

**Stitching a River Culture:
Trade, Communication and
Transportation to 1960**

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California's Delta

California's Delta is a unique environment, created by the natural drainage of the state's Sierra Nevada range into the Central Valley, which in turn delivers the runoff of rain and snowmelt into river basins that meander and spill into sloughs, bays, and ultimately the Pacific Ocean. According to environmental historian Philip Garone, "Rising sea levels between six thousand and seven thousand years ago impeded the flow of the lower reaches of the Sacramento and San Joaquin rivers, creating a labyrinthine network of hundreds of miles of sloughs surrounding nearly one hundred low-lying islands—the historic Delta."¹ Today, the original 738,000 acres of the Delta are among the most engineered lands in the state; and yet, they still have environmental, social, and economic attributes that merit recognition and protection. By the State of California Delta Protection Commission's own introductory definition:

The Primary Zone of the Sacramento San Joaquin Delta (Delta) includes approximately 500,000 acres of waterways, levees and farmed lands extending over portions of five counties: Solano, Yolo, Sacramento, San Joaquin and Contra Costa. The rich peat soil in the central Delta and the mineral soils in the higher elevations support a strong agricultural economy. The Delta lands currently have access to the 1,000 miles of rivers and sloughs lacing the region. These waterways provide habitat for many aquatic species and the uplands provide year-round and seasonal habitat for amphibians, reptiles, mammals, and birds, including several rare and endangered species. The area is extremely popular for many types of recreation including fishing, boating, hunting, wildlife viewing, water-skiing, swimming, hiking, and biking.²

¹ Philip Garone, *The Fall and Rise of the Wetlands of California's Great Central Valley* (Berkeley: University of California Press, 2011), 110-11.

² State of California, Delta Protection Commission website, 2014, "Introduction."
http://www.delta.ca.gov/res/docs/plan/Delta_Map_Exhibit.pdf

The following essay's purpose is to introduce the history of the Delta, focusing on trade, communication and transportation from aboriginal times up to around 1960. The essay touches on economics, technology and reclamation history in the context of settlement geography and transportation.

Native Peoples of the Delta at Contact

On the eve of description by Spanish explorers and colonizers, California's San Joaquin-Sacramento River Delta was home to several thousand Native inhabitants. While one main language stock characterized the entire Central California region, speakers of Penutian stock were subdivided into four language families, three of which peopled lands adjacent to the waters directly on the Delta or rivers flowing into the natural basins which came to be called the California Delta. To the south, Yokutsan was spoken by the northernmost of the Yokut (properly *yokoch* meaning "people" or "person") with the Chulamni and Lakisamne inhabiting and using resources primarily within the "secondary zone," and to a lesser extent the "primary zone" as defined by the Delta Protection Commission.³ Representing only two of fifty or more distinct groups generically described by anthropologists as Yokut, the entire culture stretched 250 miles from the mouth of the San Joaquin south to Tehachapi Pass and across 100 miles of the Central Valley, and is thought to have counted 70,000 or more prior to the arrival of Spanish missionaries and the communicable diseases they brought with them.⁴ Yokut-expert William J. Wallace provides context for Yokut traditional range in this area:

Generally speaking, Northern Yokuts territory extended from near where the San Joaquin makes a big bend northward to a line midway between the Calaveras and Mokelumne rivers. . . .The sluggish San Joaquin River, with its maze of channels, often abandoned to become sloughs, formed the core of the Northern Yokuts homeland."⁵

Scattered along the San Joaquin and its tributaries in a narrow strip that allowed for maximum utilization of resources and easy access for watercraft, in 1800 the population was not dense at ten or so persons per square mile, but comparable to much of California, in itself the largest aboriginal population of any culture area north of Mexico at around 310,000, with an estimated 76,100

³ Map, "Sacramento-San Joaquin Delta," Delta Protection Commission website. Retrieved 15 October, 2014. On Yokut synonymy see Robert F. Heizer and Albert B. Elsasser, *The Natural World of the California Indians* (Berkeley: University of California Press, 1980), 16.

⁴ Heizer and Elsasser, *Natural World of the California Indian*, 15-16.

⁵ William J. Wallace, "Northern Valley Yokuts," in *California*, ed. Robert F. Heizer, Vol. 8 of *Handbook of North American Indians*, gen. ed. William C. Sturtevant (Washington, DC: Smithsonian Institution, 1978), 462-84, at 462. Hereafter, *HNAI*.

in the Sacramento Valley and 83,800 in the San Joaquin Valley, making the latter the densest population in all of aboriginal California, and the two combined over half of all California Native people circa 1800.⁶

To their north Utian-speakers included the Interior or Eastern Miwok, subdivided into two divisions: Bay Miwok and Plains Miwok. Around 2500 BC, in what archaeologists describe as the “Utian radiation,” the Miwok-pressed westward from the lower Sacramento Valley through Delta lands, gradually reaching Point Reyes and Bodega Bay by 3300 BP, then moving down into Marin County between 2000 and 1000 BC, and to the south side of San Pablo Bay between 2000 and 200 BC.⁷ By the eighteenth century, the Bay Miwok occupied the heartland of the Delta from modern-day Rio Vista to south of Walnut Grove and including Mount Diablo, while the Plains Miwok lived north of modern Stockton but just south of Sacramento along the Mokelumne, Cosumnes and Sacramento rivers and their feeders. Their presence in the Delta was especially prominent on both sides of the Sacramento River from Rio Vista to Freepoint—prime real estate to this day.⁸

Richard Levy has identified thirty-one separate Eastern Miwok “tribelets,” a term often used in distinguishing California groups from other American Indian socio-political “tribes” such as the Navajo of Arizona or the Arapaho of Colorado. This is because the normal pattern was autonomous villages that had no compelling need for political or military alliance under one leader or a confederated polity. Nor did they need to farm to be fully self-sufficient if not affluent by their own standards.⁹ In “Rethinking California Indians,” Kent Lightfoot and Otis Parrish put it thus:

The truth is, the people of California have always been a little bit different—moving to the beat of a different drum. California Indians, in particular, have always been the exception to the rule. These Pacific Coast people do not fit any of the classic anthropological models devised to explain the evolutionary progression from simple, mobile hunter-gatherers to larger, sedentary, and more complex agrarian societies. . . . Although technically they are hunter-gatherers, many Native California

⁶ On location see Wallace, “Northern Valley Yokuts,” 463; and Heizer and Elsasser, *The Natural World of the California Indians*, 14-16. On population at contact at 310,000 +/- 10% see Sherburne F. Cook, *The Conflict between the California Indian and White Civilization* (Berkeley: University of California Press, 1976), and *The Population of the California Indians, 1769-1970* (Berkeley: University of California Press, 1976), 19. The numbers are repeated in Heizer and Elsasser, p. 27. Cook’s essays were first published in the journal, *Ibero-Americana* in four parts in 1943 and issued as Vols. 21-24.

⁷ Michael J. Moratto, *California Archaeology* (Orlando, FL: Academic Press, 1984), 280-81, map a 280.

⁸ Richard Levy, “Eastern Miwok,” in *California*, ed. Heizer, Vol. 8, *HNAI*, pp. 398-413, at 398-99.

⁹ Levy, *Ibid.*

communities exhibited traits more typically associated with well-developed agrarian societies. That is, they enjoyed sizeable population densities, had relatively sedentary villages, amassed significant quantities of stored foods and goods, and maintained complex political religious organizations.¹⁰

Yet a third group, also Penutian in language-stock, the Patwin, lived on the Delta, occupying the southern portion of the Sacramento River Valley, from modern Princeton in the north (between Sutter Buttes and Chico) to San Pablo and Suisun bays in the south, and including the site of modern Benicia. Prior to the 1830s, their numbers were significant at an estimated 12,500, but by the time of first description in the early nineteenth century, their population had decreased appreciably to below 1,000 living in ten villages in the southern part of Patwin territory and within the greater Delta region. A major malaria epidemic, possibly coupled with measles, swept through northern California between 1830 and 1833, thinning populations by fifty percent or more and leaving much of the Patwin and their neighbors' former habitat uninhabited by the time Mexican and American settlers arrived to occupy their lands.¹¹

Prior to that demographic disaster, Native peoples of the Delta thrived in their watery environment, literally living off of the land without the need, or interest in agriculture. They managed the land to enhance the production of plant and animal resources through prescribed fire, selective harvesting, pruning and coppicing selected plants, removing debris around preferred food-producing trees, and removing unwanted plants around those with medicinal or edible value, a process Euro-Americans term "weeding." In addition, important anchors in the diet included acorns (made into a form of bread as well as a liquefied soup through a labor-intensive process of leaching of tannic acid); other nuts such as buckeye; seeds, berries, and roots; fish (especially salmon during annual seasonal runs up rivers), and near-shore fish including Pacific cabezon, herring, rockfish, trout, sturgeon, and suckers); non-migratory birds such as the American Coot, Cormorant, and ducks (especially Mallards and the Ruddy Duck); migratory birds, notably the Canada Goose, and even the California Condor; small game (especially rabbits, squirrels and beaver); and occasionally larger game such as Black-tailed deer, elk, and pronghorn. Considered both a delicacy and a survival food, the larvae of insects especially

¹⁰ Also see Kent G. Lightfoot and Otis Parrish, *California Indians and Their Environment: An Introduction* (Berkeley: University of California Press, 2009), 2-13, at 3.

¹¹ Patti J. Johnson, "Patwin," in *California*, ed. Heizer, Vol. 8, *HNAI*, 350-60, at 350-52; Sherburne F. Cook, "The Epidemic of 1830-1833 in California and Oregon," *University of California Publications in American Archaeology and Ethnology* 43(3):303-326. Berkeley.

wasps and yellowjackets, was collected and usually roasted before being consumed; while other terrestrial invertebrates such as grasshoppers, caterpillars, and army worms were eaten whole.¹²

Located on an eco-tone between two major geomorphic provinces, the Delta provided marine resources as well as fresh-water resources to its inhabitants. While most of the Delta's Native peoples lived in the Central Valley and Sierra Nevada Province, they benefitted from easy traveling, harvesting, and bartering with those villagers closer to the East Bay and San Francisco Bay itself, a region designated as the Central Coast Province.¹³ The relatively-richest groups along the bays had access to precious sea shells, which served as "Indian money" throughout the region and beyond, well into the Great Basin and Southwest. Abalone, clams, Olive Snail (*olivella*) and dentalium shells, usually in the form of shell beads, were worn as personal adornment, but also served as a person's bank when commodities were not available for trade or barter. Certain shell beads were signs of prestige or inherited positions of rank or authority and were hand-made and strung into necklaces, bracelets and pendants.¹⁴

A commonality between the Central Coast and western sections of the Central Valley province was the ever-present tule plant (*Schoenoplectus* spp.). Also called "bulrush," tules were harvested to make balsa-like watercraft as well as domed structures, the ubiquitous common house-type of the Delta, especially used during summer months. Winter structures more typically were made of the bark of redwood if close enough to the coast; or more commonly tule (both thatched and matted) within the Delta itself and throughout the Central Valley and Sierra Nevada Province.¹⁵

As a result of the ebb and flow of tides and periodic flooding, architecture of the Delta proper was less permanent than that of the Central Valley and

¹² M. K. Anderson, *Tending the Wild: Native American Knowledge and the Management of California's Natural Resources* (Berkeley: University of California Press, 2005); Ira Jacknis, "Notes toward a culinary anthropology of Native California," in *Food in California Indian Culture*, ed. Ira Jacknis (Berkeley: Phoebe Hearst Museum of Anthropology, University of California, 2004), 1-119. Also on birds and fish, Lightfoot and Parrish, "Central Coast Province," in *California Indians and Their Environment*, 211-50.

¹³ A. A. Schoenherr, in his *A Natural History of California* (Berkeley: University of California Press, 1992), posits six geomorphic provinces, of which two overlap the Delta. He argues that "these geomorphic provinces represent natural units within which the boundaries of landforms are remarkably consistent with those of biological communities" (p. 1). Also see Elna Bakker, *An Island Called California: An Ecological Introduction to Its Natural Communities*. 2nd ed. (Berkeley: University of California Press, 1984), Ch. 3, "Salt Marsh," and Ch. 8, "Riverlands;" and her essay, "California: The Great Mosaic," in Carl G. Thelander, ed., *Life on the Edge: A Guide to California's Endangered Natural Resources—Wildlife* (Santa Cruz, CA: Biosystems Books with Heyday Books, 1994), 6-17.

¹⁴ Chester King, "Protohistoric and Historic Archaeology," in *California*, ed. Heizer, *HNAI*, Vol. 8, 58-68, at 58-61.

¹⁵ Lightfoot and Parrish, *California Indians and Their Environment*, 211-13. Also see Peter Nabokov and Robert Easton, *Native American Architecture* (New York: Oxford University Press, 1988).

Sierra foothills, but similarities are found in extended nuclear family dwellings as the most typical domicile (mostly round and made of tule and/or bark); sweatshouses, summer shade shelters, granaries, menstrual huts, and semi-subterranean ceremonial houses, usually circular with packed-earth roofs over roof frames and stringers, held up by four massive poles in the center—thus, the “roundhouse” still found on Rancherias and reservations today. With elevations seldom higher than ten to fifteen feet above sea level, more permanent villages and especially structures requiring intensive labor and maintenance were placed on the highest ground available, usually “mound-like” in appearance leading to cartographic representation of abandoned Native sites as “Indian mounds” on historic Delta maps.¹⁶

The term, “mounds” has a long pedigree in North American prehistory. Unlike the residential and burial mounds of the Hopewell-Adena and Mississippian cultures of eastern America, or the shell-mounds of the California coast, mounds in California’s Central Valley and Delta country signify more subtle elevations—some natural, most man-made as evidenced in soil coloration and strata. In their 1929 survey of the archaeology of the northern San Joaquin Valley, Schenck and Dawson explain:

All the mounds of our area are low with very gently sloping sides. Many are no more than six inches high, while the highest is recorded as five feet. In all cases the actual height is hard to determine. The mounds have weathered down, and sometimes the ground of the base has been filled in. But principally it is almost impossible to tell how much is natural and how much has been added by man.¹⁷

The purpose of the mounds was both as residence and burial chamber with villages typically forming an elliptical mound along or near a natural streambed or slough and burying their dead near their residences. Ninety-two of these mound-sites could still be identified in the Stockton-Lodi area alone when the University of California conducted its surveys between 1925 and 1929. By then, many others existed, but throughout Delta country, most had been plowed, pillaged, or otherwise compromised.¹⁸

Diets within the Delta itself paralleled those on its borders with the exception of more dependency on fresh-water plants, fish, and smaller game. Communal hunts employing nets were common for rabbits and squirrels, and

¹⁶ On Indian mounds, see W. Egbert Schenck, “Historic Aboriginal Groups of the California Delta Region,” *University of California Publications in American Archaeology and Ethnology* 23(2) 1926:123-46; Schenck and Elmer J. Dawson, “Archaeology of the Northern San Joaquin Valley,” *University of California Publications in American Archaeology and Ethnology* 24(4) 1929:289-413. Also “Indians of the Delta,” *Sacramento River Delta Historical Society Newsletter* 11(1) June 1991:6. Some Indian mounds were burial mounds, not habitation sites.

¹⁷ Schenck and Dawson, “Archaeology of the Northern San Joaquin Valley,” 317.

¹⁸ Schenck and Dawson, “Archaeology of the Northern San Joaquin Valley,” 312-15.

when populations of Mule Deer were abundant, they too were driven into traps for slaughter by the entire community. Freshwater clams, mussels, crayfish, lamprey eels, perch, blackfish, chub, and smelt supplemented seasonal harvests of salmon, trout, and suckers. For larger fish, especially salmon and sturgeon, spears, harpoons, and gigs made of deer antler, bone, or sharp bird wings were employed by individuals. For smaller fish, nets made of milkweed and weirs fashioned from willow wickerwork made fishing a relatively easy enterprise when enough people participated to surround schools or to drive fish toward shore from boats or rafts floating mid-channel. Two or more watercraft would hang nets between each other or between boats and shoreline until fish had literally been circled and pushed ashore.¹⁹

For both bay-oriented and river-dependent Delta peoples, another commonality was dependence on fiber technology beyond shelter, watercraft, and granary construction. Essential to the good life on the Delta, basket making and weaving of all types of grass- and wicker-ware were hallmarks of every tribelet and village. Weaving took many forms, from the utilitarian burden baskets and winnowing trays; to cooking baskets, to fish weirs and small animal traps; to duck decoys; to cradleboards for infants and children's toys; to ceremonial and gift baskets; to women's hats and other articles of clothing. In short, basket making made this enterprise the pride of every family, as well as a necessity to continue life as it had evolved by the year 1800. Some individuals were good enough at the enterprise to have potable containers made of fiber, canteens of their day. Most were not but managed to excel at making rodent- and insect-resistant containers for storage of foods across entire seasons and to keep families supplied with the essentials.²⁰

Spanish Probes and Incursions (1772-1821)

The relative peaceful world of Delta peoples was not abruptly interrupted as in other parts of California where Franciscan missionaries and secular agents of New Spain built missions, presidios and a few towns, corralling Native peoples behind walled complexes to both save their souls and reap their labor. But pressure mounted as coastal groups came under direct Spanish rule. In 1772 Pedro Fages, one of the original founders of Mission San Diego de Alcalá, entered the San Joaquin Valley from the south and also explored San Francisco Bay from west to east. As the first European to enter and describe both the Central Valley and the Delta, Fages, accompanied by Fray

¹⁹ Lightfoot and Parrish, "Great Central Valley and Sierra Nevada Province," in *California Indians and Their Environment*, 302-38.

²⁰ Brian Bibby, *The Fine Art of California Indian Basketry* (Sacramento: Crocker Art Museum in association with Heyday Press, Berkeley, 1996).

Juan Crespí and a small party, made their way around San Pablo Bay to “a ribbon of water”—Carquinez Strait. Near present-day Richmond they contacted several Indian *rancherías*, small villages inhabited by friendly Castanoan-speakers,²¹ whose “*balsas*” (rafts) of tule easily navigated the strait to the south shore. They met near modern Martinez. Father Crespí described the people as “very mild heathen[s], with pleasant faces, and of fair complexion, bearded and white, all with long hair which they tied with twine.” Climbing a spur of Mount Diablo, the explorers observed the head of Suisun Bay and the junction of the Sacramento and San Joaquin rivers, recording the land “as level as the palm of a hand.”²² Proceeding to near modern Antioch, Crespí named the river that converged with the Sacramento after Saint Francis in order that this saint might “intercede with his Divine Majesty for the conversion of all the immense body of heathen that no doubt must be on the banks of the great stream, which seems must be the largest that has been discovered in New Spain.”²³

But that was not to be; at least not in the immediate future. Three years later a surveying party under José Cañizares and Juan Bautista Aguirre charted San Pablo Bay and Carquinez Strait, contacting one village containing more than 400 inhabitants with a fleet of “balsa, or better canoes of tule boats,” large enough to hold four men, who rowed with double-ended oars.²⁴ Yet another Spanish party entered the Delta in April, 1776, this one under Juan Bautista de Anza with Pedro Font as priest. Trade and barter characterized yet more peaceable encounters with groups that do not appear to have suffered epidemic disease up to that point or coercion to visit Spanish settlements. Tobacco (smoked in elk or deer antler horn pipes) was especially prized in the region, as well as old clothing, beads, and anything metal, especially fishhooks. Font’s diary contains many references to the abundant fishery in Delta waters. Salmon and tanned animal pelts were given in reciprocity. His account, like that of Fages before him also records wildlife, especially mule deer, but also bears, mountain lions, and wolves. Font

²¹ Karkin and Chochenyo tribelets of the Castanoan language family resided on the southern shores of Carquinez Strait whereas Penutian-speaking villages of Patwin lived to their north, obviously traveling back and forth across the water to trade and socialize. See Richard Levy, “Costanoan,” in *California*, ed. Heizer, *HNAI*, Vol. 8:485-95.

²² Herbert E. Bolton, *Fray Juan Crespí: Missionary Explorer on the Pacific Coast, 1769-1774* (Berkeley: University of California Press, 1927). Crespí’s “Diary” is included as an appendix. Also, Donald C. Cutter, “Spanish Exploration of California’s Central Valley,” MA thesis in History, University of California, Berkeley, 1950, Ch. 1-2.

²³ Crespí, “Diary,” as quoted by Cutter, “Spanish Exploration,” 8.

²⁴ José Cañizares, “Plano del Puerto de San Francisco,” copy of original in the Bancroft Library, as cited by Cutter, “Spanish Exploration,” 11-12. This is often referenced as the “Ayala Map” in that Juan Manuel de Ayala of the Royal Navy was the official cartographer on the mother ship sent into the various bays to survey and chart. The map was redrawn in 1776 with places added. See Neal Harlow, *The Maps of San Francisco Bay from the Spanish Discovery in 1769 to the American Occupation* (San Francisco: The Book Club of California, 1950), Map 4, opposite page 38.

described the confluence at Mare Island (Vallejo) but questioned that he was actually seeing two rivers converge, writing “we began to doubt whether it is a river, or instead an inlet arm, since we perceived scarcely any current in it, and if there were any flow to be seen, it is apparently upward.”²⁵ Although Fages and Font disagreed on water courses and sources of river systems, it was clear by 1776 that the Delta was not suitable for anything but waterborne transportation. Land routes were difficult at best; impassible at worst with tule thickets and brush, as well as muck and mud in the extensive marshlands.²⁶ De Anza wisely did not retrace his path overland but made a wide circuitous arc through Patterson Pass and the east edge of the Livermore Valley to return to Monterey, but not before describing the view across the Delta from modern Willow Pass near present-day Concord. He observed:

Looking eastward, we saw a large and very long, snowy mountain range upon the other side of the plain and some thirty leagues away, white from its summit to its skirts, running crosswise from south-southeast to north-northwest Turning westward, we could see along the course of the river the hills that we had been leaving behind us as we traveled, and in among which the gathered waters shot in or entered Looking back northward, we saw that between the snowy range and the low hills northwest on the other side of the river, there is a great emptiness of horizon with no end to be seen to it . . . a boundless plain . . . in which can be seen nothing except water in branches, tule rush marshes, and flat land without mountains or hills standing out anywhere in all this wide portion of the world’s extent.²⁷

Several more reconnaissance parties entered the Delta before the close of the eighteenth century, with more intrusions in the first two decades of the new century. In 1804, by Royal orders, California was divided into two provinces—Antigua (or Baja) and Nueva (or Alta) California. The governor, José Joaquín de Arrillaga, moved from Loreto to Monterey, and ordered a new campaign of exploration of the interior. The presidios throughout Nueva California, and especially Monterey, were reinforced in anticipation of troubles

²⁵ Pedro Font, “Journal,” in *With Anza to California: 1775-1776, The Journal of Pedro Font, O.F.M.*, trans. and ed. Alan K. Brown (Norman, OK: Arthur H. Clark Co., 2011), 300-312, at 300 (hereafter Font, *Journal*); Pedro Fages, *A Historical, Political and Natural Description of California*, 1775, translated by Herbert J. Priestley (Berkeley: University of California Press, 1937).

