet-tart Pink Lady, are steadily usurping the Red's status.

But neither in the era of the Red's dominance nor in this new age of increasing pomological diversity has Washington had an apple it could truly call its own. The Granny Smith hails from Australia, the Honeycrisp from Minnesota, the Fuji from Japan, the Gala from New Zealand. One might argue that Washington actually made the Red Delicious its own, sculpting through selection its distinct shape to perfection, pushing its color deeper and deeper along the spectrum. And ignoring its taste.

Although a good strain of Red, well-grown and -ripened, can remind even a discerning eater of why it was named "Delicious," it is not in truth a Washington apple. It was discovered by Jesse Hiatt as a chance sport in his orchard in Iowa. He named it "Hawkeye." Stark Brothers Nursery bought the variety from him and named it "Delicious."

Regardless of origin, the adopted apple grew so well in Washington and was so esteemed that Washington growers for decades saw no need for anything more specific to our image. We'd made the Red ours, and it was good.

But tastes change. And an obsession with color undermined its taste, a genetic tradeoff that left much of the variety tasteless, mealy, and dull. Although the Red is not yet dead, as the late visionary grower Grady Auvil declared some time ago, it is in decline. And it has certainly lost the appeal that built the industry.

But now, in the nick of time, Washington has an apple truly its own, the WA 2. By the time you are able to buy this apple—and I do apologize for teasing you with something you cannot yet acquire—I assure you it will have a livelier name.

That WA 2 designation, says Bruce Barritt, the man responsible for its breeding, is purely descriptive. When selections in his breeding program moved from the seedling stage to the next stage, each contestant got a number. The selections now number into the mid-70s. WA 2 was, simply, the second one to get a designation.

Barritt set out to do two things with his breeding. The first was to produce a variety adapted to Washington's seasons. Not every apple likes the intense sunshine and August heat of central Washington. But others love it.

Secondly, says Barritt, he wanted an apple that would be available to Washington growers. Some new varieties are being restricted, with the intent of maintaining a strong market for rationed fruit.

Further, says Barritt, "We have a motto for the program. The motto was 'put consumers first.' My feeling has always been, unless the consumer wants something, there's no point in producing it. The goal was to have something the consumer really wants to purchase. And that meant fruit quality."

Barritt started the breeding program that produced the WA 2 in 1994, once the apple industry, through the Washington Tree Fruit Research Commission, finally decided we needed an apple of our own. Fifteen years, by the way, is pretty fast for the development of a new apple variety. Apple breeding is not an occupation for the impatient.

BRUCE BARRITT
COURTESY *GOOD FRUIT GROWER*

KATE EVANS BY MATT HAGEN

The process is complex from the very beginning, the sowing of apple seeds. Apples do not breed true. Apple seeds are like siblings. They may retain some traits of their parents, such as size, but they are individuals. Plant five seeds from a given apple, and you may well end up with five completely different progeny. The only way to ensure the replication of a parent is through cloning, either by grafting or tissue culture.

Thus, the next step of breeding a new variety is to select the most promising seedlings. Once a good seedling is chosen, it will be grafted onto rootstock to further test that selection's potential. Those selections are tested for strengths and faults and a final selection made. And suddenly, fifteen years have gone by.

Until now. There is indeed something new under the sun, at least when it comes to breeding apples, and it is pretty exciting.

Kate Evans, the successor to the recently retired Barritt, had a plum job as an apple breeder at the East Malling research station in England. But a new era in apple breeding, with new tools at her disposal and an impressive team composed of molecular biologist Amit Dhingra, bioinformatician Dorrie Main, geneticist Cameron Peace, and others was enough to inspire her pack up her four children and entomologist husband and move to Wenatchee. Following the lead of the Human Genome Project, these WSU scientists are collaborating to sequence the apple genome and approach apple breeding in a whole new way.

At the core of the modern apple is a curious paradox. Although the genetic diversity of the apple is enormous—25 species and more than 7,000 reported cultivars—the actual genetic diversity of commercial varieties is quite limited. Modern commercially available varieties mostly derive from just a few parents: primarily Red Delicious, Golden Delicious, Jonathan, McIntosh, and Cox's Orange Pippin. These varieties are well-known, their genetic strengths and weaknesses extensively documented. So rather than venture into unmapped genetic territory with untested germplasm, breeders routinely, and understandably, turn to the tried and true.

Offspring of these apples obviously have produced some fine eating. But relying on them for exploring the apple's potential is like relying on a small group of composers for our enjoyment of music. A musical diet limited to Haydn, Elgar, and Lennon might be great for a while. But think of all the musical pleasure you'd be missing.

The apple equivalent of all musical permutations exists in the mountains of Kazakstan, where many scientists believe the apple originated. The Kazak apples are endlessly diverse, many of them tasty as well as disease resistant. Much of the Kazak germplasm has been collected and maintained by fruit explorers with the National Germplasm system's regional unit at Cornell, which is responsible for maintaining the *Malus* (apple) collection. (The regional station at WSU is responsible for beans, garlic, and many other crop plants.) The pomological variations within this collection are mind-bogglingly rich. But until now, without the proper genomic tools and map, they were really of little practical value—tantalizing, but out of reach.

The sequencing of the apple genome is the effort of a consortium of an Italian group, WSU, and others. Amidst the effort, Dhingra's job is to develop methods to de-convolute complexity within the genome, such as ploidy, an abnormal number of chromosomes. Dhingra's lab is actually sequencing a separate apple genome, a double haploid Golden Delicious. The genome mapped in collaboration with the Italian group was a more complicated heterozygous Golden Delicious.

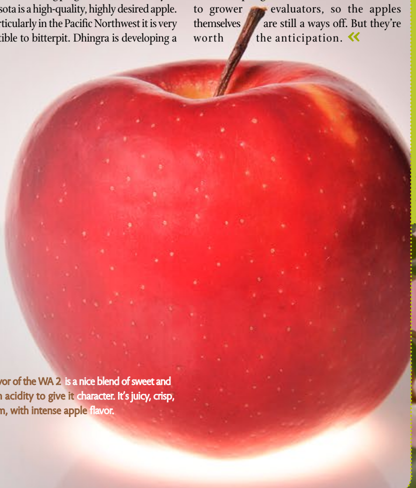
Using information already gleaned from the mapping, Dhingra's group is looking for a means for alleviating a calcium-deficient related syndrome called bitterpit. Honeycrisp, a variety developed through the breeding program at the University of Minnesota is a high-quality, highly desired apple. But particularly in the Pacific Northwest it is very susceptible to bitterpit. Dhingra is developing a method to negate that susceptibility without otherwise altering the variety character of the Honeycrisp.

But disease and disorder are, apparently, genomically simple compared to traits such as texture and taste. Things should get interesting soon.

Meanwhile we have our first apple, one produced by conventional means. And it is delicious. Not Red Delicious, actually delicious. I was part of a tasting panel this fall that sampled the WA 2, along with further "elite" selections that will be released shortly after the WA 2.

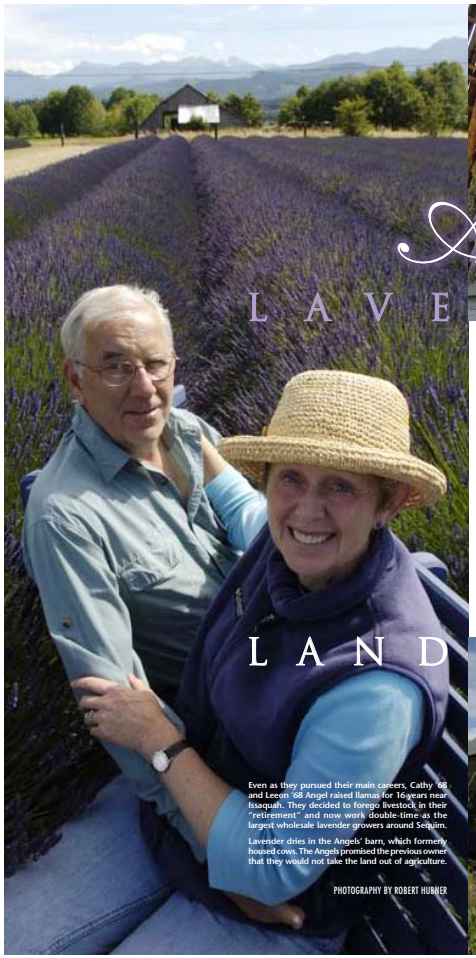
It's a very attractive apple, red, shifting to pink, with distinctive lenticels, or spots. It's a nice blend of sweet and enough acidity to give it character. It's very juicy, with a nice mouth-feel, crisp and firm with a high apple flavor.

