



LIME KILN CHRONICLES

Newsletter of the Friends of the Cowell Lime Works Historic District
University of California, Santa Cruz

Comparing Campus Kilns

By Frank Perry

"Build a better mousetrap, and the world will beat a path to your door." This famous quote has been attributed to Ralph Waldo Emerson, although it is not quite what he said. The actual quote was, "If a man has good corn or wood, or boards, or pigs, to sell, or can make better chairs or knives, crucibles or church organs, than anybody else, you will find a broad hard-beaten road to his house, though it be in the woods." In both versions, the message is the same: innovation and good quality work will be rewarded.

By one account, there have been more than 4,400 U.S. patents for mousetraps. A check of patents for lime kilns and associated components turned up nearly 300 between 1850 and today. However, this does not take into account that many designs were built but not patented. Given the different fuels, variations in the rock being converted to lime, and advances in technology, the number of designs for lime kilns could well rival the number for mousetraps.

The changes over just the past century have been incredible. Henry Cowell was manufacturing lime in a manner not all that different from the way the ancient Romans made it 2,000 years ago. Today, modern commercial lime kilns are run by computers.

In the late 1800s and early 1900s, at least 45 lime kilns were constructed at various locations across the southern half of Ben Lomond Mountain. There were tall ones, short ones, round ones, and square ones. Some were made out of stone, some of stone and brick, some of stone and steel, others of brick and steel. Some had two doors, three doors, four doors, six doors, or no doors. It seems everyone was trying to build a better lime kiln.

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Photo by Dennis Diego

Cardiff House Seismic Upgrades Complete

By Dennis Diego

The work on the Cardiff House was completed this January and the staff and new director of the Women's Center have moved in. According to Josephine Ortega, Senior Architect and Deputy Building Official, the building has been brought up to current code and is expected to continue to serve the community for another 100 years. In addition to the new foundations and restoration work to all the historic elements of the house, work completed also included:

- New accessible kitchen and bathroom facilities
- Porch and front door accessibility upgrades
- Campus Standard security and energy management system installation
- Seismic upgrades
- Water saving building and irrigation upgrades
- New exterior paint and roof

100 Years Ago . . .

The following were taken from 1916 newspapers.

January 4, 1916

" . . . W. H. Horwitz, a director of the Jesse L. Lasky Company, will arrive in Santa Cruz Thursday with 27 people and occupy practically all of the Hotel La Dora while the company starts work filming exteriors for 'The Trail of the Lonesome Pine,' a future Lasky release. The work will be carried out on various localities on the Cowell property near this city."

April 26, 1916

"The sale of Ford cars continued to keep pace with their usual record this week. Jensen Brothers Auto company report the following sales: . . . Henry Cowell Lime & Cement company, a Ford touring car. . ."

June 7, 1916

"A party of twenty-seven young men from the agricultural department of the University of California, who are making a tour of the agricultural districts, arrived in Santa Cruz this morning. . . . This afternoon the boys went for a trip with R. A. Burton, instructor of agriculture at the local high school, to the Cowell ranch to study the lime rock deposits. . . ."

October 12, 1916

"S. A. Palmer, president of the Henry Cowell scholarship fund, today received a check for \$10,000 to be applied to the fund under the terms of the will of Ernest Cowell, deceased. The other trustees are Miss Lillian A. Howard, secretary; Henry Willey, treasurer; Champ S. Price, and G. A. Bond. The money will be applied to secure scholarships in the state university for deserving pupils."

November 13 1916

"The Henry Cowell Lime and Cement company's plant at Felton was closed down today and all of the workmen as well as many other friends came to Santa Cruz to attend the last rites for the late Jacinto T. Silva held this morning at Holy Cross church. . . . The pallbearers were all fellow workers at the lime kilns at Felton, as follows: Frank Machado, Manuel Enos, C. Brunelli, James Silva, Evan Silva, and Martin Silva."

Proposed Airport on Cowell Ranch

In 1928 the Santa Cruz area had several "airports," but these were little more than dirt fields where planes would occasionally land. There was an airfield near Swanton Beach (now Natural Bridges), at Wilder Ranch, near Rodeo Gulch in Live Oak, and at Capitola. Upper DeLaveaga Park and the Welch property near Felton were also considered as possible airport sites.

