

A Wall Connecting Cultures



📷 James Florio

When visitors come to the Portland Japanese Garden, one of the first features they notice is a massive stone structure at the west end of the new Cultural Village. Measuring 18.5 feet tall and 185 feet long, it rises up to both greet visitors and transport them to another place and time. Walking past it, the visitor catches his reflection in an oversized stone and pauses. Staring up at the dry stacked rocks looming above, this structure prompts more questions than answers: just what is this giant wall? And what is it doing in the middle of Portland, Oregon?

A WALL LIKE NO OTHER

This wall—known as a *shiro-zumi* Castle Wall—is part of the Portland Japanese Garden’s \$33.5 million Cultural Crossing expansion, which also includes three new LEED-certified buildings designed by world-renowned architect Kengo Kuma. The idea for the wall began with Garden Curator Sadafumi “Sada” Uchiyama. Due to the Garden’s position on the top of the hill, it became clear early on that a retaining wall was needed to hold back the western slope. Instead of a more traditional retaining wall, Sada thought it would be an opportunity to feature yet another connection to Japanese heritage craftsmanship. The Castle Wall is a first of its kind to be built outside of Japan.



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A TRADITIONAL TECHNIQUE

In medieval Japan, fortresses (*shiro*) were constructed primarily of wood and paper—the same materials used to make houses, shops, and other buildings. While a strategically placed wooden castle could hold off many, one flaming arrow could destroy the entire structure. Over time, battlements made from mud and wood were shored up with stone. During the intense Azuchi-Momoyama Period (1569–1603), rival clans struggled for control over Japan’s feudal regions. The Shogun, using information from Jesuit missionaries who had traveled through Germany, started using masonry to fortify his castles. Within one generation, Japanese artisans developed stone-building techniques that surpassed the European prototypes.

Ano-zumi, a traditional technique to build a dry stone wall, was developed around 350 years ago. This technique uses unhewn stones which lock together to form a strong wall, designed to last for centuries. Large foundation stones (*sumi*) support the weight of natural, raw stones. Instead of mortar, ballast stones (i.e., gravel or stone chips) fill the gaps between the stones and provide additional strength.

Traditionally, each wall contains several feature stones to add visual interest, as well as a *kagami*, or mirror stone. The *kagami* is the largest stone, with a smooth, outward-facing surface. These massive boulders invite the viewer to pause for a moment of reflection—it is a visual break in the wall’s densely packed stones. The *kagami* also represents the Shogun’s station within Japanese society. Only a leader with significant wealth and power could move a stone of this size, much less install it in a castle wall.

“A castle wall was originally a symbol of power,” said Sada. “Approaching, the viewer would think of how much work and how many people it takes to build a wall of this size. In medieval times, that meant hundreds of skilled workers, and animals, working for months. It was incredibly costly—only a great leader could have a wall like this,” he added.

CALLING UPON THE PAST TO BUILD THE FUTURE

Creating such a sizable structure at the Portland Japanese Garden would not be easy and required a uniquely refined skill set. To find the right person to lead this project, Sada would have to go back in time.

He reached out to Suminori Awata. A fifteenth-generation Japanese stone mason, Mr. Awata used the *ano-zumi*, or “dry stone” building style, which originated in 17th century Japan.

At the time he was asked to take on the Castle Wall project, Mr. Awata didn’t know much about the Portland Japanese Garden. But when Sada described what he envisioned, Mr. Awata did not hesitate to say yes.

“I have been learning this craft since I was very young. My family has been stone masons for 300 or 350 years; they built around 80% of the stone walls in Japan. My father and I both learned our family’s trade by watching my grandfather. As an adult, I’ve been repairing walls my family built and I have built walls for large houses and shrines. But I’ve never built anything of this size. It’s the opportunity of a lifetime.”