²⁶ For a map showing these early probes and reconnaissance expeditions see Warren A. Beck and Ynez D. Haase, *Historical Atlas of California* (Norman: University of Oklahoma Press, 1974), Plate 17, “First Spanish Expeditions—the Bay.” For Font’s actual map and a reconstruction of the positions that Fages (1772) and Font (1776) independently viewed the Delta from hills see Font, *Journal*, ed. Brown, Fig. 5, 17, 18, pp. 64, 225, 226.

²⁷ Font, *Journal*, ed. Brown, 312-13.

with apostates and gentiles (non-converts) in the interior, as well as potential encroachment on Spanish territory by Russians to the north.²⁸ In 1805, an event fifteen or so miles east of Mission San José at an Indian settlement sounded an alarm throughout the north. During a visit by a priest to check on sick neophytes in the village, a fight erupted and the officer in charge was killed, the priest and another soldier were badly wounded, and three neophytes (new converts) were slain. In retaliation, the governor sent a contingent of thirty-four soldiers and settlers against the village, killing eleven and taking thirty captive, mostly women.²⁹

Beginning in 1806, José Joaquín Moraga, comandante of Presidio San Francisco, organized a number of *entradas* under the command of his son, Gabriel Moraga, who was promoted to lieutenant during the course of these forays.³⁰ Influenced by Spanish-Indian relations to the south, which were starting to see larger numbers of neophytes desert the missions and organize resistance in their homelands, Bay-area authorities became more aggressive in bringing back apostates, called *cimarrones* (meaning runaways) by their captors. Labor was in increasingly high demand for missions San Carlos Borromeo (f. 1770), San Francisco (or Dolores [f. 1776]), Santa Clara (f. 1777), San José (f. 1797), and San Miguel (f. 1797). Lt. Moraga, on one of his forty-six documented forays, left Mission San Miguel Arcangel in April, 1806 with twenty-four men and a *remuda* of nearly two hundred horses. The party penetrated the interior by “eighty or ninety leagues” as far as the “Sierra Nevada,”³¹ which were covered in snow. He reported back, arriving at Mission

²⁸ The presidial force at Monterey, besides the officers, consisted of fifty-seven men until 1805, when it was increased to eighty-two men and an additional artillery detachment of seven men. Bancroft calculated the entire population of northern California in 1805 as “about 550” *gente de razon* (literally “people of reason” or Spaniards and mestizos), with a neophyte population of 5,130 (*History of California*, 2:141-42).

²⁹ Hubert Howe Bancroft, *History of California: Vol. 2, 1801-1824*, Vol. 9 of *The Works of H. H. Bancroft* (San Francisco: The History Company, 1886), 39 vols., 9:20-42.

³⁰ Gabriel Moraga looms large in Delta and Central Valley history for his role in exploration and Indian relations. His birthdate is unknown. He enlisted in 1784 and was promoted to corporal in 1788 in the Monterey presidio. From 1800 to 1806 he was sergeant in the same company; and was then transferred to San Francisco as *alferez* (ensign). In 1811 he was made brevet lieutenant for his gallantry in a battle with the Indians on the Strait of Carquinez and promoted to full lieutenant in 1818. See Bancroft, *History of California*, 2:571n33.

³¹ Much of what is known about Spanish reconnaissance during 1805-1806 is secondary information gathered by a German physician who accompanied Nikolai Petrovich Rezánof, Chamberlain of the Russian American Company, who sought help in California to relieve a starving Russian colony in Alaska. The Russians reached San Francisco in April, 1806 and were treated kindly but with great suspicion. Georg Heinrich von Langsdorff interviewed many Spanish officers and settlers, later publishing his account as *Voyages and Travels in Various Parts of the World, during the years 1803, 1804, 1805, 1806, and 1807*. 2 vols. (London: 1813); reprinted as *Narrative of the Rezanov Voyage to Nueva California in 1806*, trans. By Thomas C. Russell (San Francisco: Private press of T. C. Russell, 1927). He wrote: “Every year military expeditions are sent out to obtain a more exact knowledge of the interior of the country, with a view, if possible, of establishing by degrees a land communication between Santa Fé [New Mexico] and the north-west coast of America. While I was at the mission of St. Joseph [San José] April 1806 thirteen

San José short half his horses and two men, killed by Indians. Although details are sparse on this trip, relations with Indians, if ever good, had soured in California's Central Valley.³²

By the time Moraga returned to Monterey, California's governor had launched a series of exploratory probes into the Central Valley. The first of these was led by Lieutenant Luís Argüello from Presidio San Francisco. Twenty-five men, including Father José Antonio Uría set out in May, 1806, bound for the Coast Range to bring back new converts and geographic information. According to diarists on the expedition and another foreigner's account published much later, Argüello explored the Sacramento River along the west side of the valley for seventy-to-eighty leagues looking for a suitable site for a new mission, but was discouraged and no mission site was determined.³³

Moraga was apparently sent on a parallel expedition with instructions "to keep 'to the other side of the river [San Joaquin] to the eastward' of the land explored by the other expedition."³⁴ It was on that trip that Moraga is credited by nineteenth century historian H. H. Bancroft with naming the Río San Joaquín, "at a date not given," but before September, 1806, citing mission archival evidence.³⁵ For the next four years, Spanish expeditions continued to probe the San Joaquin and Sacramento valleys, never establishing a mission east of San José. Trade was incidental to efforts designed to recruit converts and return runaways back to home missions. No major roads like El Camino Real were identified or designated, although Moraga and others undoubtedly retraced their own routes, often following game and Indian trails. Moraga continued to look for apostates in the interior for the next decade.³⁶ In 1810 he

soldiers, with a sergeant and corporal, arrived there on their return from one of these expeditions. These people asserted that they had penetrated between eighty and ninety leagues into the country, and had arrived in the hills, covered with eternal snow; this chain is known to the Spaniards under the name of the Sierra Nevada" (1813 ed.: vol. 2:203-07; 1927 ed., p. 118). "Sierra Nevada" first appears on Pedro Font's general map of 1776. See Font, *Journal*, Fig. 5, p. 64 and Fig. 18, p. 226.

³² This is analyzed by Cutter, "Spanish Exploration," 52-56, on the basis of manuscripts in the Bancroft Library collected by A. S. Taylor as "The Discoverers, Founders and Pioneers of California," filed under "Narrative of Santiago García," Vol. 2:147ff; and Pedro Muñoz, "Diario de la Expn. Echa por D. Garbiel Moraga, Alférez de la Compañía de San Francisco a los nuevos descubrimientos del Tular . . . 1806, manuscript in the Franciscan Archives of Mission Santa Bárbara.

³³ Bancroft reports this on the basis of Frederick W. Beechey's *Narrative of a Voyage to the Pacific and Bering's Strait* (1831), Vol. 2, p. 5. See *History of California* 2:46n4. Cutter, "Spanish Exploration," provides additional documentation from members of the expedition, noting "Doubtless the, Argüello's expedition had followed the west side of the valley" (p. 62).

³⁴ Cutter, "Spanish Exploration," 62, citing Arrillaga to Teniente de la Guerra, Monterey, Oct. 9, 1806 in *Provincial State Papers*, Archivo de California, transcripts in The Bancroft Library, Vol. 9:118-19.

³⁵ Bancroft, *History of California*, 2:47n6 (citing *Arch. Sta. B, MS, iv. 5*).

³⁶ Moraga's 1820 "hoja de servicios" (record of service) connects him with forty-six expeditions, ten of which involved battles with Indians. He died in 1823 and is buried at the Santa Barbara Mission (Bancroft, *Ibid.*, 571n33).

crossed the Carquinez Strait, ferrying his horses across and most likely using a ship's launch as well as balsa rafts, native-made. Another "boat party" followed in 1811, led by two priests—Ramón Abella and Buenaventura Fortuni. According to Richard Dillon, who has reconstructed this expedition, the party camped on Brown's Island at an old Indian fishing station then passed several deserted Indian villages as they followed Old River to the middle branch of the San Joaquin, proceeding upstream to the largest fishing village of the Passasimas, which contained around 900 people at the time. Dillon surmises:

They found that several villages had been hastily vacated upon their approach to the San Joaquin's Seven Mile Slough, which they followed to Three Mile Slough and the Sacramento River at the head of Sherman Island. . . .Descending the Sacramento past banks overgrown with walnut trees with wild grapevines, they spied wary natives. All were fearful of the strangers because of a rumor sweeping the Delta by 'tule telegraph' that the Spanish had killed off the Cholbones. Villages of a thousand people were totally deserted.³⁷

In 1813 José Argüello led a punitive raid on a large village somewhere within Delta waters. Two forces of soldiers, one from San Francisco; the other from San José bolstered with 100 Indian auxiliaries (neophytes) met warriors representing four villages on an island near the confluence of the Sacramento and San Joaquin, giving battle "for three hours." The official record in the Provincial State Papers notes: "The enemy was left badly beaten and adequately punished for his boldness, for the battle was very costly, and in the action a considerable number were killed. On our part only one of the Indian auxiliaries died, a man named Julio."³⁸

Another expedition, led by Lt. Don Luis Argüello with two priests aboard, left San Francisco in 1817 in the launch *San Rafael* bound for the same area. Encountering gale-force winds, the launch snapped its mizzenmast in waters off of today's Port Chicago, but managed to regroup after a very uncomfortable night.³⁹ They found the site of the 1813 battle but the village had been abandoned. A nearby village contained "seven souls amongst the old, the sick, and the infants," who were baptized before the party pressed on. A site identified with the Notótemnes "who have already become Christians at San José" and who "used to live almost in the center of the tule region" was

³⁷ Richard Dillon, with photographs by Steve Simmons, *Delta Country* (Novato, CA: Presidio Press, 1982), 31-32.

³⁸ "José Argüello's attack on an Indian Village, 1813," *Provincial State Papers* 9:334-48, reprinted in *Colonial Expeditions to the Interior of California, Central Valley, 1800-1820* by S. F. Cook. *University of California Anthropological Records* 16(6) 1960 (Berkeley), 239-92. Julio is elsewhere identified as the "alcade of San José." See *Expedition on the Sacramento and San Joaquin Rivers in 1817: Diary of Fray Narciso Duran*, ed. Charles Edward Chapman (Berkeley: University of California and Academy of Pacific Coast History, 1911), 343.

³⁹ Dillon, *Delta Country*, 32.

uninhabited by 1817. Further on, along the Calaveras probably within present-day Stockton, they met the Passasimas, who had been contacted by fathers Arbella and Fortuni six years before. Father Duran recorded that they “came out to receive us in a peaceful manner, which is not surprising, because they have been at the mission many times, and some of them have been baptized.” Other groups living on the mainland on the fringe of the Delta remained unconverted and “painted and armed, with an aspect of war.” Conflict was avoided but Father Duran opined that they would be difficult to convert in that “they reach to the slope of the Sierra Nevada” but are reachable “by horseback, if, perchance, it should be necessary to do so.”⁴⁰ As they headed back to San Francisco, the padre noted:

There is this difference between the Sacramento and San Joaquín; the latter carries less volume of water, although in some places it is wider, and in all that part which we have travelled there is nothing but tule, without a tree under which the navigator may find shade, nor a stick of firewood with which to warm himself; whereas the Sacramento, when it is not flooded, has dry land on both banks covered with poplar groves⁴¹

Pressures to come into missions and fear of being forced to do so presented Delta Indians few choices at the end of the Spanish period. Sadly, despite good intentions on the part of many Spanish friars, the mission experience was negative for the vast majority of those who experienced conversion or confinement as non-neophytes. By 1820, as Sherburne F. Cook has put it, the area north of the Merced River (Yokuts-Miwok territory) and particularly the delta of the San Joaquin and Sacramento rivers, “had been almost completely swept of its native population:”

The names of many whole tribes have been lost and the exact locations of many others are now almost impossible to ascertain. Of village names only those few are known to us which were preserved, often by chance, in the mission records and accounts of expeditions.⁴²

During the remaining years of Spanish rule, officials were preoccupied with Russian incursions into Bodega Bay in search of sea otter pelts and sealskins (1806-41) and the unauthorized settlement at Fort Rossiya (Ross) in 1812. They also met American whalers who occasionally stopped to provision ships, take sea otters, and hunt game along the coast. Even before Mexican

⁴⁰ *Expedition on the Sacramento and San Joaquin Rivers in 1817*, 17, 19.

⁴¹ *Ibid.*, 19, 21. On location in or near Stockton see Schenck, “Historical Aboriginal Groups of the California Delta Region,” Fig. 1, “Map showing location, according to streams, of groups mentioned in Spanish reports.”

⁴² S. F. Cook, “The Aboriginal Population of the San Joaquin Valley, California,” *University of California Anthropological Records* 16(2):31-80, at 52.

Independence, because of these encroachments, plans were made to establish an additional mission with a military presence as a northern outpost. Thus, San Francisco Solano or Mission Sonoma was completed by 1823, well to the north of the Delta, but arguably as a northern point of a triangle that included Delta lands and waters, with missions San Rafael and San Francisco de Asís to the southwest and Mission San José to the south and a bit east.⁴³

Mexican period developments (1821-1848)

Alta California had been a neglected province during Spanish rule, but it was never completely without resources from the Crown and the Viceroy of New Spain. Trade was strictly regulated with very little interaction with fellow Europeans, leaving an isolated Spanish and mixed-blood (*mestizo*) population at the mercy of officials in San Blas to the south, which served as the main port for contact with Alta California. At the end of the Spanish period, the entire province of Alta California housed a mere 3,270 colonists, 700 of whom were soldiers.⁴⁴ Beginning in 1822, the economic climate changed. Californians were torn between loyalties to the Crown and to the newly independent Republic of Mexico, but most agreed that trade with the outside world was both welcome and necessary to move forward. Americans, Russians, English, French, and other nationals entered Mexican California by sea and by land introducing new consumer goods, as well as trade goods that had been successful with Native peoples elsewhere. As in other “fur trade” areas of North America, fur pelts were in high demand, and eagerly swapped where available, but the largest items of exchange with outsiders were cow hides and tallow. Called by Yankee traders “California bank notes,” the majority of hides came from ranches established through generous grants of land by Mexican governors. Demand for hides was driven by the need for leather in the newly-industrializing American Northeast and England, where belts powering machinery depended on good cowhide. Tallow provided grease and candles. More than six million hides and seven thousand tons of tallow were exported from California between 1826 and 1848.⁴⁵

⁴³ Bancroft, *History of California*, 2:Ch. 4-8.

⁴⁴ Most of these “colonists” were not Spaniards and only a handful had been born in Spain. Most were *mestizo* who had been born in either Mexico or in California itself. See discussion in Steven W. Hackel, “Land, Labor, and Production: The Colonial Economy of Spanish and Mexican California,” in *Contested Eden: California before the Gold Rush*, ed. Ramón Gutiérrez and Richard J. Orsi (Berkeley: University of California Press, in association with the California Historical Society, 1998), 111-146. On numbers see Irving B. Richman, *California under Spain and Mexico, 1535-1847* (New York: Cooper Square, [c. 1911] 1965), 226.

⁴⁵ Hackel, “Land, Labor, and Production,” 130-32.

Beginning in 1826, the central Mexican government decided to secularize the Franciscan mission lands. The concept was altruistic: granting Indians who had converted to Christianity their own lands around mission complexes and thus encouraging them to integrate into the California economy. The process ended subsidy of the missionary effort and simultaneously privatized lands once controlled by the Church. By 1840, all except San Carlos Borromeo (Carmel) had undergone this transition. Carmel remained under Franciscan oversight. The policy backfired. Very few Natives stayed on their own lands. Many became laborers on newly-granted estates given to favorite families by Mexican governors. Returning to the Delta or the valleys or the Sierra was not a good option by the late 1830s, as populations had diminished and most of these Mission Indians did not speak their own native tongue after two or more generations as converted neophytes. From this point on, these survivors often identified as Mexican-Californians or as Indian “vaqueros” (cowboys).⁴⁶

Between 1824 and 1848, ten million acres or about ten percent of the surface area of California was deeded to individuals, including sixty-six women, mostly widowed. Approximately one-third of all grants went to settlers with non-Spanish surnames, most of them Americans or British, with a small number of continental Europeans as well. A few of these land grants fell within the Delta but most were on its periphery. Eight fell within future Sacramento County, five within future Solano County, four within future San Joaquin County, and over a dozen between Alameda and Contra Costa counties on or adjacent to Delta lands.⁴⁷ While a few grants to foreigners were not affirmed in the U.S. Court of Claims after statehood, most were retained.

The best known are associated with Charles Weber and John Sutter, both born in Germany. The former acquired the area where French Camp and Stockton would be located, while the latter’s land included where Sacramento City and Coloma developed. The Cosumnes grant to Englishman William Hartnell was yet a third on the eastern edge of the Delta. While the region around the Bay was in high demand and very competitive, most of the Delta was not requested nor assigned due to seasonal inundation and isolation. Also, most Bay Area Mexicans and newly-nationalized foreigners continued to fear Indians in the interior.

Not so José Noriega, who settled within Delta lands even before receiving a land grant in 1835. Putting in a truck garden to feed his family and other workers, who also served as a small army, Noriega’s Los Meganos ranch was four-leagues and almost square from the base of Mount Diablo to the San

⁴⁶ Secularization is best described in detail by Richman, *California under Spain and Mexico*, Ch. 12-14.

⁴⁷ Beck and Haase, *Historical Atlas of California*, maps 28, 29, 30.

Joaquin River.⁴⁸ Two years into his grant, Noriega sold his land to Doctor John Marsh, a native of Massachusetts and a graduate of Harvard, who had some training in medicine. He also spent time in the 1820s and 1830s as an Indian agent and army officer in Minnesota and Wisconsin. Marsh had come to California to escape arrest for selling guns to the very Indians he was charged with pacifying. California was the perfect safety valve. Once settled at Los Meganos, he traded his medical services for cattle and horses, also taking furs and hides in barter. Indians found him a fair trader and did not harass his operation, and Marsh befriended most of the earliest foreign emigrants including Bidwell and Weber, amassed a small fortune from cattle and built a stone castle on his land, but his relations with his own vaqueros and neighboring Mexican-Californians soured over prices and wages. In 1856, some of his own workers bushwhacked and murdered him.⁴⁹ The ranch had already attracted other families, some Mexican, some Anglo, but its orientation was always more toward San Jose than the Delta.⁵⁰

In reality, while relations between Californios and Anglos were tenuous at best, Indians constituted little threat. Their numbers plummeted during the Mexican era, especially in the years 1830 to 1833 when measles and especially malaria spread, reducing the population by half.⁵¹ The small amount of trade and traffic with Native peoples that had taken place during Spanish times is hardly detectable in the documentary record in the final years of Mexican rule. Despite demographic decline, raids by Miwoks and Yokuts, who had adopted the horse into their daily lives, increased throughout the 1830s. In order to reduce attacks on towns, ranches and missions, punitive expeditions were sent deep into the San Joaquin Valley, skirting the Delta. Any Native who resisted assignment to mission labor or whose people were suspected of stealing livestock--especially horses--were subject to enslavement, if not death. Conceivably, some native Delta communities survived, but little is known about them since most had vanished by American takeover in 1848.

Delta lands were not totally avoided by parties traveling in the region, but there were no permanent ranches or settlements within. In the mid-1820s, American fur trappers under Jedediah S. Smith became the first documented interlopers to pass through the Delta as they traversed the Central Valley and crossed the Sierra from west to east. Hudson's Bay Company trappers followed

⁴⁸ Thomas, "Settlement Geography," 112-14.

⁴⁹ George D. Lyman, *John Marsh, Pioneer: The Life Story of a Trail Blazer on Six Frontiers* (New York: Charles Scribners, 1930), 179-80 (warrant for arrest); 319-23 (murder of). Today Marsh's large house and part of Los Meganos is a California State Park.

⁵⁰ Thompson, "Settlement Geography," 115-16.

⁵¹ S. F. Cook, "The Epidemic of 1830-1833 in California and Oregon," *University of California Publications in American Archaeology and Ethnology* 43(3) 1955: 303-26

in 1828, naming a lake within present-day Stockton's city limits "McLeod's Lake" (after the leader of the brigade, Alexander Roderick McLeod) and eventually trapping as far south as the Stanislaus River. Within two years, as annual brigades of traders returned, a seasonal camp was established where modern French Camp now stands. Entire families traveled from Fort Vancouver in Washington to California's San Joaquin River to harvest beaver, returning with large numbers of pelts between 1833 and 1841.⁵²

Foreigners were mere visitors during Spanish times, with only twenty documented as living in the province in 1821. During the 1830s, and especially after the Secularization Act of 1833, foreigners increasingly found California not only a suitable place to do business, but many converted to Catholicism (as required) in order to apply for citizenship, which in turn qualified them to own land. In 1830, the foreign population was 120 and a decade later, 380. By 1845, 680 of the 7,400 non-Indian residents had come from countries other than Mexico.⁵³ Captain John Sutter of the Swiss Guard had grand schemes to make the edge of California's Delta an agricultural paradise for fellow Europeans and American emigrants, naming his empire "New Helvetia," or New Switzerland. His land grants from the Mexican government in 1839 provided the soil upon which he built his famous fort in what became Sacramento, as well as the footing for his sawmill in Coloma, the site of the 1848 discovery of gold on the American River. Sutter also acquired the remaining inventory at Fort Ross in 1841, transporting goods and equipment, including cannon to Sutter's Fort using the same fleet of boats that he had acquired in 1839 through Yerba Buena merchants Spear and Hinkley: the schooner *Isabella*, a yacht that once belonged to King Kamehameha of the "Sandwich Islands" (Hawaii), and a small pinnace, to which he added a Russian schooner, which he renamed the *Sacramento*.⁵⁴

His friendship with Charles Weber resulted in a parallel development to the south.⁵⁵ Weber arrived in 1841 as part of the Bidwell-Bartleson Party, the first wagon train on what became known as The California Trail. In 1844, Weber became a Mexican citizen and partnered with naturalized citizen William

⁵² On the Hudson's Bay Company in the valley see Alice Bay Maloney, "John Work of the Hudson's Bay Company: Leader of the California Brigade, 1832-33," *California Historical Society Quarterly* 22 (2) June, 1943:97-109; and her edited "Fur Brigade to the Bonaventura: John Work's California Expedition of 1832-33," *California Historical Society Quarterly* 22(3) (Sept. 1943:193-222); 22(4 (Dec. 1943):323-48; 23(1) (March, 1944):19-40; 23(2) (June, 1944):123-46.

⁵³ Hackel, "Land, Labor, and Production," 136.

⁵⁴ Thor Severson, *Sacramento, An Illustrated History: 1839 to 1874, from Sutter's Fort to Capital City* (San Francisco: California Historical Society, 1973), 30-34.

⁵⁵ There are many biographies of Sutter but the best is Albert Hurtado, *John Sutter: A Life on the American Frontier* (Norman: University of Oklahoma Press, 2006).