A study funded by the Chamber of Commerce, and discussed in the *Santa Cruz Evening News* of October 23, found most of these sites to be either too small or to have inappropriate air currents. The only site favorable "in all particulars," was a piece of land near the Cowell Reservoir (where the UCSC Arboretum is now). Cy Perkins, chairman of the airport committee noted that "travel by air is increasing by leaps and bounds." If Santa Cruz hopes to attract a wealthy class of home owners, he said, a better airport will be a necessity. It was estimated that the cost of developing an airport on the Cowell tract would be \$50,000 to \$75,000.

Probably as a result of the stock market crash the next year, a less expensive alternative was chosen—namely improving the airport at Capitola. The "Santa Cruz Airport" at Capitola was dedicated in 1931 and served flyers until the middle 1950s.

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History Fair a Big Success

Last Fall nearly 300 people attended the History Fair, held in the newly renovated Hay Barn. It was a beautiful day, and visitors marveled at the beautiful venue. Local timberframers demonstrated how the barn was constructed, and over twenty UCSC and local history groups had tables with displays and activities. The event was conceived and organized by the Friends and co-sponsored by the UCSC Archaeology Research Center (ARC), the UCSC Kenneth Norris Center for Natural History, the Santa Cruz Museum of Art & History (MAH), Mobile Ranger, and the UCSC Center for Agroecology and Sustainable Food Systems (CASFS).

The Friends Board of Directors would like to express its sincere thanks to all the participants, speakers, volunteers, and attendees for making this such a fun and educational event. Special thanks goes to Ashley Carniglia, who generously volunteered to serve as chief coordinator. All of the board members helped, as well as UCSC staff members Alisa Klaus and Anne Hayes. Jill Perry and Rainbow Mitchell-Fox greeted visitors, and Harriet Talan helped answer questions.

Finally, thanks to CASFS for making the venue available, and Wiktor Kluzniak of Cen-Con for temporarily pausing construction work in the barn.

'Open Hole' Event June 4th

The UCSC class in field archaeology techniques is once again being held at the Cowell Lime Works Historic District. Pat Paramoure, instructor for the class, reports that there are more students this year than last. They will be conducting excavations where one of the lime-worker cabins once stood.

The course gives students experience with tools, mapping, and the cleaning and processing of the artifacts discovered. You never know what is going to be unearthed. Given the results of past years, they are bound to find something of interest, perhaps significant new evidence about the history of the site.

On **Saturday, June 4, 10 a.m. to noon**, the class will hold its annual "Open Hole" event. Members of the Friends and the general public are invited to visit the site, see what was discovered, and talk to the students about what they learned. Meet at the Hay Barn.

Photos from the Fair



Lauren McEvoy explains the Mobile Ranger app.



A young visitor practices archaeology techniques.



The Hihn Archives gives up some secrets.

(continued from p. 1)

Some kiln designs were at least similar, but others were very much one of a kind. A newspaper account from 1885 described new kilns to be constructed in Felton for the H. T. Holmes Lime Company: "The works will consist of four kilns, one of the kilns erected will be of a new kind, something never seen before in this section, the invention of Mr. Wm. Russell." A native of Scotland, Russell was not only a long-time superintendent for Holmes, but also a stockholder in the company. Sadly, this kiln is now covered, so we have no way of knowing just how it worked or what made it so special.

Here on the UCSC campus, there are seven kilns, with three more just outside the campus boundary in Pogonip. All of the upper campus kilns are pot kilns. These are also known as batch kilns or intermittent kilns. The lime was manufactured one batch at a time. Once loaded, the kiln was fired up. After several days, it was then cooled down and the finished lime removed. Two of the upper campus kilns are rather small, roughly 8 by 19 feet inside, and 13 feet deep. One of these has partly collapsed, but the other shows three doorways for loading fuel and unloading the finished lime. The other upper campus kiln has an interior roughly 40 feet long, with six doorways across the lower front. None of the three is lined with firebricks.