This spring 5,000 trees will be distributed to grower evaluators, so the apples themselves are still a ways off. But they're worth the anticipation. «



The flavor of the WA 2 is a nice blend of sweet and enough acidity to give it character. It's juicy, crisp, and firm, with intense apple flavor.

ROBERT HUBNER

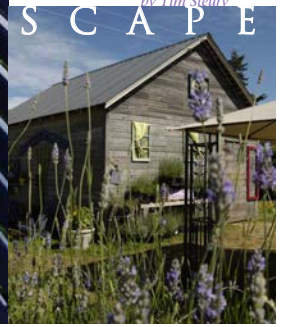


A LAVENDER LANDSCAPE

The landscape west of Sequim has, no doubt, always been beautiful. There's an obvious advantage to having the foothills of the Olympics on the near horizon. But add fields of lavender, and you have jaw-drop stunning.

Beauty is obviously a constant here. But where Cathy '68 and Leeon '68 Angel planted their lavender seven years ago, dairy cows once grazed. And not too long before that, you might have seen a band of Clallam people heading across the meadow toward the Dungeness River to fish. Or north toward Sequim or Dungeness bays to dig shellfish.

by Tim Steury

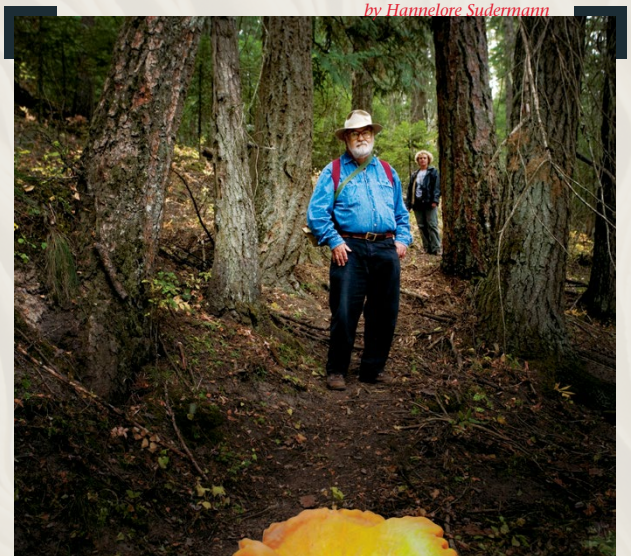


Even as they pursued their main careers, Cathy '68 and Leeon '68 Angel raised llamas for 16 years near Issaquah. They decided to forego livestock in their "retirement" and now work double-time as the largest wholesale lavender growers around Sequim.

Lavender dries in the Angels' barn, which formerly housed cows. The Angels promised the previous owner that they would not take the land out of agriculture.

PHOTOGRAPHY BY ROBERT HUBNER

by Hannelore Sudermann



INTO THE WOODS

PHOTO ILLUSTRATION BY BRUCE ANDRE AND JOHN PAXSON

PLANT PATHOLOGIST JACK ROGERS is always ready to step off the trail and into the cool forest to uncover its secrets. Or, even better, to collect them.

His targets, most often, are fungi, nature's great recyclers. These organisms break down dead matter and inhabit living matter. They're everywhere, but they aren't always easy to see. They have secret lives beneath soil and behind bark, and many only surface to reproduce. But Rogers knows where, when, and how to look—whether it's a certain stand of trees after a cold winter, a south-facing slope in the fall, or an area of a recent burn.

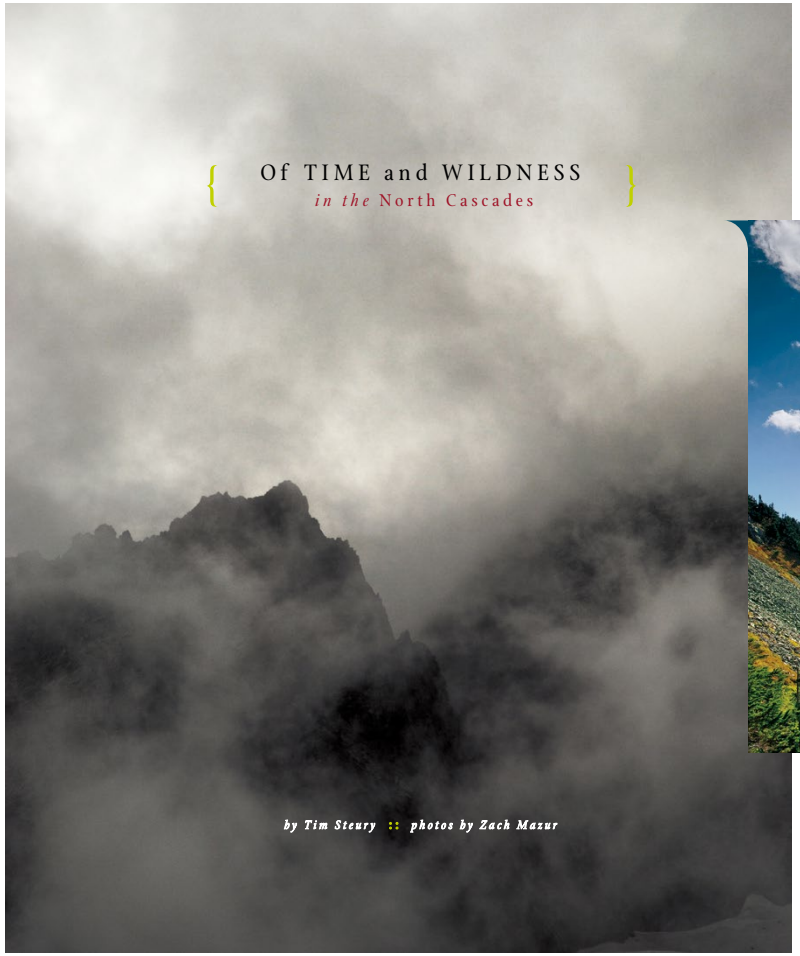
Rogers is built like a small bear and has a foghorn voice. It carries pretty far when he's prowling the woods, and, along with a whistle, comes in handy when he gets separated from his fellow fungi hunters. His voice also holds a flavor of West Virginia, something he picked up during childhood, around the same time he acquired a taste for the outdoors. When he says words

A Feast of Good Things

by Hannelore Sudermann

PHOTOS *Bruce Andre & Zach Mazur*

PHOTO BRUCE ANDRE | CALLIGRAPHY GINA JONAS



Of TIME and WILDNESS
in the North Cascades

by Tim Steury :: photos by Zach Mazur

N 48° 28' 4.45" | W 121° 3' 36.4"

Stunningly beautiful and isolated by some of the most rugged terrain in the country, Cascade Pass is framed by a dramatic natural history. Archaeological exploration has a revealed a rich human history as well.

Of TIME and WILDNESS
in the North Cascades

BOB MIERENDORF BY ZACH MAZUR

"...we're beginning to get the picture, these people were going up to the mountains to be in the mountains."

THE ARCHAEOLOGICAL EXCAVATION itself is hardly remarkable. It's about a meter long by a half-meter wide and a meter deep. Nick Foit, a geologist, comments that it must have been pretty cramped to work in. Photographer Zach Mazur works his way around the hole, careful to step where archaeologist Bob Mierendorf tells him, shooting its cubic ordinariness from different angles.

"See this orange golf tee," says Mierendorf. He'd pushed it into the floor of the pit to mark where he'd previously removed a tiny piece of charcoal. Carbon dating indicated the charcoal was the remnant of a cooking fire from 9,600 years ago.

With occupation dates in the Americas continually being pushed back further and further, as much as 30,000 years and beyond, a 9,600-year-old cooking hearth is not that remarkable in itself. But we are standing at Cascade Pass, 5,400 feet high, deep in some of the most rugged country in the United States.