As a result of his ancestors’ superior craftsmanship, Mr. Awata has rarely created new work. Instead, he has spent his career repairing or maintaining existing walls, which were built by his ancestors. Some of the walls date back to the 9th century and have survived earthquakes that flattened more modern, high-tech buildings. The Castle Wall at the Portland Japanese Garden represented Mr. Awata’s first opportunity to practice his trade on a grand scale.

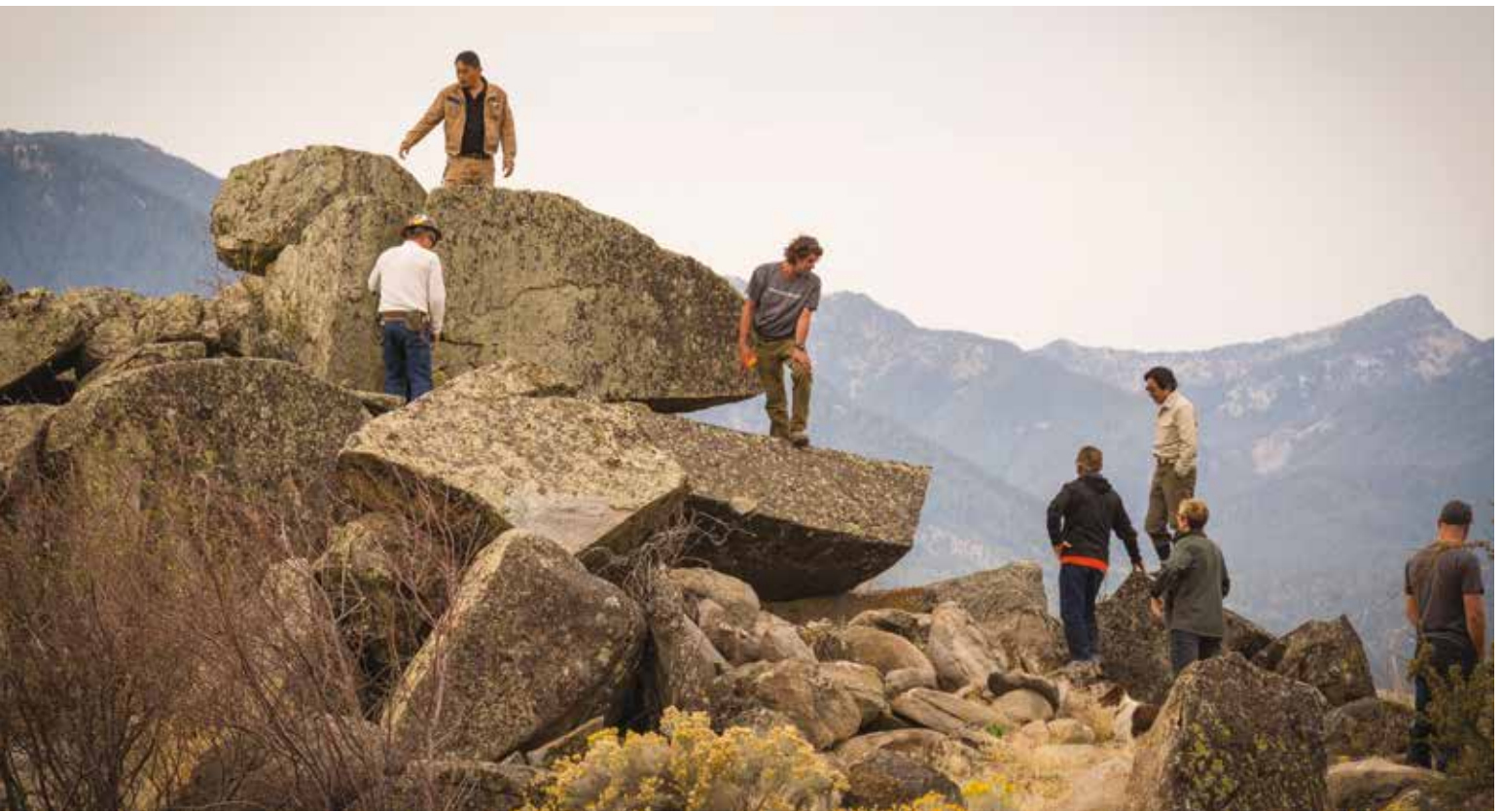
Immediately after Mr. Awata signed on, his team of assistants was assembled. Matt Driscoll (O’Driscoll Stone, Petaluma, Ca.) and Kyle Schlagenhauf (Green Man Builders, Arcata, Ca.), were selected, as was Ed Lockett, owner of Stone Sculptures, Inc., and his team. Finally, Sada and the Portland Japanese Garden gardeners took turns contributing to shaping and placing the stones.