In the Historic District near the campus entrance are four more kilns. Three are pot kilns and the other is a continuous kiln. As the name implies, the latter could run continuously for weeks, or months. Also known as a patent kiln or vertical shaft kiln, it was intended to save on energy costs. The finished lime accumulated in a cooling chamber at the base and could be removed

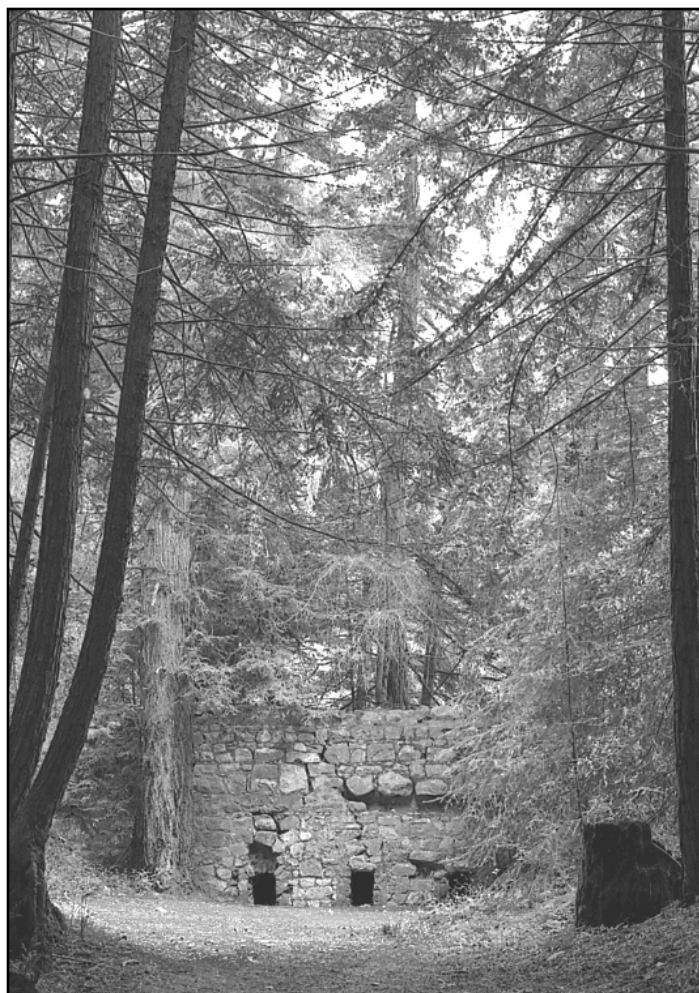


Photo by Frank Perry

Upper Quarry kiln. Only three of the six doorways are visible.

periodically without shutting down the kiln. Although often called a "patent kiln" during the 1860s when it was in use, this one was not actually patented. (For more on this kiln see the Fall/Winter 2011-2012 issue of the *Lime Kiln Chronicles*, available on our website.)

Next to the continuous kiln are the three pot kilns. Unlike the other kilns on campus and at Pogonip, they are of a uniform design. The interior of each is about 11 x 33 x 15 feet high. Each has four doorways at the base. The kiln interiors and doorways are lined with firebricks. Each doorway has fittings for metal doors, which were used to control draft. Limerock capstones rim the top of the interior walls. All four kilns are set into the hillside and have large stone buttresses to help brace the six-foot-thick front walls. All are built of crudely-shaped chunks of the local limerock, although some granite was used in the west-most of the three.

Photo by Frank Perry



McLaughlin Bridge kiln.

Photo by Frank Perry



There are four lime kilns near the UCSC campus main entrance, all part of the Cowell Lime Works Historic District. On the right is the continuous kiln; to the left are three pot kilns.

In the 1850s this was the site of the Davis and Jordan lime works. Although they were the largest of the early lime-makers in the area, detailed early descriptions of the Davis and Jordan kilns are lacking. In 1869, after becoming the firm of Davis and Cowell, the company was described as having four kilns, one continuous kiln and three pot kilns. One of the pot kilns is described as being unusually large and burning 1,200 barrels at a time. This was probably the large kiln with six doorways on the upper campus. Based on court testimony, we know that Cowell used that kiln starting in 1867 and that it was the largest kiln in use at that time. If this interpretation is correct, then the remaining two pot kilns were near what is now the base of the campus beside the continuous kiln (built in 1861 and still standing).

