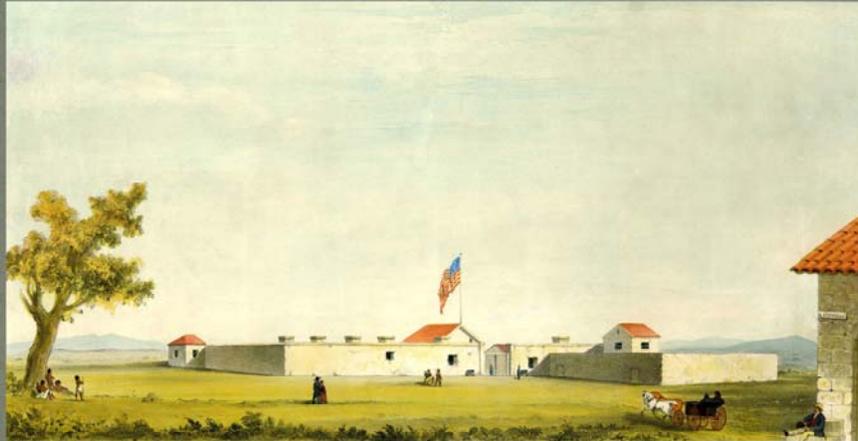


Sacramento City Floods:

1849-1862

Sutter's Fort



John Sutter arrived in 1839. Sutter was the first European to settle in the Sacramento Valley recognizing the potential. Winter of 1841 he experiences his first flood in the Valley. Flooding again in the spring of 1842. Sutter on the advise of the local Indians had built his fort on higher ground.



January 24, 1848 gold is discovered at Sutter's Mill on the American River – the Gold Rush begins and an influx of population begins.

Gold Rush Era Population

- Population Influx as recorded in 1850
- San Francisco Harbor Master Report
 - Men: 35,333
 - Women: 1248
- Fort Laramie, main overland Trail
 - Men: 39,560
 - Women: 1248
 - Children: 649

By Sea the ratio of men to women 1-28 and by land 1-16 with 1 child to every 4 women

Sacramento Waterfront - 1848



Earliest known view of the Sacramento Riverbank at what would become Sutter's embarcadero by C.A.M. Taber, October, 1848 nine months after the discovery of gold.

Fall of 1849



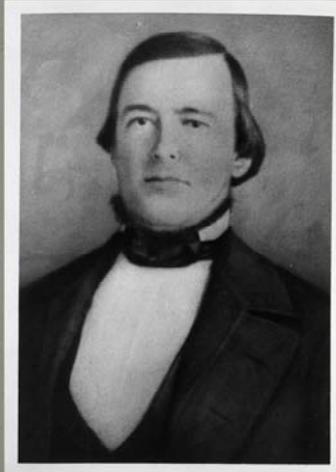
Before the winter rains started in 1849 – notice the waterline – J Street is straight ahead