Suminori Awata, fifteenth-generation Japanese stone mason.



Left to right: Dan Dunn, Ed Lockett, Jon Phelps, Suminori Awata, Matt Driscoll, Sadafumi Uchiyama, Kyle Schlagenhauf



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SOURCING LOCAL STONE

Throughout the project, it was a top priority to maintain the feel and essence of the Japanese garden and architect Kengo Kuma's overall vision for the Cultural Crossing project. Thus, before work could even begin on the 185-foot-long wall, there was an extensive search to find the perfect stones.

Oregon is rich in Basalt, a type of lava-derived rock which can have an irregular grain and is considered too fragile for larger projects like the Castle Wall, as it might crumble under the wall's weight. For the Castle Wall cornerstones, huge blocks of granite were needed—six feet long and at least three feet thick.

Finding a source for stones of this size and strength was no easy task. Sada wanted to source the stones locally and knew of a quarry outside of Baker City, Oregon which produces fine-grained, blue tinted granite called Baker Blue—but the quarry had been closed for several decades. The property is managed by Dan Dunn, owner of Alpine Boulder Company, who only opens the quarry for very special projects. It is the only known source of granite in Oregon.

Several trips to the quarry yielded 1,000 tons of the Baker Blue granite. Together, Sada and Mr. Awata hand selected the enormous blocks of granite.

"I listen to the boulders. From the time I found them in the quarry to when I select them for final placement, they are always telling me where they want to go. That is what I watched my grandfather do and that is how I know these rocks will stay in place," said Mr. Awata.

BOLTS AND FEATHERS, CUBED AND SQUARED

The boulders were then transported to Smith Rock Inc. in Southeast Portland, using specialized heavy-equipment. There, workers began cutting stones into smaller pieces that could be shaped and split by hand, using tools such as saws, hammers, and drills.

Under the direction of Mr. Awata, Schlagenhauf, and Driscoll, gardeners from the Portland Japanese Garden helped split the boulders to prepare them for their placement as part of the wall's foundation.

The sound of metal on rock—drill bits, mallets, and saws—filled the air, along with dust and flying rock chips. Mr. Awata walked from stone to stone, carefully observing everyone's progress. Instead of mortar, smaller ballast stones would fit to join larger foundation stones. The goal was to cut more than 800 tons of Baker Blue granite into long, large foundation pieces. Fifty-five cornerstones would support the authentic medieval Castle Wall.

The sound of metal on rock—drill bits, mallets, and saws—filled the air, along with dust and flying rock chips.



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PRUNING STONES

Baker Blue granite is strong enough to support hundreds of tons of rock without breaking or crumbling ensuring the Castle Wall will stand for generations of visitors to enjoy—an enduring example of the finest Japanese craftsmanship, made from Oregon materials.

“With such a beautiful, high-quality stone, we didn’t need to do much to prepare it for construction. We might use a 1/8-inch grinder on the face, to accentuate the coloring of the granite. Really, the biggest challenge was getting such a huge piece of rock into place on site,” said Driscoll.