(Guillermo) Gulnac.⁵⁶ The two secured an eleven square league grant containing 48,747 acres on the San Joaquin River. A year later, Weber bought out Gulnac for “179 pesos, one hundred in silver and seventy-nine in gold.”⁵⁷ Weber encouraged friends and trappers to join him on his land, moving livestock to his grant, and erecting a few crude shelters made of tule, giving rise by locals to reference the settlement as “Tuleburg” (also “Tuleburgh”). In 1847, Weber made a treaty with the local Yokuts under José Jesús, whose people still had a presence between the Stanislaus and Calaveras rivers, with a main village between French Camp Slough and the Stanislaus and a settlement in Stockton itself along the Calaveras. According to George C. Tinkham, Jesús had once been a neophyte at Mission San José, but had rebelled and had driven off more than a thousand head of horses into the Central Valley. Weber is reported to have told the chief “that they were not coming to injure nor rob, but as friends to aid and benefit his tribe. . . .” Looking back in his 1923 history, Tinkham recalled: “When Captain Weber located on the Campo de los Franceses he sent for José Jesus and made a treaty with his tribe to keep peace with the white man, and never afterward did José Jesus or any of his tribe violate that treaty.”⁵⁸ Historian George Hammond notes, “It was Weber’s custom to lavish gifts on Chief José Jesús and to use him as intermediary in negotiations with his people.”⁵⁹ Weber did not name his settlement after his Yokut friend; rather, he chose Commodore Robert Stockton, who never visited his namesake city.⁶⁰

In the meantime, Americans living in California had been pushing for American governmental presence in an increasingly confusing, if not divisive Mexican California. The first American military officers to enter California were part of the U. S. Exploring Expedition (1838-42) under Lt. Charles Wilkes, USN. An overland detachment under Lt. George Emmons with civilian artists and naturalists, traveled from Fort Vancouver to the Bay Area in 1841, collecting scientific data, as well as surveying, sketching and painting en route. The party followed the Sacramento River, charting its depths from present-day Colusa to the Golden Gate. Although these charts and drawings (many in color)

⁵⁶ Gulnac was a New Yorker who immigrated first to Baja California where he married Isabel Ceseña and arrived with his family to San Francisco in 1833. He became a citizen in 1834 and acquired land within San Francisco by 1838. He and Weber partnered in business for a short time. Through Sutter, Gulnac and Weber were grantees of Campo de los Franceses (French Camp). Gulnac died in 1851. See Bancroft, *History of California* 3:771-72.

⁵⁷ San Joaquin Historical Society exhibit on Charles Weber, 2014. Mickle Grove, CA.

⁵⁸ George P. Hammond, *The Weber Era in Stockton History* (Berkeley: Friends of the Bancroft Library, 1982), 57, 87 (Tuleburg); Indians (58); George H. Tinkham, *A History of Stockton from its Organization up to the Present Time* (San Francisco: W. M. Hinton & Co., 1880), 21-23; Tinkham, *A History of San Joaquin County, California, with Biographical Sketches* (Los Angeles: Historic Record Company, 1923), 41-42.

⁵⁹ Hammond, *Weber Era*, 59.

⁶⁰ This was one of the first place-names in California not Spanish or Native American in origin.

were not published immediately, American military and civilian officials learned much from Wilkes' 1841 map, which was made available to the public in 1858. In the meantime, Wilkes' scientific reports and specimens became the basis for the natural history collections of the Smithsonian Institution, founded in 1846.⁶¹

The expeditions of John Charles Frémont between 1843 and 1846 highlight diplomatic intrigue, as well as official American interest on the part of the James K. Polk Administration in a port on the west coast. Frémont's routes are now well known and correspond with some of the earliest wagon roads in northern California. None of these crossed the Delta proper but roughly followed the Sacramento from present-day Redding to Sutter's Fort, on to the Calaveras and San Joaquin, eventually crossing Tehachapi Pass into southern California. Like other American and foreigners' accounts, Frémont's journal has positive and negative descriptions of California and its peoples. Published in 1846, Frémont included a map of his route, but on it one finds no indicated roads. He wrote this of the Calaveras section of the valley:

On the 26th [of March, 1844] we halted at the *Arroyo de las Calaveras* (Skull creek), a tributary to the San Joaquin—the previous two streams entering the bay between the San Joaquin and Sacramento rivers. This place is beautiful, with open groves of oak, and a grassy sward beneath, with many plants in bloom; some varieties of which seem to love the shade of the trees, and grow there in close small fields. Near the river, and replacing the grass, are great quantities of *ammole* (soap plant), the leaves of which are used in California for making, among other things, mats for saddle cloths. A vine with a small white flower (*melothria?*) called here *yerba buena*, and which, from its abundances gives name to an island and town in the bay, was to-day very frequent on our road—sometimes running on the ground or climbing the trees.

The next day, as the party continued south along the San Joaquin, Frémont recorded: “Over much of this extent, the vegetation was sparse; the surface showing plainly the action of water, which, in the season of flood, the Joaquin spreads over the valley.”⁶²

⁶¹ Harlow, *Maps of San Francisco Bay*, Map 24, opposite page 72.

⁶² John C. Frémont, *Narrative of the Exploring Expedition to the Rocky Mountains, in the Year 1842; and to Oregon and North California, in the Years 1843-4* (New York: D. Appleton & Co., 1846), 153. Frémont's map was incorporated into a number of 1846 maps for political as well as informational reasons. One of the most widely distributed was S. Augustus Mitchell, “A New Map of Texas, Oregon and California (Philadelphia, 1846). Copy in possession of the author. Charles Preuss, official cartographer of the Frémont expeditions, produced his own cumulative map in 1848 with all of Frémont's California expeditions. For reproduction see Derek Hayes, *Historical Atlas of California with Original Maps* (Berkeley: University of California Press, 2007), Map 162, p. 78.

Impressed by California's prospects and given orders that have never been fully documented to spy if not encroach on Mexican territory, Frémont returned in 1845. On June 10, 1846, a small group of Americans gathered in Sonoma to foment the infamous Bear Flag Revolt against Mexican authority. War between the U.S. had already been declared, but Californians did not learn of that until the arrival of a naval squad under John Sloat in early July. The Bear Flaggers joined Frémont's force and eventually California was seized from Mexican authorities.⁶³ The Treaty of Guadalupe-Hidalgo in 1848, which ended the Mexican War, guaranteed Mexican citizens civil rights and titles to their property, but after gold was discovered and many lands (including those of Sutter) were overrun by Argonauts, soldiers, and settlers in the frenzy that followed, these promises were largely forgotten. Ironically, Mexican citizens had more difficulty than foreigners retaining their own land grants in the legal transition following statehood.⁶⁴ The grant to Weber was affirmed and Stockton grew as a supply point for the southern mines,⁶⁵ but Sutter's settlements were preempted and squatted upon by trespassers, pressuring him to abandon his fort, farm and saw mill. For the rest of his life Sutter filed petitions to Congress for reparations, which he never received.⁶⁶

Meanwhile the greater Sacramento Valley was like a vertical chessboard of large ranches, most hugging the main river or its tributaries in a contest to amass as much land as possible before the demographic surge, combined with generous public land laws, more democratically distributed lands to California's newcomers. An 1851 map in Spanish vividly illustrates this as one follows holdings from the north end of Sacramento County to south of Stockton in San Joaquin County. The surnames alone speak to the demographic and ethnic shift by then. In the far north we see Dye, Bolden, Thomas, Merett [Merrett], Lassen, Kayser, Farwell, Hensley, Osie, Dutton, and DeHames appear along with Soto, Rodriguez and Mareño. Closer to New Helvetia: Knight, Gordon, Sinclair, Grimes, Leidsdorff, Dedman [Dedmond], Belamy, and Wolfskill; and between Sacramento and Stockton: Earnest, Sheldon,

⁶³ Barbara R. Warner, *The Men of the California Bear Flag Revolt and Their Heritage* (Spokane, WA: The Arthur H. Clark Co. for the Sonoma Valley Historical Society, 1996). Also Doyce Nunis, Jr., "Alta California's Trojan Horse: Foreign Immigration," in *Contested Eden*, ed. Gutiérrez and Orsi, eds., 299-330.

⁶⁴ Leonard Pitt, *The Decline of the Californios: A Social History of Spanish-Speaking Californians, 1846-1890* (Berkeley: University of California Press, 1971). The best single memoir of this tragedy for Mexican Californians was written in 1852 by Antonio María Osio as *The History of Alta California: A Memoir of Mexican California*, trans. Rose Marie Beebe and Robert M. Senkewicz (Madison: University of Wisconsin Press, 1996).

⁶⁵ Raymond W. Hillman and Leonard A. Covello, *Cities & Towns of San Joaquin County since 1847* (Fresno: Panorama West Books, 1985), 3-5.

⁶⁶ Hurtado, *John Sutter*, Ch. 16ff.

Chamberlain, Hartnell and Smith. Weber's land remains identified as "Rancho de Gulnack" [Gulnac].⁶⁷

Public Land Policy in California after 1850

Four major United States public land laws impacted Delta development. The Pre-emption Act of September 4, 1841; the act of September 28, 1850, known as Swamp Lands (or Arkansas) Act which granted California 2,200,000 acres of overflowed or swamp lands for the purpose of reclaiming such lands "by means of levees and drains." The state, in turn, could transfer to individual citizens up to 160 acres provided they drained the land "for improvements." A third act of March 3, 1853 granted 5,500,000 acres for the establishment of public schools. Finally, the Morrill Land Grant Act of July 2, 1862 gave the state 150,000 acres for setting up "colleges for the cultivation of agriculture and mechanical science and arts." Altogether, California received almost 8,500,000 acres from the federal government, cumulatively making it one of the largest grants in American history from the public domain.⁶⁸

Early Transportation during the American Period

Even the El Camino Real or Royal Highway connecting the missions relied on pack animals and *carretas* (two-wheeled carts), not two-axle wagons. Slow and cumbersome, *carretas* were normally pulled by one or two oxen or mules. They often bogged down in soft terrain, but could be repaired en route by almost anyone with basic mechanical skills due to their all-wooden construction, including wheels and axle. The inventory of Fort Ross purchased by John Sutter included "five four-wheel carts" and "ten two-wheel carts," equipment useful for farming, carting between dock and settlement, and mining operations.⁶⁹

Despite the practicality of the two-wheeled cart, Americans were determined to use the vehicle that had become standard in the settling of the Midwest—the covered box wagon and other variants of freight wagons, easy to build where dimensional lumber from hardwood forests was readily available and skilled wheelwrights could be found.⁷⁰ Beginning with the Bidwell-

⁶⁷ "Mapa, Valle del Sacramento, 1851, updated 1853," Holt-Atherton Special Collections, University of the Pacific Library [brackets mine]. Also see Marschner, *California: A Snapshot in Time: 1850*, 260-73.

⁶⁸ Sucheng Chan, *This Bittersweet Soil: The Chinese in California Agriculture, 1860-1910* (Berkeley: University of California Press, 1986), 163.

⁶⁹ Glenn J. Farris, "Extract of the Accounts of the directors of the Russian-American Company for the Two years Ending the 1st of January, 1842," in *Journal of St. Pétersbourg, 'Supplément d'Intérieur* (Oct. 31, 1842), trans. Glenn J. Farris, *Fort Ross-Salt Point Newsletter*, 2005, 153-54; reprinted in *So Far From Home: Russians in Early California*, ed. Glenn J. Farris (Berkeley: Heyday and Santa Clara University, 2012), 284-92, at 291.

⁷⁰ Seymour Dunbar, *A History of Travel in America* (New York: Tudor Publishing Co., 1937), 275ff.

Bartleson party in 1841, overland parties using these Conestoga-style wagons attempted to reach California carrying people and their personal goods. The Bidwell-Bartleson's group of thirty-one men, one woman and one child made it to Sacramento with their mules and oxen, but abandoned their nine wagons in Nevada. Other parties followed their courageous, if risky example, blazing The California Trail. The strategy involved leaving the Oregon Trail at either South Pass (Wyoming) or Fort Hall (Idaho) and cutting southwest across the Great Basin to the Humboldt River or Carson Lake and Lake Tahoe before crossing the Sierra and down to Sacramento.

Until 1846, few wagons made it; most were left on the eastern slope of the Sierra if they made it at all into California. In 1846, Lansford Hastings claimed that a cutoff subsequently named for him was feasible, as long as water was conserved and timing was near-perfect to cross both the desert and the Sierra before heavy snowfalls. Difficult at best, emigrants who chose this route faced heavy odds due to the sparse rainfall in Nevada generally and the alkali lake beds or sinks that had to be crossed. The Forty Mile Desert northeast of Lake Tahoe challenged all. The desert was actually 70 by 150 miles with an annual rainfall of only five inches. The well-known ill fate of the Donner Party, who used Hastings' Cutoff in 1846, stands out as exceptional. Even so, in 1850 one observer counted the victims as he traveled through this section of desert noting over 1,000 dead mules, 5,000 horses, 3,500 cattle and oxen carcasses and 953 emigrant graves.⁷¹

Overcoming obstacles and logistics, hundreds of wagons made it to California. According to H. H. Bancroft, at the close of 1849, an estimated 39,000 people arrived by sea, of which about 23,000 were Americans, and 42,000 overland, of which 9,000 were from Mexico, 8,000 coming through New Mexico, and 25,000 by way of the South Pass and Humboldt River: "Of this number a few thousand, especially Mexicans, returned the same year, leaving a population that approached 95,000."⁷² Travelers who crowded the California Trail in 1849 alone have been described by one author as "a stream of wagons, handcarts, men on mules and horses, men on foot. . . . They were from all

⁷¹ George R. Stewart, *The California Trail: An Epic with Many Heroes* (New York: McGraw Hill, 1962); Thomas Frederick Howard, *Sierra Crossing: First Roads to California* (Berkeley: University of California Press, 1998).

⁷² Bancroft, *History of California*, 6:159. J. S. Holliday counts 32,000 on the California Trail in 1849, noting "some 8,000—the rear of the vast migration—had not reached the Humboldt until September, even late September. Fearful of Sierra snowstorms, they believed reports of a new route called Lassen's Cutoff, which promised to save many miles by leading directly west, into the gold region. Too late they realized the 'cut-off' veered to the north, finally to the Oregon border—and to disaster. Caught in the first storms of winter, these cut-off victims cast away everything they had lugged across the continent and fled for their lives, most of them reduced to only a rifle and a blanket." They ended up at Lassen's ranch in the northern Sacramento Valley, not the gold region. See *Rush for Riches: Gold Fever and the Making of California* (Berkeley: University of California Press and the Oakland Museum of California, 1999), 111.

walks of life, scholars and professional men as well as vagabonds and jailbirds.”⁷³ To this day, most California historical societies, including those within the Delta, boast one or more of these “pioneer wagons” which were integrated into the economy, some becoming family heirlooms.⁷⁴

The Gold Rush dramatically increased the demand for all sorts of wheeled devices including wheelbarrows supplied by Studebaker of Placerville,⁷⁵ as well as wagons, coaches, and trammels (water wheels) to lift and divert water along placer mining streams. To meet this demand, coach and wagon-builders in the Bay area dis-assembled abandoned ships and used decking and hulls to build vehicles. Most were transported by boat to landings in Sacramento or Stockton. The Delta itself was too marshy, especially during the spring runoff, and lacked enough higher ground to build any wagon roads. Little had changed since 1772 when Fages and Font independently described the watery swamp that seemed endless. Ranches on the edge of the Delta had rough trails practically unmarked. As transportation-historian O. O. Winther once put it, “There were no roads to speak of—merely trails connecting one settlement or rancho with another.”⁷⁶ An 1848 map prepared by former American consul Thomas Larkin, based on John Bidwell’s survey of the Delta and Central Valley shows the ranches and impassible estuaries, as well as “Road to San Joachin” from “New Helvetia.” The only road on the map, it connects Sutter’s domain with that of Weber, providing the rough boundaries of a number of other ranches in between, all bearing Anglo surnames.⁷⁷

When the Gold Rush began, not one stagecoach operated in California. In the autumn of 1849, John Whistman converted an old French omnibus driven by mules into the first stage between San Francisco and San Jose—a nine hour ride that was never described as “first class.” Because people were willing to pay thirty-two dollars or two ounces of gold for a one-way passage, he soon had competition. Auckley & Maurison charged the same but had a better

⁷³ Robert Laxalt, “The California Trail.: To the Rainbow’s End,” in *Trails West* (Washington, DC: National Geographic Society, 1979), 108-43, at 142.

⁷⁴ San Joaquin Historical Society has a splendid example.

⁷⁵ Thomas E. Bonsall, *More Than They Promised: The Studebaker Story* (Palo Alto: Stanford University Press, 2000). John Mohler Studebaker came to the Gold Rush in 1853, but decided he could do better blacksmithing than placer mining. He opened his business in Placerville that year, making wheelbarrows for miner. He returned to his native Indiana in 1858 where he and his brothers continued making wheeled vehicles in the form of ammunition wagons for the Union Army and from that civilian wagons, carriages and eventually automobiles. Between 1897 and 1907, the Studebaker Company built over one million wagons. See David Sneed, “A Different Studebaker,” *Wheels that Won the West*, June 25, 2014. Retrieved 18 Dec., 2014. Also Floyd Clymer, *Treasury of Early American Automobiles, 1877-1925* (New York: Bonanza, MCML), 60; and Office of Historic Preservation, California State Parks, *California Historical Landmarks* (Sacramento: California State Parks, 1996), Landmark 142, p. 43.

⁷⁶ Oscar Osburn Winther, *Via Western Express & Stagecoach* (Stanford: Stanford University Press, 1945), 2.

⁷⁷ “Map of the Valley of the Sacramento including the Gold Region,” (Boston: T. Wiley, Jr., 1848), reproduced in Hayes, *Historical Atlas of California*, map 180, p. 89.

coach and faster horses. In 1850, Whistman sold out to Warren Hall and Jared Crandall who had experience with stagecoaches in Mexico. By May, 1851, Hall & Crandall were the most popular, having reduced the fare by fifty percent. They also enjoyed a government contract to carry the mail between the two cities with a subsidy of \$6,000 per annum. Even with this financial success, they sold out in 1853 to Dillon, Hedge and Company, which by then had operations in other parts of California. Hall & Crandall turned over operations on 300 miles of California "roads."⁷⁸

Sacramento's story of early stage coach transportation is similar to San Francisco. The first to attempt a line, James Birch and Frank Stevens, hailed from New England where both had driven coaches. In September, 1849 they opened their business using an old ranch wagon drawn by four Mexican broncs. The line ran to Mormon Island (Folsom) at a cost of thirty-two dollars.⁷⁹ By February, 1850, the company had expanded service to Coloma. Like Hall & Crandall, their break came in 1851 with a government contract to carry mail, making runs into the Mother Lode as far as Nevada City and down to Stockton by year's end. By 1853, twelve stage companies competed for business in Sacramento alone.

Stockton's first passenger service began in 1850 when E. S. Holden added passenger service to his freighting operations between Weber's city and Sonora. A year later, the Telegraph Stage Line from Sacramento, owned by Birch and Stevens, reached Stockton and competed with three other concerns. A total of seven stages operated from Stockton into the Sierra mining towns by the mid-1850s.⁸⁰ As competition grew stiffer, a number of owners got together and merged, forming the California Stage Company on January 1, 1854. Capitalized at \$1 million, James Birch was chosen president with headquarters at the Orleans Hotel in Sacramento. Inventory included 750 horses and enough coaches, harnesses and drivers to service a 450-mile territory.⁸¹

Even with these improvements after statehood, getting from one point to another in California's interior by land remained difficult and especially in Delta country. In 1849, Lt. George Derby of the Topographical Engineers was assigned duty in California to survey and map the Sacramento Valley concentrating on the Bear and Yuba rivers; this to help miners but also to

⁷⁸ Winther, *Via Western Express & Stagecoach*, 5-6.

⁷⁹ Mormon Island was the site of the second major discovery of gold after Coloma. Members of the Mormon Battalion discovered gold while hunting deer in March, 1848. Around 150 Mormons flocked to the site, which had a population of 2,500 in 1853. Fire destroyed the town in 1856 and it was never rebuilt. Folsom Lake covered the remains of the town in 1955. *California Historic Landmarks*, No. 569, p. 45.

⁸⁰ V. Covert Martin, with R. Coke Wood and Leon Bush, *Stockton Album through the Years* (Stockton, CA: Simard Printing Co., 1959), 69, 71.

⁸¹ Winther, *Via Western Express & Stagecoach*, 7-12.

protect Indians from miners and to establish a reservation. His report, published that same year contains a map that shows a wagon road west of Sacramento toward Benicia, skirting the northwest edge of the Delta.⁸² Remarkably, by 1850, maps and charts became available of the route between the San Francisco Bay area and Sacramento by water. One map, completed by an officer in the U. S. Navy, shows the depths, as well as what later would be termed “sloughs” of the Sacramento River drainage.⁸³ Even with better maps and nautical charts, the Delta claimed boats that hit snags and obstacles in the murky waters. From the point of view of river pilots, merchants sending freight, and passengers going both directions, the Delta was a floating hazard through which to pass, not a comfortable place to stop or to make a living.

Water Transportation, 1847-1860

Californios were not without watercraft, but large sailing vessels seem to have been confined to the major bays. On the Delta, diaries and official reports mention many launches, skiffs, and smaller rowboats, but few if any masted craft. Sailing upriver and tacking in narrow channels was slow and tedious. When the first sailing vessel appeared near modern Sacramento is uncertain. The first documented sailboat dates to 1839 when John Sutter landed at Sacramento. Other sailing vessels followed and would be used in decades to come, but by 1850 the steamboat had supplanted sailing craft for commercial traffic. Steamboats would remain the principal mode of transportation in the Delta into the twentieth century.

The first steamboat to reach Sacramento had been acquired from the Russians by William A. Leidesdorff. The thirty-seven foot side-wheeler *Sitka* arrived in 1847, carried in pieces from old Fort Ross to San Francisco, where it was put back together.⁸⁴ The harbormaster in San Francisco recorded 782 ships arriving between March 26 and December 29, 1849, some destined to head upriver.⁸⁵ Several artists show steamboats and multi-mast vessels in

⁸² George Derby, “The Sacramento River, from the American River to Butte Creek,” (1849), in *The Topographical Reports of Lieutenant George H. Derby*, with introduction and notes by Francis P. Farquhar. California Historical Society Special Publication 6 (San Francisco: CHS, n.d.); originally published *California Historical Society Quarterly* 11(3) 1932:247-73. Also recently available in *The Army Surveys of Gold Rush California: Reports of the Topographical Engineers, 1849-1851*, ed. Gary Clayton Anderson and Laura Lee Anderson (Norman, OK: Arthur H. Clark Co., 2015), 89-118.

⁸³ Cadwalader Ringgold, Cmdr. USN, “Chart of the Sacramento River from Suisun City to the American River, California” (1850), Center for Sacramento History, City of Sacramento; reproduced in in Hayes, *Historical Atlas of California*, map 188, pp. 97-98. Ringgold was a superb technical draftsman but has “Suisun” located where Rio Vista would be settled.

⁸⁴ Jerry MacMullen, *Paddle-Wheel Days in California* (Stanford, CA: Stanford University Press, 1944), 3-5.

⁸⁵ “Chronology, 1849,” in Holliday, *Rush for Riches*, 139.