Flood of 1849-1850

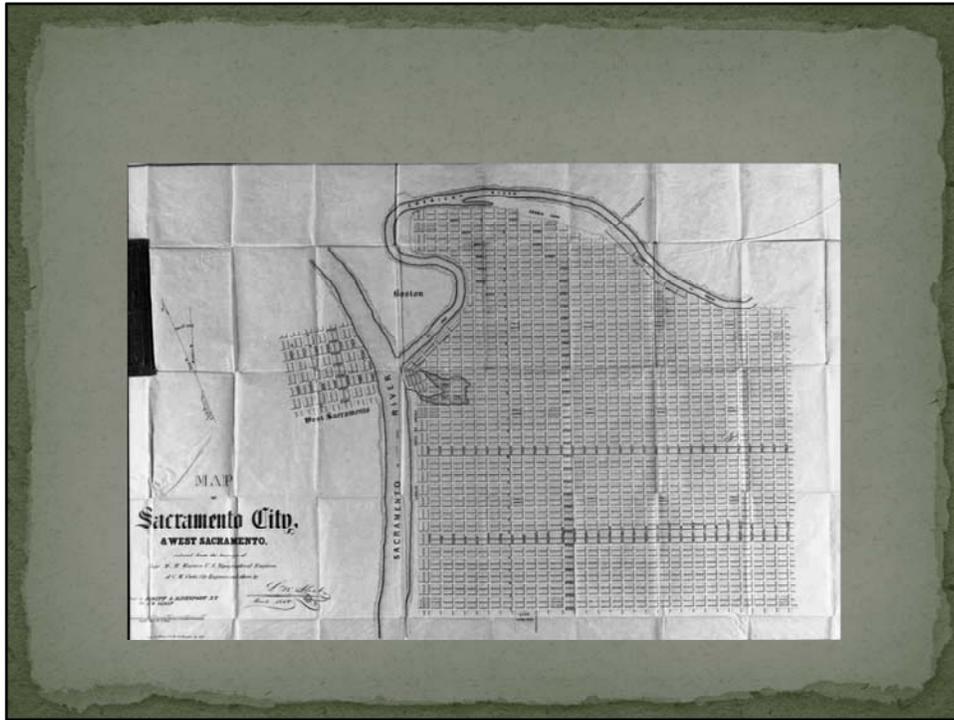


Sacramento's first serious flood destroys much of the city and thousands of dollars worth of merchandise piled on the embarcadero. People mainly fled to Sutter's fort. They were not prepared for the devastation. Descriptions of the flood. Drs. J.B.D. Stillman and John Frederick Morse whose hospital was located at the corner of K Street and 3rd took in victims from their upper story windows. Houses as well as tents simply floated away. Daily Alta California estimated a loss of one million dollars; other estimates ran higher.

Changing Direction

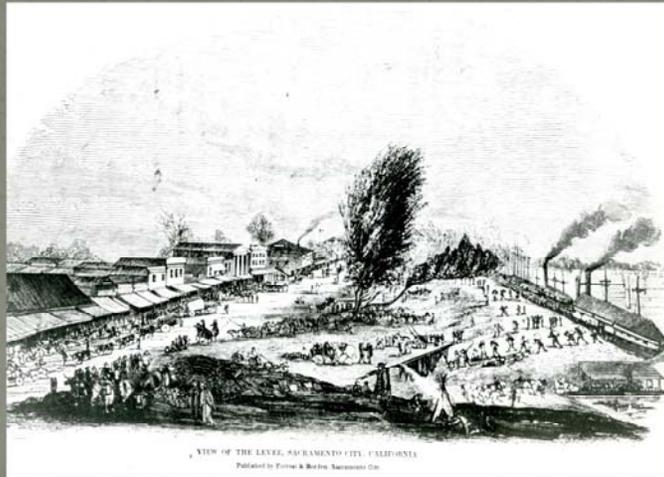


Mayor Hardin Bigelow. Sacramentans quickly worked to clear up and re-establish their city. Mayor Bigelow was one of the first to propose levees after the flood he got the support he needed to begin construction. This same year Sacramento is incorporated and California gains statehood.



This map demonstrates the boundaries of the levee, built after the flood of 1850

The Levee



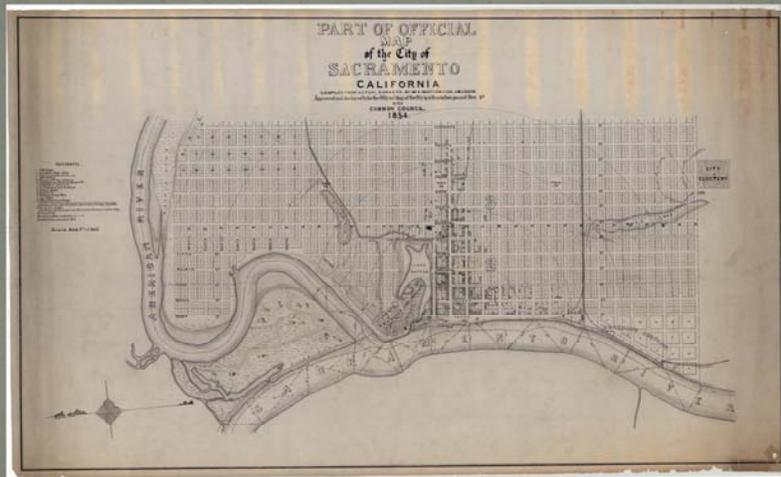
The levees in place – Gold Rush letter sheet

Great Conflagration



Early in 1852 the city was engulfed by flame destroy the majority of the buildings in the central business district. The city quickly rebuilt only this time in brick. This was followed by the winter flood of 1852-1853. The continued inundations frightened merchants and caused them to rally public support to rebuild the levees at a higher level, but also to raise and grade a small portion of the business district five feet above the high water mark.

Sacramento 1854



This map shows the layout of the city with a grid which was set up by John Sutter Jr. and represents its levels of risk.

Sacramento Becomes the State Capitol



In 1854 Sacramento is named the State Capitol of California. This image shows the capitol building under construction in c. 1864. They had strengthened their levees and raised their streets and won the right to be the capital. The following years there was mild weather as the city grew and prospered.