Which is not to suggest the process was easy. To split a boulder of this size cleanly, the mason drills a line of identical holes along the face of the rock. Metal bolts and “feathers,” or winged bolt-holders, are inserted and hammered in with a metal mallet. In order to spread the stress evenly, each bolt gets a few taps at a time. The mason goes down to the end of the line, and then doubles back. Very slowly, the boulder begins to split. Experienced masons may even walk away mid-way through this process to let the stone “rest,” knowing that gentle pressure is even more effective than heavy, intense mallet strikes.



Senior Gardener Adam Hart and Gardener Justin Blackwell joined the stone-cutting crew at Smith Rock and had the opportunity to split 200 tons of Baker Blue granite under Mr. Awata’s direction.

“He marked the cuts with a piece of chalk, and then we got to it,” said Blackwell. “In some ways, it wasn’t that different than what we do in the Garden. When we’re pruning, for example, there’s already awareness that you need to hold your body a certain way when you’re using the pruning saw, and that there’s a certain rhythm and method of cutting. It was good to have that background when we were working with the stone.”

While hand tools were a big part of the stone shaping, Hart was relieved to be using modern methods and machines this time around. In less than two weeks, all 55 cornerstones needed for construction were completed.

“We had drills and saws, it made a big difference. It was an honor to work with Awata-san; a once-in-a-lifetime experience,” said Hart.

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- 1  Bruce Forster
- 2  Kaori Panaia



Astuko Kimura (in green) at work.

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THE LANGUAGE OF STONE

Astuko Kimura had never worn a hard hat and vest before. In fact, she'd never worked outside for a job.

"You had to really bundle up. It was early in the morning in February. I learned right away to dress like I was going skiing because it was cold," said Kimura laughing.

Kimura, a mother of two grown children, was grocery shopping when she saw a newspaper article that mentioned the Garden's Cultural Crossing Project—specifically the Castle Wall. She called the Garden the very next day to inquire about an interpreter position.

That Saturday, Kimura had a sit-down interview with Garden Curator Sadafumi Uchiyama and got the job.

Kimura bundled up and went to work interpreting every week day in February. "I was so impressed with Sada-san. I had been to the Japanese Garden before but had honestly forgotten how wonderful it was."

Kimura grew up just outside Tokyo, and goes back to Japan twice a year to visit family. She works part-time as an interpreter for Japanese visitors coming to the airport, so this was a perfect fit for her. "Plus, what a neat experience to tell my kids I was a part of," she said.

Nana Goto, who lives in Gresham, had seen the same call for interpreters and thought it would be fun.