Sacramento in the year 1849.⁸⁶ One could have been the side-wheeler *Pioneer*, which had been built in Benicia in 1849.⁸⁷ Another possibility is the *Lady Washington*, which was “assembled” at Sutter’s Embarcadero and launched on August 9, 1849, becoming the first steamboat to navigate the American River to Coloma.⁸⁸ An 1850 daguerreotype of Sacramento, the earliest of its kind, shows the side-wheeler *New World*.⁸⁹ This vessel, as well as another deep water vessel named the *Senator*, had traveled from New York around the horn bringing Argonauts. Two of the 1,521 ships that entered San Francisco Bay that year,⁹⁰ went into service between San Francisco and Sacramento. The *Senator*’s pilot, Lt. James Blair, USN, took the vessel upriver on its first voyage, later organizing the Sutter Iron Works at Rincon Point in San Francisco. This company’s sole purpose was to set up hulls and engines of steamboats which had been shipped from the east coast in knockdown form, an ingenious and practical way to avoid iron-work manufacture and construction from scratch in California.⁹¹

Cadwalader Ringgold, USN, sketched a variety of vessel types on the river and especially at Sacramento City in 1850. These included sloops, catches, yawls, and schooners.⁹² The wharf was crowded with side-wheel steamboats, as well as barges and sailing craft, which carried staples and dry goods as well as miners and the tools they required. One-way passage from San Francisco to Sacramento cost \$30, while freight on goods averaged \$50 per ton. An 1850 advertisement by Warren & Co. includes flour, fruit, sugar, provisions, clothing, “and many choice goods including cigars, mining tools, etc.”⁹³ The cost of flour and beef doubled between the two destinations, with flour at \$16 a hundredweight and cattle at \$30 a head on the Bay; and \$35 per hundred pounds and \$70 a head upriver.⁹⁴ Harbormaster records for Sacramento show month-by-month arrivals beginning in 1851. The ledger for December 1, 1851 shows 4 “Brigs,” 20 “Schooners,” 9 “Sloops,” 11 “Barges,” 44 “Sail Vessels,” and 21 “Steamers,” a total of 30,446 tons for the month of November. Eight

⁸⁶ George B. Cooper, “lithograph, 1849,” in V. Aubrey Neasham and James E. Henley, *The City of the Plain: Sacramento in the Nineteenth Century* (Sacramento: Sacramento Pioneer Foundation in cooperation with the Sacramento Historic Landmarks Commission, 1969), 13.

⁸⁷ Paul C. Trimble, *Riverboats of Northern California* (Charleston, SC: Arcadia, 2011), 11. The image is owned by the California State Library.

⁸⁸ MacMullen, *Paddle-Wheel Days*, 11.

⁸⁹ Sacramento Archives and Museum Collection Center and the Historical Sacramento Foundation, *Old Sacramento and Downtown* (Charleston, SC: Arcadia, 2006), p. 58.

⁹⁰ Holliday, *Rush for Riches*, 124n.

⁹¹ MacMullen, *Paddle-Wheel Days*, 15-16.

⁹² Ringgold sketches, as found in Severson, *Sacramento*, 50-53; and in

⁹³ Neasham and Henley, *City of the Plain*, p. 67.

⁹⁴ Severson, *Sacramento*, 53.

months later, the ledger includes 1 “Brig”, 18 “Schooners,” 11 “Sloops,” 30 “Sail Vessels,” and 23 “Steamers” for the month of July, 1852, a total of 32,525 tons, or a slight increase.⁹⁵ By 1853, there were six first class steamships providing service between San Francisco and Sacramento. Incorporated in 1854, the California Steam Navigation Company was never a monopoly but soon came to dominate shipping along this corridor buying up every steamer that became available. The company’s ships included *Confidence*, *Colusa*, *New World*, *Helen Hensley*, *Antelope*, *Governor Dana*, and *Sam Soule*. Sacramento’s wharfs and its two dedicated steamboat landings were abuzz with activity as the Gold Rush ran its course, peaking in 1854, but continuing to draw miners to decade’s end.⁹⁶

Weber’s Stockton experienced similar activity. Between 1845 and 1847, Weber made several trips overland to San Jose, bringing back 1,000 head of cattle in 1847. By 1848 he had purchased a thirty-eight foot sailing sloop, the *Maria*, which served his needs for communication, freight, and trade between Stockton and San Francisco.⁹⁷ *Captain Sutter*, the first side-wheeler on the San Joaquin, made it upriver in 1849 followed by the *Sagamore* in 1850. The latter experienced the fate of many steamboats when her boilers exploded and destroyed her the same year.⁹⁸ Lt. George Derby arrived with his topographical engineers in July, 1849, describing Stockton as seen from the Old River landing as “. . . one wooden building (a large shop belonging to Mr. Wehre [Weber]) the other tenements being large tents made by stitching cloth over heavy frames, but there were about a dozen vessels lying at the bank, barques, brigs, & schooners, most of which are metamorphosed into shops or groceries.”⁹⁹

By 1852, six steamers, most high pressure side-wheelers, were in regular service between Stockton and San Francisco. These included the *American*

⁹⁵ City of Sacramento, Harbor Master Records, *Ledgers 1851-1852, 1852-1853*, Recapitulation, Dec. 1, 1851, July 31, 1852. Center for Sacramento History.

⁹⁶ Philip Pezzaglia, *Towns of the Sacramento River Delta* (Charleston, SC: Arcadia, 2013), 10. According to Tinkham, *History of San Joaquin County*, the company was incorporated on March 1, 1854 with a capital value of \$2 million. It remained the largest transportation company in California until the completion of the Central Pacific Railroad (p. 87). “Official Map of the City of Sacramento, California compiled from actual surveys by W. S. Watson, Civil Engineer, 1854” shows the two distinct steamboat landings. The map is on the wall of the Center for Sacramento History, City of Sacramento.

⁹⁷ Nicholas P. Hardeman, *Harbor of the Heartlands: A History of the Inland Seaport of Stockton, California from the Gold Rush to 1985* (Stockton: Holt-Atherton Center for Western Studies, University of the Pacific, 1986), 17; also Tinkham, *History of San Joaquin County*, 85.

⁹⁸ *Ibid.*, 18. Hardeman, *Harbor of the Heartlands*, 20.

⁹⁹ Lt. George Derby, *The Army Surveys of Gold Rush California*, ed. Anderson and Anderson, 61.

Eagle, H. T. Clay, Stockton, and Jenny Lind.¹⁰⁰ Three left daily on the overnight trip and mail was brought to and from the Bay six days a week.¹⁰¹ Stockton also had its own shipbuilding operation at Lindsey Point on McLeod Lake, where S. H. Davis and William Emerson made wooden-hulled vessels, but most vessels came from the east coast.¹⁰²

The story of the *S. B. Wheeler* illustrates the flurry of activity in transferring tonnage of shipping from the Atlantic to the Pacific during the early years of the Gold Rush. A 120-foot stern-wheeler, the boat was built in St. Stephens, New Brunswick expressly for the California trade. Once the hull was completed, another ship under construction, the sailing bark *Fanny*, was launched open-hulled from the stocks and immediately sunk. The *S. B. Wheeler* was floated over the immersed *Fanny*, then the latter was re-floated and the engine and upper works of the steamer were placed in the double hulled sailing vessel, bound for California. Once in the Golden State, the *S. B. Wheeler* plied the waters between Stockton and San Francisco until sold to a Mexican firm.¹⁰³

In an effort to compete with the California Steam Navigation Company and to lower freight and passenger rates, Stocktonians met in December, 1854 to form a joint-stock venture, Merchants' Steamboat Company. Short the capital needed to purchase a first-class steamboat at around \$80,000, the investors settled on a contract with the owner of the *Willamette*, pledging that the sixty-five anti-monopoly shareholders would use the vessel. California Steam immediately cut their rates in half to undermine the competition. It worked. Within three months, the *Willamette* ceased operations and the Merchants' Steamboat Company folded. Rates returned to the pre-1855 schedule not to be challenged for the rest of the decade.¹⁰⁴

By 1859, California had its own ship building works on San Francisco Bay for steamers as well as sailing craft. The "State Register" reported "three steamers and six sail vessels on the stocks intended for the bay and river trade."¹⁰⁵ Clearly watercraft had become the main mode of transportation, at least as far as Sacramento and Stockton.¹⁰⁶

¹⁰⁰ Hardeman, *Harbor of the Heartlands*, 20. The *Stockton* and the *American Eagle* both exploded within eighteen hours of each other on October 19, 1853. See Tinkham, *History of San Joaquin County*, 86.

¹⁰¹ Donna Smith, comp., "Stockton in the Beginning," in *California's Sesquicentennial Wagon Train: A Celebration of the Use of Animal Motive Power in the Settling and Commerce of California* (Mariposa, CA: n.p., 1999), 165-66.

¹⁰² Davis, *Stockton*, 38.

¹⁰³ MacMullen, *Paddle-Wheel Days*, 15.

¹⁰⁴ Tinkham, *History of San Joaquin County*, 88-89.

¹⁰⁵ *The State Register and Year Book of Facts for the year 1859* (San Francisco: Henry G. Langley and Samuel A. Morison, 1859), 308.

¹⁰⁶ Severson, *Sacramento*, 87.

Overland transportation

To service the mines in the Mother Lode, overland transportation was required. Settlements at Jackson, Mokelumne Hill, Angels Camp, Murphys, Sonora, Columbia and Mariposa survived because of supply from Stockton, whose merchants used “mountain freighters,” large rugged wagons that required multiple teams of draft animals. Stockton alone had more than a dozen blacksmith and wagon shops by 1852, as well as individuals listed in the city directory that year as “wheelwright.”¹⁰⁷ Along with other “mechanics,” these men were reported to be “the most monied men in the county.”¹⁰⁸ According to one authority, William P. Miller made the first freight wagon in Stockton in 1852 out of a ship’s rudder and named it “Texas Ranger.” His factory at Channel and California Streets made larger wagons called the “Stocktonian” which were twenty-eight feet long, eight feet high and five feet wide. The wagon weighed 5,000 pounds and cost \$1,000. Another early wagon maker was Anderson & Clark at the corner of California Street and Weber Avenue. M. P. Henderson specialized in “20 mule team” wagons such as those used to haul borax from Death Valley, while John H. Tucker made wagons for the Butterfield Stage Company beginning in 1858 with rear wheels six feet, four inches in diameter to carry as much as four tons of freight.¹⁰⁹ Even though the Delta did not attract gold miners, the latter’s prospects of succeeding depended on the goods and information brought by the transportation companies that navigated through Delta waters between San Francisco and the two inland ports servicing the northern and southern mines, respectively. Supply and repair also depended on the vehicles and the mechanics that serviced them in the larger urban enclaves.

An 1852 map accompanying the *Stockton Directory* for that year shows a number of crude roads, but none going directly into the Delta.¹¹⁰ That same year the Court of Sessions¹¹¹ acted on an 1850 State Assembly bill that

¹⁰⁷ *The Stockton Directory and Emigrants’ Guide to the Southern Mines* (Stockton: San Joaquin Republican Office, 1852).

¹⁰⁸ Davis, *Stockton*, 37-38.

¹⁰⁹ Martin, et al., *Stockton Album*, 115.

¹¹⁰ C. D. Gibbes, “Map of the Southern Mines, 1852,” in *The Stockton Directory* (1852), frontispiece.

¹¹¹ The Court of Sessions was created on April 11, 1850 by the California State Legislature. Its purpose: (1) to make such order respecting the property of the county as they deemed expedient; (2) to examine and settle all accounts chargeable against the county and to direct the raising of money therefor by taxation on property, real and personal; (3) to audit the accounts of all officers having the care, management, collection and disbursement of any money belonging to the county; (4) to have control and management of public roads, turnpikes, ferries, canals, roads and bridges within the county; (5) to divide the county into townships and create new townships, etc; (6) to establish and maintain election precincts; (7) to control and manage the property of the county; (8) to sell and convey any property belonging to the county; (9) to cause to be erected and furnished a courthouse, jail and other

authorized roads to be surveyed and laid to reach ferry landings for river crossings and to link federal forts within the state. Mariposa Road and Lower Sacramento Road through San Joaquin County are examples of these. Muddy all winter and chalked with dry dust all summer, these “government roads” were main routes, supplemented with make-shift paths between ranches and farms, hamlets and the few towns. “Good roads” would have to wait until the late 1860s and 1870s.¹¹² During the muddiest season, the French Camp Road with a sandy loam base became an alternative to the Mariposa Road’s adobe base. The road headed south from Stockton by way of the old gathering spot of the Hudson’s Bay Company trappers, then on to present-day Manteca, crossing the Stanislaus River southwest of present-day Ripon. Because of this road, “French Camp became an important staging and freighting center,” according to Janice Marschner, who adds: “Boats landed at the end of French Camp Slough to unload their goods bound for the Southern Mines.”¹¹³

Meanwhile, in 1856 the California Assembly petitioned the U. S. Senate for a federal wagon road that would connect Sacramento with the Mississippi Valley. Editors of the *Stockton Argus* and the *Sacramento Daily Union* joined the memorial, the *Argus* writing:

Let wagon roads be made through the State to Utah . . . It is very rare that an agriculturalist can be met with who did not migrate to this State by land, bringing with them stock. Railroads cannot benefit this class of emigrants as the cost of transportation could not be made by a company to meet their means. . . .¹¹⁴

Debate in Congress over a southern versus a central route for a railroad as well a federal wagon road stalled the project, which ultimately was approved in 1857 with two routes—one that would enter California to the north; the other to the south near San Diego.

Communications and the rise of “Express” companies

The demand for communication with the outside world prompted entrepreneurship in news reporting as early as April, 1849, when Edward C.

public buildings, and keep them in repair; (10) to do all things necessary to discharge their powers and jurisdiction. See J. W. Wooldridge, *History of the Sacramento Valley, California*. 3 vols. (Chicago: Pioneer Historical Publishing Co., 1931), 1:273-74. In time the Court of Sessions was replaced by county Board of Supervisors, which remain today. From its beginnings in 1850, San Joaquin County Board of Supervisors began keeping careful records of road projects, records from which are on file at SJHS in Micke Grove filed as “Road Description Book, 1850-1898,” and “Road Index, No. 1.” Thanks to Leigh Johnsen, archivist.

¹¹² Tinkham, *History of San Joaquin County*, 69-70.

¹¹³ Marschner, *California, A Snapshot in Time: 1850*, 262.

¹¹⁴ *Stockton Argus*, as quoted in W. Turrentine Jackson, *Wagon Roads West: A Study of Federal Road Surveys and Construction in the Trans-Mississippi West, 1846-1869* (Berkeley: University of California Press, 1952), Ch. 10, 161-78, at 166 (*Stockton Argus*).

Kemble, a partner in San Francisco's newspaper, *Alta California*, headed to Sacramento with a box of old type, several reams of paper, and a press, determined to publish his own *Placer Times*. Kemble's paper reported on August 2, "The 'Regular Mail' is a regular humbug, is stuck in the mud half the time, and might as well be the other half. . . . We understand that the Postmaster [in San Francisco] cannot afford to employ clerks."¹¹⁵ Between 1849 and 1858, over fifty newspapers were founded in Sacramento, and of these, all but two failed leaving the *Sacramento Daily Union* (1851) and the *Sacramento Bee* (1857) as major competitors at decade's end.¹¹⁶

Communication between depositors and banks also posed logistical problems. Even before the Gold Rush, in 1847 Charles L. Cady established the first express service in California by carrying letters from San Francisco to Sutter's Fort at twenty-five cents apiece. Entrepreneurial miners tired of trudging in cold water and mud followed Cady's example, becoming "expressmen," collecting mail and delivering it, along with gold dust to Sacramento, Stockton and San Francisco at a customary charge of between \$1.00 and \$2.50 for mail, and five percent of gold for delivery of gold nuggets and dust. Perhaps the most successful was Alexander H. Todd, who carried letters to Sacramento and various mining camps for one ounce of dust, worth sixteen dollars. Todd had two thousand clients on his list.¹¹⁷ More than two hundred expressmen are known to have been operating by the early 1850s. They made deposits on behalf of their clients at Adams & Company Express beginning in December, 1849 and, after 1852, Wells Fargo & Company, both New-York based. Eventually Wells Fargo eclipsed Adams, becoming the largest banking operation in California by 1855.¹¹⁸ The story of these express companies and of the banking industry is tangential to the story of the Delta, but important in the context of moving people, as well as information and money between the mining districts, the interior towns, and the port of San Francisco.

Moving money and mail were one thing, moving people an entirely different logistic and social problem. According to J. M. Guinn, a turn-of-the-century curator at the Historical Society of Southern California and author of a massive one volume history of the state published in 1906:

¹¹⁵ *Alta California* (Sacramento), August 2, 1849, as quoted by Holliday, *Rush for Riches*, 129.

¹¹⁶ Severson, *Sacramento*, 62,

¹¹⁷ Noel M. Loomis, *Wells Fargo: An Illustrated History* (New York: Clarkson N. Potter, 1968), 2; Lucius Beebe and Charles Clegg, *U. S. West: The Saga of Wells Fargo* (New York: E.P. Dutton & Co., 1949). The latter contains a useful chronology of the company's history, to 1948.

¹¹⁸ Holliday, *Rush for Riches*, 128-31.

The first stage line was established between Sacramento and Mormon Island [now Folsom Lake] in September, 1849. . . . Sacramento was the great distributing point for the mines and was also the center from which radiated numerous stage lines. In 1853 a dozen lines were owned there and the total capital invested in staging was estimated at \$335,000. There were lines running to Coloma, Nevada [City], Placerville, Georgetown, Yankee Jim's, Jackson, Stockton, Shasta and Auburn. In 1851 Stockton had seven daily stages.¹¹⁹

In 1854 the California Stage Company was formed as a merger of several lines. By decade's end, the consortium controlled five-sixths of the state's business. Meanwhile, Wells Fargo expanded operations, moving headquarters from Sacramento to San Francisco in 1854 to be at the financial hub of the state. By 1856, Wells Fargo operated eighty offices; two years later—ninety-eight. In the early 1860s, Wells Fargo had become the largest business in the state and carried more gold and silver than people as operations expanded into Nevada's Comstock Lode.¹²⁰

In 1858 Stockton was declared the terminus of a postal route, officially named the Stockton, Albuquerque and Kansas City Mail. The contract went to Jacob Hall and called for monthly delivery which took fifty-five days one-way with a six-mule team pulling a stage from Stockton along the Mariposa Road, through the Central Valley to Fort Tejon and on through New Mexico Territory to Kansas City via the route that would later become the Santa Fe Railroad's standard route to California. At a cost to the government of \$80,000 and receipts of around \$1,225.00, this mail route was doomed from the start and only lasted from October, 1858 to June, 1859.¹²¹

On the eve of the completion of the transcontinental railroad in 1869, *stage coach* and *express* companies were synonymous terms. Another mail route connecting California with the east is associated with New Yorker John Butterfield, who had been a business associate with both Henry Wells and William Fargo, forming a parent company, American Express in 1850, out of which emerged several companies, most notably Wells Fargo & Co. and Butterfield Overland Mail Co. The latter won the government contract to carry the mail from St. Louis to San Francisco, entering California to the south at Fort Yuma, then crossing the Mohave Desert to Cahuenga and Tejon passes and on to the Bay via the Central Valley and Pacheco Pass. Operations of this

¹¹⁹ J. M. Guinn, *History of the State of California and Biographical Record of the Sacramento Valley, California* (Chicago: The Chapman Publishing Co., 1906), 216.

¹²⁰ Beebe and Clegg, *U. S West*, 306; Beck and Haase, *Historical Atlas of California*, map. 51.

¹²¹ Martin, et al., *Stockton Album*, 69, 71.

2,750 mile route began in September, 1858, with fares at \$200 for the twenty-five day ride with five fellow passengers and bundles of mail at three cents per each half ounce. Like the Pony Express, which only lasted eighteen months (from April, 1860 to October, 1861), Butterfield Overland was doomed by telegraph service after 1861, but it was an important step in connecting California with the eastern United States.¹²²

Telegraph service commenced on October 24, 1853, less than ten years after its invention, with service between San Francisco, Sacramento, Stockton, San Jose and Marysville. It extended from Stockton to Sonora in 1854. Authorized as a franchise by the State Assembly, New Yorkers Oliver E. Allen & Clark Burnham won the contract for fifteen years but were unable to finish the project due to the San Francisco fire of 1852 which destroyed much of the equipment of the California Telegraph Company. Reorganized as the California State Telegraph Company with capitalization of \$300,000, the new private concern met its schedule. A minimum fee of two dollars was charged from Stockton to San Francisco, with an additional seventy-five cents per word beyond ten. Sacramento to Stockton cost one dollar for the first ten words, with forty cents per word thereafter.¹²³ Benicia and Martinez were joined by telegraph in 1859. The Pacific Telegraph Act followed in 1860 with a goal of connecting the Pacific with the Atlantic. Four companies shared an annual subsidy of \$40,000 and joined in the effort connecting San Francisco with the east via Sacramento, Salt Lake City, South Pass (Wyoming), Omaha, Cedar Rapids and Chicago, avoiding the South in the midst of the American Civil War. The transcontinental line's first transmission between Chief Justice Stephen J. Field of the California Supreme Court and President Lincoln on October 24, 1861 marked the beginning of a new commercial era on the West Coast and the end of the Pony Express.¹²⁴

Newspapers and magazines continued to provide the average resident of the Delta with most of the information he or she obtained from the outside world well into the twentieth century. As noted previously, early Sacramento had over fifty newspapers, but only the *Daily Union* (1851-1994) and *Daily Morning Bee* (1857-) survived into the 1860s, changing to an evening paper as *The Sacramento Bee*. Like other newspapers of the day, these publications

¹²² Beck and Haas, *Historical Atlas of California*, map 52; Ralph Moody, *Stagecoach West* (New York: Thomas Y. Crowell Co., 1967), 68-81. Martin et al., *Stockton Album*, 71 (Pony Express and Butterfield).

¹²³ Tinkham, *History of San Joaquin County*, 90; Robert Luther Thompson, *Wiring a Continent: The History of the Telegraph Industry in the United States, 1832-1866* (Princeton, NJ: Princeton University Press, 1947), 345-47; Martin, et al., *Stockton Album*, 72.

¹²⁴ Thompson, *Wiring a Continent*, 348-72; Martin, et al., *Stockton Album*, 72; J. P. Munro- Fraser, *History of Contra Costa County, California* (San Francisco: W. A. Slocum and Co., 1882), 393.

carried a political point-of-view, as well as general news, financial reports on prices of gold and silver, literary pieces, obituaries, and advertisements.

