

# Explosives Use Following the 1906 San Francisco Earthquake

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I am indebted to Brian Wertheim of Truckee for his suggesting the subject and providing some of the materials for the following article. While researching another subject, Brian came across information on the use of explosives to combat the fires that followed the San Francisco earthquake and thought that the subject might be interesting enough for an article.

The magnitude 8.3 earthquake that struck California on April 18, 1906 damaged or destroyed many buildings in San Francisco, but probably the largest consequence for the city was that both the pipeline that was their sole source of water and much of the local water distribution system was destroyed. Consequently, when fires broke out after the quake, there was no water with which to combat them. The fires were eventually stopped, partially because the winds changed and caused part of the fire to turn back on itself, but mostly because trained military persons and experienced mining people were finally brought in to dynamite buildings in the path of the fire. Unfortunately, several days of mis-directed and ineffective blasting had been done before the experts were allowed to do it right. Some of this was documented at the time by writers in the Mining and Scientific Press.

From the May 5th 1906 issue of the Mining and Scientific Press, "We refer to the misuse of explosives in blasting buildings.... The use of high-grade explosives by people ignorant of their strength and proper application, was instrumental in destroying a vast amount of property without the result desired, and in many cases it actually spread the conflagration. ...the police, the militia, and volunteer firemen used a box of dynamite where a pound would have sufficed, they blasted on the wrong side of walls and did such foolish things as placing a keg of black powder in the center of wooden buildings, with the result that they set them afire instead of bringing them to the ground. ... Under such conditions, the explosion scattered burning brands right and left."

As for blasting to bring down damaged buildings after the fire, the Mining and Scientific Press continued, "...there was nothing to palliate the stupidity exhibited in the attempts to blast dangerous walls when the conflagration was at an end. While such operations were being carried out on Market Street, there was danger to anyone within three or four blocks; 150 pounds of dynamite were used where as much could have been accomplished by five or six pounds properly applied..... There was plenty of time to do it properly." "A glaring example of such blunders occurred at the Post Office several days after the conflagration; this building was hardly injured by either fire or earthquake, but when amateur blasters came on the scene, they nearly wrecked it in their childish efforts to pull down the walls of the neighboring Odd Fellows building."

Continuing in the May 19th issue, "... we have received several letters endorsing the criticism appearing in these columns two weeks ago. Mr. Frank A. Leach, the superintendent of the Mint, informs us that he offered to supply the services of experienced men, but the individuals doing the blasting claimed that they understood the use of explosives in demolishing buildings better than any miners. Mr. Leach now possesses a piece of iron weighing a quarter of a pound that landed in the court of the Mint when a blast was fired in the Phelan building several blocks away."

(Author's note: Frank Leach was well aware of what could be done with explosives. When the Mint earlier converted from steam to electric power, a 30' x 20' x 12' brick and concrete foundation had been carefully removed from the basement by one of his men through the use of explosives. Window panes located six feet away were undamaged by the controlled demolition blasts.)

On the morning of the quake, Brig. General Frederick Funston, the Commanding Officer at the Presidio, organized the military effort to assist the civilian leaders who were leading the rescue and fire-fighting efforts. Within the military were people trained in the use of explosives and they were eventually joined by a limited number of mining people. The military records and reports of the days that followed tend to indicate that most of their blasting was successful.

The question arises as to where the explosive materials were obtained. There was probably a limited amount of explosives available in and around the city. In fact there was at least one instance where a charge was placed in a building in an attempt to bring it down and unbeknownst to the blasters, the building already contained explosives. The ensuing blast was considerably larger than what had been expected. The military supplied a portion of "Giant Powder" and dynamite from their stocks and then commandeered a private tug, the "Priscilla", and made numerous trips to the California Powder Works at Pinole Point, returning laden with explosives, mainly dynamite and guncotton. I could find no mention of where the detonators were obtained, however it is likely the military had some in stock. Detonators could also have been obtained from the same source as the explosives or possibly from the California Cap Company which was located across the bay on South 46th Street in Richmond. The California Cap Company was in business at that location (now the site of the Richmond Field Station of UC Berkeley) from 1870 until 1948. Reports indicate that both cap & fuse and electric detonators were used.

Some buildings that were not destroyed by the earthquake also resisted all efforts to bring them down with explosives. There is some question as to whether this was due to the quality of construction or the skill level of those attempting the demolition.

Army Captain Le Vert Coleman was placed in charge of the military blasting. At first, he was allowed by the civilian authorities to blast only those buildings in direct contact with the fire. This did little good as, time after time, the fire outflanked his efforts. Finally, on the 19th of April, he was given authority to determine which buildings to be blasted and started bringing down buildings sufficiently in advance of the fire so that a firebreak could be established.

There were two recorded injuries to blasters. In one instance, the firing line wires had been continually shortened by falling debris and eventually the blaster was close enough to be hit by flying bricks, suffering several broken ribs. (He continued to assist for three more days in spite of his injuries.) To obtain replacement firing lines, the blasters had to climb poles in the fire area and cut down dead power lines as replacements. The second injury, eventually proving fatal, was caused when a faulty length of fuse delayed detonating the charge. It detonated when the blaster had returned to investigate the problem.

One can only imagine the chaos that must have existed during the conflagration. In the notorious Barbary Coast section, the various liquor establishments that were wrecked by the quake were soon relieved of their stocks by drunken hoards whose shouting and singing contributed to the pandemonium of people exiting the city, falling walls, noise of dynamiting and the roar of the flames. In this background, the military made every effort to secure the area and fight the fires.

Some efforts were made to fight the fire along the waterfront with military firefighting tugboats that could pump water onto shore. Evacuees driving wagons over the hoses were required to slow the horses to a walk to avoid cutting the hoses. The problem of cut hoses became so bad at one point that soldiers were issued orders to shoot any horses whose owners did not comply.

During my research for this article, it is interesting to note that, depending upon whose account you read, various agencies are either credited with the success or blamed for the failure of using explosives to stop the fires. One report credits the Navy from Mare Island for saving S.F., while another credits the mayor and his safety council. Still another discredits the civilian efforts and praises the Army. The reader is left to research this further and to arrive at his own conclusions.