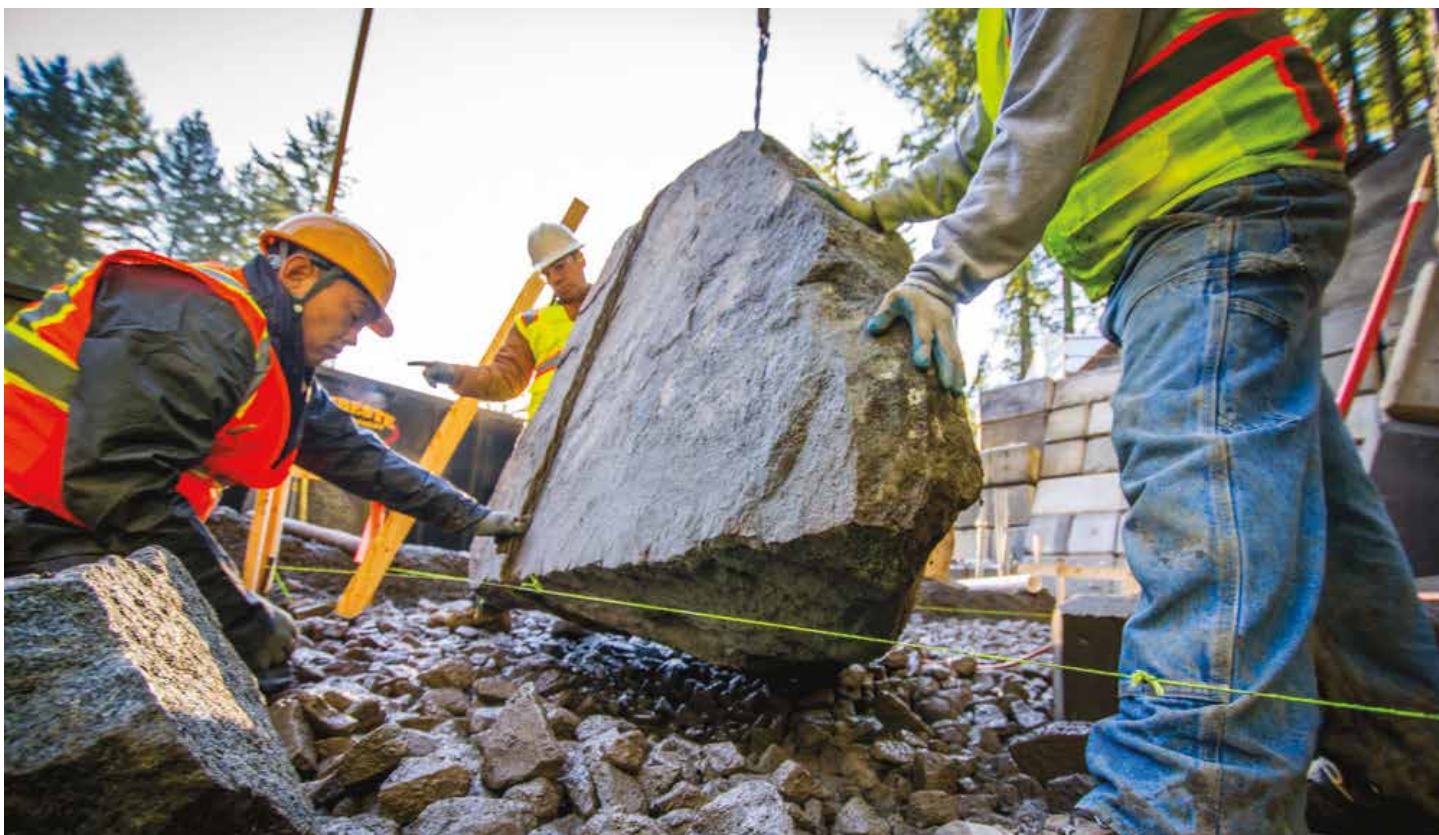
"I thought—now this is going to be an experience of a lifetime," she said.

Keiko Gilbert interpreted two days a week in March. "I was impressed with the process and loved watching the Castle Wall grow. Mr. Awata mentioned that usually people cannot see the process in Japan since it's hidden from the public, so I felt very lucky to be a part of it," said Gilbert.

Despite the severe and challenging conditions at the construction site, the three women stayed positive while supporting the team of stone masons.

"Watching them work, I would think about how cultural Japan meets American culture. It was amazing to be just a small part of what will have a long history," said Kimura.

Desirae Wood, Project Manager and Assistant Administrative Assistant to Uchiyama noted the incredibly positive effect these women had on the overall project. "One of the most important—and unexpected—things they did was keep morale up. We were working in the cold rain all day. I know it really helped Awata-san's state of mind which helped keep everyone going."



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THE FIRST STONE

On the morning of February 1, 2016 gray skies drizzled as two dozen people waited in anticipation for the beginning of this historic project. Three cups were carefully placed atop a giant Baker Blue boulder, there to act as a temporary altar. With one cup filled with rice, one with salt, and the last with sake, the stage was set. Mr. Awata stood alongside Ed Lockett and Sada, who addressed the group:

“This is a modest ceremony we perform to ask nature to look kindly on our project for the safety of what we build, and the people who build it. Ordinarily we would also drink the sake but with power equipment surrounding us, that’s not such a good idea.”