One faction of landless Sacramentans had an organ in the *Settlers' and Miners' Tribune* for a few years beginning in 1850. And there was the weekly *California Farmer and Journal of Useful Sciences*, which moved to Sacramento from San Francisco in 1855 only to move back to the Bay several years later. Several papers tried to find markets in the 1860s without much success. The *Daily Democrat Standard* (June, 1860) died that same fall after the elections. *The Evening Post* tried to take over that October as a Republican voice, but it too only lasted less than a year, closing in September, 1861. The *Sacramento Daily Record* began as an evening paper in 1867, taking enough business from its main competitor, *The Daily Union*, that owners decided to merge in 1875 as the *Sacramento Daily Record-Union*. By 1890, one compiler of Sacramento County history claimed that the “total number of deceased publications, about seventy-five; of living, eight.”¹²⁵

Yolo County, which started out statehood in 1852 with a population of 1,440, 1,016 of whom were citizens of the United States over twenty-one years in age,¹²⁶ had its own newspapers beginning in 1867 with the *Yolo Democrat* which espoused the political party as named, published in the county seat of Woodland. The *Yolo Weekly Mail* followed in 1868, Republican in association. Most businessmen subscribed to “city” papers. In 1870 the leading paper by subscribers was the *Sacramento Union* with the *San Francisco Chronicle* second. The *Sacramento Record* and the *Bee* also had a large circulation in the county. Business firms relied on the *San Francisco Bulletin* and the *Call of San Francisco* for shipping and mercantile reports, while farmers relied on the *Weekly Union*.¹²⁷

Stockton’s newspaper history includes fifty-eight titles in the data base of the California Historical Society in San Francisco.¹²⁸ Of these, The *Stockton Weekly Times* was first with an issue printed on March 16, 1850 consisting of eight pages on successes in the Sonoran mines and advertisements for goods, mostly food items. A rival weekly newspaper, the *Stockton Journal*, was also

¹²⁵ Hon. Winfield J. Davis, *An Illustrated History of Sacramento County* (Chicago: The Lewis Publishing Co., 1890), “The Press,” 80-97, at 95. Interestingly, the leather binding of this tome has embossed in gold, “Pen Pictures from the Garden of the World,” but that is not in the official title.

¹²⁶ *Illustrated Atlas and History of Yolo County, Cal., containing History of California from 1513 to 1850 and History of Yolo County from 1825 to 1880* (San Francisco: De Pue & Company, 1879), 35.

¹²⁷ *The Western Shore Gazetteer and Commercial Directory for the State of California: Yolo County* (Woodland: C. P. Sprague & H. W. Atwell, 1870), 176-79.

¹²⁸ The California Historical Society’s main library in San Francisco has 119 titles in its database for Sacramento, 58 for Stockton, 4 for Rio Vista, 2 for Benicia, but none for Clarksburg, Courtland, Walnut Grove, French Camp, Locke, Freeport or Isleton. E-communication, Margit Aramburu to W. Swagerty, 8 Jan., 2015. On “first” see Martin, et al., *Stockton Album*, 69.

started later in 1850 and expanded into a semi-weekly. As in Sacramento, several papers expressing Northern and Southern loyalties and Republican, Whig and Democratic Party affiliations, vied for readership, many lasting only months. One was the Democratic *Stockton Evening Post*, which started in the spring of 1854, followed that June by the *Stockton Daily Argus* which at first identified with the Know Nothings and then supported John Fremont as the first Republican candidate for President in the fall of 1854, switching to supporting Democrats by 1858, and joined by the *Stockton Daily Gazette* from 1864 to 1869 which was pro-Southern. The *Stockton Daily Independent* provided Republicans and non-secessionists a voice throughout the American Civil War. By war's end, Stockton had a "neutral" paper in the *Daily Evening Herald*, which began circulation in July, 1865. Suffragettes had their own paper after 1873 when Mrs. Laura De Force Gordon began a semi-literary paper, *The Daily Leader*, moving it to Sacramento to be in the thick of state politics.¹²⁹

The *Stockton Daily Record* had its beginnings with the *Commercial Record*, a free weekly paid by advertising, first issue released in 1875. Twenty years later, in 1895, The *Record* was reborn as a daily and has continued ever since. Pro-Republican in its beginning, it was boycotted by many who objected to its censorship of advertisements that promoted tobacco, liquor, "manicure parlor," "fortune teller," lottery promotion, and patent medicines. One of the first newspapers in California to use rolled paper, by 1905 the machinery could literally "roll out" 6,000 eight-page papers per hour, printed and folded, increasing to 48,000 papers per hour by 1922.¹³⁰

Other towns of the Delta with early newspapers include two in Benicia: The *California Gazette* (1851) and the *Solano-County Herald* (1855), four in Rio Vista: *Rio Vista Enterprise* (1877), *The River News* (1895), *Sacramento River News* (1890) and the *Weekly Rio Vista Gleaner* (n.d.).

"Rimlanders," Squatters, and Town-Builders, 1850-1915

During the 1840s, a small number of families, some moving off of Mexican land grants, others up from San Francisco and San Jose, attempted to farm wheat and run cattle on the edges of the Delta. These earliest of farmers, and most notably those who resided in the Sutter Basin (north of Sacramento across the river from Knight's Landing), came to be called "rim landers" (also rimlanders [one word]). After the passage of the Swamp Lands (Arkansas) Act of 1850, a few of these families purchased the lands upon which most had

¹²⁹ Tinkham, *History of Stockton*, 258-73.

¹³⁰ Tinkham, *History of San Joaquin County*, 204-05.

squatted or pre-empted, providing precedent for others who purchased lands “on the rim” of islands, sloughs, and the rivers themselves.¹³¹

On the west bank of the Sacramento stretching for twenty miles from present-day West Sacramento to Merritt Island, Flemish citizen Jan Lows deSwart (John Schwartz) convinced the Mexican governor with John Sutter’s help to grant him 13,000 acres of land in 1845. Rancho Nueva Flandria was only one mile wide, but offered many possibilities given its river orientation. Schwartz and his brother George developed what was known locally as the Salmon Fishery by employing local Patwin Indians to catch, dry, and pickle salmon. They also ranched and raised vegetables and melons, finding a lucrative market for their produce and fish during the Gold Rush. Bayard Taylor arrived in 1849 as a reporter sent by newspaperman Horace Greeley. He passed through Nueva Flandria noting, “Before reaching the town of Sutter, we passed a ranch, the produce of which, in vegetables alone, was said to have returned the owner—a German by the name of Schwartz--\$25,000 during the season.”¹³² Swartz accommodated James McDowell and his family on his land grant, selling him at least one acre (possibly as many as 600) to build a cabin in what became the town of Washington. McDowell became an early casualty of the Gold Rush, dying from a gunshot wound in a barroom brawl after he stabbed two men, both of whom survived. Earlier that day, probably in a drunken stupor, he sold one-third of his property to William W. Warner for one dollar. In 1853 the Schwartz family lost title to the large land grant when the U. S. Board of Land Commissions refused to pass title to John’s brother George. Of interest to transportation history of the Delta, although the Schwartz clan lost the land, Warner built a successful ferry from the west side of the Sacramento to the mouth of the American River (Warner’s Ferry). In addition, the widow, Margaret McDowell successfully platted her inherited land into what became the town of Washington (changed in 1914 to Broderick, and now incorporated into West Sacramento).¹³³

Her town showed great promise, attracting a resident population of around 300 in 1850. Prospects improved further when the county seat of Yolo County moved to Washington from Fremont in 1851. However, floods cursed the town and by 1862 the county seat was moved to Woodland. In the

¹³¹ It is unclear where the term, “rimlander” originated. It is used by several authors including Joseph A. McGowan, *History of the Sacramento Valley*. 3 vols. (New York: Lewis Historical Publishing, 1961), 2:175; Lura Francis, “The Historic Delta,” *The Pacific Historian* 23(1) Spring 1979:45-57, at 49; Walters, *Clarksburg*, 21; Garone, *Fall and Rise*, 97.

¹³² Shipley Walters, *West Sacramento: The Roots of a New City* (Woodland, CA: Yolo County Historical Society, 1987), 8; Bayard Taylor, *Eldorado: Adventures in the Path of Empire* (Berkeley and Santa Clara, CA: Heyday Books and Santa Clara University, c. 1850, 2000), 175-76.

¹³³ Walters, *West Sacramento*, 10-11.

meantime, the California Steam Navigation Company gave Washington a boost in 1859 when the company built a shipyard where riverboats could be built and repaired. This remained Washington's most important business and remained in operation almost one hundred years. By 1870, the dream of eclipsing Sacramento for business and rail transportation faded with completion of the Central Pacific's holding, the California Pacific Railroad, which ran from Davisville (Davis) north to Woodland and Knights Landing and Marysville, and east from Davisville to Sacramento, bypassing Washington.¹³⁴

Squatters on public and private lands have a long pedigree in American history. In the early years of the Gold Rush, many who emigrated from states with U. S. Land Offices expected to find the same opportunities for acquiring small parcels at practical prices, or for no money at all if no government had been established, a process called "pre-emption," which allowed occupancy, then payment later at the minimum price. In California, these gold- and land-seekers faced an insoluble problem as they literally trespassed on the large land grants that had been doled out during Mexican times to around 800 estate owners controlling or claiming fourteen million acres of land. Sutter alone claimed twenty-two leagues, most of which became the object of squatters and land speculators, both groups refusing to recognize the legality of Mexican-era grants. Overrunning John Sutter's New Helvetia, squatters faced speculators in a stand-off during the spring and summer of 1850 as the latter tried to evict squatters from unfenced, un-platted lands in and around the city. Armed to the teeth, both sides appealed for a legal and judicial solution, but a riot broke out on the night of August 14, leaving eight dead, including the city's assessor and several squatters, with six wounded, including Sacramento's first mayor, Hardin Bigelow, who lived but never fully recovered. Peace followed but neither side was satisfied and many issues over legal title to Sutter's former domain remained unresolved.¹³⁵

Town building within the Delta commenced at the beginning of the Gold Rush but was hampered by lack of roads and the topography, coupled with hydrology. Approximately 320,000 acres lay within the estimated mean pre-reclamation tidal basin. More than half of this "swamp" was inundated at high tide. An additional 205,000 acres were subject to river flooding. Prior to heavy siltation of the Sacramento River, primarily the result of hydraulic mining operations, it was not uncommon to have a two foot tide at Sacramento's wharf. Thus, some of the lower waters of the Delta experienced saline intrusion, especially in late summer and fall. This meant the only plausible

¹³⁴ Walters, *West Sacramento*, 13, 15.

¹³⁵ Severson, *Sacramento*, 75-79; also Paul W. Gates, "California's Embattled Settlers," *California Historical Society Quarterly*, Vol 41 (2) June 1962:99-130

town-sites were the highest ground on old Indian village sites or burial mounds; or, alternatively, the highest natural levee points above the river, at best fifteen feet above sea level. Eventually settlements on the various natural islands defied logic and nature and many failed as a result of a false calculation that they were above flood level. Others succeeded, but not without epochs of flood and cycles of rebuilding or relocating.¹³⁶

According to the special State Census of 1852, California's population had increased from 117,000 (not counting Indians or Chinese) in 1850 to 264,000 two years later, of which only 22,000 were women. San Joaquin County had 5,029 people, 3,582 of them white males; 987 white females. Less than half the population were citizens of the United States over twenty-one years of age. Sixty male and twenty-one female "Negroes" are listed, as well as 168 male and 211 "domesticated Indians." Foreign residents accounted for 650 of the male population with 299 foreigners listed as female.¹³⁷

Within the Delta, towns were slow to develop. However, on the periphery of the Delta, three major cities formed points of a "V" for communication, trade and transportation. Beyond the immediate Delta, beginning in 1849, San Francisco played the central role between the outside world and the Mother Lode region. San Francisco and adjacent Bay-area towns benefitted from business, manufacturing and passenger traffic. Because of Sacramento's and Stockton's importance to the gold fields, the Delta benefitted from these two additional major hubs, still important to the region today.

Sacramento City's government was established on October 1, 1849 and chartered by the California Legislature the following February. The excitement and energy that brought thousands through the city en route to the gold fields did not stop Mother Nature from reminding early Sacramentans that their town was a floodplain. On January 8, 1850 the first of many floods in the official city's history inundated most of the embarcadero area, shutting down trade with the mines for ten days as merchants dug out and dried out their goods.¹³⁸ Another followed in March prompting the building of the first levee along the banks of the river northward from Suttersville (two miles south of downtown Sacramento). Only three feet high and six wide, it only delayed disasters to

¹³⁶ Thompson, "Settlement Geography," 19-21. Suisun Bay receives most of the saline water, especially in August and early September. On location of Indian villages, 110-111 after Schenck.

¹³⁷ California State Census of 1852. Microfilm summation by Daughters of the American Revolution. 3 reels. Roll 3. Sherburne Cook lists 60,750 Native Americans for the entire state in 1852. The Census of 1860 lists a mere 28,000. See *The Conflict between the California Indian and White Civilization* (Berkeley: University of California Press, 1976), Table 1, 236-37.

¹³⁸ Neasham, et al., *City of the Plain*, 32 (Proclamation of October 1, 1849); 41 (floods and levee); Severson, *Sacramento*, 66 (charter granted); 72-73 (flood of January 8). The Legislature honored a request in 1851 to drop "City" from Sacramento's official name.

come, but set a useful precedent and recognition of Mayor Bigelow, the levee's largest advocate.¹³⁹ In later years the street levels would be raised, resting above the original ground-level buildings of 1850.¹⁴⁰ One account of early Sacramento by Frances Semple is telling of the consequences of nature and men overrunning a small space in the first full year of the Gold Rush:

When I first saw Sacramento it was an apparently endless sweep of small tents, not a frame building anywhere in sight. That was in 1850. It was a terrifying place. I was frightened. Men were gambling on all sides. They were shooting and cursing and yelling. The noise and uproar were awful.¹⁴¹

Fires as well as floods plagued early Sacramento. On April 4, 1850 a fire destroyed eight buildings on Front Street between J and K Streets. Another followed in November, destroying four of the city's largest hotels. In 1852, flood and fire returned in the spring and fall respectively. The fire alone consumed an estimated \$10 million in property south of J Street. Defiant and determined to keep the city moving forward, by December, 1852, 761 buildings had been rebuilt, but another flood swept the very section of rebirth in January, 1853. Finally, by 1856 city fathers concluded that they needed to view their city as another Venice with levees, dikes, planked streets, a backup water system above ground, and a Mutual Hook and Ladder Company, the first volunteer fire department in the state.¹⁴²

Stockton was incorporated on July 23, 1850. Weber donated a block of land for Court House Square, and streets, levees, and public squares to the City of Stockton in August, 1850, officially deeding it to the city in February, 1852.¹⁴³ He reserved for himself and his heirs "parcels of the different sloughs, channels and bayous or creeks, contained within the limits of the city of Stockton," not fully confident that city government would put his donated lands to "proper use." Mother Nature showed Weber and his fellow Stocktonians how precarious building a town barely above sea level could be. In 1851 Stockton received nearly eighteen inches of rain. In 1852: 27.4 inches. In the spring of that year, the Calaveras flooded most of the town, washing away buildings and many improvements including the Main Street Bridge and causing at least \$25,000 in damage.¹⁴⁴

¹³⁹ Severson, *Sacramento*, 72-73.

¹⁴⁰ A few of these remain and are visible today in tours of basements in Old Sacramento.

¹⁴¹ Frances Semple, as quoted by Sabine Goerke-Shrode, "Benicia was known as the 'Athens of California,'" Historical Articles of Solano County Online Database, May 10, 2008. Accessed May 1, 2015.

¹⁴² Neasham, et al., *City of the Plain*, 41; Severson, *Sacramento*, 73.

¹⁴³ Davis, *Stockton*, 35.

¹⁴⁴ Tinkham, *History of San Joaquin County*, 120; Davis, *Stockton*, 37-39.

The town endured, rebuilding and growing. A second flood in 1862 was worse. According to pioneer historian George Tinkham, writing in 1880, “the entire county was two feet under water for two weeks.” The positive outcome of this “disaster” was deposition of “rich sediment . . . one-to-three inches deep,” adding value to lands after they dried out. In between annual “freshets,” which “are the means of fertilizing the valley and making it productive,” another flood occurred in 1872, submerging half of Stockton, but by 1880 Tinkham boasted, “floods are now an event of the past, as the city is graded above the highest water ever known.”¹⁴⁵

By act of the California Legislature, the original twenty-seven counties were created in early 1850.¹⁴⁶ Shortly thereafter, several important towns on the Delta became official U. S. post offices. Martinez, Benicia, Sacramento and Stockton were joined by Smith’s Landing (Antioch) and Walnut Grove in 1850. Eight years later, in 1858, Los Brazos del Río (Rio Vista) had its own post office, followed by Freeport (1862), Black Diamond (1868 [changed to Pittsburg in 1911]), Courtland (1872), Isleton (1874), Clarksburg (1876), Ryde (1892/93), Hood (1912), and Locke (1915).¹⁴⁷

Other towns of the Delta:

Benicia was founded in 1847 and named for Doña Francisca Benicia, wife of General Mariano Guadalupe Vallejo. Before the Gold Rush, the town had twenty homes and was the north ferry terminal on Carquinez Strait. In 1849 the U. S. Army established the Benicia Barracks, the first in Anglo-California. It soon became home to the Mathew Turner Shipyards. Benicia and Monterey became the first incorporated cities in California and Benicia served as state capital for thirteen months from 1853 to 1854. Benicia has many firsts including the first ferry in the Bay area (1847); first steamboat built by Americans in California (1849); first public school in California (1849); first railroad ferry west of the Mississippi River (1879); and the first auto-ferry boat in the world, the *Charles Van Damme* (1916).¹⁴⁸

Martinez is named for Don Ignacio Martinez, who received a land grant of 17,000 acres from the Mexican government in 1842. Within the grant, at the mouth of what would later be named Alhambra Creek, Robert Semple built a ferry landing in 1847 which crossed Carquinez Strait from Benicia, which he helped to found. The first regular ferry service in the Bay area, in 1849, the Martinez-Benicia ferry became an essential route to the gold fields. Martinez

¹⁴⁵ Tinkham, *History of Stockton*, 371.

¹⁴⁶ Janice Marschner, *California: A Snapshot in Town, 1850* (Sacramento: Coleman Ranch Press, 2000), 8.

¹⁴⁷ Compiled from a list provided by Margit Aramburu to W. Swagerty.

¹⁴⁸ Julia Bussinger and Beverly Phelan, *Benicia* (Charleston, SC: Arcadia, 2004), 7.

grew rapidly and was declared the county seat of Contra Costa County in 1851.¹⁴⁹ The town and adjacent lush Arroyo del Hambre (Hungry Valley) attracted orchardists and farmers such as John and Louisiana Strentzel, who arrived as emigrants via Texas in 1853, establishing a medical practice as well as acreage in a variety of fruit and nut crops. The Strentzels' property absorbed some of Martinez's land grant, including the main ranch house built of adobe. It eventually encompassed 2,665 acres including rangelands and the nearby Briones Hills. Dr. Strentzel organized the Alhambra Chapter of the National Grange of the Patrons of Husbandry, forming a cooperative and thus breaking the control of wharf and warehouse facilities in Martinez by two of California's largest companies.¹⁵⁰

In 1880, naturalist John Muir joined the Strentzel family as husband to daughter Louie. Louisiana Muir is credited with changing the name of the valley to Alhambra after the citadel of the Moorish rulers of Spain. Other early Martinez agriculturalists include John Swett and James Borland. In addition to the agricultural richness of the area, Martinez became an active port and also a center of fishing. Produce was easily transported by water to wholesale and retail markets in Oakland and San Francisco. In the 1870s, Italian and Portuguese families pioneered several wineries in the area and established themselves in the fishing industry. The DiMaggio family is an example of the latter, producing not only fish, but the famous baseball slugger as well.¹⁵¹

Where the two rivers officially form the physical delta, Capt. George Washington Kimball landed his ship on September 16, 1850. His passengers, a group of around forty New Englanders, disembarked where J. H. and W. W. Smith had built a landing the previous year. By 1851, the settlers adopted the name **Antioch**. A favorite mooring locale during the age of sail, Antioch's waterfront became temporary home to many vessels waiting for cargo or delayed by weather. Fresh water coming downstream helped destroy saltwater barnacles and wood-boring worms, making the stopover well worth the time for many ship captains.¹⁵²

The town grew very slowly due to problems with water quality. Saline tidal water infiltrated shallow wells. Citizens tried dikes, water wheels, windmills and a reservoir, but were largely unsuccessful because of brackish and germ-infested water. The problem was solved only after deep wells were dug and a 30,000 gallon tank was built by the Empire Railroad in the 1870s.

¹⁴⁹ George H. Harlan, *San Francisco Bay Ferryboats* (Berkeley: Howell-North Books, 1967), 97.

¹⁵⁰ Carol A. Jensen, *Maritime Contra Costa County* (Charleston, SC: Arcadia, 2014), 59.

¹⁵¹ Martinez Historical Museum, *Martinez* (Charleston, SC: Arcadia, 2004); Donald Worster, *A Passion for Nature; The Life of John Muir* (New York: Oxford University Press, 2008), 279-83.

¹⁵² Jensen, *Maritime Contra Costa County*, 46.

Antioch takes pride in several firsts for Contra Costa County. It was first to incorporate as a city; first to have a union (consolidated) high school; and is among the first to have a Carnegie Library. Eventually Antioch would become the third largest city in Contra Costa County.¹⁵³

South of Antioch, what became the **Byron Hot Springs** was first described by Spanish explorers in 1773. Initial efforts in the early 1860s by the Risdon family to extract salts from the springs were not economically practical, but they saw potential in the recreational and therapeutic value of the springs, establishing a resort by 1865 and buildings in the decade that followed. In 1878, the town of **Byron** itself was established. By 1880, the resort was very attractive and the Southern Pacific Railroad serviced it with a passenger stop. Promoters continued to advertise the Byron area well into the 1920s as the heart of California's Edenic Delta through a biannual publication known as the *Byron Times*.¹⁵⁴

Port Costa was developed in 1878 as the southern terminus of the Central Pacific (Southern Pacific) Railroad, connecting the main line between Sacramento and San Francisco with water passage by rail-ferry between Benicia and Port Costa beginning in 1879. The original train ferry, called the *Solano* was the largest ferry in the world. It could take two locomotives and thirty-six freight cars or twenty-four passenger cars on a single passage. As many as thirty trains per day used this route. The *Solano* continued to operate into the 1940s, but was replaced in 1930 by the railroad bridge that stands today. This transition brought economic hardship in the midst of the Great Depression to Port Costa. Nearby **Crockett** was once part of Rancho El Pinole. Named for Joseph B. Crockett, a judge on the California Supreme Court, the town is best known for its C & H Sugar refinery, which was established in 1867. The name was changed to Crockett in 1883 when a post office opened.¹⁵⁵ From Crockett to Richmond, several major industries would build plants along the Strait. These include Selby Smelting and Lead, Union Oil Works, Diamond Oil Works, Hercules Powder Company, Santa Fe Car Works, Reynolds Manufacturing Company, Stauffer Chemical Company, and California Wine Company.¹⁵⁶

Walnut Grove was named by its founder, John Wesley Sharp, for the native trees he found at the juncture of the Georgiana Slough and the

¹⁵³ Charles Bohakel, Phyllis Hiebert, Elizabeth Rimbault, and Carole Ann Davis, *Antioch* (Charleston, SC: Arcadia, 2005), 16, 19.

¹⁵⁴ Carol A. Jensen and the East Contra Costa Historical Society, *Byron Hot Springs* (Charleston, SC: Arcadia, 2006).