By 1888, according to a report by the State Mineralogist, the number of pot kilns at the base of the campus had grown to three. A newspaper account from 1893 stated that preparations were being made for new lime kilns at this location. It is uncertain if this was actually carried out, but if so, they would be the ones we see today. This could explain why they are so similar.

These three pot kilns were used until the late teens according to some sources; the 1920s, according to another.

Over the past few decades, the campus kilns have been slowly giving up their secrets. Yet, there is still much to be learned, both from studying the kilns themselves and how they were constructed, and from written records. Although their history pre-dates the campus, this history is critical to understanding how the campus came to be. As explained in the last issue, were it not for the Cowell family and lime, there would be no UCSC.

The Story Behind the Photo

By Frank Perry

"May I have a copy of that photo," she asked at last Fall's History Fair. Edith Bell led me over to a table and pointed out the picture she wanted. "That's my grandmother," she said, pointing to the woman on the left in a long dress. I was familiar with the photo but did not know the story behind it. We arranged for Edith to have a copy, and she generously shared some details about her grandmother and the other people in the picture. I found the story so fascinating that I decided to do some additional research to learn even more.

Edith's roots go deep into the history of Santa Cruz County, with multiple links to the lime industry and railroads. Michael Hickey, her great grandfather, was born in 1833 in either Connecticut or Rhode Island (accounts vary). He and his wife, Catherine (an Irish immigrant) had one son, Daniel, before moving to California in the late 1850s. Daughter, Mary, who went by "Minnie" when she was young, was born in about 1860 after the family came west. Two more children, John and Ellen (aka Nellie), followed.

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Edith Bell, with a copy of the photograph

Photo by Frank Perry



Mary Shaw (left) with her sister, Ellen Rubottom, and son, Roy Shaw, by her cabin at what is now UCSC, circa 1910. The exact location of this cabin is unknown. It is not one of the cabins that were built near the campus entrance.

It is uncertain just when the family settled in Santa Cruz, but Michael Hickey shows up in a list of Santa Cruz voters for 1866. In 1869 lime makers Davis and Cowell acquired the kilns of the Samuel Adams company, and shortly thereafter Hickey became superintendent at the former Adams kilns.

Daughter Mary attended Bay View School with several of the Cowell children, including Samuel Henry Cowell, who was about the same age. Mary must have been a bright student, for her name showed up several times on the honor roll. In September of 1871 she was listed among those students “whose scholarship and deportment were perfect.”

After the I.X.L. lime company fired up their kilns on Fall Creek in the mid 1870s, Hickey moved to Felton and took over as superintendent there.

Hickey died in January of 1897, after becoming well respected in the Felton community. The service was held at Holy Cross on January 21. “Felton was almost deserted,” said the newspaper, “its residents having come to Santa Cruz to attend the funeral of Michael Hickey.”

Earlier, in 1881, Mary Hickey had married railroad engineer Frank Shaw of Newark. Shaw was an engineer for the South Pacific Coast Railroad, which ran between Oakland and Santa Cruz and was later bought out by the Southern Pacific. The couple settled in the East Bay and had eight children.

A few years later, Mary’s younger brother, John, started working on the narrow gauge railroad line between Santa Cruz and Boulder Creek. He was then promoted to a line

in Oakland where he worked as a fireman. John Hickey was looking forward to be promoted to engineer when, in May of 1898, the train he was operating derailed, and he was crushed underneath the engine.

Unfortunately, this was just the first in a series of railroad accidents to beset the family. The worst was on May 22, 1900. Mary’s husband, Engineer Frank Shaw, and a fireman, Henry Wetzell, were killed on a line near Alameda, not far from the earlier wreck. Someone had left a switch open, and the train exited the track. “Both the engineer and the fireman could have jumped, but they bravely kept their post in the cab,” reported the *Oakland Tribune*. “Shaw was caught between the engine and tender and was killed instantly.”

