EXCEPTIONAL YEARS: A HISTORY OF CALIFORNIA FLOODS AND DROUGHT

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A HISTORY OF CALIFORNIA FLOODS AND DROUGHT.

BY J. M. GUINN.

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If there is one characteristic of his State, of which the true Californian is prouder than another, it is its climate. With his tables of mean temperature and records of cloudless days and gentle sunshine, he is prepared to prove that California has the most glorious climate in the world. Should the rains descend and the floods prevail, or should the heavens become as brass, and neither the former nor the latter rains fall, these climatic extremes, he excuses on the plea of exceptional years. It is with the record that these exceptional years have made that I propose to deal in this paper. Equable conditions, whether climatic or social, have nothing of the tragic in them, and history delights in the tragic. While Central and Southern California have been about equally affected by floods and droughts, my record of their effects applies principally to Southern California.

For the first fifty years after the settlement of California the weather reports are very meagre. The padres had no Signal Service Bureau and compiled no meteorological tables of atmospheric phenomena, although the state of the weather was undoubtedly a topic of deep interest to the pastoral people of California. To the dons and the padres, with their cattle on a thousand hills, and their flocks and herds spread over the plains, an abundant rainfall meant prosperity; a dry season death to their flocks and consequent poverty. We can imagine with what anxiety they scanned the heavens for rain signs as the waning months of the rainy season passed away, leaving but a scanty supply of moisture. The weather prophet, with his portents and omens, was without honor at such times. A flood might be a temporary evil, but like the overflow of the Nile, a year of plenty always followed; whilst the dreaded dry year was an evil unmixed with good.

The earliest record of a flood that I have been able to find is a brief mention of one that occurred in 1811. In 1815 occurred a great flood that materially changed the course of the Los Angeles River within the city limits. The river abandoned its former channel and flowed west of the *suertes* or planting fields of the first settler, its new channel followed very nearly the present line of Alameda Street. The old fields were washed away or covered with sand, and new fields were located in what is now the neighborhood of San Pedro Street. In 1825

it again left its bed and drifted to the eastward, forming its present channel. In 1822 occurred a flood, when the waters covered the low-lands entirely and rose to a greater height than ever before known. The intervening years between 1822 and 1825 were in all probability years of abundant rainfall. In 1825 occurred a memorable flood which effected a great change in the physical contour of the country west of Los Angeles City. Col. J. J. Warner, in his historical sketch of Los Angeles County, says: "In 1825 the rivers of this county were so swollen that their beds, their banks and the adjoining lands were greatly changed. At the date of the settlement of Los Angeles City a large portion of the country from the central part of the city to the tide water of the sea, through and over which the Los Angeles River now finds its way to the ocean, was largely covered with a forest, interspersed with tracts of marsh. From that time until 1825 it was seldom, if in any year, that the river discharged, even during the rainy season, its waters into the sea. Instead of having a river-way to the sea the waters spread over the country, filling the depressions in the surface and forming lakes, ponds and marshes. The river water, if any, that reached the ocean, drained off from the land at so many places, and in such small volumes, that no channel existed until the flood of 1825, which, by cutting a river-way to tide water, drained the marsh land and caused the forests to disappear."

The flood of 1825 changed the course of the Santa Ana River also. Previous to that year the Santa Ana entered the ocean several miles to the northwest of its present channel. These floods were followed, in 1827–28–29, by a terrible drought. During the preceding years of abundant rainfall and consequent luxuriant pasturage, the cattle ranges had become overstocked. When the drought set in the cattle died by thousands on the plains, and ship-loads of their hides were shipped in the "hide-droghers" from San Pedro.

The flood of 1832, although the waters did not rise as high as in the floods of 1822 and 1825, effected considerable change in the contour of the country south of the city. Col. Warner says: "The flood of 1832 so changed the drainage in the neighborhood of Compton and the northeastern portion of the San Pedro ranch that a number of lakes and ponds, covering a large area of the latter ranch, lying north and northwesterly from Wilmington, which to that date had been permanent, became dry in a few years thereafter." The drainage of these ponds and lakes completed the destruction of the forests that Col. Warner says covered a large portion of the south and west of the city. These forests were in all probability willow thickets or copse, the same as were found, until quite recently, on the low grounds near the mouth of the Santa Ana and in the swampy lands of the San Gabriel River. In

1842 occurred another flood, similar to that of 1832. This was followed by the drought of 1844–45–46, with its usual accompaniment of starving cattle and horses.

In January, 1850, the "Argonauts of '49" had their first experience of a California flood. The valley of the Sacramento was like an inland sea, and the city of Sacramento became a second Venice. But, instead of gondolas, the honest miners navigated the submerged streets in wagon-boxes, bakers' troughs, crockery crates, and on rafts made of whisky-kegs. Whisky in hogsheads, whisky in barrels and whisky in kegs floated on the angry waters, and the gay gondolier, as he paddled through the streets, drew inspiration for his song from the bung-hole of his gondola.