Cascade Pass easily makes the short list of the most beautiful places in the world. The pass is a saddle between drainages. The east side is the watershed of the Stehekin and Chelan Rivers, which flow to the Columbia. The west side is drained by the Cascade River, a tributary of the Skagit. Peaks around us range between 8,200 and 9,200 feet. Forbidden Peak. Mount Formidable. Johannesburg Mountain.

The landscape is indeed spectacular, even without the glaciers.

Across the road from the trailhead, at 3,000 feet, there's a glacier. Nearly 80 percent of the glacier area in the conterminous United States is in Washington, and most of those glaciers are in the North Cascades, many of them visible from Cascade Pass. Seven hundred and fifty-six glaciers have been identified in the North Cascades, 318 of them within the Park.

Cascade Pass is one of the most popular hikes in North Cascades National Park, providing the quickest access to the high country of any hike in the Park. But today, we are alone. A bridge on the only road in was damaged by a flood last winter and is closed for repair. Earlier, Mierendorf had parked a Park Service van on this side of the bridge, and we'd walked across the damaged bridge from one vehicle to the other. Without a vehicle, it's a 14-mile hike from the bridge to the trailhead. But when the bridge is open, the trail to Cascade Pass is heavily traveled, with obvious reason.

Not so obvious, however, is what people were doing up here 9,600 years ago.

Even though we're still sweating from the four-mile hike to the pass, the September air is cooling rapidly. Black clouds mass ominously to the west, and the wind over the saddle is increasing. We are starting to accept that we are about to experience that overwhelming expression of Nature sometimes called the Sublime. A late summer storm in the North Cascades. "The late great Mierendorf Expedition," jokes Foit.

MIERENDORF HAS SPENT the last couple of decades trying to convince the archaeological establishment that pre-contact Northwest Indians did not confine themselves to the lowlands, but lived in the North Cascades and frequented the high country. When Mierendorf first started working at the park, Cascade Pass was one of 17 archaeological sites identified within it. Since then, he has identified nearly 300 more. Forty-five of those sites are located between 4,000 and 7,000 feet.

Obviously, population densities in the mountains were nowhere near what they were along the more hospitable coastal lowlands. Mierendorf argues simply that lower density does not mean absence. An earlier assumption by archaeologists was that Indians actually avoided the mountains, and any contact between coastal and interior tribes was accomplished by traveling along the Columbia Gorge. Mountains were a barrier, not a destination. The idea that prehistoric people crossed the Cascades on foot was simply incomprehensible.

Such an assumption is certainly understandable. The North Cascades is tough country. Even though only two volcanic peaks are higher than 10,000 feet, the deep glacier-carved valleys create dramatic local relief, often as much as 6,000 feet between valley floor and peak.

Alexander Ross, a fur trader with the North West Company, made the first non-Indian crossing of the North Cascades in 1814, from east to west, guided by an Indian. "A more difficult route to travel never fell to man's lot," wrote Ross.

So why was the question of the Indians' presence in the mountains such a mystery? Why didn't archaeologists just ask the Indians?

"What I found," says Mierendorf, "is they did ask the Indians. But it was very scattered and piecemeal. Anthropologists who did ask the tribes were always focused on something else."

For example, he says, the best ethnographic study of the North Cascades is June Collins's *Valley of the Spirits* (University of Washington Press, 1974), conducted in the mid-20th century. The focus of the book is the spiritual life of the traditional Upper Skagit people. Collins did not venture into the backcountry. An ethnographer gathers what information she can about a culture from the stories and memories of her subjects, and at the time there were no longer any Indians living in the high country. But, says Mierendorf, she did record some information that indicates the upper Skagit people traditionally were better hunters and wore more skin clothing than their lowland, saltwater relatives. When they had excess meat, they would trade with saltwater relatives for things like dried clams.

A more basic reason for the lack of anthropological information on mountain Indians is that historically, anthropologists have tended to focus on larger, more obvious, populations.

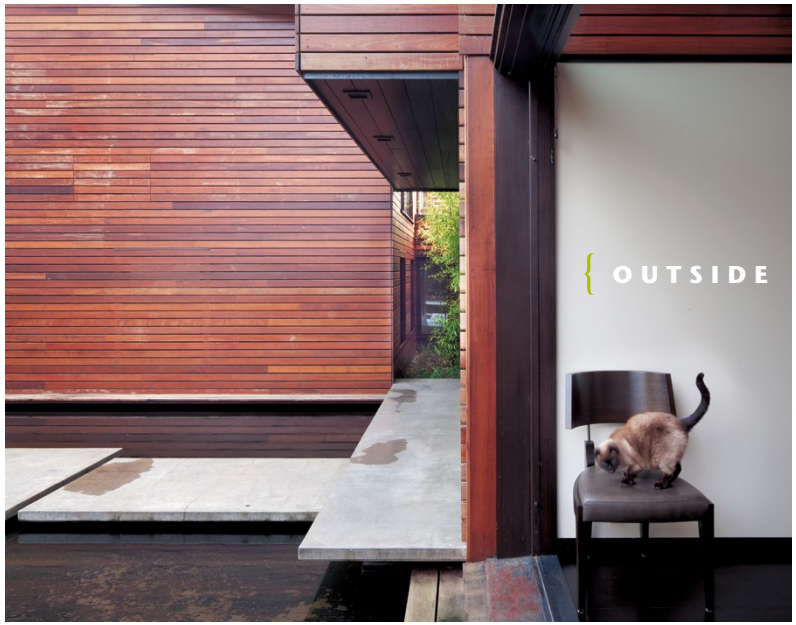
"If you just drew a line around the Northwest Coast culture area, as it has been studied historically," says Mierendorf, "well, it would extend a thousand miles long from southeast Alaska all the way to central California, and it would be a hundred yards wide."

AT THE BOTTOM of the excavation are flat stones next to the remains of a fire, seats for the people of 9,600 years ago. The landscape they gazed over was even more austere than the modern subalpine we're amidst. Keep in mind that the land was still recovering from the last ice age.

Lacking the current layer of organic matter and ash of nine separate volcanic eruptions over the past 9,600 years, the landscape surrounding us was even more rocky, says Mierendorf. Since the soils had less organic matter, they'd have been lighter in color. More rock surface would have been exposed, and the rocks themselves, lacking the eons of lichen buildup, would have been lighter colored. The landscape surrounding us would have been very bright, he says.

It would seem that with such a severe landscape, there would have been little food to draw the early people up here.

N 47° 37' 25" | W 122° 13' 1"



MICHAEL MATHERS

:: *by Hannelore Sudermann* ::

{ OUTSIDE IN } Architecture *of the* Pacific Northwest

IT'S A COOL MORNING IN OCTOBER when the door to Rex Hohlbein's Fremont studio swings open. Four Washington State University architecture students crowd into the small entry looking at once curious and nervous.

Hohlbein '81, solidly Seattle in a plaid shirt and fleece jacket, greets the group, which includes his daughter Jennifer. They have come to Seattle to make presentations in front of professional architects at a firm downtown. One carries an unwieldy printed display he needs to trim. Recalling his own days as an architecture student at WSU, Hohlbein urges him to open it up on the floor and crop it there. In the meantime, he and Jennifer talk about the students' visit to the well-known Miller Hull Partnership that afternoon and the lecture they would attend that night. The other students soak in the office, visiting with one of Hohlbein's partners and glancing at photographs of the firm's completed homes on Vashon Island, in Ellensburg, on Orcas Island, and at Yarrow Point. In one example, an island cabin makes practical use of plywood in the kitchen. In another an Eastern Washington farmhouse radiates off a great room. In a third a traditional-style retreat nestles into a wooded hillside.

While the homes are all different, they share an aesthetic. There's warm wood detailing inside and out, expansive glass windows, exposed structural components, and deep overhangs—all details of what could be described as Northwest elements of style.

THE STUDENTS ARE EVEN SEEING ELEMENTS of the style in the 1906 house Hohlbein renovated to serve as his studio. The place sits on a one-way street tucked up against the ship canal. One of his first improvements was a floor-to-ceiling picture window to bring in the subtle Seattle light and feature the view of the Burke-Gilman Trail and the water, people, and boats outside.

His design template includes natural materials, a simple and elegant aesthetic, and building in a way that is sensitive to the region, the neighborhood, and especially the site. It all comes out of the feeling he gets having grown up in the Northwest, he says later. "Seattle was a sleepy city most of my life. We're not flashy. We're quiet. We live in a gray world, with subdued, soft light. With such beautiful scenery around us, the thinking is 'Hey, let's be a little quieter. Let's go out and blend in and take it all in.'"