Sacramento 1857



This birdseye view of the city shows how it is growing in a short period of time recovered from fire and floods. Note the construction of the buildings. In 1860 the City Directory boasted "Eleven years ago where Sacramento stands was an unclaimed wilderness; today by the indomitable energy and perseverance which characterizes the American people, we stand as the second City on the Pacific coast and there we will stand forever." Nearly 10 years free of flooding.

Emphasis on brick and concrete construction. Deep foundations to withstand the environment. Same as Chicago.

Four Factors contributing to Historic Flood of 1861-1862

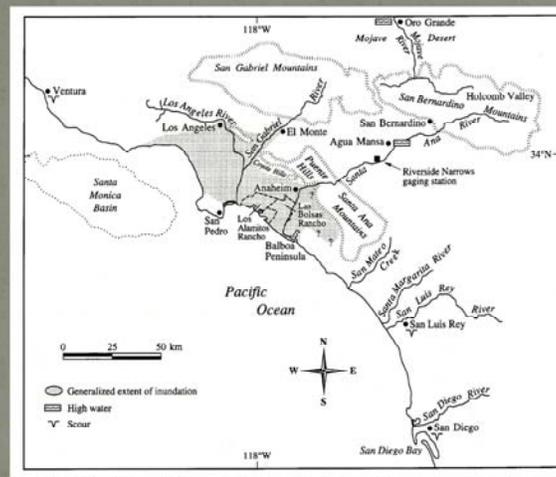
- 1.) Record Rainfall
- 2.) High Population based along streams and rivers
- 3.) Melting of Snow
- 4.) Hydraulic Mining

California in 1861-1862 – High population along streams and rivers (in 1862 more people lived in Northern California with the states total population 500,000 and 100,000 lived in San Francisco.

Also in 1860 a young geologist was hired (1860-1864) to assist Josiah Dwight Whitney (who was appointed state geologist April 21, 1860) in a scientific description of the states natural resources. Brewer was also a compulsive diarist and his diaries would become the book, "Up and Down California." Brewer provides the most detailed accounts of the storm. Ironically, the flood was so devastating to the state treasury that funding for Whitney's and Brewer's project was brought to an untimely end in 1864.

By 1855 placer mining was finished and miners had to work harder to obtain gold. One of the most popular methods of extraction was hydraulic mining. Miners did not consider the environmental impact of this blasting away of mountains. Debris from the hydraulic mining was sending large chunks of the Sierras down the American River where it was raising water levels. The channels of the Feather, Yuba and American Rivers were choked with boulders, cobbles, gravels, sand and mud progressively downstream. The head of the Sacramento River at Sacramento was raised more than 7 feet. It also had an impact on the San Francisco Bay – killing the oyster population. No single industry in the history of California has generated more long-term environmental damage for such a meager economic return
Melting snow from the first storms

Southern California



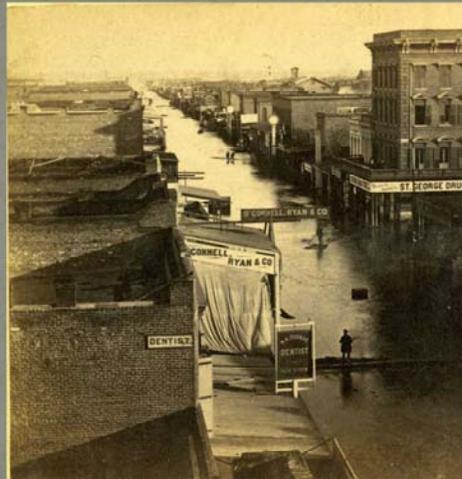
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Brewer describes the storm, “at Los Angeles it rained incessantly for 28 days— immense damage was done—one whole village was destroyed. This was probably the village of Agua Mansa. This same storm moved north.

The Storm of 1861-1862 devastated the entire state southern California was engulfed firs. Large lakes were formed on alluvial planes between Los Angeles and the ocean. Lakes formed in the Mojave Desert. The flood created an inland sea in Orange county lasting about three weeks with water standing four feet deep up to four miles from the River.

December Storm



In early December a cold winter storm brought rain to the Sacramento area. Residents initially opted to ignore the obvious danger and attempted to enjoy the perceived novelty of the event. According to Historians Tompson & West:

"Hundreds of boats were afloat up on the streets, some carrying but one passenger, and some a dozen. All seemed to enjoy the novel experience of boating expedition through the principle streets of a great city. Every balcony was crowded with spectators, and mirth and hilarity prevailed."