The flood of 1851 and 1852 brought disaster to many a mining camp, and financial ruin to many an honest miner. A warm rain melted the deep snows on the Sierras, and every mountain creek became a river and every river a lake. "Each gorge and gulch was transformed into a tumultuous water-course that descended the hillsides, tearing down giant trees, and scattering its drift and debris along the plain." The wing dams and the coffer dams that the miners had spent months in constructing were swept away, and floated off toward China, followed by the vigorous damns of the disappointed gold hunters. In Southern California the flood was equally severe, although the damage was less than in the mining districts. This flood was characterized by an unprecedented rainfall in the mountains. At old Fort Miller, near the head waters of the San Joaquin River, according to a record kept by Dr. W. F. Edgar, surgeon of the post (now of Los Angeles), 46 inches of water fell during the months of January and February, 1852.

The year 1856 might be said to be an exception, even to exceptional years. A severe drought, intense summer heat, earthquake shocks, thunder and lightning, and severe sand storms, made a variety of climate, that, if not pleasing, was varied enough. It was considered the dryest and most unhealthful season the country had known for twenty years. During the summer of that year and the ensuing winter the loss of cattle in the county of Los Angeles alone by starvation was estimated at one hundred thousand.

The year 1859 was another exceptional year. In October the thermometer registered 110° in the shade, and in December occurred the most remarkable precipitation of rain ever known in the county. It was estimated that one foot of water fell within twenty-four hours. The rivers overflowed the lowlands, doing considerable damage. The starving cattle and sheep, unsheltered from the pitiless rain, chilled through, died by thousands during the storm. Large tracts of the bottom lands were covered with sand and sediment.

The great flood of 1861–62 was the Noachain deluge of California floods. During the months of December, 1861, and January, 1862, according to a record kept at San Francisco, 35 inches of rain fell, and the fall for the season footed up nearly 50 inches. As in Noah's days, the windows of heaven were opened, and the waters prevailed exceedingly on the face of the earth. The valley of the Sacramento was a vast inland sea; the city of Sacramento was submerged and almost ruined. Relief boats on their errands of mercy, leaving the channels of the rivers, sailed over inundated ranches, past floating houses, and wrecks of barns, through vast flotsams, made up of farm products and farming implements, and the carcasses of horses, sheep and cattle, all drifting out to sea. In our county, on account of the smaller area of the valleys, there was but little loss of property. The rivers spread over the lowlands, but stock found safety from the flood on the hills. The Santa Ana, for a time, rivaled the "Father of Waters" in magnitude. In the town of Anaheim, four miles from the river, the water ran four feet deep and spread in an unbroken sheet to the Coyote hills, three miles beyond. The inhabitants sought safety in the second stories of their houses, and those who were not fortunate enough to have an upper story quartered themselves upon those who had. One unfortunate was carried down by the current and drowned. Some of the vineyards on the southern side of the colony were covered with debris and almost ruined. The Ranchos Las Balsos, La Bolsa Chica, the lower portions of the Santiago de Santa Ana and Las Alamitos were covered with water. To the affrighted vaqueros, who had sought safety on the hills, it did seem as if the fountains of the great deep had really been broken up, and that the freshet had filled the Pacific Ocean to overflowing. The Arroyo Seco, swollen to a mighty river, brought down from the mountains and cañons great rafts of drift-wood that, lodging here and there in the channel of the Los Angeles, formed dams that turned the current hither and thither, tearing away the low banks and spreading the waters still further over the valley, then breaking away, the drift was carried down and spread over the plains below the city. The drift-wood brought down by that flood, furnished fuel to the poor people of the city for several years. It began raining on December 24, 1861, and continued for thirty days, with but two slight interruptions. The *Star* published the following local: "A Phenomenon—On Tuesday last the sun made its appearance. The phenomenon lasted several minutes and was witnessed by a great number of persons." For nearly three weeks there was no mail; some wag labeled the post-office, "To Let."

After the deluge, what? The drought. It began in the fall of 1862, and lasted to the winter of 1864–65. The rainfall for the season of

1862–63 did not exceed four inches, and that of 1863–64 was even less. In the fall of 1863 a few showers fell, but not enough to start the grass. No more fell until March. The cattle were dying of starvation. Herds of gaunt, skeleton-like forms, moved slowly over the plains in search of food. Here and there, singly or in small groups, poor brutes, too weak to move on, stood motionless with drooping heads slowly dying of starvation. It was a pitiful sight. In the long stretch of arid plain between San Gabriel and the Santa Ana there was one oasis of luxuriant green. It was the vineyards of the Anaheim colonists kept green by irrigation. The colony lands were surrounded by a close willow-hedge, and the streets closed by gates. The starving cattle, frenzied by the sight of something green, would gather around the inclosure and make desperate attempts to break through. A mounted guard patrolled the outside of the barricade day and night to protect the vineyards from incursion by the starving herds.