The disaster made front page headlines, and the *Oakland Tribune* started a relief fund for the two families. Each day it published the growing list of contributors. By the time the fundraiser ended on June 6, \$1,053.50 had been collected. Heading the list was a \$200 gift from William Dingee, who would later be one of the founders of the cement plant in Davenport. Other contributions ranged from \$50 to 50 cents.

“The Southern Pacific promised to provide employment to each of Mary Shaw’s sons if she agreed not to sue,” according to Edith. Despite assistance from the relief fund, Mary could not afford to continue living in Oakland and eventually moved to a cabin on the Cowell Ranch in Santa Cruz where UCSC is now.

It is not known how it was that she came to live in the cabin. However, Samuel Henry Cowell often would

**SUBSCRIPTION
LIST FOR WIDOWS
IS NOW CLOSED.**

*Splendid Showing is Made by the
Generous People of
Oakland.*

Total subscriptions. - - - - - \$1,053.50

The TRIBUNE Relief Fund is closed.
The total sum subscribed for the widows of the two brave
men who were killed in the narrow gauge wreck is \$1,053.50.
The people of Oakland responded in a generous manner
and their liberal contributions are appreciated.
Be sure and see the names on the roll of honor.
Dr. N. H. Chamberlain generously contributes \$5 to the
fund.
Miss Grace Campbell gives \$2
A friend gives \$1.50.
G. C. E. kindly gives \$2.
The people who have subscribed to the fund and who have
not paid are requested to send their money to THE TRIBUNE
office at once.
In a few days THE TRIBUNE will make a complete an-
nouncement of the disposition of the fund.

Oakland Tribune, June 9, 1900

quietly help friends and employees in need. Mary was, after all, one of his old schoolmates, and Mary's father had been employed at the Davis and Cowell lime works.

Mary's oldest son, also named Frank, followed in his father's footsteps and started working for the Southern Pacific when quite young. While still in his early twenties, Shaw was an engineer on the line between Santa Cruz and Boulder Creek when a tender and baggage car left the tracks near the Big Trees. "Engineer Frank Shaw and Fireman K. A. Sveen had narrow escapes," said the *Sentinel*. "The track is being changed from narrow to broad-gauge and this is believed to have been the cause of the accident." The passengers were badly shaken, but none was seriously hurt.

Not long after the accident, Frank moved to San Luis Obispo. "He drove the Daylight to Oakland and the Lark night train back," said Edith of her uncle.

Edith does not know the date of the photograph, but her uncle Roy looks to be around 10, and he was born in 1900. Edith said that he had contracted polio. If you look carefully, you will notice his cane.

As Mary's children grew up, each helped support their mother. "Her home was the center of the family," says Edith. The two daughters took jobs as telephone operators. Another son worked at the Davenport cement plant. Edith's father, George, worked for the County of Santa Cruz, and later as a machinist in San Jose. "I don't know what he made, but it had something to do with submarines," she says.