-Ads ran in the newspaper harking boats for sale
-Newspapers claimed boat sales to be brisk.

On December 11th the mood started to change as the Union ran this:

"The levee is now an injury instead of a benefit, as it confines the water in the city, and causes it to rise higher by probably two feet than it would have done had no levee existed."

At Christmas this attitude changed: The Daily Bee – December 24, 1861

"The prospects are that this will be the most gloomy Christmas Eve ever experienced in Sacramento since California became American property. The usual Sunday School celebrations and other festivities incident to the season seem to have been forgotten, or swept away by the flood; and taken altogether "Merry Christmas," so far as Sacramentans are concerned, appears to have lost its distinctive character as the annual time for rejoicing."

Two day after Christmas this article ran in the Bee:

this was just the first storm

The Daily Bee

December 27, 1861

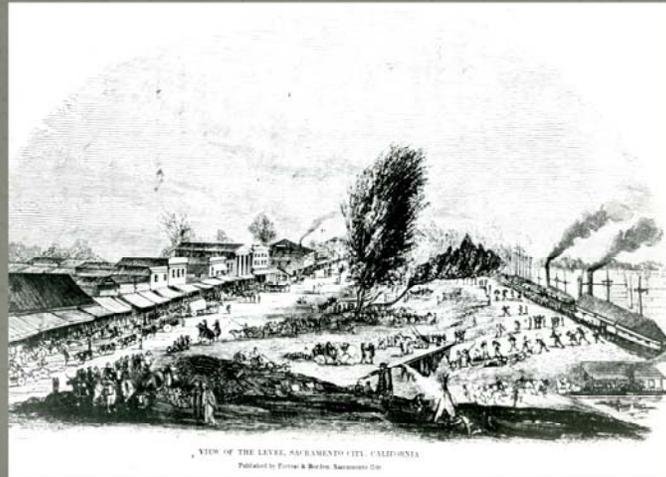
A Stormy Night

"The streets were flooded and the wind from the South East corner of the heavens blew with heavy gusts, shaking doors and windows, surging signs to and fro, and flapping awnings as if about to tear them to shreds. This variety of noises, together with the pattering of rain and the most impenetrable darkness, made up a night of horrors. Heavily the wind moaned through the deserted streets, and then, as if annoyed at not meeting with some on whom to vent its spite, it would collect its forces for a thundering blast, and after a momentary lull down it would come, making all "portable property" creak and rattle as if about to be swept from the face of the globe."

The Daily Bee

These heavy rains and wind brought nearly 10 inches of rain. However, a large percentage of the December rain was stored in California's greatest reservoir, the snow pack in the Sierra Nevada Mountains. The depth was 10-15 feet.

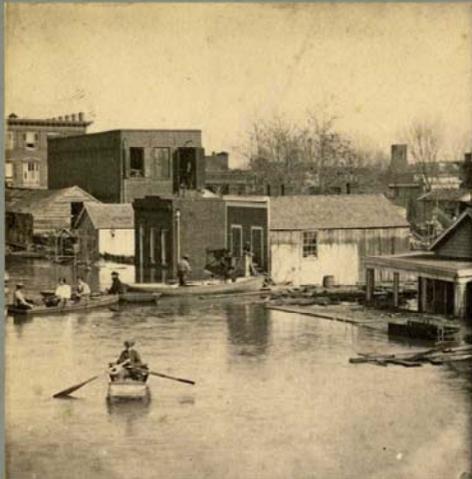
In Sacramento City



Sacramento Union December 11, 1861 "The levee is now an injury instead of a benefit, as it confines the water in the city, and caused it to rise height by probably two feet than it would have done had no levee existed."