The Hinoki House, a new view home in Bellevue's 1950s Clyde Hill neighborhood, fits beautifully with the Northwest style. The owners themselves started with a list of classic Northwest desires that included creating an open-concept home within the older neighborhood, using natural materials, and capturing a stunning Lake Washington view. "It was going to be a bigger house to begin with, but I said, 'Really, you should worry about it being too big,'" says Hohlbein. "There's a coziness and connectedness that would be lost."

While the view across the lake is stunning, Hohlbein didn't want the home to be just about the distant view. "We did not try to line everything up, and did not want to block the views of other people in the neighborhood." He spent time on the property exploring. It required an approach from a busy street, through an alley, and then a courtyard. He saw it as a migration from a public self to a private self. While the view is the big payoff, he worked to create beautiful spaces and experiences in the house before arriving at the view. "The house should be able to stand on its own."

A hallmark of the Hinoki house is walls made out of windows. It's a tradeoff, says Hohlbein. It is perhaps less energy-efficient, but it does different things in different spaces. In the kitchen, it lets in light and views of the trees. In the dining room, it provides a serene scene of the pond and courtyard. But the most wondrous effect is in the living room, where the windows slide away and you feel as if you could walk right out onto the lake.

Hohlbein didn't come to WSU to study archtiecture. "But I just fell in love with drawing," he says. "At the end of that first year, I decided to switch." The new direction gave school new meaning. He lived for his classes and projects. "And I couldn't wait to get out and practice," he says.

He loves the process of working with residential clients. "You talk a lot about very personal and important decisions," he says. "Besides raising kids, building a house is probably the most intense thing adults will sustain. Their hearts and minds are fully engaged."

And if his clients are seeking to make a statement with their homes, he hopes that it is one of quiet, thoughtful design. "Houses and buildings should be backdrops to peoples' lives, and secondarily, buildings should be subservient to the landscape."

A STYLE OF OUR OWN

Architecture in the Pacific Northwest has always had to contend with the environment.

In many parts of the country, the builders of great cities started with flat planes and created their landscapes out of brick and stone, steel and glass. But in the West, a land of mountains, water, forests, and views, the natural landscape usually came first. Here the early architects had to nestle their structures in valleys and along shorelines. Then their neighborhoods climbed the hills of cities like Spokane, Bellingham, Tacoma, and Seattle, always looking to the views around them.

The architects took climate into consideration, orienting to capture much-needed sunlight in winter, and designing sheltering overhangs to protect from the rain. Some might say they were building green long before the notion was in style.

When you see that iconic scenic photograph of the state's largest city, says Phil Gruen, associate professor at the WSU School of Architecture and Construction Management, it's the Space Needle with the mountains in the background. "Seattle is the metropolis in the natural environment," he says.

The same description could easily be extended to other Northwest cities, he adds. Spokane, for example, has the slogan: "Near nature, near perfect."

Gruen, who teaches history of architecture, is loath to describe one type of architecture as specifically "Northwest." For each detail there are many examples, and many exceptions. And some are not so great. Indoor shopping malls for an auto-centered culture, for example—Northgate Mall, which was built in 1950, was the first car-focused indoor mall in the country. It was an idea that first happened here, says Gruen, "But nobody would say that it is an example of the Pacific Northwest architecture."

Still, in other structures, there seems to be a Pacific Northwest idiom, Gruen admits. It's a particular kind of consciousness that connects the materials, the structure, and the natural environment.

Architects from WSU like Hohlbein have had a hand in shaping the state's built environment, and in incorporating it into the Northwest landscape, for nearly a century. But it was almost not to be. Decades ago, the fledgling architecture program at Washington State was nearly crushed.

In 1907, Washington's agricultural college (now WSU) established one of the first programs to train architects on the West Coast (after the University of California at Berkeley). When the college's early leaders started their search for a chair, architects from the Midwest and East Coast were coming west to help build the new communities. Kirtland Cutter (from Ohio) was designing Arts and Crafts mansions throughout the state, and James Stephen (from Chicago) was creating school buildings in Seattle and Everett after designing Thompson Hall in Pullman in 1893. The four-story Victorian building was constructed out of brick made from clay deposits on campus.

Rex Hohlbein in his Fremont office, with photographs of several of his projects behind him. *Photo Matt Hagen*
Opposite: The Hinoki House's floor-to-ceiling windows slide away, opening the space to the outdoors. *Photo Catherine Tighe*

In drafting a plan to train architects in Pullman, the college's leaders believed that architecture would fit in well among the mechanic arts. They also saw an economical route to building their campus. Rudolph Weaver was hired from the architectural staff of the University of Illinois and immediately took on the design of buildings for Pullman's campus. "We looked upon it also as a measure of economy to combine these instructional and professional functions in such a department," wrote President Enoch A. Bryan in his *Historical Sketch of the State College*.

Weaver's first project was the president's house. The thought, according to Bryan, was to try him out on a smaller, less essential structure. Its success is apparent since the Weaver-designed Wilson-Short and Carpenter halls followed in rapid succession. For a few years, both the program and the building progress held up.

But when Ernest O. Holland became president of Washington State College in 1916, the years of growth both for the curriculum and for campus were about to end. A legislative committee from Olympia had visited the college and was surprised to find graduate students in Pullman as well as strong liberal arts and architecture programs. Concerned that the state was already paying too much for higher education, the committee decided that the University of Washington should be acting as a university and that the college in Pullman be reduced to a trade school. To Holland's dismay, an old friend, the UW's president Henry Suzzallo, agreed.

Suzzallo and Holland started their friendship as students in 1909 at Columbia University. Holland was best man at Suzzallo's wedding in 1912. Suzzallo moved west to become president of UW in 1915 and almost immediately encouraged Holland in his pursuit of the Pullman job. At the same time, both men were urging an end to, in Bryan's words, the "petty rivalry" between the institutions.

But they were overtaken by politics. There were concerns that the schools were duplicating their offerings at great cost to the taxpayers.

In 1921, the state legislature created the Joint Board of Higher Curricula to oversee development of programs for the University of Washington and Washington State. In 1922, UW (which hadn't established its architecture department until 1914) challenged the state college's offering of an architecture major. As a result, it was one of several programs deemed "illegal" by the legislature, including commerce, journalism, and forestry.

But according to school records, Pullman found a way around it. By 1928 the degree in architecture became "architecture engineering." The students would study alongside the school's construction managers and civil engineers. Because they studied and competed with students in other disciplines, the architects who trained at WSC had a rigorous grounding in engineering—something alumni say made them sought-after assets to their firms.

It took some redesigning on the part of the state college to keep architecture in the mix, but it led to training many hundreds of architects for the state.

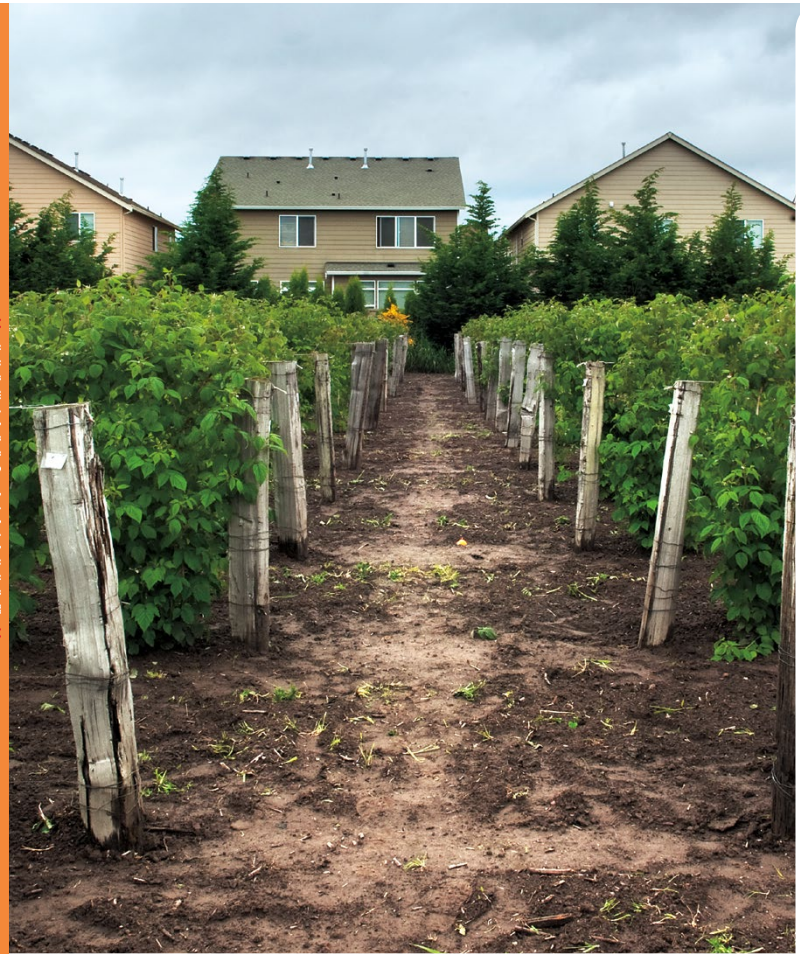
While all this was taking place, a Northwest architectural style was emerging, says Phil Jacobson '52, a retired Seattle architect and professor emeritus of UW's architecture program. While much of the early building is derivative of architecture from around the country—with Arts and Crafts, Beaux Arts, and International styles—a Northwest

