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The Library Associates

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Thousands of Quake Refugees Find Shelter on Campus

Relief efforts, Berkeley seismology highlighted in library exhibits



The sign on the wall of these ladies' cabin, which appears to have functioned as an organizational headquarters, reads "Commit No Nuisance. No Smoking in or about Tents. No LIQUORS will be Allowed in Camp." The image was in the exhibit "The Great Quake: The History of a Disaster," on display in the Bernice Layne Brown Gallery, Doe Library, through April 2005. The image can be found online, together with over 14,000 other images and 10,000 pages of written materials, in the Bancroft Library's "The 1906 San Francisco Earthquake and Fire" digital collection. See

http://bancroft.berkeley.edu/collections/earthquakeandfire/

boom of dynamite and the clouds of black smoke across the bay began to make the extent of the disaster more obvious. By the end of the day, 450 cadets were on their way to the city, in possession of five cartridges each—their first live ammunition, given to them in order to stop looters. En route, the cadets were told "You are no longer students but soldiers."

The scene that greeted the young soldiers as they disembarked from ferries must have been terrifying. San Francisco was in flames, reduced in many sections to smoking ruins, and strewn with dead horses and humans. The air was filled with the high-pitched barking of terrified dogs. The cadets patrolled the Western

A few toppled library books, broken chimneys, and some shattered chemistry lab equipmentabout \$200 worthis all the damage the Berkeley campus sustained when the San Andreas fault ripped open at 5:12 am on April 18, 1906. Over the next days and weeks, faculty and students played a key role in relief efforts for the thousands of terrified, destitute victims of the quake -both those who fled San Francisco for the East Bay, and those who remained in the city.

The annual ROTC inspections were underway on campus the morning of April 18 when the deep program, please write or telephone: The Library Development Office, Room 131 Doe Library, University of California, Berkeley, CA 94720-6000; telephone (510) 642-9377. Or, <u>check our website</u>. Addition and assisted the firemen, who were struggling to control the fires without the use of the city's broken water mains.

UC Berkeley cadet Charles Noyes Forbes described his experiences in an April 22 letter to his sister.

"Went all over and saw the big sky scrapes cracked and all tumbled....The greater part of the city is gone. We went along the fire line and helped the police and soldiers drive on the frenzied crowd bust up liquor places Etc.....Our duty was to break up all saloons where liquor was sold in most cases making the proprietor smash his own bottles on the curb stone, to prevent looting & not allow the people to have fires and lights in the houses."

Despite several accusations of unjustified shootings by cadets, and one complaint that "these young fellows are causing no end of trouble," the overriding response was positive. The cadets' service was warmly recognized in a letter to UC President Benjamin Ide Wheeler from two hundred San Francisco residents, which commended their "innumerable acts of kindness and never failing courage."

During the three days the cadets were in San Francisco, a well-organized network of camps, hospitals, and committees had sprung up on the Berkeley campus. Temporary kitchens were set up near Strawberry Creek and elsewhere, serving bean sandwiches and hot dishes. Camps were established for married people and for lost children and people who were looking for their families.

The area now occupied by the Life Sciences Building—then a baseball field—was filled with a separate camp for male refugees, who were under armed guard after dark. The beautiful, park-like campus was soothing to many of the traumatized refugees, although others chafed under the regimented environment. "Many professors had been military men, and the policies at the UC camps reflected their military training," local historian Richard Schwartz points out in his *Earthquake Exodus*, *1906: Berkeley Responds to San Francisco Refugees*.



In his reminiscences of the disaster, artist and naturalist Charles Keeler commented on the solidarity of the earthquake survivors.

"All extraneous things were gone, and the greatness of human hearts, meeting a common loss, facing a common peril, and buoyed up by a common hope, was sublime."

> The anti-Asian prejudice of the times was sadly evident in San Francisco, and was exhibited in Berkeley's segregated camps for Chinese refugees. Berkeley faculty and



Earthquake refugees encamped on California Field, April, 1906.

24 Chinese students set up an office to address the needs of Chinese refugees, some of whom did not like or use the camps.

At the forefront of the campus relief organization was Lucy Sprague Mitchell, dean of women. She was in charge of Stiles Hall, where refugees were assigned living quarters. In her memoir *Two Lives*, she describes how "Three hospitals sprang up on the campus—an

emergency, a contagious and a maternity hospital. The maternity hospital was incredibly busy, for all babies who were due in the next three or four months took this occasion to arrive."

Mitchell captured vivid details such as the big signs around campus that read "Do not spit," in nine languages. "Others, over hogsheads of water, read, 'You may spit here,' in nine languages.....Hygienic Berkeley managed to accommodate twenty-three thousand people in three days without an epidemic." While most estimates are in the 10 to 15 thousand range, Mitchell and many other Berkeley individuals were clearly committed to offering support to all those who needed it.

The 1906 quake was a key ingredient in the transformation of the sleepy East Bay communities. Only 50,000—about a quarter—of the refugees who poured across the bay ever moved back. Many remained in the East Bay, contributing to an industry and population boom that was to transform the area into a bustling metropolis.

Berkeley's Andrew Lawson Helps Launch Seismology in U.S.

Just three days after the quake struck, Andrew Lawson began studying it. The Scottish-born head of Berkeley's geology department, Lawson was so immersed in geological study that when his wife was asked what his religion was, she replied "He is a geologist." The research he and other scientists did is the basis of today's understanding of earthquakes and how to mitigate their damage.

