

# UC Berkeley taps its old mine shaft to study Hayward Fault

Will Kane, *San Francisco Chronicle*, 3-16-14

Mining 101 on the UC Berkeley campus a hundred years ago: the basics of dynamite, shoring a mine shaft, mine surveying and mine rescue.

And it wasn't just mining theory. The students, 18, 19 and 20 years old, actually blasted and dug a shaft, called the Lawson Adit, into the rocky hills on the northeastern corner of campus.

The shaft, which before a series of cave-ins ran nearly 900 feet into the earth just east of the Hearst Mining Building, still stretches some 200 dark, damp feet into the earth, but now sits mostly neglected behind an unassuming locked gate.

Earthquake researchers hope to install seismographs and high-frequency microphones that can detect the squeals of the nearby Hayward Fault later this year, but for now the adit is a mostly unknown bit of Berkeley - and Bay Area - history.

"It is an actual mine, the tunnel was dug by students with their professors watching," said [Scott Shackleton](#), an assistant dean at the [UC Berkeley College of Engineering](#), and the keeper of the adit. "They were paid, I think, a dollar an hour."

## Students work day and night

The students would work round-the-clock shifts mucking, blasting and surveying. They were never searching for product, but were instead learning the principles of mining, much like engineering students today build and test structural models in labs.

Tracks carried mining carts into the nearby Hearst Mining Building, where steam-powered crushers would break apart the rock and students could experiment with new pulley and conveyer systems.

Students wore heavy work outfits and gas masks, swung picks and hoisted boxes of blasting powder - a far cry from today's business students who wear flip-flops and shorts to class.

"They weren't mining, but they were just teaching the mining techniques," Shackleton said. "Kids would be sitting out there taking a break with dynamite and shovels."

Pondering today's students eating lunch on boxes of dynamite, Shackleton added: "Oh my God, you wouldn't have students doing that now. Can you imagine?"

The adit was started in 1916 and named after [Andrew Lawson](#), the then-dean of the [College of Mining](#) at UC Berkeley. The [Hercules Powder Company](#) donated 1,000 pounds of dynamite and a San Francisco iron works donated the latest type of ore cart for students.

Over the next 12 years, students blasted enough rock away to extend the mine 200 feet into the hills.

The original redwood timbers installed nearly 100 years ago still support the first 75 feet or so of the mine, and the old iron tracks still run down the center of the tunnel.

"It is kind of like a Disneyland type of thing, the timbers are hanging down," Shackleton said. Somewhere, deep in the mine, is the old mining cart.

Eventually the mining school was absorbed by the College of Engineering and the mining operations stopped.

But in 1939, as the campus was considering building the Stern Hall dormitory in the hills above the Hearst Mining Building, engineers extended the mine shaft another 700 feet so they could map the exact location of the Hayward Fault.

"As they got closer to the Hayward Fault they had a lot of problems because the soil got really loosey-goosey," Shackleton said.

### **Cave-ins**

Eventually large sections of the mine caved in, and the campus decided it was too risky to keep digging or clean out the debris. Today the shaft extends to less than half of what it was.

In the 1950s, engineers replaced a hundred feet of the redwood timbers with concrete that could support the weight of the new wing of [Donner Lab](#) above the shaft.

Now, Shackleton and the two other campus officials who have a key to the padlocked gate, visit the shaft about three times a year, just to make sure no animals or fraternity brothers have found their way into the passage.

Later this year, a team of researchers will head a few hundred feet into the mine to install instruments designed to detect faint tremors at the nearby Hayward Fault.

"There's a lot that we don't know about the details of what does it feel like when you are right close to the fault," said [Peggy Hellweg](#), a Berkeley research geophysicist. "It is exciting, I am surprised that no one has put any seismology instrumentation into it before."