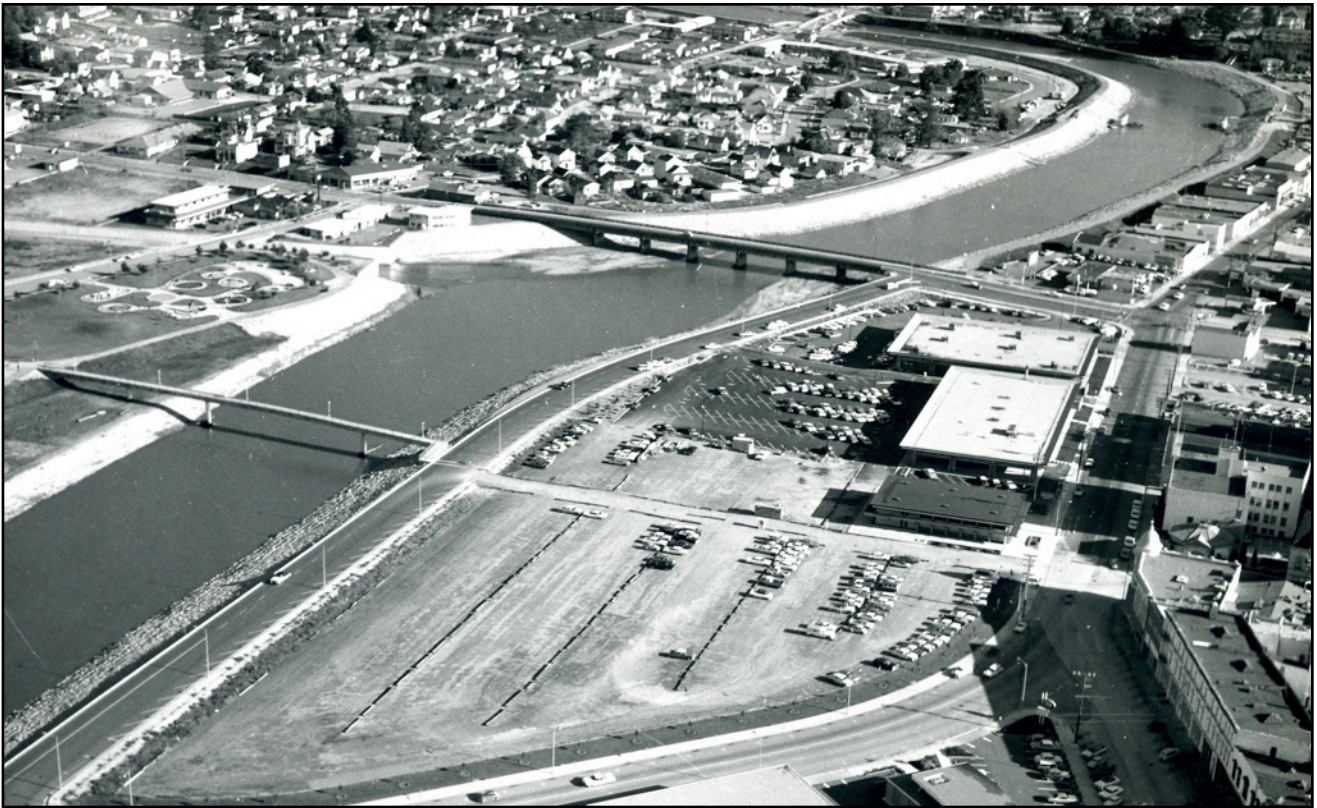
Around the time the photograph was taken, Mary's sister, Ellen, was also working for the telephone company as an operator. She was married to Emphrey Rubottom, a well known Felton blacksmith. Rubottom briefly owned an interest in the I.X.L. Lime Company in the late 1890s, prior to their marriage. He was also an inventor of various mechanical devices for industry. In 1907 his chain grip was being used by the Holmes Lime Company at their Felton lime works.

It was several years ago that Edith Bell first mentioned to me her connection to the Hickey and Rubottom families. What a delight to finally learn more of the story. Thank you, Edith, for sharing some of your family's early history in Santa Cruz.

You Can Join in Effort to Restore Quarry Amphitheater

Earlier this year, the Friends board of directors voted to join in the effort to refurbish UCSC's famed quarry amphitheater. The renovation will address safety and accessibility issues that have kept this unique venue closed for several years. The plans also call for outdoor displays on the history of the site. Much of the funding for Phase 1 has been raised, but it is critical that the rest be found before prices go up. The board strongly urges all of the members of the Friends to make a donation, however large or small, to this very worthy project. To do so, contact Linda Navone at 831.459.2666 or email lindan@ucsc.edu.

The Friends made a donation from its general fund, and each board member made a personal contribution.



Our local limerock has been put to many uses besides making lime. The white rock used to line the San Lorenzo River levees came from the lower quarry at what is now UCSC. This picture dates from 1967, a few years after the levees were constructed. The larger bridge is Soquel Avenue. (Photo courtesy of the Capitola Historical Museum)

Friends of the Cowell Lime Works Historic District
Mail Stop PP&C
University of California
1156 High Street
Santa Cruz, CA 95064