Back to the city

Agriculture is rooting its way back into the urban landscape

photos *by Zach Mazur*

:: Hannelore Sudermann ::



THE LANDSCAPE around the Puget Sound has been in flux since the pioneers felled the forests to open up the bottomlands for agriculture. These loamy soils drew some of the earliest farmers, who were delighted to find the region suited a wide variety of crops.

The South Park neighborhood in South Seattle sprang up on fertile, level farmland adjacent to the Duwamish River. According to historian David Wilma, before the settlers arrived, the spot was occupied by Indians, who grew potatoes, fished, and harvested berries there.

In the 1900s this neighborhood became home to "Contadini," Italian immigrants who had been born into farming in their native country. This is where Carmine Marra and his wife Maria bought land in 1920 and set up a truck farm that for years to come would be a center for the community. Besides producing a bounty of food to sell in Seattle at Pike Place Market, the farm was a place to meet at the end of the day or play bocce on weekends.

Today the neighborhood is still home to immigrant communities, but much has changed. It sits just behind one of the most industrial and most toxic areas of the city. The Marra Farm, which survived as a community garden, is the only agricultural land left. It seemed inevitable. Development had started before the Contadini arrived. The river was redirected and channelized for improved shipping access. In the 1920s Boeing's air plant sprang up on the east side of the river, followed by recycling plants, concrete plants, rendering operations, and a foundry.

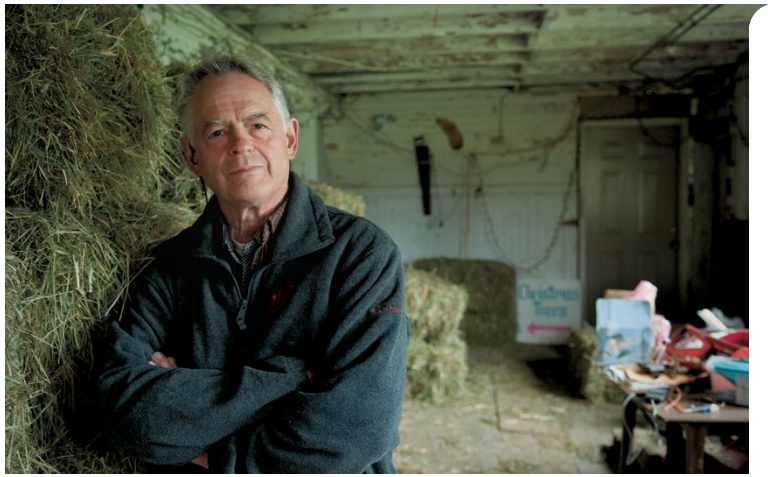
Besides the pressure of Boeing's expansions and increased industrial use of the neighborhood, by the 1940s the local farmers were finding it hard to compete with the large-scale California produce farmers. All the while, "the farmlands themselves were becoming too valuable for agricultural use," wrote the Marras' nephew Fred Marra.

While the story of the lower Duwamish is extreme, a similar tale can be told for many other fertile areas of the Sound.

Kent, once home to hops farms, dairies, and acres of produce, was known in the 1920s as the Lettuce Capital of the World. The area started to change in the 1960s after the Howard Hanson Dam on the Green River stopped the valley from regularly flooding. The Boeing Aerospace Center was followed by other industry and technology businesses. Today the valley is clogged with warehouses, trucks, and storage units. Is is also home to a variety of corporate headquarters including Oberto Sausage Company and Recreational Equipment Incorporated (REI).

To the east, along the Snoqualmie River, developers are pushing the question of what is a farm by packing the rolling hills with mini-estates complete with their own horse paddocks. Larry Pickering '68, who grew up among the 40-some dairy farms near Fall City, watches with dismay as these multi-million-dollar homes cover the land around him. "We took it so for granted," he says. "We didn't know what we had." Back in the 1960s, Larry Pickering enrolled at WSU with plans to study animal science and prepare to run the family dairy. But dairy farming was changing and the farms were growing to hold hundreds of cows. "I could see that I would have to become a manager rather than a farmer," he says. So he changed his course and became a veterinarian. "I figured I could switch to horses and have the life I wanted."

He watched in the 1980s as King County spent $50 million to preserve agricultural land, and then watched that farmland dissolve into one-acre horse estates. "Thirty years ago, we assumed if you couldn't put development on land, you would have to farm it," he says. But that



Larry Pickering '68 has watched agriculture leave and return to his hometown of Fall City.

proved wrong. "Now they put a $5 million home on it and some horses and it's lost to agriculture."

North of Seattle, in Everett, a similar story plays out along the Snohomish River. And south along the Puyallup, farms have given way to housing developments, warehouses, and shopping malls. In recent years, according to a USDA Natural Resources Inventory report, the state has lost an average of 23,720 acres of farmland per year (an amount about the size of Lake Washington).

But in this river of expansion there's a countercurrent, a push of agriculture back into the urban and suburban areas around the Sound. Farms are sprouting up on land where industry has stalled. In some areas, instead of selling off to development, old 50- to 100-acre farms are carved up into 10-acre operations that deal directly with consumers.

Farms are spreading back onto lands that have been rezoned for industry. No one's building warehouses right now, says WSU extension agent Chris Benedict. That means in places like the Green Valley, Renton, and Kent, people are farming again. "From Renton to Puyallup it's really helter-skelter amongst the warehouses," he says.

And within the larger urban populations, consumers are more interested in eating local food and knowing the farmer. Whether they're trying to shrink their carbon footprint or have more control over the sources and safety of their food, people are much more interested in where what they eat is coming from, says Benedict.

And their public leaders are hearing them. This is the year the Seattle City Council has proclaimed the Year of Urban Agriculture. "We are committed to making changes that are better for people and better for the environment," Mayor Mike McGinn announced in February. "This means making it easier to garden and grow food, to ensure that good food is available in all neighborhoods, and to find innovative ways to encourage local and regional food production."

It's not just happening through farm stands and farmers markets. Grocery stores are offering classes on how to find food produced closer to home. And some, like PCC Natural Markets, have established trusts to preserve ag land and support new farmers.

In her 1970 book *The Economy of Cities*, author and urban theorist Jane Jacobs hypothesizes that cities came first, and rural economies, including agriculture, were built upon city economies. She also points out that the most urbanized countries "are precisely those that produce food most abundantly." Growing, healthy cities, she argues, carry rural and agricultural productivity in their wake.

Japan, after World War II, reinvented its agriculture, notes Jacobs. It did so on a foundation of city productivity. The result was a more diverse and abundant food supply. It is something other countries could do as well, she suggests.

This time shares much with the early 1970s, when Seattle saw its first community gardens and people were interested in fresh, local food. A new generation of farmers had come to the Northwest to drop out of the industrial culture and get back to the land. The public garden movement started when the families like the Marras sold their land to the city so the people living nearby could garden and grow food there.