¹⁵⁵ John V. Robinson and Veronica Crane, *Port Costa* (Charleston, SC: Arcadia, 2007).

¹⁵⁶ Carol A. Jensen and East Contra Costa Historical Society, *Maritime Contra Cost County* (Charleston, SC: Arcadia, 2014), 30-31.

Sacramento River. A native of New York, Sharp tried gold mining in the Coloma district during 1849, but looked south for better opportunity. In 1850, Sharp scouted out lands along the Sacramento that were eligible under the 1850 Swamp Land Act. A blacksmith by trade, Sharp acquired 160 acres, built a wharf, making the eventual town an important transportation stop along the Sacramento. He donated land for the first school, as well as the site for the later California Transportation Company's landing.¹⁵⁷ Walnut Grove grew slowly but by the 1870s had established a reputation as the general supply center for the adjacent islands (especially Andrus, Grand, and Tyler) and as a salmon and fruit processing hub.¹⁵⁸

Rio Vista followed Walnut Grove as an official post office in 1858. Three years earlier, Colonel Nathan H. Davis had acquired 17,752 acres of John Bidwell's Los Ulpinos Mexican land grant, naming it Los Brazos del Río because three Delta water branches met at this site. Following a flood in 1862, the original settlement and its 150 residents had to relocate. Joseph Bruning, a native of Oldenburg, Germany, stepped up and donated land to establish a new Rio Vista nearby. One early settler, Robert C. Carter, Jr. had immigrated to the United States from London in 1841, later settling in San Francisco during the early Gold Rush. He moved to Rio Vista in 1859 where he established the first salmon cannery on the West Coast only to see it destroyed during the flood of 1862. Persevering, Carter rebuilt the cannery on Bruning's donated land, as well as a tin shop which provided cans for competitors as well as his own operation. Bruning organized the first hook-and-ladder company in Rio Vista in 1871 and supervised the completion of the first water company, the Rio Vista Water Works, in 1875.¹⁵⁹

Montezuma House is a location at the confluence of the Sacramento and San Joaquin Rivers in Solano County 1.25 miles east of Collinsville. Beginning in 1846, Montezuma House was Lansford W. Hastings's residence for a short time. Hastings was an Ohio lawyer who came to California in 1843, subsequently providing overlanders with his *Emigrants' Guide to Oregon and California* (1845). Although Hastings never traveled the "Hastings Cut Off" that bears his name, he had a two-sentence description of the short cut in his guide, misleading many to believe it was an easy passage through the Wasatch Range and the salt flats of western Utah. In an effort to establish a Mormon colony, Hastings built a four-room adobe. Known as **Hastings's House**, it was

¹⁵⁷ Pezzaglia, *Towns of the Sacramento River Delta*, 55.

¹⁵⁸ Kathleen Graham Hutchinson, "Walnut Grove, 1850-1970," *Sacramento River Delta Historical Society Newsletter* 24(1) June 2004:2. This is part one of a five-part series in this newsletter.

¹⁵⁹ Pezzaglia, *Towns of the Sacramento River Delta*, 11-12; Sabine Goerke-Shrode, "First Rio Vista vanished on crest of new year," Historical Articles of Solano County Online Database, January 8, 2006. Accessed May 1, 2015.

abandoned by the early 1850s and reoccupied in 1852 by John and Charles Knox, who sheathed it in wood. The Stratton family bought it in 1890 and in 1972 it was listed on the National Register of Historic Places. It is one of the oldest structures in Solano County and appears on Ringgold's 1850 chart as "Montezuma House."¹⁶⁰ Hastings also established one of the earliest ferries on the Sacramento-San Joaquin Rivers, taking passengers and freight across to **City of New-York-of-the-Pacific** on the Contra Costa County side.

Established in 1849 on the old Rancho Los Medanos, Col. J. D. Stevenson of the Mexican War's New York Volunteers honored his home town with this name, but after coal was discovered near Mount Diablo in 1852, the name was changed to **Black Diamond** after the Black Diamond Coal Mining Company. Later, two railroads were built from the coal fields to Black Diamond and to Pittsburg Landing (respectively), where the Pittsburg Coal Company had its wharf. The two railroads, one standard gauge (Black Diamond Railroad), the other standard-and-narrow gauge (Black Diamond Coal and Railroad Company) began operations in 1868 running about six miles each. Black Diamond Railroad was abandoned in 1884. The other line continued to operate until 1923.¹⁶¹ According to Carol Jensen, in 1870 half of the 8,500 people of Contra Costa County lived in the coal mining towns on the northeast flank of Mount Diablo. But the quality of the coal was poor and the industry struggled. In 1911, Black Diamond was renamed **Pittsburg**.¹⁶²

The location was ideal for canning operations, manufacturing, and transfer of cargoes. Salmon, caught in the ocean as well as the Delta, were processed in Black Diamond, making it the salmon canning center of California from 1880 to 1920. The F. E. Booth Cannery employed 400 people in 1910. Other canners included Paladine Fish Company, King Morse Canning, Pioneer Canning Company, Sacramento River Packers, and San Joaquin Fish Company. The S & C Packers Association was a cooperative operation of independent fishing boats. Pittsburg resupplied many sailors, including author

¹⁶⁰ Ringgold Chart, 1850, Center for Sacramento History. On Hastings see Will Bagley, "Lansford Warren Hastings: Scoundrel or Visionary?" *Overland Journal* 12(1) Spring, 1994, 12-26; also Philip Pezzaglia, *True Tales of the Sacramento Delta* (Charleston, SC: The History Press, 2015), 11-14.

¹⁶¹ Alvin A. Fickewirth, *California Railroads: An Encyclopedia of Cable Car, Common Carrier, Horsecar, Industrial Interurban, Logging, Monorail, Motor Road, Short Lines, Streetcar, Switching and Terminal Railroads in California (1851-1992)* (San Marino, CA: Golden West Books, 1992), 17.

¹⁶² Jerry Bowen, "Montezuma hides in remote corner of Solano," Historical Articles of Solano County Online Database, April 10, 2005. Accessed April 30, 2015. On the name changes associated with Pittsburg see Carol Jensen, *Maritime Contra Costa County* (Charleston, SC: Arcadia Publishing, 2014), 80; Marti Aiello, *Pittsburg* (Charleston, SC: Arcadia, 2004); Gudde, *California Place Names*, 249.

Jack London. Nearby Winter Island became known for its houseboat bordellos.¹⁶³

In addition to the fishing industry, Pittsburg attracted manufacturers. The Columbia Steel Company based in Portland, Oregon, opened a Pittsburg foundry in 1910. In 1920 a rolling mill was added. During the Depression, U. S. Steel absorbed Columbia Steel, retaining its name after 1930. During World War Two, high demand led to an enlarged facility with employment peaking in 1950s at 5,200 employees. By 1970 the mill continued to supply specialized iron and steel pipes, fencing and plated steel cans and remains in operation today.¹⁶⁴ The Redwood Manufacturing Company (REMCO), which produced wooden water pipes from redwood staves, as well as dimensional lumber, siding, and fencing, also became a major employer in Pittsburg in the early twentieth century. Logs from Sonoma, Humboldt and Marin counties were transported by rail to Petaluma, from which they were boomed/rafted to Pittsburg.¹⁶⁵ A third major manufacturer, Dow Chemical, opened its first plant outside of the state of Michigan in Pittsburg in 1939, specializing in agricultural products and pesticides, remaining to this day a major contributor to the economy of the Delta and Bay area.¹⁶⁶

Across the water from Pittsburg, **Collinsville** derived its name from C. F. Collins, who settled there in 1856. By 1861, the town boasted a post office, store and a wharf. The following year Collins sold out to S. C. Bradshaw, who changed the name to Newport, promoting the town as a potential railroad center. Bradshaw's scheme failed and he went bankrupt in 1869. The new owner, Montezuma Hills rancher, E. I. Upham restored the name of Collinsville and turned the town into a Sacramento River shipping point. By 1878, salmon fishing was the main occupation of around 350 residents, many of whom were of Italian heritage. At its height, three saloons, two hotels, a telegraph office, a Wells Fargo express agency, steamboat landings, a school, and three canneries flourished, peaking in 1882. At that time, the combined operations produced 60,000 one-pound cans per day, employing 300 people. As silt and debris from hydraulic mining ruined spawning grounds, the fishery declined with all canneries in the area closed by the end of 1886.¹⁶⁷

¹⁶³ Jensen, *Maritime Contra Costa County*, 47-48, 54, 160 (Jack London and houseboat bordellos).

¹⁶⁴ USSPOSCO, "History of USS-POSCO Industries, Pittsburg, California," ussposco.com; website accessed 14 May, 2015.

¹⁶⁵ Jensen, *Maritime Contra Costa County*, 54-55.

¹⁶⁶ Dow Chemical Company, Pittsburg. dow.com/pittsburg; website accessed 14 May, 2015.

¹⁶⁷ David L. Durham, *California Geographic Names: A Gazetteer of Historic and Modern Names of the State* (Clovis, CA: Quill Driver Books/Wood Dancer Press, 199), 618; Jerry Bowen, "Town flourished, then faded on the river of time," Historical Articles of Solano County Online Database, April 24, 2005. Accessed May 1, 2015.

Suisun City began when Captain Josiah Wing, Jr. of the schooner *Ann Sophia* purchased the “island” land at the north of that bay and adjoining marshland. The “island” was actually a peninsula at low tide; so a plank-way was built to allow passage. He established a permanent wharf and warehouse and a house for himself. A school was established in 1856 and later a high school in 1875. The town served as a port for the rich Vaca Valley agricultural region which was developing farms and orchards. While the town grew slowly, the port continued its activities on a limited scale after the building of the Central Pacific Railroad between Sacramento and Benicia. The port never became as important as others in that part of the Delta.¹⁶⁸

Courtland’s beginnings are associated with Englishman James V. Sims, who came to California after joining the U.S. Army for action in the Mexican War. Good fortune in mining on the American River provided Sims the capital he needed to buy land. Twenty years later, in 1870, he purchased property in the Delta from Frank B. Bates, a fellow forty-niner and established a town the following year, downstream from a Chinese community that had answered the call for farm laborers and levee construction after completion of the Central Pacific in 1869. Serving as business- and social-center for many Chinese families living on nearby farms, Courtland’s Chinatown suffered fire in 1879 and again in 1906.¹⁶⁹

Sims named Courtland after his son. Sims was one of the first grape growers on the Delta and experimented in pears. His settlement almost immediately attracted the California Navigation Company, which built a wharf 182 feet by 50 feet to service the community. The town grew throughout the 1870s adding general mercantile stores, blacksmith shops, saloons and hotels.¹⁷⁰

Isleton was established in 1874 by Josiah Pool, just five miles upriver from Rio Vista. Pool had served in the Mexican War, arriving in California in 1852 and settling on 164 acres on Andrus Island between 1854 and 1857. Named after George Andrus, the island was first settled in 1852, but little of the land’s 7,000 acres was cultivable prior to reclamation after 1862. In historic times, it has always had buckeye, wild grape, oak and walnut trees along its river banks. Eventually Poole acquired more land closer to Rio Vista but traded it for enough acreage to build a town site on Andrus. He completed

¹⁶⁸ Jerry Bowen, “Suisun’s early years ripe with growth, drama,” Historical Articles of Solano County Online Database, March 9, 2008. Accessed April 30, 2015; Elissa A. DeCaro and L. M. Ewing, *Suisun City and Valley* (Charleston, SC: Arcadia, 2013), 16.

¹⁶⁹ Tom, et al., *Locke and the Sacramento Delta Chinatowns*, 21.

¹⁷⁰ Kathleen Graham Hutchinson, “Courtland,” *SRDHS Newsletter* 22(2) December 2002:1-4; Pezzaglia, *Towns of the Sacramento Delta*, 93-94.

an elaborate wharf in 1875, large enough to dock steamers. By 1878 Isleton counted two general stores, a hotel, a livery stable and The California Sugar Manufacturing Company, the first of its kind on the Delta using local sugar beets. Floods in 1878 and 1881 destroyed much of Pool's original town as well as the factory. The town rebuilt and became well known for its canneries, as well as a large Chinatown. Floods, repeated in 1890, 1907, and as recently as 1972, point to the precarious nature of engineered landscapes relying on man-made levees.¹⁷¹

As geographer John Thompson notes, Isleton endured largely because of its strategic location:

The townsite was located about midway along the length of a natural levee that fronted Andrus and Brannan Islands at the Sacramento. It was at the northern end of Jackson Slough, the slightly elevated eastern bank of which afforded a land route towards the San Joaquin River, where San Andreas Landing yet stands. At Isleton the trail intersected the axial road which led to Walnut Grove, Freeport, and Sacramento, and to Rio Vista by way of the Old River Ferry. Eastward from the townsite, across what came to be known as the Isleton District, lay navigable Georgiana Slough, which afforded a small craft a short-cut between Sacramento and Stockton. This route overlapped the waterway which the Mokelumne River provided between New Hope Landing and Stockton. All in all, the site of Isleton had good accessibility. It was more or less centrally located on a sizeable area of leveed land and it was intermediate to San Francisco, Sacramento and Stockton, the principal market towns of northern California.¹⁷²

Like most Delta communities, **Clarksburg's** beginnings go back to the Gold Rush, but it would not become a formal settlement with a post office until 1876. Natural levees along the Sacramento provided incentive to early settlers eager to establish farms, orchards and dairies. But the real incentive came from the federal Swamp Land Acts (1850, 1860), and the State of California's provisions that allowed individuals to buy swamp or overflowed land for \$1.25 per acre if they would "reclaim" (drain) the land within five years. Frederick Babel, a thirty-two year old German was the first to attempt this where Clarksburg stands. In 1861 he acquired 160 acres and moved his family into a newly constructed house, proving that Durham cattle as well as horse breeding could succeed despite all the problems with seasonal inundation. Others

¹⁷¹ "Andrus Island," *Sacramento Delta Historical Society Newsletter*, 16(2) December 1996:3; Pezzaglia, *Towns of the Sacramento River Delta*, 33-48; Bruce Crawford, *Isleton* (Charleston, SC: Arcadia, 2003).

¹⁷² John Thompson, "Isleton's Formative Ingredient," *The Pacific Historian* 23(3) Fall 1979:4-19, at 6.

followed in the 1860s and 1870s to the degree that “by the 1870s, much of the cheap land in the Delta had been sold, and would-be settlers had to buy land at higher prices from property-holders,” according to Clarksburg historian Shipley Walters.¹⁷³

The town’s namesake was Robert Christopher Clark (1815-1901), an attorney from Kentucky who came to California in 1853, settling in Sacramento. A land speculator, Clark never moved into the Delta but bought a parcel of land in 1856 and owned 600 acres by 1879 where Clarksburg developed. Part of his land was planted with peach trees, the first on the Delta. Schools and stores developed even in the 1850s but no permanent post office provided service until 1876; the nearest one upriver was Freeport, which received its post office in 1864.¹⁷⁴

Freeport had a ferry in 1852, ten years before the town was platted. Located eight miles south of downtown Sacramento, the town developed as a railroad town because of a dispute between the City of Sacramento and the Sacramento Valley Railroad, which owned Freeport Railroad Company. The city collected a tax on all passengers departing Sacramento whether by road, river, or rail. The line to Folsom from Sacramento was California’s first railroad and the earliest on the west coast. It was incorporated in 1852 and began operations in 1856, with William Tecumseh Sherman as vice president and Theodore Judah, who later laid out the route of the Central Pacific Railroad as chief engineer. In addition to avoiding Sacramento altogether when moving people and goods from the river to Folsom and beyond, this “free port” was envisioned as an alternative to paying embarcadero fees at the port of Sacramento itself. Furthermore, Freeport enjoyed an advantage over Sacramento in that sailing ships avoided the slow arduous passage through Garcia Bend upstream. These two factors led to a population surge in Freeport by 1865 with around 400 calling the town home. However, the Central Pacific Railroad bought the SVRR in 1865, removed the five-foot gauge track the following year in order to standardize the gauge. It continued to run from Freeport to Brighton (4.5 miles east-southeast of downtown Sacramento where CSU Sacramento is located today) through 1870, when it was discontinued, dooming the town as a transfer point but leaving some homes, businesses, and the post office until 1920.

Freeport continued to ship grain and to take in produce and milk from Delta farmers, conveying it to the city. It was especially important to the

¹⁷³ Shipley Walters, *Clarksburg: Delta Community* (Woodland, CA: Yolo County Historical Society, 1988), 14-15.

¹⁷⁴ “Freeport,” *SVHS Newsletter* 26(2) December 2006:4-5.

Portuguese living in the Riverside/Pocket and Lisbon Districts across the river. Today many consider Freeport the beginning of the Delta on Highway 160.¹⁷⁵

Lisbon (Arcade), located in Yolo County across the Sacramento River just below West Sacramento had an unlikely beginning. Its origins can be traced to an indentured Portuguese Azorean youth named Joseph Souza Nevis, who was bound to a family named Mello, also Azorean. At age thirteen Nevis slipped away as a stowaway on an American whaling vessel, retaining the name Mello, which the captain of the vessel converted to Miller. Thus Joseph Miller arrived in California in 1849 and headed to the gold fields. By 1856 he had married into an Italian family and had purchased 186 acres of swamp land on Babel Slough west of Freeport in an area where other Portuguese from the Azores soon formed a community, facilitated by Joao Da Souto (John Soto). Soto arrived in 1853 and started out modestly, buying 37.2 acres in 1862 in what became the Lisbon District. The following year he sent for his future wife, Frances Dutra, a thirteen-year-old minor whose family would become an important player in the reclamation and conversion of Delta lands from wetlands to farmlands. By 1870 Lisbon had a school teaching English to Portuguese-speakers and by 1880, the census recorded 218 “Portuguese” living in Merritt Township, forty percent of the population of the area. Thirty-eight percent of all Portuguese living in Sacramento County resided in the Riverside/Pocket and Lisbon District, giving rise to its reputation as “Little Portugal,” or “Portuguese Bend,” which stretched as far as Clarksburg. Most were farmers, but fifteen families’ primary income came from fishing. Some of the more important Azorean Portuguese families included the Dutras, Silva, Machado, and Simas (changed to Seamas).¹⁷⁶

The division of land into long-lots, similar to the French system using measures in *arpents* along the St. Lawrence, around Detroit, and in Louisiana, makes the land-holdings unique in California history. Each family on the Sacramento had riverine frontage, with a long strip of land running diagonally away from the river. Typical house construction was two-stories with kitchen and pantry on the ground floor and bedrooms and living quarters above, an architectural pattern still visible in the Delta today and in historic downtown Sacramento. Wisely, a rowboat was usually tied to the house in case of flood. A typical family long lot contained orchards as well as truck crops, chickens, and

¹⁷⁵ Walters, *Clarksburg*, 18-19. Pezzaglia, *Towns of the Sacramento Delta*, 123 (Freeport); Charles A. Bohakel, *The Historic Delta Country: A Guide to State Highway 160, the Bayou of the West* (Antioch, CA: Charles A. Bohakel, 1979); William H. Gwinn, “The Freeport Railroad, 1863-1865,” *Golden Notes* (Sacramento County Historical Society) 17(1):1-10, at 4; Kevin W. Hecteman, *Sacramento Southern Railroad* (Charleston, SC: Arcadia, 2009), 11 (CPRR absorption of Sacramento Valley RR); Donald B. Robertson, *Encyclopedia of Western Railroad History, Volume IV, California* (Caldwell, ID: Caxton, 1998), 198.

¹⁷⁶ Walters, *Clarksburg*, 19-20; “Freeport,” *SVHS Newsletter*, 26(2) December 2006:4.

dairy cows. Houses were built of wood, although local clay in the Riverside area proved excellent for bricks. Northern California's first brickworks dates to 1854 when the Sacramento Brick Company opened its kilns, supplying Old Sacramento and San Francisco.¹⁷⁷

Ryde is an unincorporated town on Grand Island, 1.5 miles downriver from Walnut Grove, named for the town on the Isle of Wight where Gen. Thomas Hansford Williams was born. Williams and partner David Bixler acquired 2,000 acres of the island's 17,000 acres in the early 1870s, reclaiming land but suffering flooding in 1878, 1879 and 1881, resulting in losses. Following Williams' death in 1885, in 1891 W. A. Kesner purchased forty acres from the Williams estate and built a hotel and saloon, petitioning for a post office, which was established in 1892/93. A series of hotels built in succession after 1886 on the same footprint gave Ryde a reputation as a quiet and private retreat for movie stars, U. S. presidents, and others of note. When the post office was established in 1893, the town was formally named Ryde.¹⁷⁸

Hood began as "Richland" in 1860 for the purpose of shipping grain. Within twenty years, as crops shifted from grain to fruit, Richland declined but was renamed in 1909 by William Hood, a Civil War veteran, who saw a future on the newly-built Sacramento Southern Railroad. A depot was built with a spur down to the wharf where a large packing shed was constructed to service fruit producers, especially the California Fruit Exchange and Stillwater Orchards. A hotel, hardware store, grocery store, church and post office (1912) operated in the town.¹⁷⁹

Every Delta town had a section called "Chinatown," by Anglo-American settlers, but only **Locke** (not to be confused with Lockeford in San Joaquin County) continues to be associated with an ongoing architecture and history unique among Delta towns associated with the Chinese experience.¹⁸⁰ A mile north of Walnut Grove, Locke (originally Lockeport) was built by and for the Chinese. And until recently it was inhabited almost exclusively by the Chinese, who referred to it as "Lockee," meaning *happy living*. Chinese entered the Delta as early as the 1860s and were the primary laborers not only for the railroad

¹⁷⁷ Carol Gregory, *Sacramento's Greenhaven/Pocket Area* (Charleston, SC: Arcadia, 2001), 17-18; 51 (long lot system).

¹⁷⁸ Pezzaglia, *Towns of the Sacramento River Delta*, 49-54. Ryde hosted Al Jolson, Clark Gable, Jean Harlow, Herbert Hoover and others. See p. 53.

¹⁷⁹ Pezzaglia, *Towns of the Sacramento River Delta*, 111.