The loss of cattle was fearful. The plains were strewn with their carcasses. In marshy places and around the cienegas, where there was a vestige of green, the ground was covered with their skeletons, and the traveler for years afterward was often startled by coming suddenly on a veritable Golgotha—a place of skulls—the long horns standing out in defiant attitude, as if protecting the fleshless bones. It is said that 30,000 head of cattle died on the Stearns Ranchos alone. The great drought of 1863–64 put an end to cattle raising as the distinctive industry of Southern California.

The flood of 1867–68 left a lasting impress on the physical contour of the county by the creation of a new river, or rather a new channel for an old river, the San Gabriel. Several thousand acres of land were washed away by the San Gabriel cutting a new channel to the sea, but the damage was more than offset by the increased facilities for irrigation, afforded by having two rivers instead of one. The Los Angeles overflowed its banks and carried away acres of valuable orchard and vineyard.

The floods of 1884 and 1886 caused considerable damage to the lower portions of the city. The flood of 1884 swept away about fifty houses, and carried away portions of several orange orchards and vineyards. One life was lost, that of a milkman, who attempted to cross the Arroyo Seco. The flood of 1886 was very similar to that of 1884; the same portion of the city was flooded—that between Alameda Street and the river. Several houses were washed away, and two lives lost. During the flood of 1884 the Santa Ana River cut a new channel to the sea. Beginning at a point below where the Santiago Creek enters the Santa Ana, the new river passes through the fertile lands east of the old river, leaving a strip between the two rivers, varying in width from one to

three miles, and discharging its waters (where it has any to discharge) into the ocean about three miles southeast of the mouth of the old river. Within a period of seventy years we find that the three principal rivers of our county have all created new channels for themselves, and have materially changed their courses: the Los Angeles, from westerly to southeasterly; the San Gabriel, cutting a new channel from three to six miles southeasterly of its old one; and the Santa Ana, drifting in the same direction twice since 1822. At no very distant day, but probably not since the settlement of the country by the Spaniards, the Santa Ana flowed north of the present site of Anaheim and entered the ocean through Alamitos Bay. Leaving the present channel near Burriel Point and running westerly, there is a well defined dry river-bed that can be traced for many miles. Twice within the past twenty years, during high waters, the Santa Ana has broken into the old channel, and for a time threatened to return to its old bed. The course of the Santa Ana, in former times, like that of the Los Angeles, was nearly due west. The change of channel in the lower course of our rivers is due to the formation of deltas or bars across the outlets. The river-beds being shallow, in high water, the overflow spreads out over the plains and deposits the detritus brought down from the hills and mountains on the land instead of carrying it into the ocean. In course of time the river-way is built up above the surrounding land and the river seeks a new outfall.

In looking over the record of floods we find, as a rather remarkable coincidence, that for a period of fifty years, a flood has occurred every tenth year. Beginning with the season of 1811 and 1812 we find floods occurred in 1822–32–42–52 and 62. To establish a theory of decadal floods there should have been one in 1872 and in 1882, but both these were dry years—floods occurring in 1873–74 and 1883–84. Possibly the great flood of 1868 so confused Jupiter Pluvius that he lost his reckoning. The change of direction in the lower course of our rivers has been uniformly to the southeastward, thus in a measure paralleling the trend of the coast line. This change has contributed greatly to the forming of new land along the coast. Within the memory of persons now living the shore line, at several points, has been advanced into the ocean a considerable distance. At the Ballona harbor the peninsula between the harbor or slough and the ocean has all been formed since 1850. Before that time the ocean waves washed what is now the inner shore of the harbor. At Anaheim Landing, in 1869, a lumber vessel ran up the slough past the warehouse and unloaded her cargo. The channel of the slough is now filled up and has become dry land except during very high tides. At the mouth of the San Juan and Santa Ana rivers, at the Alamitos Bay and Rattlesnake Island and various other

points along the coast of Southern California the land has encroached on the ocean. This is partly due to the silt brought down by the rivers during floods and partly to the absence of a littoral current south of Point Concepcion. This record of California floods, I confess, appears rather formidable and might even be considered damaging to the good name of our State, were it not that our floods, like everything else in our State, can not be measured by the standard of other countries. We are exceptional even in the matter of floods. While floods in other lands are wholly evil in their effects, ours, although causing temporary damage, are greatly beneficial to the country. They fill up the springs and mountain lakes and reservoirs that feed our creeks and rivers, and supply water for irrigation during the long dry season. A flood year is always followed by a fruitful year. The disastrous effects of drought disappeared with the decadence of the cattle and sheep industries. Increased facilities for irrigation, the development of water by tunneling into the hills, artesian wells, the building of reservoirs for water storage, and the more economic use of water, have done much to counteract the evil effects of the dreaded dry year.