Today the sounds of the Marra farm include the roar of airplanes and traffic as well as the voices of children tending their grade school P-patches and buzzing of bees in the hives on the west side of the farm. Here in the city on bits of farmland, neighbors meet over rhubarb plants, tomato seedlings, and rows of lettuce and beans. Since the 1970s these gardens have taken root all over Seattle—Ballard, the 1.3-acre Danny Woo Community Garden in the International District, and Jackson Park to name a few. And thanks to a recent flush of new gardens, Seattle's list of public P-patches numbers more than 80.

The city's P-patches provide food for those who garden there, and for food banks and schools. Depending on which garden, the land is owned by the city, the Seattle Housing Authority, King County, a P-Patch Trust, and private interests. The city estimates that more than 4,000 people are gardening in the community plots, with nearly 2,000 more on waiting lists. At the highest-demand sites like Queen Anne, Fremont, and Capitol Hill, the wait may take three years.

The question today, as agriculture is pushing into the cities, is whether we have returned to a period like the health-food conscious, back-to-the-land 1970s. Or is this something else?

From the perch of her farm above the Skagit Valley, Anne Schwartz '78 has watched agriculture and consumer demand from the time she harvested her first crop of organic vegetables. Back in the late 1970s, the new farmers were politically active and intent in finding a way to help save the world from industrialization. "In the '70s it was a general rebellion from things," she says. Today, when people go back to the land, it's much more complicated, she says.

Besides running a farm and supplying produce to farmers markets and directly to consumers, Schwartz has ventured into public policy and organized activism. She has served as president of Tilth Producers of Washington and participates in local and state farm and legislative advisory committees.

That movement from the '70s didn't disappear, says Schwartz. It matured. The original issues are still in play, but they have broadened to include countering global climate change, protecting farmland from development, securing the food supply, and instilling a sense of community.

"There certainly is enough of a public upswelling," she says. Add to it that the downturn in the economy is stalling development and that there's a greater public awareness of the need to preserve farmland. Then factor in a greater desire for fresh, local food. It has all worked together to put farming back near and into cities, she says. "It's a little bit of a perfect storm."

THE NEW FARMERS

A few miles uphill from the Marra Farm into West Seattle, right in the middle of a brand-new neighborhood, is the High Point Market Garden—where small-scale farmers can raise produce on public land that they sell at farmers' markets and through Community Supported Agriculture (CSA) subscriptions.

High Point is a born-again neighborhood. In 2003, working-class and immigrant families were moved out of the 60-year-old community and all the roads, homes, and utilities were removed. They were replaced with a mix of 1,600 low-income rentals, single family homes, condominiums, and town homes. And small farms and gardens.

The mixed-income community was completed this year. It houses about 4,000 people including new immigrants and refugees. On a warm spring morning, two Cambodian women water and weed in the High Point Market Garden. As one walks the hose around a raised bed, the other sits down for a break. They tend their portions of more than 70 raised beds. Here none of the soil is sacrificed to weeds. In this brand new farm in this brand new neighborhood, these women and their fellow farmers are using intensive cropping to grow enough produce to fulfill orders of weekly produce for 50 households.

These new farmers are bringing labor and energy to our cities, says Bee Cha, WSU's small farms agent who works directly with Hmong and refugee and immigrant farmers.

When Cha was 15, his family moved from Laos to Washington. Almost immediately he and his parents and siblings went to work on farms. Among other things, Cha helped his family earn money by picking strawberries. Though they farmed in Laos, "everything is different here—the crops, the system. The only thing that is the same is the willingness to farm and the energy."

A family member had started farming through WSU's Indochinese Farm Project and by the late 1980s was turning decent profits. That prompted Cha's father to grow his own crops in the Sammamish area. For Cha's family and the nearly 100 Hmong families who are now farming in Washington, agriculture was a means of making a living in their new country. Some of what they did went against their culture and traditions, says Cha. Growing flowers for example—in Seattle, the Hmong farmers are famous for providing gorgeous, affordable bouquets at places like Pike Place Market. "In Laos flowers are considered a nuisance," says Cha.

WSU's Bee Cha helps East African refugees assemble a seeder. *Staff photo*

It is not a love of their beauty, or a decision to provide an alternative crop at the market that causes Hmong farmers to grow the flowers. It's a simple equation of labor and economics, says Cha. "Vegetables are much more labor intensive," he says. They're harder to pick, you have to be more aggressive with weeds and insects, and you need things like water to irrigate and wash them and to have storage structures, probably cold storage, on site. Flowers, until you get to the market and have to start arranging them, are much easier, he says.

Cha's understanding of what it means to be a new immigrant, his language skills, and his knowledge of farming gives him a perspective for helping the newest refugees figure out farming in the Puget Sound region. One day this spring he drives down to Kent where a dozen East African farmers are waiting. It's Cha's day to teach them how to assemble and use a small seed planting machine. Back at the refugee camp in Somalia they planted everything by hand—and grew food to supplement their rations. Here they're trying to feed themselves as well as sell produce through small grocery stores.

The refugees' farm is a 10-acre lot at the base of a hill. At one end is a ramshackle blue shed. At the other, a home and yard littered with cars and appliances. Two groups of refugees are using these acres—a group from Somalia and a group from Burundi. The men gather around as Cha pulls the seeder in parts out of a medium-sized cardboard box. Celestine Sibomana, the farm manager for the project, follows Cha's instructions and uses the tool to sow a row of beets. "Part of the challenge for them," says Cha, "is just learning how to farm in the Pacific Northwest."

BACK TO THE FARM

On the day the African farmers in Kent are trying out their seeder, 30 miles north along the Snoqualmie River Siri Erickson-Brown and Jason Salvo spend their morning planting lettuces, tomatoes, and other seedlings.

Salvo and Erickson-Brown are both city kids, graduates of Garfield High School who seemed destined for urban lives. After college, Erickson-Brown went to graduate school in public affairs and Salvo headed to law school.

Above: Siri Erickson-Brown and Jason Salvo at Local Roots Farm. ***Below:*** Erickson-Brown washes greens by an oxbow of the Snoqualmie River.

But then while Salvo was studying for the bar, Erickson-Brown interned at a local farm. Why not? Not only did she enjoy farming, Salvo did too. A year later they found a landowner willing to farm with them and broke ground on his property along the Snoqualmie River.

At the same time, points out WSU extension agent Andrew Corbin, they live in one of Seattle's oldest and most urban neighborhoods, Capitol Hill, and drive a reverse commute out to the farm near Carnation.

"We're Local Roots in all its meanings," says Salvo, explaining that when they started selling their produce, they reached out to friends and family in the city. They sold subscriptions for weekly delivery of their produce simply by sending an invitation to everyone on Erickson-Brown's email address list. "It's our parents, our relatives, our friends, their friends, and so on," she says. They also sell their produce to about a dozen Seattle-area restaurants.

They aren't the small-scale farmers of the '70s, though, notes Corbin. Their outreach goes beyond farm and family. Each year they take on interns, training the next batch of new farmers. This year, more than 60 people applied for just six positions. Salvo and Erickson-Brown also participate in regional government advisory panels and nonprofit organizations supporting local food systems. And they keep an online blog on the challenges (slug and deer damage) and the pleasures (selling out at the market) of farming.

More and more 10- to 30-acre farms with hundreds of varieties of vegetables and specialty livestock are moving in, says Steve Evans, King County's farm specialist. Over the years he has seen established farms disappear for a variety of reasons—including encroaching development and increased environmental regulations. But as things like dairies die off, land is now available for smaller farms with high-value crops.

Despite the trend to more small farms, the future of agriculture in King County is uncertain, notes the county's 2009 Farms Report. While the conversion of farmland has been slowed, agriculture is still threatened

Above, clockwise from top left: Farmer Erickson-Brown, center, and an intern visit with King County Executive Dow Constantine. The Fremont P-patch. A sign at Terry's Berries farm in Tacoma. The U-District P-patch.

The markets are up

A century ago in Seattle, farmers and consumers did business on the city's streets to circumvent the commission houses that were jacking up prices and selling old produce. In 1907 their exchange was provided a home under an arcade at Pike and First Avenue.

Over the decades Pike Place Market has provided Seattleites a place to buy their food directly from the farmers. Truck farms from Bellevue, Bainbridge Island, the Kent Valley, and elsewhere supplied the stalls with produce, dairy, seafood, and meat.