Then Sada passed the sake bottle to Mr. Awata who held it and said a few quiet words. With that, the ceremony was complete. The group disbanded and the work, for which everyone had been prepping, began in earnest. Finally, under Mr. Awata’s watchful eye, the first piece of the Garden’s Castle Wall was carefully lowered into place.

Gradually, like prehistoric puzzle pieces, more stones were added. In the cool morning air, the Garden’s Castle Wall—the first of its kind built in this country or this century—began to take shape.



2

1-2 Bruce Forster

THE BALLET OF BOULDERS

Weeks later, the Castle Wall construction continued. Mr. Awata's role was always the careful planning, guiding each boulder to its new home.

After a stone had been selected to be added to the wall, a rigger carefully wrapped it with a cable, paying special attention to the cable's placement to prevent the massive rock from leaning or rolling when hoisted. It was then lifted above the wall by excavator. The team used ropes, poles, and hands to guide the stone, gently lowering it into place. Next came the subtle adjustments: leveling the stone, checking its alignment. Once Mr. Awata approved, the deliberate process began again with the next boulder.

Craftsmanship and intention were the priorities. From day one Sada said the site had one rule for the stones: "Each stone should move only once."

All of this as Driscoll and Schlagenhauf chiseled away, the musical pings of their hammers hitting the stone, rising above the construction site noises like a well-composed score to the stone dancers.



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THE HUMANITY OF STONE



By the numbers alone, this project is remarkable. But numbers don't quantify the heart and commitment that has driven this project from the start. It was the can-do spirit articulated in the actions of everyone involved, which brought this special project to life.

In the end, the monumental Castle Wall project was completed quickly and quietly. Originally scheduled to be completed at the end of April 2016, the wall ultimately wrapped up nearly a month early.

When asked how the team was able to accomplish this, Lockett replied, "In a big project like this, I've seen a lot go wrong. But this project—we had an incredible team and it all just came together. Everyone was dedicated to making this. And what folks may not realize is that Sadafumi Uchiyama's attention, commitment, and work—that is what really drove this project."

Though mindful of the task at hand, Mr. Awata and his team of assistants were looking ahead the whole time. Throughout the building process, the team dedicated themselves to saving time and materials. This led to a small surplus of labor and stone, making it possible to create another stone wall face at the north end of the new Entrance Plaza at the bottom of the hill.

When asked what his grandfather would say about this project, Awata-san reflected for a moment and responded, "At first I think he would be very surprised that I was doing a project in America. But once he got over that, I think he would point out ways it could be better. He would say 'There is always more to do.'"

- 1  Jeremy Bitterman
- 2  Bruce Forster

In Japanese masonry, form and function are inseparable concepts. Every structural element has a symbolic meaning. For Mr. Awata, the relationship between the stones at the base of the wall and its top was crucial in construction. Each stone played a role—whether supporting the pieces above it, binding the front and back of the wall together, or crowning the wall. Seeing the wall for the first time, visitors should feel a sense of awe.

Reflecting on the construction, Mr. Awata stated, “The slope is impressive, yet sensitive,” continuing that the wall will make people think of how these stones were worked on and assembled in such a beautiful, intentional way. Although stone is sometimes considered a cold, awkward, rough material, Mr. Awata hopes that visitors will experience its humanity through the careful stacking of the wall. “The human element of its construction,” he said, “is as inescapable as the earth the stones came from.”

BY THE NUMBERS

One thousand tons of granite

Traveled 250 miles

To be measured, marked, split, feathered, faced, cut, chiseled, and stacked

Totaling 3,400 man-hours

Communicating in three languages

Led by 15 generations of craftsmanship

To be 185 feet long

And 18.5 feet tall

Resulting in not one but two castle walls

A first for North America



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“The human element of its construction is as inescapable
as the earth the stones came from.” –Suminori Awata



 Bruce Forster

The Portland Japanese Garden wishes to express its gratitude to Robert and Deborah Zagunis. The Castle Wall was officially named the Zagunis Castle Wall in 2017 after their generous donation to the Cultural Crossing Campaign.