¹⁸⁰ Lawrence Tom, Brian Tom, and the Chinese American Museum of Northern California, *Locke and the Sacramento Delta Chinatowns* (Charleston, SC: Arcadia, 2013), 17, 41. The four towns where Chinatowns can still be seen are Courtland, Walnut Grove, Isleton, and Locke. The best study of the Chinese on the Delta is Sucheng Chan, *This Bittersweet Soil: The Chinese in California Agriculture, 1860-1910* (Berkeley: University of California Press, 1986), Ch. 5, "New World Delta."

grades and tunnels of the Central Pacific, but also the levees of the Delta. Using traditional techniques that had worked in China's Pearl River Delta, where most of the immigrants had lived, workers helped reclaim an estimated 250,000 acres of Delta land. Among the more important of these innovations was use of the tule shoe, an oversized horseshoe fitted with wire over a horse's hoof to distribute weight on soft, marshy or peaty soils.¹⁸¹

Locke was built on the property of George Locke. In 1912, three Chinese businessmen negotiated with Locke to construct a saloon, a boarding house and a gambling hall near the Southern Pacific's packing shed. Fearing Japanese and Chinese success in agriculture, in 1913 the State Assembly passed the Alien Land Act (Webb-Haney Act) which forbade ownership or long term lease of lands by non-citizens living in California. This impacted all Delta towns, but especially Locke. Walnut Grove lost its Chinatown to fire in 1915. Chinese-American businessmen negotiated with Alex Brown, Walnut Grove's bank owner, to add seven more buildings in Locke, six of them stores and a second gambling hall, the social center of Chinese communities. The U.S. opened a post office that same year. A permanent population of around 400 made this an important ethnic as well as social and economic center for the Chinese, with up to 1,000 workers entering the town and the nearby orchards during harvest and packing season.¹⁸²

Several other "forgotten" Delta towns include **Vorden**, just two miles upstream from Locke, which was originally Trask's Landing (1868). **Onisbo**, was named for an Indian leader by Armstead Runyon in 1849. Located opposite the head of Steamboat Slough, Onisbo had a post office in 1853 and added a school in 1860 but Walnut Grove and especially Courtland's growth brought an end to Onisbo in 1867. Also established in 1849, **Webster** was located on the eastern bank of the Sacramento around ten miles from Sacramento and near Freeport. Also shown on maps as "Russian Embarcadero," it never developed. **Paintersville**, immediately south of Courtland, dates back to 1854 when Levi Painter purchased 123 acres on the banks of the Sacramento. Warehouses and a general store, along with a hotel and a saloon once comforted travelers. The Paintersville Bridge across the river is all that remains. **Emmaton**, six miles south of Rio Vista was founded in 1871 by J. M. Upham. As with most attempts at town building, the essentials were all there: a wharf, a general store, and warehouses. Emmaton was totally

¹⁸¹ Tom, et al., *Locke*, 8 (origin of Chinese); 17 (acres reclaimed by Chinese); 19 (tule shoe).

¹⁸² Tom, et al., *Locke*, 41.

destroyed during the winter floods of 1878, never to rebuild, save some packing sheds.¹⁸³

The history of town building in the Delta remained as it had been in the beginning. Two important urban enclaves—Sacramento and Stockton—grew as destinations in trade from the San Francisco Bay area. Both developed as markets and supply points, first for the Gold Rush, and later for agriculture within the Central Valley. Both also became manufacturing and transportation repair centers. The 1950 federal census listed Sacramento at 137,372, with Stockton at 70,853. Pittsburg, Martinez, Antioch, and Benicia developed as significant towns, oriented toward the Bay Area, not California’s interior valleys. Within the Delta itself, many small towns with colorful histories emerged, some enduring, others declining. Because of location and access by water and eventually by paved roads, Rio Vista and Walnut Grove remained the Delta’s most important interior towns. By the early 1920s, Rio Vista was advertised as the “Capital and Largest of the River Cities.”¹⁸⁴ Nevertheless, even by 1950, Rio Vista had a population of only 1,831 and Walnut Grove a population fewer than 1,000.¹⁸⁵

It is useful to note that during the nineteenth century most of the state of California’s population resided north of Santa Barbara. The contrast between 1850 and 1910 is striking.¹⁸⁶

| Town | 1850 | 1880 | 1910 |
|---------------|-----------|---------|---------|
| San Francisco | 34,776 | 233,959 | 416,912 |
| Oakland | no census | 35,144 | 150,174 |
| Sacramento | 6,820 | 21,420 | 44,696 |
| Stockton | no census | 10,282 | 26,253 |
| Rio Vista | no census | 1,232 | 884 |
| Los Angeles | 1,610 | 11,183 | 319,198 |
| San Diego | no census | 2,637 | 39,578 |

Levee roads, ferries and bridges

The era of early Delta reclamation began in the 1850s and is discussed by Philip Garone both in his book and as a separate essay in the series of Delta Narratives.¹⁸⁷ Prior to Garone, John Thompson spent much of his early academic career analyzing the settlement geography and its relationship to

¹⁸³ Pezzaglia, *Towns of the Sacramento Delta*, 85.

¹⁸⁴ H. T. Hammond, editor, “Rio Vista—In the Sacramento Delta,” *Byron Times Eighth Booster Edition* (1922-1923), 81. Courtesy of the Haggin Museum of Stockton.

¹⁸⁵ U.S. Census, 1950, California. Pittsburg (12,763), Martinez (8,268), Benicia (7,284).

¹⁸⁶ “Compendium of the Seventh to Fourteenth Censuses, California,” in Donald B. Robertson, *Encyclopedia of Western Railroad History, Vol. 4 (California)* (Caldwell, ID: Caxton Printers, 1998), 12-13.

¹⁸⁷ Garone, *The Fall and Rise of California’s Central Valley* (2011).

technologies. Thompson's "reclamation sequence" begins with individual settlers and entrepreneurs pooling interests to construct low dams or earth barriers. That changed between 1861 and 1866 when reclamation districts were formed.¹⁸⁸

One of the earliest efforts was on Grand Island where Reuben Kerchevel hand-built a protective levee, constructed of blocks of peat. This method, which utilized local labor, was soon judged insufficient because of water saturation of the peat barriers, requiring intensive maintenance. Twitchell Island's reclamation story parallels that of Grand.¹⁸⁹ Out of the process of building up earth structures, the tops or crowns of levees (natural and man-made) became roads.

Northern San Joaquin County and the part of Sacramento County within the Delta have dozens of roads named for family surnames. The most important of these as transportation corridors led to ferries and a few bridges. Earliest bridges and ferries were private, not public, designed to collect tolls. As the value of the economy grew with more tax dollars devoted to internal improvements, most of these private entrepreneurial operations were assumed by county and state agencies.

San Joaquin County's earliest toll bridge spanned the Calaveras at Leach & Frost Ranch in 1854, probably near the present-day campus of the University of the Pacific. So successful, farmers and freighters pooled money and purchased it, opening it as a free bridge the following year.¹⁹⁰ In 1852 Jeremiah H. Woods established a ferry across the Mokelumne River at Wood's Ferry hoping to outshine Stockton by making his site the seat of the new county, the head of navigation to San Francisco, and the main junction between Stockton and Sacramento. Six years later he built a toll road at the same location, changing the name to Woodbridge, gateway between Sacramento and Stockton along Lower Sacramento Road, charging one dollar for two horses and wagon and fifty cents for each additional pair of animals. Costing \$1,000, Woods took in an estimated \$9,000 the first year, platted the town in 1859, but lost the bridge in the floods of 1862. Rebuilt the next year, local farmers formed a cooperative and opened it to the public free of charge.¹⁹¹

An alternative route to the mines as well as to the Capital from Stockton was through Lockeford. Known originally as Laird's Ferry (1849) and then

¹⁸⁸ Thompson, "Settlement Geography," Ch. 9-10, 209-286.

¹⁸⁹ Carol A. Jensen, *The California Delta* (Charleston, SC: Arcadia, 2007), 35.

¹⁹⁰ Charles I. Leach came west from Wisconsin in 1853, settling in San Joaquin County in 1854. Tinkham, *History of San Joaquin County*, 471.

¹⁹¹ Tinkham, *History of San Joaquin County*, 96 (bridges), 294-95 (Woodbridge); *California Historical Landmarks*, No.163, p. 227.

Staples Ferry (1850), Dr. Dean J. Locke and his brother Elmer ran the ferry at Locke's Ford from 1851 until a bridge was built by the Locke family to draw business to the town in 1859.¹⁹² Known as Upper Sacramento Road, this was a much better route between Sacramento and Stockton in winter because of the swamps and flooding of the Cosumnes north of Woodbridge where Cosumnes Wildlife Refuge would be established in the twentieth century. Another ferry on the Mokelumne was Benedict's, which lasted twenty years from 1850 to 1870.¹⁹³

Other ferries with associated roads to them include Murphys (1850-1870 [now Murphys Road]) and Durham's Ferry Road (1860-1883 [now Airport Way]). The latter, along with Johnson's Ferry, Garwood's Ferry, and Slocum's Ferry crossed the San Joaquin prior to 1870, while Murphy's, Taylor's (1850-1890), and Burney's (1850-1870) crossed the Stanislaus. Davis and Atherton built a ferry across the Calaveras during the Weber Era which operated from 1850 to 1870. The only new ferries on the San Joaquin between 1870 and 1885 were Lindstrom's (1880-1900), Frewert's (1880-1900), and Naglee's, the last on Old River, a tributary of the San Joaquin near Moss Landing.

Until the 1880s, most of the ferries connecting islands and providing river crossings were rowboats. Small steamboats brought animals and bulk goods, including lumber, furniture, and agricultural tools into the Delta well into the railroad era, and by the 1880s cable ferries replaced man-powered boats. An early cable ferry, and the oldest in San Joaquin County, was known as Moss Ferry on a former channel of the San Joaquin River near present-day Mossdale Bridge along Interstate-5. Built by Joan Doak and Jacob Bonsell, it began as a yawl in 1848 but soon evolved into a flat barge pulled with a rope from bank-to-bank. On the direct road from Sacramento through Stockton to San Jose and Oakland, "there was no other way to reach the coast overland," according to George Tinkham, writing in 1923. The ferry owners made a killing, charging \$1 per pedestrian, \$3 per horse, and \$8 for a wagon with team. Hiram Scott bought Doak's interest in the business in 1852 and Bonsell died the same year, leaving his widow his share. She remarried and it became known as Sheperd's Ferry for a time after her new husband, prior to sale to William Moss in 1856. Moss operated it until 1890.¹⁹⁴

In the Delta, the story was similar. An early way to cross the Sacramento River from Yolo County was by ferry. Dairymen Jerome Davis and Peter McGregor took advantage of the tule-covered land on the west bank of the

¹⁹² *California Historic Landmarks*, No. 365, p. 228.

¹⁹³ Tinkham, *History of San Joaquin County*, 96 (bridges), 292 (Lockeford); Robert Angermeier, "San Joaquin County Ferries," *San Joaquin Historian* (Mickey Grove) 4(4) October 1968, 1-4.

¹⁹⁴ Tinkham, *History of San Joaquin County*, 93; Angermeier, "San Joaquin County Ferries," 1-4.

Sacramento. Davis established the first dairy in the county in 1849, operating a private ferry. He sold his ferry franchise to Hoag and Carlyle in 1850. McGregor started his dairy in 1852. With milk selling for one dollar a quart in Sacramento, he needed a quick way to get his product to market so he built a ferry near his farm where Linden Road meets River Road today.¹⁹⁵

By 1852, small independent ferrymen faced competition with the more substantial Freeport Ferry. Most early ferries were rowed, but the Freeport Ferry crossing the Sacramento was unique. In 1852, George C. Jackson built the ferry, which was a flat-bottom affair for transporting animals, vehicles and cargo, with a skiff or rowboat attached for passengers. Jackson placed a bell on each side of the river for communication during fog or inclement weather. He charged \$2 to \$3 for teams, depending on number of horses; \$1.50 for a buggy; \$.50 each for stock; \$1.00 per ton for sacks and bales; and \$.25 for passengers. John Soto purchased the ferry in 1876, hiring his own Azorean neighbors. His relative, Antone Soto ran the west bank slip for the ferry, where he kept a saloon and a barber shop. The Soto family eventually sold the ferry to Sacramento County in the early twentieth century and it ceased operation once the Freeport Bridge was completed in 1929.¹⁹⁶

Other ferries on the upper end of the Delta included the Dubois Ferry, established in 1894 and the Hadley Ferry, which began operating in 1897. Both crossed from the Lisbon District to the Pocket area north of Freeport. Hadley Ferry was at the strategic Garcia Landing in the Pocket. Hadley sold out to J. H. Glide, who in turn transferred the ferry to Sacramento and Yolo County authorities in 1903. As “public” property, it set a precedent for free ferries, reducing ferry traffic to the south in Freeport for the Soto family.¹⁹⁷

In Walnut Grove’s history, Sperry Dye operated a rowboat to Andrus Island and Tyler Island crossing the head of Georgiana Slough. John Sharp operated a ferry across the Sacramento River. Miller’s Ferry crossed the north fork of the Mokulumne where Giusti’s Restaurant is now located on the Walnut Grove Thornton Road, while a ferry at New Hope crossed the south fork. Cable ferries replaced rowboats by 1880.¹⁹⁸ Fares at Walnut Grove in 1886 were ten cents for a pedestrian, twenty-five cents for horse and rider; and the same for wagon or buggy with horse. By the late nineteenth century, the Triangle Ferry connected Rio Vista, Grand Island and Brannan Island. Others included the Isleton Ferry, as well as the Howard Landing Ferry and the Ryer Ferry, both of

¹⁹⁵ Walters, *West Sacramento*, 14.

¹⁹⁶ “Freeport,” *SRDHS Newsletter* 26(2) December 2006:5.

¹⁹⁷ “Freeport,” *SRDHS Newsletter* 26(2) December 2006:5.

¹⁹⁸ Hutchinson, “Walnut Grove, 1850-1970), part 1, p. 2.

which survive today, operated by Caltrans. The Webb Tract Ferry is operated by the County of Sacramento.¹⁹⁹

Bridges replaced most of the ferries by 1930. The first bridge from Sacramento across to Yolo County was a wooden truss swing-span toll bridge completed in 1858 at a cost of \$60,000. It spanned 800 feet and was replaced in 1870 with a stronger bridge that accommodated railroad traffic, and again in 1911 by the even stronger I Street Bridge at the same location. Almost immediately it put several ferries out of business as tolls were less than ferry passage. Passengers could cross for five cents; a loaded wagon paid \$1.25. It also hurt the local economy of Washington as ferries closed and floods continued. And, as noted earlier, the bridge routed traffic north of the main part of Washington, insuring further decline as freight and passenger traffic bypassed the town.²⁰⁰

As a result of the nature of the Delta's waters, several types of bridges were required: pivot, swing, bascule (hinged on each bank with a counterweight), and lift. In 1906 the first pivot bridge was built across the Sacramento linking upper Grand Island near the head of Steamboat Slough to the Pierson District. The first bascule drawbridge west of the Mississippi River opened at Walnut Grove in 1916. Designed and built by the Straus Bascule Bridge Company of Chicago, three additional Straus bridges were added across the Sacramento: Rio Vista in 1919, Isleton in 1923, and Paintersville, also in 1923. The following year the Steamboat Landing Bridge connected Sutter and Grand Islands.²⁰¹

The Little Potato Slough Bridge was originally built as a swing bridge in 1927 and rebuilt as a high-arch bridge in 1991, carrying traffic on California 12 from the mainland onto Bouldin Island. Leaving Bouldin Island, westbound California 12 crosses the Mokelumne River on a 1942 swing bridge. When large boats and ships approach the bridge, the bridge can swing open to allow passage. The Rio Vista Bridge was modified during World War II with a combination of new and old spans. In 1967, an Italian freighter missed the open lift span of the bridge and struck the stationary section of the bridge adjacent to the east tower, shutting the bridge for nearly a month. Renamed in

¹⁹⁹ *Sacramento Delta Historical Society Newsletter* 14(1) June 1994:3. Howard Landing Ferry is known as "J-Mack" and crosses Steamboat Slough between Grand Island and East Ryer Island, a three minute ride. "Real McCoy II" is technically an extension of Highway 84 providing service to Ryer Island by crossing the Cache Slough to Rio Vista.

²⁰⁰ Walters, *West Sacramento*, 15.

²⁰¹ "Grand Island," *Sacramento Delta Historical Society Newsletter* 14(1) June 1994:3; Pezzaglia, *Towns of the Sacramento River Delta*, 38-39; Pezzaglia, *Rio Vista*, 95 (bridge in 1919).

1998 for a vice-mayor of Rio Vista, the Helen Madere Bridge, it is the largest lift bridge on the Delta.²⁰²

Antioch had a privately-owned highway lightweight lift bridge, built in 1926, able to accommodate cars but not heavy trucks at speed. Called the “Gateway to the Netherlands of America,” this was the first toll bridge on San Francisco Bay and important enough for the state of California to acquire in 1940.²⁰³ In 1930, the Southern Pacific built its own lift-span bridge across Carquinez Strait between Benicia and Martinez. Interstate 680 parallels this today. To cross the river at Sacramento, the Southern Pacific built the I Street Bridge in 1911. The same year, the M Street Bridge was completed as a highway bridge and two years later the Sacramento Northern laid track to also use the bridge. By the 1930s, the city needed a better conduit.²⁰⁴ The result was Tower Bridge, completed in December, 1935 with four lanes for motor vehicle traffic and a large center lane for trains. The first vertical lift bridge in the California Highway System, the towers rise 160 feet and the entire structure is visible for miles, originally painted silver but changed to gold in the 1970s and designed in the 1930s Streamline Moderne style. The Freeport Bridge, built in 1929, allowed traffic to cross the river below Sacramento without need for a ferry. Snodgrass Slough Bridge followed in 1931 and Sutter Slough Bridge in 1939 giving Delta residents direct and faster travel without having to wait for ferries.²⁰⁵

Agriculture and transportation

As reclamation proceeded, agricultural crops changed. In the beginning the earliest settlers grew an annual wheat crop on the rim of the Delta. On the Weber Grant alone, by 1854, 40,000 acres were in cultivation, producing 1,600,000 bushels of grain, much of it barley to feed horses and mules in the mining districts. In the words of one early historian, “under their [miners] feet was a wealth in cereals which was in twenty years far to exceed the wealth of the gold mines.” As land increased in value from \$5 per acre in 1851 to as much as \$30 per acre in 1860, Stockton became the “grain depot of the valley” just as the railroad arrived to transport it.²⁰⁶

²⁰² Pezzaglia, *Rio Vista*, 98-99; Highway 12: <http://www.cahighways.org/009-016.html> Retrieved 7 January 2015.

²⁰³ Carol A. Jansen, *The California Delta*, 50.

²⁰⁴ West Sacramento Historical Society, *Port of Sacramento* (Charleston, SC: Arcadia, 20-21 (photo of bridges spanning the river).

²⁰⁵ “Photo albums of bridge construction projects,” Margaret Deterding Collection 1984/154/052-57, Archives, Center for Sacramento History, City of Sacramento; “Bridges over the Sacramento River” website; also SacTowerBridge.org website. Retrieved 6 January 2015; California Department of Transportation, Caltrans Structure Maintenance and Investigations, October 1, 2001

²⁰⁶ Tinkham, *History of Stockton*, 371-72.

Although wheat was California's second gold rush, it does not grow well in marshy environments. From 1850 to 1880, in the first phase of Delta agriculture, farmers concentrated on potatoes, onions, beans, and a variety of perishable green produce, marketing it locally. Cattle foraged in the swamps during summers. The establishment of irrigation districts gave farmers more options. These included growing grain, hay, and eventually many other field crops. In 1871, a decade into the creation of the first reclamation districts, Sacramento County conducted a swamp land survey to determine which crops could be grown profitably on the Delta. They concluded that "the experiment of raising rice upon swamp land has been made in our county with gratifying success." Despite this optimism, rice never became an important crop in the Delta.²⁰⁷ Orchards and dairying were added after 1880. Chinese, Italian and Portuguese immigrants were identified with garden or truck farming, whereas American-born settlers tended to engage in grain, orchards, and livestock.

An example of specialized ethnic truck farming is Rough and Ready Island, directly west of Stockton. In 1852 the island was deemed important enough to commence reclamation, but that process took two decades and considerable outlay of capital. By the 1870s, a handful of Italian share croppers and their hired hands worked several properties on the island, raising tomatoes, peppers, eggplants, some asparagus and other truck crops. Twelve acres of deciduous orchards and vine as well as a few acres of alfalfa were farmed at the eastern end of the island. Produce was in such demand that around \$1,000 of fruit and vegetables per week went to market in Stockton and San Francisco by the mid-1870s. Inventories from 1879 show that the island was shared with cultivators who raised field crops of barley, potatoes, corn, and beans on the lower back slopes and in the reclaimed back swamps. As John Thompson has noted, "The relationship of truck gardens to island peripheries and of field agriculture to the lower land was established early" on Rough and Ready as well as Roberts, Sherman and other islands of the Delta.²⁰⁸

After 1900 the specialty crops familiar to most Californians became iconic with Delta agriculture. These included asparagus, celery, tomatoes, and sugar beets. Barley replaced wheat as the major winter grain crop, and Bartlett

²⁰⁷ Bound ledger, Sacramento County Public Works Department, Swamp Land Survey District, Minutes of January 4, 1871 to March 3, 1890. See January, 1871. Archives, Center for Sacramento History, City of Sacramento.

²⁰⁸ Thompson, "Settlement Geography," 322, citing *San Francisco Alta*, June 10, 13, and 26, 1852; and, "Tule Farming," *Stockton Weekly Independent*, March 3, 1877.

pears became symbolic with Sacramento River Delta prosperity.²⁰⁹ Prior to the introduction of the electric motors and the internal combustion engine, draft animals, namely horses and mules, consumed large quantities of feed. As Ann Norton Greene notes, going “horseless” was not an overnight transition.²¹⁰ Alfalfa began to replace seasonal hay as an important crop, cut for city livery trade and for large ranches raising beef cattle:

Although crop acreage and value figures are unavailable for the decade 1900-10, barley occupied the most extensive area, while potatoes were the most valuable crop. After potatoes, beans and asparagus were the most valuable row crops. Onions, field corn, celery, sugar beets, sweet potatoes, flax and flaxseed wheat, alfalfa, and rye were among the secondary crops of the decade.²¹¹

One Delta promotional publication, printed by the *Lodi Herald* in 1904, claimed that the New Hope and Terminous reclamation lands produced “sixty bushels of barley to the acre and enormous crops of beans and potatoes The great asparagus fields are situated nearby.” Raising the rhetorical question, “why has [sic] the large wheat farms of the Delta Lands been cut up into small farms [?],” the editor responded, “why devote your attention to wheat production upon land worth \$100 to \$140 an acre, good rich lands, which will yield from \$75 to \$150 per acre in vines and fruits, when if planted to grain, would only net good interest on a valuation of \$50 per acre.”²¹²

In the decade that followed, the relative standing of intensively farmed field crops remained about the same. In 1916, barley was grown on 120,000 acres east of the San Joaquin Old River and the North Fork of the Mokelumne. Beans and potatoes were grown on around 40,000 and 30,000 acres respectively. Four thousand acres in onions and 3,000 in sugar beets, as well as 3,500 in field corn and 1,000 in celery round out the list.²¹³

The sugar beet (*Beta vulgaris*), a root vegetable originally from the Mediterranean, is in the same family as Swiss chard and beetroot. It was

²⁰⁹ Thompson, “Settlement Geography,” 312, citing Stanley W. Cosby, “Delta History Notes,” manuscript from the 1930s. Stanley was as student of soil science at U. C. Berkeley in the 1930s; also, *Stockton Weekly Independent* March 25, 1898.

²¹⁰ Ann Norton Greene, *Horses at Work: Harnessing Power in Industrial America* (Cambridge, MA: Harvard University Press, 2008), Ch. 7, “From Horse-Powered to Horseless,” 244-74.

²¹¹ Thompson, “Settlement Geography,” 313. The 1906 California State Agricultural Society report lists the following crops by value for San Joaquin County: potatoes (\$1,000,000); beans (\$300,000); and asparagus (\$160,000), 313n12.