At one point in the 1960s, though, the fate of the market hung in the balance. It was considered a blight by Seattle's leaders who unveiled plans to raze it and replace it with parking lots and office buildings. Fortunately a group of citizens lobbied to protect the landmark and get it listed as a historic district.

Today Pike Place Market draws nearly 9 million visitors a year and houses stalls for produce and flower farmers as well as seafood stands and specialty shops. Even though it's one of the major tourist draws on the West Coast, it stays true to its local farmer roots ensuring that those who sell food there grew it or caught it themselves.

In 1982, when Steve Evans '78, '82 went to work at the market, it was just one of two farmers markets in the entire state. The other was in Olympia.

Just 10 years ago the number of markets in Washington climbed to about 20. As demand for local produce has risen, so has the need for farmers markets. "This year, we're expecting to have 40 in King County alone," says Evans, now the head of agriculture for the county. "And there's about 110 state-wide."

To find a nearby farmers market visit www.wafarmersmarkets.com.

Opposite: Wenatchee Heights

on when they're used. Weaving that all together in a program is what's complex."

Add to an already complex situation the problem of resistance.

"You need to mix them around.

"Ten years ago people didn't worry about resistance," continues Brunner. "Now, we go to meetings and we say use this product or use this product, and growers ask, well how does this fit in resistance management?"

The members of the PMTP have been communicating not only with growers and managers, but with farm workers also. One of the main messages carried by team members such as postdoc Nadine Lehrer to this group is that the new products they're working with really are safe.

With the older chemicals, sprays would be applied and then workers were able to go back into the orchard for anywhere from three to fourteen days.

"Now it's four hours," says Brunner.

A powerful tool that Jones, Brunner, and others have developed for growers and managers to navigate the new, softer-but-complex strategy is the web-based Decision Aid System. Jones offers me a chair next to him behind the two large computer screens he spends much of his day behind and logs on to the DAS.

The DAS basically tells growers "this is what insects are doing, and this is what you need to do," says Jones. The DAS "imports weather data, uses the data to drive insect and disease models and then integrates that information with physiological time-based pest status and management messages." The system contains ten different insect models, offering information on their seasonal development, when they are active, when they reproduce, and so forth. It also contains three disease models (for fireblight, scab, and powdery mildew) and one horticultural model.

The DAS system is linked to AgWeatherNet, the localized weather system directed by WSU's Gary Grove and others, which has 132 stations throughout the region. The DAS also uses NOAA and Weather Service forecasts to look into the future. It links to a wealth of supplemental material on insect behavior and phenology and usage information on all the next pesticides.

"The DAS has changed my life," says private pest management consultant Nick Stephens. He now joins most of the region's growers and consultants in logging into the DAS every morning. It does not do their work for them, but rather helps them decide which among the many choices to apply when for codling moth, for example. What spider mite predators are vulnerable to spray right now? Have there been enough degree-days of heat to make spraying for fireblight necessary?

As powerful as the DAS is, Brunner also stresses that there is no cookbook recipe for managing an orchard.

"Every site is different. The permutations are huge."

The Washington fruit industry is an enormously complex web of packinghouses, fieldmen, private consultants—and WSU scientists.

Although the new pesticides are far safer, their application demands more complex timing and coordination. Entomologists Elizabeth Beers, Vince Jones, and Jay Brunner and postdoctoral researcher Nadine Lehrer have led grower education through the Pest Management Transition Project.

Brunner estimates there are between 200 and 250 consultants working in the industry. A few are private. Some work with the warehouses. Some work with chemical distribution companies.

"They're highly trained," he says. "They're taking our information and they integrate it into the needs of every grower."

"ONE HUNDRED MILLION BOXES" is the first topic of conversation at breakfast the next morning. I've met Harold Schell and Nick Stephens at Smitty's on Wenatchee Avenue, the main drag. A hard wind is still driving out of the Cascades, and it's cold enough for a warm jacket. But Schell and Stephens are upbeat.

Stephens, a private consultant, you met earlier. Schell '77 is the lead horticulture fieldman for Chelan Fruit, one of the main packing warehouses in the region.

The hundred million boxes is the size of this year's projected apple crop. In spite of what might seem a potential oversupply, prices are good and holding firm, says Schell.

Yeah, everyone's feeling good. But you can feel the intensity of what these guys do. Washington is the largest apple growing state in the country. No one comes close. And Stephens and Schell aim to keep it that way. Not only is the pressure of producing perfect fruit intense, so of course is the economic pressure.

Later that morning I drive up to Wenatchee Heights. The apples and cherries at that elevation are still in full bloom. The roads between orchards go on forever. Orchard upon orchard spread down toward the valley, a panoramic landscape of enormous scale, of fruit, of beauty, and of livelihood.

Earlier, Brunner had given me a quick tour of the investment and risk landscape.

WSU recently planted a new research orchard south of Wenatchee at a density of 1,452 trees per acre. "And that's not highest density," he says. Some orchards on dwarfing rootstocks and trellis systems push 2,000 trees per acre. Figure $7-8 a tree. Then there's irrigation and other infrastructure.

"These guys are investing, in the first three years, anywhere from $25-27,000 an acre with no return. They have to have a full-bearing crop by year six or seven to pay back investment. The capital intensity is huge compared to wheat or almost any other agricultural crop.

"There's opportunity for great reward, but it's a huge risk. You used to be able to produce a lot of fruit with two-thirds of it high quality. Now you've got to have 90 percent high quality fruit and still produce a big yield," he says.

Schell and Stephens know that risk inside out. It's their job to ensure that 90 percent high quality.

Still, even before our pancakes arrive, they're talking about how beautiful it is out there this year.

"When your office is your truck," says Stephens, "and you're going up and down the highway, and that's all you're looking at, it's a real funny dichotomy of emotion we have. You're so keyed into these bloom stages and the appropriate timing of these different activities you have to get done by growers—but then there's just the aesthetics … snowcapped peaks in the background and the pears in full bloom."

They both talk about how great the smell is this year.

"I've always thought if you could bottle the smell, you'd make a mint," says Schell. Then he talks about how his grandfather came out from Louisiana and planted 40 acres of golden delicious, taking a huge risk, without a buyer and before anyone knew what a golden delicious was. But he made it. And now here's his grandson talking about how much he loves going to work and how beautiful it all is.

"Anyway," says Stephens, "this time of year it's … the point where not only are there all sorts of horticultural activities taking place, you're thinking about the implications, the ramifications of the kind of weather … and it's just another odd year in a row, and cold, wind, hot, flowers opening up, the stigma, will they still be receptive when the wind stops blowing, full bloom, and then you start thinking when are we going to set a biofix on codling moth?" ⊗

More orchard photos are available at wsm.wsu.edu.

N 49° 0' 43" | W 123° 34' 31"

FEASTING *on the* Salish Sea

by Tim Steury :: seascapes from "Salish Sea 2" by David Ellingsen

IT MUST HAVE BEEN QUITE THE FEAST.

No one remembers the host. Or how many guests there were. Or how long it lasted. Or even when it was exactly, though 650 years ago is a good guess. We do, on the other hand, know what they ate—approximately 10,000 sea urchins.

Archaeologist Colin Grier and I are standing at the back corner of what was once a longhouse on the northern tip of Galiano Island at the southern end of the Strait of Georgia in British Columbia.

In 2010, Grier and his crew, intent on another project, had nearly passed on this ancient longhouse. But they decided to quickly dig a test pit, just out of curiosity. And bingo, they landed right in a large hearth full of sea urchin remains.

Trees have once again taken over the site where the plank longhouse sat. The outline of the house, approximately 10 by 40 meters, is clear and ghostly. Such a distinct impression is rare, says Grier. There are probably only five or six sites in the whole region with obvious house depressions.

Based on carbon dating, the house was occupied between 650 and 1,000 years ago. There may have been another house, maybe two more, joining this one, though no one has excavated in search of them. These days, a pedestrian path to the beach leads right across the house floor.

The remains of the sea urchin feast date to around the time the house, for whatever reason, was abandoned. It might well have been its last feast.

In his *Peoples of the Northwest Coast: Their Prehistory and Archaeology*, archaeologist Kenneth Ames '76 PhD introduces a sweeping examination of a diverse and complex region stretching from northern California to southern Alaska.

Along this 2,000-kilometer coast (as the raven flies, that is; the coast itself, with its thousands of inlets, is much, much longer), the original peoples were extraordinarily diverse. In the mid-nineteenth century, 39 languages in 11 language groups were spoken along the Northwest Coast.

