

Not My Fault: A fond farewell to HSU's Ken Aalto, 'Mr. Franciscan'

Lori Dengler/For the Times-Standard
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The HSU Geology Department and the geology community lost a colleague and friend this summer. Emeritus Professor Ken Aalto died unexpectedly on June 15th during surgery. Ken joined the Geology Department in 1974, four years before I arrived, and quickly built a reputation as the man to decipher the complex details of the rocks that lie beneath most of our homes and work places on the North Coast.

Whether you realize it or not, you have a close relationship to the Franciscan Complex, a mishmash of different rock types that, at first glance, appear haphazardly thrown together. It underlies most of our homes and workplaces. Berkeley Geology Professor Andrew Lawson, also known for naming the San Andreas fault, first named the unit. Lawson recognized the chaotic mix of rock types - sedimentary, metamorphic and a few igneous - that underlay much of the San Francisco Bay area. He and other geologists would eventually map its extent into southern Oregon and as far south as central California.

The rocks remained an enigma until the plate tectonics revolution of the 1960s. I took a class as an undergraduate at Berkeley when the most common bedrock of the region was still considered unknowable. Why were sandstones and shales, rocks formed near the earth's surface, slapped up against rocks containing minerals that could only be formed tens of miles in depth? Why were some areas sheared into goo and other blocks nearby relatively competent? My professor, a famous mineralogist, explained there was no way to even tell what had originally been up or down.

By the mid 70s when Ken arrived at Humboldt, many geologists were challenging the unknowability of the Franciscan. The plate tectonics revolution was in full swing and recognizing the mobility of the earth's outer surface allowed earth scientists to turn the geologic clock backwards and hypothesize origins. What is the easiest way to jumble a bunch of different rock types together? Why a subduction zone of course.

Subduction zones are nature's great recyclers where large slabs of the earth's outer surface are pulled deep into the

earth by heat and gravity. The process is not a smooth one, friction along plate interfaces allows stress to accumulate and be released in great earthquakes. The process fuels much of the world's volcanic activity and is where the most frequent hazardous eruptions occur. And it produces rock assemblages like the Franciscan Complex. Some of the rock gets scraped off as the giant subducting slabs sink, adding or accreting to the edge of the overlying plate. It's a little like a too full conveyor belt with items haphazardly getting knocked off and mixed together.

Ken was part of the new generation of geologists eager to apply the lessons of plate tectonics to complicated regional problems. Trained as a field geologist specializing in sedimentary rocks, Ken became adept at recognizing subtle changes in texture that would help to solve the up and down problem. And while many geologists were tackling the Franciscan in the San Francisco Bay area, no one had taken a close look at the rocks in Humboldt and Del Norte Counties that comprised nearly a third of its extent. This was fertile ground for a young field geologist looking for something close to home to sink his teeth into.

If it could be walked, climbed, or jumped onto, Ken mapped it, examining every coastal outcrop from Cape Mendocino to Point St George, briars and thickets of poison oak notwithstanding. He trained students to see the telltale signs of different depositional environments and supervised dozens of undergraduate and Masters theses. His careful mapping delineated different units or terranes within the Franciscan, helping to unravel the 150-plus million years of subduction it represents. In 1987, HSU established Scholar of the Year recognition and Ken was its first recipient. He ultimately published over 100 papers and led many national and international conference sessions and field trips and the fond sobriquet of Mr. Franciscan.

It wasn't just the Franciscan that caught Ken's fancy. He became interested in the stories sand grains could tell. He conjectured that the Scotia Bluffs sands came all the way from Idaho, raising a few eyebrows in the geologic community. Melanie Michalak, one of our newer faculty members took on the challenge and examined their geochemical fingerprint. Melanie was not completely surprised that her work confirmed Ken's hypothesis. When she showed Ken the new data, she reported that his eyes twinkled and he said, "Well, I like that!"

Ken's work was not just of interest to academics. It has important implications for all of us who live on the North Coast. In an April 2017 North Coast Journal interview, Ken

helped to make sense of the stability problems on US 101 at Last Chance Grade in Del Norte County. That section of the highway is on a finger of the "broken formation," a unit of the Franciscan that Ken had mapped and characterized as highly fractured. It's strong enough to form steep cliffs, but highly susceptible to wave erosion at the base. Ken summed up the problem, "All I can say is there is a severe problem and it's not going to get better on its own."

The Geology Department will be remembering Ken and his work on October 1, at 5 pm in the Green & Gold Room, Founders Hall on the HSU campus. All are invited for an overview of his contributions to both the larger geologic community and generations of geology students. The University has also established the Aalto Geology Field Endowment to support student field research. Anyone interested in contributing can contact the HSU Office of Philanthropy at 707-826-5200.

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