At the turn of the century, there was little scientific understanding of earthquakes in the U.S., and Lawson and other scientists were tremendously eager to build their knowledge. In fact, Grove Karl Gilbert of the U.S. Geological Survey viewed it as his good luck to be staying in Berkeley on April 18. Awakened in the Faculty Club by violent shaking, Gilbert claimed "unalloyed pleasure" at becoming aware that "a vigorous earthquake was in progress." Whether this remark was inspired by scientific fervor or tinged with exaggeration, his extensive fieldwork and photos in Marin that spring showed his dedication to investigating what the San Andreas rupture revealed about the deep structure of the earth and the nature of earthquakes.

The post-quake research coordinated by Lawson involved many others besides Gilbert. As first chairman of the State Earthquake Investigation Commission (SEIC), which he had persuaded the governor to establish, Lawson coordinated the work of several dozen scientists who were studying the quake's impact. In 1908, the Berkeley geologist published a 451-page volume that comprehensively analyzed the quake. The SEIC report's meticulous data, lively prose, and copious photographs, maps and diagrams have established it as a model scientific study. Henry Fielding Reid edited the 192-page second volume of the report, which came out in 1910.

The Lawson report and its successor established several key new findings, the most important being that the quake's motion had moved the ground horizontally rather than vertically. The new evidence of sideways movement led Reid to propose the cause of quakes: faultlines where tension builds until it explodes. Other major discoveries were that the San Andreas was one continuous fault, and that the worst shaking occurred on loose, unconsolidated soils and floodplains.



Andrew Lawson Given a temperament described variously as "irascible," "provocative," "vitriolic," and "crusty," Lawson might have seemed an unlikely candidate to coordinate a massive publication on the 1906 earthquake involving several dozen scientists and 300 other contributors. However, he displayed such diplomacy and persistence over the course of the project that the final report is seen as a model of scientific study.

So rich and detailed was their work, and so careful their analysis, that this twovolume report has been the foundation for all subsequent earthquake science. Recently, the team of California scientists that created a demonstration of a large quake's capacity to shake the ground in every direction relied on its data. (See <u>earthquake.usgs.gov/regional/nca/1906/simulations/</u>)

Through the work of Lawson and many others, Berkeley has long been preeminent in quake research. As Peggy Hellweg of the Berkeley Seismological Laboratory pointed out, "Berkeley has monitored seismological activity in California for almost 120 years, beginning with the installation on campus and at Mt. Hamilton of the first seismographs in the Western hemisphere."

In the years since, researchers at the Berkeley lab have contributed to our understanding of how earthquakes happen as well as to the structure of the earth. One current effort is the development of an early warning system that could provide warning to communities up to one or two minutes before the shaking arrives. The lab is also joining forces with the U.S. Geological Survey and other agencies in southern California to develop a seismic monitoring network that will cover the whole state.

In other fields, Berkeley researchers in public policy, engineering and design, and economics have contributed to loss reduction in the Bay Area and in communities around the world. Techniques developed on campus are installed in University buildings, such as base isolation, a system of rubber bumpers which soften the effects of quake movement. These bumpers are installed under the Hearst Memorial Mining Building, the most celebrated historic building on campus. Base isolation also protects San Francisco's City Hall.

On April 18, 100 years after the 1906 quake, UC Berkeley was recognized by an engineering group for its outstanding seismic safety program. Launched in 1998, this program has led to Berkeley's recognition as the first Disaster Resistant University in the U.S.

While the timing of the next Bay Area earthquake cannot be predicted, its occurrence is a certainty. Fortunately, a century has added to the university's knowledge, skills and preparedness, all of which will surely be needed when the next quake shakes the Bay Area.



This map shows activity on the three major faults of the San Francisco Bay Area, the San Andreas, Hayward, and Calaveras. The vertical plots, created by Peggy Hellweg of the Berkeley Seismological Laboratory and the Library's Graphics Office, show the location and depths of earthquakes along the faults. The map is the result of cooperation between PG & E and the U.S. Geological Survey. It is mounted in the Brown Gallery through August as part of "The Great Quake: The Legacy of the Disaster" exhibit.

Resources

These recent books and campus websites are recommended if you'd like to learn more about the 1906 earthquake, its effects on the Bay Area, and UC Berkeley's planning and preparedness for the next one

The Bancroft Library's 1906 San Francisco Earthquake and Fire Online Archive <u>http://bancroft.berkeley.edu/collections/earthquakeandfire/</u>

The largest single digital collection Bancroft has ever produced, this archive uses interactive maps, panorama views, streaming movies, music, and oral histories from audiotape to bring the events surrounding the April 18 earthquake to life in ways never before achieved. The work of six institutions over five years, the site features over 14,000 images and 10,000 pages of written materials relating to the quake and its aftermath. The Great Earthquake and Firestorms of 1906 : How San Francisco Nearly Destroyed Itself by Philip Fradkin Earthquake Exodus, 1906: Berkeley Responds to San Francisco Refugees by Richard Schwartz Bracing for Disaster: Earthquake-Resistant Architecture and Engineering in San Francisco, 1838-1933 by Stephen Tobriner (professor of architectural history at University of California, Berkeley) A Crack in the Edge of the World: America and the Great California Earthquake of 1906 by Simon Winchester Berkeley Seismological Lab http://seismo.berkeley.edu/ SAFER (Seismic Action plan for Facilities Enhancement and Renewal) Program http://www.berkeley.edu/SAFER/ [top] [prev] [next]

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