The Coast Salish alone had scores of local groups, all differing in their traditions, histories, and practices. Among them were the Hul'qumi'num, to which the ancient residents of Galiano Island and their presumed descendents, the Penelakuts, belong, even though the Penelakuts' oral history has no recollection of these specific villages.

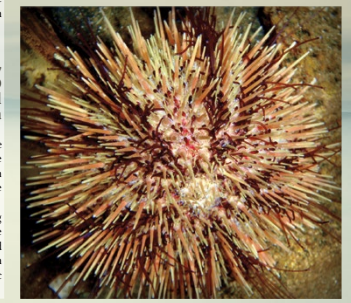
Grier, a Canadian who has spent most of his life on the West Coast, has been exploring the vicinity's past for the past 15 years. He joined WSU's anthropology program in 2007, filling the position in Northwest archaeology held for 50 years by Robert Ackerman and reinvigorating an emphasis on Northwest coastal archaeology established by Richard Daugherty and the Ozette dig on the Olympic Peninsula in the 1960s.

In 1996, Grier and colleagues were working at another site, Shingle Point on Valdes Island. They had boated over to Galiano on a field trip. "I had all these questions for my dissertation about household organization. I needed a site where I could investigate a large household."

Now we're standing in what may have been the house's front yard, he says, where they found lots of refuse and bone points. Maybe it was a work area, suggested by a piece of worked schist or shale with bone tools next to it.

As substantial and large as it was, the longhouse was moveable and adaptable. A log frame was covered with cedar planks and was modular in design, enabling the inhabitants to easily expand or shrink the house according to space needs.

The inhabitants of the longhouse subsisted over the winter on salmon gathered from the Fraser River to the northeast. In the spring,



Green sea urchin *Strongylocentrotus droebachiensis*. *Courtesy Shaw Ocean Discovery Centre*

herring would be the first resource to come back. Then sea mammals and plants. Then in summer or late spring, people would move, take the house planks with them, maybe visit relatives in highlands, maybe hunt deer or collect berries. They would re-gather in the fall, living what Northwest Coast archaeologists call the "winter village pattern."

At the time the longhouse was occupied, Grier estimates that the population of the greater Salish Sea area was 70,000 or more. The house here at Dionisio Point sheltered probably 60 people. Villages lined the shore every four or five kilometers. Grier says there were probably 500–1,000 people living within an easy day's paddle.

Ames suggests that the population of the entire Northwest Coast, before the epidemics introduced by Europeans, may have been a million or more.

The important question for Grier, however, is not so much how densely populated the ancient Salish Sea was, but how these people came to settle in households. "Why did these large households come into existence?" he muses.

"I've always been interested in household archaeology. It connects the inside of the house to broader changes, to economic patterns in the region."

Ames, who wrote his dissertation on Ozette, observes in his *Peoples of the Northwest Coast* that indigenous peoples of the region break all the anthropological stereotypes.

The question lurking in many anthropologists' minds is why did our ancestors move from hunting and gathering to a more sedentary life? How did we become settled? And how did that change catapult us toward the kind of societies we live in today?

The long-held answer is that agriculture provided humans the path toward sedentism and complexity, toward a modern culture. People of the Northwest Coast have confounded those traditional assumptions.

"For a long time," says Grier, "the thought was that the path to civilization was through agriculture. Hunter-gatherers were mostly irrelevant, but kind of an interesting side-path."

The evolution of thinking about social and political complexity is suggested by the shift in the scholarly terminology. "Hunter-gatherers," in reference to Northwest Coast people, became "complex hunter-gatherers" and "affluent foragers," reflecting the steadily increasing understanding of the archaeological record.

There are three means of understanding Northwest Coast people: the oral history of the people themselves; ethnography, including the written accounts of early European explorers; and archaeology.

Much of our understanding, gathered through the first two means, is that the culture of Northwest Coast people was based largely on salmon, that salmon was a readily available, abundant resource. Indeed, it is clear from Grier's investigations that the people living on Galiano Island would relocate temporarily to gather salmon from the Fraser River, then return with their winter stores of dried salmon to their base at Dionisio Point. Add to that a few halibut and herring, maybe a sea lion or two, and the good life was to be had for the taking. Why bother farming?

But further examination and reflection is suggesting that maybe this view, generally supported by evidence produced after European contact and accompanying epidemics, may be only part of the picture.

Indeed, Grier cautions that historic accounts need to be considered in light of archaeological findings. "Loss of population resulting from diseases introduced by Europeans may have shifted long-standing territorial relationships and patterns of movement," he writes. Although "hunter-gatherers," no matter how "complex," have traditionally been thought of as not practicing agriculture, the economic practices of the Northwest Coast peoples were likely more complicated.

Grier's work points to "a broad and varied suite of resources" rather than a singular focus on salmon at any period.

Not only were the resources broad and varied, they were cultivated.

"What is interesting," writes Kelly Derr in an email, "is that because native people were not using domesticated crops or recognizable species (with the exception of wild tobacco, *Nicotiana attenuata*), very little attention was given ethnographically to how they managed landscapes for plant food production."

Derr is a doctoral candidate working with Grier and is the manager of the Dionisio Point excavation. Her dissertation is focused on natives' use of fire to manage their landscape on nearby Valdes Island.

It has been argued, she continues, that the quick adoption of potato farming by Coast Salish people right after contact is evidence that cultivation practices were already in place.

Derr's dissertation research concerns "agricultural" practices prior to contact. Actually, she prefers the term "intensive cultivation," as it avoids the domesticated crop bias of "agriculture." Of particular interest to Derr is burning as a means of managing the landscape.

"What we are finding," she writes, "is that people were very much involved in managing and domesticating the land they put into cultivation, but were not focused on genetically domesticating the plant species."

Derr's argument is furthered by a number of other Northwest anthropologists, perhaps most actively by Douglas Deur. A collection of essays he edited includes contributions by Ames and others. Deur argues that although Northwest Coast resources were indeed abundant, they were not so readily available that people could just walk out the front door of their plank houses and gather dinner year-round. In order to augment the natural bounty, native people managed the landscape in many ways, particularly necessary given the documented high population densities of the region.

Grier comments, "It seems as though the extensive land/coast modifications that were employed in cultivation (burning camas

Amidst the clamshells and "fire-altered rock," a midden offers tantalizing clues about a culture. *Staff photo*

Soil scientist John Reganold contemplates soil layers revealed in a road cut near St. John. *Photo Jim Richardson*

A Fine Thin Skin

wind, water, volcanoes, *and* ice

:: *by Tim Steury* ::

"To be a successful farmer, one must first know the nature of the soil." —Xenophon, Oeconomicus (The Economist), 400 B.C.

SOMETIMES IN LATE SPRING and late summer, when the fields of eastern Washington have been tilled for spring planting or recently harvested, a wind will build out of the west, gathering the loose loess soil of the dry fields, lifting thousands of tons of it into an ominous cloud that shrouds the region in a murk. The dust that grates in the eyes and leaves a dirty skiff on everything is a lesson in both geology and agronomy.

THE BIG PICTURE

The soils of eastern and western Washington, different as they seem and are, have one thing in common, as do most. They come, either by water or wind, primarily from elsewhere.

Within the geologic timescale, most soils are very young. Within a human timescale, they are ancient. They also form a minute part of the earth in general, a fine thin skin.

University of Washington geologist David Montgomery, in his recent book *Dirt: The Erosion of Civilizations*, describes soil as the "frontier between geology and biology." Stressing how thin that frontier is, he compares it to human skin. Whereas human skin, at less than a tenth of an inch thick, represents a little less than a thousandth of the height of a person, soil accounts for barely one ten-millionth of Earth's 6,380 kilometer radius.

East of the Cascades, the loess soils of the Columbia Plateau and the Palouse, some of the deepest soils of Washington, are the result of the return of windblown silts, says Bruce Frazier, recounting the major geological events that created Washington's diverse soils. Frazier, a soil scientist, recently retired from WSU where he spent much of his career mapping Washington soils.

Southwest Washington is quite different, Frazier continues. Sedimentary materials interspersed with old basalt flows support mountain forests. Chehalis has a coal mine, he notes, highlighting the region's much different geology.