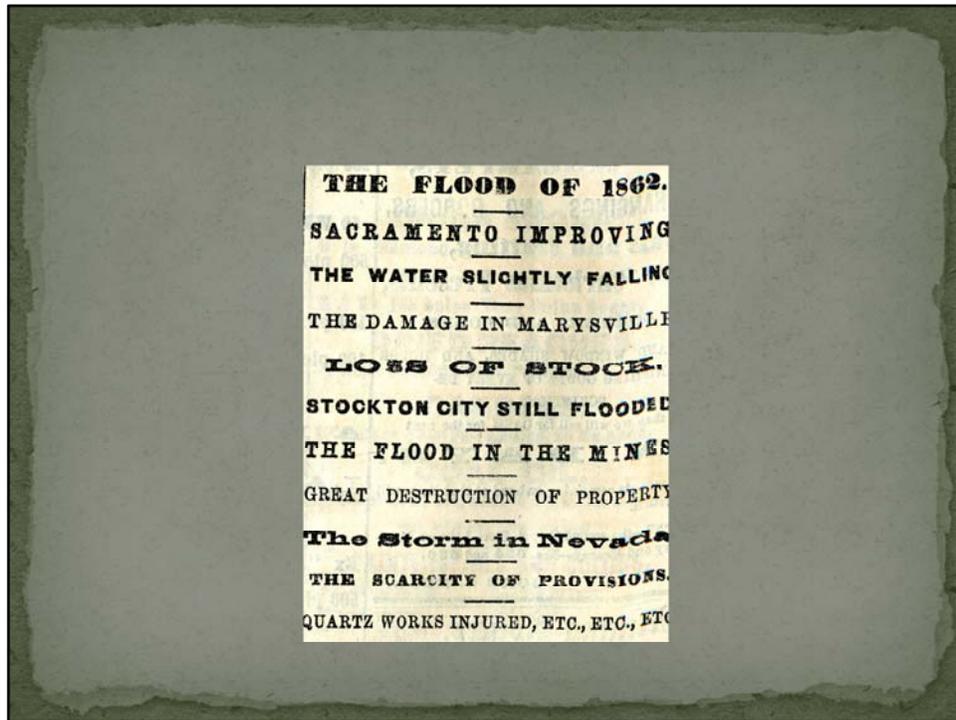
Chain gang tasked with breaching the R Street levee to relieve the city of excess flood water. Once the chain gang breached the levee, the force of the rushing water was so great that it took twenty-five homes with it, some of which were two stories tall. City would flood again December 23rd and then again on January 9th

The January Storm



After a short break from the second storm moves in just a few weeks later. January brought more rain and warm winds and John Muir (1900) describes very well what happened: "The Sierra Rivers are flooded every spring by the melting of the snow as regularly as the famous old Niles. Strange to say, the greatest floods occur in winter, when one would suppose all the wild waters would be muffled and chained in frost and snow...But at rare intervals, warm rains and warm winds invade the mountains, and push back the snow line from 2000 to 8000, or even higher, and then come the big floods."

The rainfall in January 1862 has never been equaled; it was an amazing 24.36 inches. Northern California's annual rainfall is 15 inches.

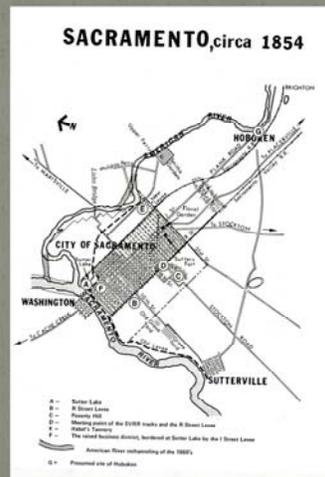


Brewer Writes, On January 19, 1862: "The great central valley of the state is under water—the Sacramento and San Joaquin valleys—a region 250 to 300 miles long and an average of at least twenty miles wide, or probably three to three and half millions of acres! Although much of it is not cultivated, yet a part of it is the garden of the state. Thousand of farms are entirely under water—cattle starving and drowning all the roads in the middle of the state are impassable; so all mails are cut off We have had no "overland" for some weeks, so I can report no new arrivals..The telegraph also does not work clear through, but news has been coming for the last two days. In the Sacramento Valley for some distance the tops of the pose are under water. The entire valley was a lake extending from the mountains one side to the coast range hills on the other. Steamers ran back over the ranches fourteen miles from the river, carrying stock, etc. to the hills.

Devastation to the Valley

- Sacramento *Union* reports “1/3 of the taxable property in the state of California is lost”
- An estimated 1/4 of all cattle drowned (200,000)
- One house in eight destroyed and 7/8 of all houses damaged
- Brewer: The loss of property is between \$50 and \$100 million
- Average Californian lost \$100 - \$200
- Loss of cattle by flood and the record drought the followed ended the early California cattle industry
- There is no accurate death count

The Reaction



The city takes action.

- 1.) increase the levees – achieve this by giving the land to the Central Pacific
- 2.) Alter the course of the River
- 3.) Raise the streets and buildings

Raising the Streets



Raising of the Sacramento County Courthouse. The storm of 1861 permanently altered the city and county of Sacramento, Citizens voted for a self tax, Separated city and county government, the city of Sacramento would be under construction through 1875. We live with the legacy of the reaction to these storms today.