²¹² A. A. Martin, comp., *The Delta Lands of California: The Environs of Lodi, Woodbridge, Acampo and Lockeford, Their Resources, Climate, Advantages and Opportunities; Facts for the Homeseeker, Farmer, Vineyardist, Orchardist or Investor* (Lodi: The Lodi Herald for the Realty Company, 1904), 14-15.

²¹³ Thompson, “Settlement Geography,” 313-14, citing Edwin E. Cox, “Farm Tenantry in California,” *Commonwealth Club of California Transactions* 11 (Dec. 1916):444-56.

introduced into California around 1870. A factory at Brighton (within metropolitan Sacramento) opened in 1871, producing sugar for two years and molasses for two years beyond that. It closed in 1876. Another early but unsuccessful factory was built in 1877 near Isleton, but it too closed shortly after opening. Failures were attributable to several possibilities including unwise choice of soils and soggy conditions, but more likely, disease, especially the leaf-hopper, a problem not solved until around 1910. Commercial success is associated with Claus Spreckels, the “Sugar King” of Hawaii who brought a German sugar beet processing plant to Watsonville in 1888. The Spreckels Sugar Company was among the early supporters of scientific research, which led to varieties of sugar beets less susceptible to disease.²¹⁴

In the latter half of the nineteenth century, the demand for sugar outstripped the availability of cane sugar. In Europe, attempts to extract sugar from various plants resulted in the rise of the sugar beet. By 1900, the industrialized world demanded sweets, especially in drinks, candies, and in canned goods.²¹⁵ Whereas per capita consumption of sugar had been less than two percent of diet in 1800, a century later it was fourteen percent.²¹⁶ During the Gold Rush, Italian-born chocolatier Domenico Ghirardelli proved that money could be made selling sweets to miners and their families. Shops first in Stockton and later in San Francisco specialized in conversion of cocoa beans into cocoa butter, and from butter to sweets with the addition of sugar. With the invention of milk chocolate in Switzerland in 1876, chocolate sales soared and its price came down as a result of larger supplies of cocoa, industrial production of chocolate products, especially candy bars, and increased disposable income among the working class. As Tim Richardson observes, “Chocolate became an everyday purchase, and it was even issued as rations to the German, British and American armies in the 1890s”²¹⁷

By 1900 Spreckels, Wrigley, and other giants of the sugar industry met the global need by building large sugar beet factories and using cane sugar where still available. In 1900 fewer than one million hundred pound bags of refined sugar were produced in California. By 1940, the volume increased to eight and a half million bags.²¹⁸ In 1917, the Alameda Sugar Company

²¹⁴ Lawrence J. Jelinek, *Harvest Empire: A History of California Agriculture* (San Francisco: Boyd & Fraser, 1979), 51-52; Claude B. Hutchison, ed., *California Agriculture* (Berkeley: University of California Press, 1946), 132-36.

²¹⁵ Tim Richardson, *Sweets, A History of Candy* (New York: Bloomsbury, 2002).

²¹⁶ Sanjida O’Connell, *Sugar: The Grass that Changed the World* (London: Virgin Books, 2004), 79.

²¹⁷ Richardson, *Sweets*, 217-31, at 229.

²¹⁸ Table, “Production of Beet Sugar in California, 1870 to 1940,” in Hutchison, ed., *California Agriculture*, 133.

contracted with farmers in the Holland Tract for exclusive right to purchase beets at \$10 per ton. Alameda sold operations to Holly Sugar in 1923.²¹⁹

Most of the Delta's beet production was in its northern districts in 1924, but by 1945, sugar beets were grown intensively throughout both northern and central districts of the Delta.²²⁰ The Amalgamated Sugar Company built a 1.5 million dollar refinery at Clarksburg in 1934 during the Great Depression. Sold to the American Crystal Sugar Company of Denver in 1936, it eventually was purchased by the Delta Corporation, closing its doors in the 1980s.²²¹

The history of the Holland Tract (or District) provides a case in point on the connection between private large-scale development, the rise of sugar beet industry, and its connection to rail transportation. One of the last segments of the Yolo Basin to be reclaimed, in 1913 the Netherlands Farm Company organized Reclamation District No. 999, some 26,150 acres of land between the Sacramento River to the east and the Yolo Bypass to the west. Philip Garone writes:

Thirty miles of levees needed to be built, requiring more than 10 million cubic yards of fill. Facing insurmountable financial difficulties, the Netherlands Farm Company soon transferred the ownership of its lands to the Holland Land Company, which carried out the work between 1916 and 1918. With the completion of the project, almost all of the 58,800 acres of the Yolo Basin that lay between the Sacramento River and the trough of the basin had been reclaimed.²²²

Holland Land Company was a private, not a public holding. As such it sold land outright at \$226 to \$375 an acre or rented farms in pieces of twenty acres or more. H. T. Hammond, Delta booster and publisher of the *Byron Times* extolled the ethics of Holland Land Company, writing in 1918, "The policy of low rents and long leases has produced splendid results for a new property, and gross crop values amount to nearly \$1,500,000. . . .the outlook for the company is bright indeed."²²³ By 1920, 15,000 acres had been sold, realizing \$4,250,000. A brilliant marketing campaign brought prospective buyers from San Francisco where they were "screened for agricultural capabilities and civic interest."²²⁴ As early as 1921, the Western Pacific Railroad, through its by-then subsidiary railroad, the Sacramento Northern, showed interest in expanding into the Holland Land District from West Sacramento to Clarksburg. It

²¹⁹ *SRDHS Newsletter* 19(2) December 1999:3.

²²⁰ Thompson, "Settlement Geography," Appendix, Map Plate F: Sugar Beets.

²²¹ Walters, *Clarksburg*, 37.

²²² Garone, *Fall and Rise of the Wetlands*, 97.

²²³ H. T. Hammond, editor, "Holland Land Company," *Byron Times Sixth Booster Edition* (1918), 116. Courtesy of The Haggin Museum of Stockton.

²²⁴ *SRDHS Newsletter* 19(2) December, 1999:3.

estimated revenues for sugar beets alone at \$96,000 or 120,000 tons hauled to Alvarado at \$.80 per ton. Other less valuable crops in rank order were alfalfa-hay, hauled to Sacramento and San Francisco at \$46,800; asparagus to Los Angeles and beyond at \$19,837; potatoes to Stockton at \$16,000; orchard fruit and nuts (unspecified) to Sacramento, Oakland and “Transcon[tinental]” at \$15,936; onions to Stockton at \$8,000; beans to Stockton, Pittsburg and San Francisco at \$7,370; and barley to Port Costa and San Francisco at \$2,050--a total projected revenue of \$211,994.²²⁵ By 1924, still probing the possibility of building a line into the Holland Tract, the Holland Land Company provided the railroad with data on production on 25,000 acres, showing an increase in acres from 4,000 in sugar beets in 1923 to 6,000 in 1924; an increase from 2,000 to 3,500 acres in asparagus; an additional 300 acres of orchards from 2,500 to 2,800 acres; and an increase in “Miscellaneous” from 2,000 to 2,200 acres. Alfalfa, onions, and “spuds” remained steady at 3,000, 1,000, and 500 acres respectively, with beans declining precipitously from 8,000 to 5,000 acres and barley down by fifty percent from 2,000 to 1,000 acres.²²⁶ A line was built by the Sacramento Northern Railway in 1928 from Riverview in the north reaching Oxford to the south in the Holland District in 1929, with a short spur connection to Clarksburg (see further discussion later in this essay).²²⁷

The increase in variety, volume and value of crops throughout the Delta led to the need for local canneries. Salmon came first. During the Gold Rush the salmon industry developed a healthy market but was limited to meet demand due to transportation and preservation issues. According to Philip Pezzaglia, Rio Vista claims the first salmon cannery on the west coast, dating from 1859. Robert C. Carter is credited with this distinction.²²⁸ However, the better known “first” is associated with William and George Hume, two enterprising fishermen who caught salmon, sturgeon, catfish, eels, crayfish, and clams in the rivers and sloughs. In 1864, the Humes partnered with Andrew Hapgood, a tinsmith, to open Hapgood, Hume and Company in Sacramento using the cooker-boiler method rather than the traditional salt brining. The operation lasted three years before moving to the more abundant fishery on the Columbia River. Others filled their place. By 1882, twenty fish canneries worked the Sacramento River and San Francisco Bay.²²⁹ The

²²⁵ Correspondence, M. Richards, Chief Engineer to Mr. Mitchell, Gen Mgr., S.F-S.R.R. Co., Oakland, Nov. 23, 1921, Western Railway Museum Archives, Rio Vista Junction.

²²⁶ “Crops for Holland District, as Obtained from the Secretary’s Office of Holland Land Company,” March 11, 1924, Archives of the Western Railway Museum.

²²⁷ Paul C. Trimble, *Sacramento Northern Railway* (Charleston, SC: Arcadia, 3005).

²²⁸ Pezzaglia, *Rio Vista*, 10.

²²⁹ Historical Marker Database, “Salmon Cannery: West Sacramento River Walk;” “First Pacific Coast Salmon Cannery.” Retrieved 31, 2014; Walters, *West Sacramento*, 14.

industry involved 1,200 boats, occupying around 3,000 people between San Francisco, Stockton and Sacramento. The average annual catch during the 1880s was six million pounds of fish. But the technologies that had established California as the Golden State backfired on fisherman as well as farmers.

Silt from hydraulic mining operations upriver precipitated a collapse in the fishery. Although “hydraulicking” was banned by court order in 1884, the damage had been done. An official Army Corps of Engineers report in 1879 found that from 1855 to 1878, the ship channel in San Pablo Bay had narrowed about twenty percent. Furthermore, during the period, 1867 to 1878, 2,000,000 cubic yards had been deposited in the lower three and one-half miles of the Sacramento River and 500,000 yards in the San Joaquin.²³⁰ By 1914, it is estimated that more than 800 million cubic yards of mining debris or enough to fill 10,000 football fields to a depth of sixteen feet passed through the Delta, primarily from mining sites along the Sacramento River watershed. Less concerned about fisherman than farmers, in 1880, the state legislature formed the Board of Drainage Commissioners in an attempt to find a solution. The board was to create drainage basin planning districts with the costs borne by a statewide land tax and taxes on hydraulic mining. This action was invalidated by the State Supreme Court the next year so the farmers instituted injunction proceedings against the miners. As one authority notes, “The first of these cases—*People v. Gold Run Ditch and Mining Company* (July 1881)—is considered a landmark piece of environmental jurisprudence. It invoked the public trust doctrine to impose an injunction on hydraulic mining. A second case, *Woodruff v. North Bloomfield Gravel Company* (January 1884), also sided with the farmers.”²³¹

By 1934, the Delta was excluded from commercial salmon canning. Only fresh or frozen salmon could be sold. As salmon runs continued to decline and in some cases disappear, the State stepped in and banned all net fishing in the Delta in 1957, followed by a ban of all commercial fishing of salmon in 1958.²³²

Canneries specializing in fruit and vegetables followed those exclusively canning fish. In 1880 Joseph and William Hunt formed the Hunt Brothers Packing Company in Santa Rosa, producing 30,000 cans of fruits and vegetables in 1890. In 1896 Sussman, Wormser & Company (S & W Fine Foods) was formed in San Francisco, followed by California Packing Company (C.P.C.). Each of these companies impacted the Delta economy. As cans

²³⁰ Report of Lt. Col. G. H. Mendell, 1879, as found in Powell Greenland, *Hydraulic Mining in California: A Tarnished Legacy* (Spokane, WA: Arthur H. Clark Co., 2001), 235-44.

²³¹ *Envisioning Futures for the Sacramento-San Joaquin Delta*, p. 17. Retrieved 25 January 2014. http://www.ppic.org/content/pubs/report/R_207JLChapter2R.pdf

²³² Jensen, *The California Delta*, 97.

improved, with the entire top open for filling rather than a small hole that had been literally capped by the “Cox Capper,” quality and safety of products increased. Instead of mush stuffed through a small aperture, products could be preserved closer to appearance off the vine, line, or hoof. The demand for canned goods during World War I accelerated Delta canning operations. In addition to fish (especially salmon), asparagus, tomatoes, and pickles were among the largest items in demand by war’s end. There were two asparagus canneries on Grand Island, two at Isleton, and one each at Vorden and Rio Vista, as well as two in Sacramento and one in Thornton. In 1903, one compiler listed the value of that year’s asparagus pack from the Delta alone at “over 200 carloads” with a value of “about \$400,000.”²³³ Asparagus production peaked in 1909-1910, at 27,750,000 pounds. By 1924, the old fields were mostly worn out and production shifted south to the San Joaquin area of the Delta which had sixteen percent of the plantings in 1924 and ninety-five percent by 1952. Ten canneries specialized in asparagus in 1936. However, by 1950, none remained in the Delta.²³⁴ Despite the decline in processing, between 1900 and the end of World War II, ninety-five percent of all commercial “grass” in the United States was grown in the Delta: 82,000 acres—both green and prized white asparagus.²³⁵

The Libby Fruit Company began processing tomatoes at Locke in the early 1920s, competing with Del Monte in Rio Vista. Pratt-Low established a plant at Ryde. Sun Garden National and Bayside labels had plants at Isleton. In 1926, C. P. C. opened the largest all-purpose cannery in the world in Sacramento. Heinz Corporation edged its way into the Delta, producing pickles at Isleton by 1930. According to Kathleen Graham Hutchinson, “In time the canneries followed the produce out of the Delta to the South Bay area: San Leandro, Hayward, Santa Clara and San Jose. Pratt-Low went to San Jose where other canneries were located such as Schukle and Western. Growers also shipped to Gerber, Tillie Lewis, Stokely-Van Camp, Hunt, and Del Monte.” Consolidation of firms, as well as shorter and better truck transportation were factors in the physical relocations. Hutchinson notes that by 2013, many of these same canneries had relocated back in the San Joaquin Valley.²³⁶

Tillie Lewis Foods of Stockton is an interesting case study. According to San Joaquin Historical Society’s guide to the Tillie Lewis Papers, Tillie Lewis

²³³ Martin, comp., *The Delta Lands of California*, 18, 97.

²³⁴ Richard Dillon with Steve Simmons, photographer, *Delta Country* (Novato, CA: Presidio Press, 1982), 97.

²³⁵ Hutchinson, “The Early Canning Industry,” *Sacramento Delta Historical Society Newsletter* 33(1) June 2013:2-3; “Andrus Island, Part II,” *SRDHS Newsletter* 17(1) June 1997:2 (on asparagus volume).

²³⁶ Hutchinson, “Early Canning Industry.” Bayside Canning Company was opened in 1906 in Alviso, Santa Clara County by Thomas Chew. By 1921 it was the third largest cannery in the United States with its branch in Isleton. *SDHS Newsletter* 25(2) December 2005:4.

(1904-1977) achieved a stature unequaled by any other businesswoman in the world:

Born Myrtle Ehrlich, she grew up in Brooklyn, New York, where she early married a wholesale grocer and became involved in the wholesale food production and marketing business. Among the goods her husband sold were imported pomodoro tomatoes, which impressed her because of their tangy flavor. The marriage lasted only a short time. After it ended, Tillie Ehrlich began investigating the possibility of growing the pomodoro in America. She arranged a trip to Italy (1934), in the course of which she met Florindo del Gaizo, part owner of a Naples cannery. Del Gaizo taught her about the pomodoro industry and gave her ten thousand dollars to use as the beginning of a fund to acquire appropriate lands and establish a cannery. He later sent her seeds and used machinery, and together the couple formed Flotill Foods Corporation. Tillie Ehrlich selected Stockton, California as the site for the Flotill cannery, which was completed in 1935. The company went into full production the following year. In 1937, Florindo del Gaizo died, after which Ehrlich persuaded the Bank of Stockton to lend her one hundred thousand dollars to buy her partner's interest. By December 1937, she had paid back the loan and was the sole owner and manager of Flotill Foods. Over the next decade, Ehrlich branched out into other crops, acquired additional canneries, and purchased a can manufacturing plant. During the Korean War, Flotill was the largest supplier of Army C-Rations in the United States, and in 1951 she was named National Business Woman of the Year. With sales nearing twenty million dollars in 1952, Tillie established Tasti-Diet Foods and became one of the earliest marketers of artificially sweetened fruits and soft drinks. By then, she had married labor leader Meyer Lewis. Soon afterward, she changed the name of her company to Tillie Lewis Foods and began to sell shares on the American Stock Exchange (1961). Later, she expanded company facilities even further, adding the Anderson Split Pea Soup line (1962) and eventually merging with Ogden Foods of New York (1966). By 1971, Tillie Lewis Foods had sales of more than ninety million dollars per year.²³⁷

Much of Tillie Lewis Foods' produce came from Delta farmers. The growth in the total California fruit production, which includes the Delta can be seen in the following figures, which Lewis's company compiled in 1943:²³⁸

²³⁷ "Tillie Lewis Collection," San Joaquin Historical Society, Lodi, CA.

²³⁸ Table, "California Canned Fruit Packs," *Western Canner and Packer Yearbook and Statistical Number* (Stockton and Modesto: Flotill Products, Inc., 1943), 108. This unique source is on file at the Sacramento River Delta Historical Society in Walnut Grove.

| | | |
|------|---|------------|
| 1900 | Total California Fruit Pack (all size of cases) | 2,811,501 |
| 1910 | | 4,626,840 |
| 1920 | | 11,382,863 |
| 1930 | | 18,648,355 |
| 1940 | | 28,951,117 |

Pears are the pride of the Delta and have been since orchardists first experimented with fresh fruit production in the 1850s. During that decade, growers in Martinez, including John Swett and John Strentzel, planted many varieties of fruit including peaches, quinces, apples, plums, and figs, enjoying greatest success with Bartletts. By the 1860s, Strentzel was renowned throughout the state for his wines, as well as his plantings. Strentzel's son-in-law, John Muir, took over the Strentzel nut and fruit ranch in the 1880s, shipping his products from the wharf in Martinez by packet steamer to Bay wholesalers. Pears bruise easily and have a short shelf life. Strentzel packed his pears in carbonized bran, which slowed ripening. Even so, timing was critical in order to get fresh fruit to market without soft or spoiled fruit. In 1897 Muir improved the probability of his pears, apples, figs, and grapes reaching grocers firm and fresh by convincing the San Francisco-Stockton & San Joaquin Valley Railroad (later purchased by the AT&SF) to build a spur through the Strentzel-Muir property with a station stop as it crossed the Alhambra Valley bound for Richmond. Muir Station served this purpose for growers until it burned in 1941.²³⁹

For many growers, until refrigeration was common on rail and motor transportation, canning made more economic sense than selling fresh fruit. Still, farmers of the Delta took special interest in promoting fresh pears by the box with colorful and orchard-specific labels.²⁴⁰ Advertising with labels goes back to the nineteenth century. In 1918, Don Francisco published a booklet titled *Labels—Suggestions for the Shipper Who is Seeking to Give His Pack a Worthy and Effective Mark of Identification*. These ideas helped distinguish California produce—both fresh and canned.²⁴¹ Scenes of Delta farms on labels share Edenic imagery of perfectly ripe fruit with an idyllic background, often a waterscape or flowering orchards. For example, “Pride of the River” brand was George Locke’s personal label. His packing house just north of the town named

²³⁹ Martinez Historical Society, *Martinez* (Charleston, SC: Arcadia, 2004); 26-27 (Strentzel pears), 34-35 (Muir Station). Donald Worster, *A Passion for Nature: The Life of John Muir* (New York: Oxford University Press, 2008), 20-81.

²⁴⁰ This aspect of the Delta’s commercial history is a specialty of Jim Dahlberg, founder of the Courtland Pear Fair, dating back to 1972. His annual calendars feature pear labels and are available through the Sacramento River Delta Historical Society in Walnut Grove.

²⁴¹ Stoll, *The Fruits of Natural Advantage*, 85.

for his family shipped pears and asparagus, using the same label from 1912 to 1938. Three pears in the foreground lead the viewer to see a steamboat on the Sacramento River with a colorful sky. “Vista del Rio Brand” was grown and packed by J. A. DeBack at Courtland in the 1920s. Its imagery features a large Delta farmhouse, fenced yard and both steamboat and canoe on the Sacramento River. Another label, “River Maid Brand,” dates to 1933 when printed for the Darsie and Gamble Ranch on Andrus Island. The label features a Dutch maiden with a basket of pears and a scene from the Netherlands in the background with classic windmill and farm across the river—paradise reclaimed. The label was still in use as late as 1978 by Allstate Packers of Lodi.²⁴² The pear pack for California decreased from a peak of 2,738,839 in 1934 to 1,839,837 in 1941 as more fresh pears made it to market in good shape.²⁴³ Between 1929 and 1945, the acreage devoted to pear growing decreased by more than two-thirds.²⁴⁴

Cherries provide an interesting example of the increase in California farm production, much of it coming from the Delta and its periphery. By 1930, California surpassed both Oregon and Washington State in production of canned sweet cherries at 15,690, 9,560 and 9,200 tons respectively. Ten years later, on the eve of World War II, California and Washington State were near equal at around 32,000 tons each, with Oregon at 21,100. In 1940, 13,919 acres of cherries were in production in California with another 1,400 non-bearing acres planted in cherries. Most were the Royal Ann (Napoleon) variety.²⁴⁵ Although these figures include the entire state of California, as one agricultural economist noted in 1946, “Almost all the successful cherry-growing areas adjoin the San Francisco Bay area or feel its influence.” The same authority noted that although cherry production declined throughout most of California between 1925 and 1945, its production increased in San Joaquin County, where the planting doubled.²⁴⁶

Tomatoes incorporated into pork-and-beans, baked beans, and as sauce had become staples during World War I, especially among Americans and the British. By World War II, tomatoes as juice, paste, puree, catsup, sauce and other products increased dramatically. In 1900, California canners produced 266,550 cases of tomato products. At the beginning of the Great War, production was 2.1 million cases. By war’s end in 1918, 5.7 million cases. In

²⁴² “2012 Calendar,” Sacramento River Delta Historical Society (“Pride of the River” and “River Maid Brand”); 2015 Calendar, (“Vista del Rio Brand”).

²⁴³ Table, “Western and U. S. Canned Pear Pack by Can Sizes,” *Western Canner and Packer Yearbook* (1943), 153.

²⁴⁴ Dillon with Simmons, *Delta Country*, 96.

²⁴⁵ Table, “California Cherry Acreage;” Table, “United States Cherry Production, by Chief States;” Table, “Western Canned Cherry Packs,” *Western Canner and Packer Yearbook* (1943).

²⁴⁶ Hutchison, *California Agriculture*, 188-90, at 189.

1940, California produced 13.4 million cases of tomato products; two years later: 16.6 million cases as war production guaranteed markets.²⁴⁷ Despite the tomato's importance to Stockton's economy and California generally, production on Delta lands was limited to the southernmost and northernmost districts.²⁴⁸

The earliest record of asparagus in California dates to 1852 in Sacramento but was not a market crop until 1875. In 1892 Robert Hickmott built the first asparagus cannery in the United States on Bouldin Island. White asparagus did exceptionally well in Delta light peat soils leading to planting of around 7,000 acres by 1903. A blight that year led to a decrease for the next two years, but from 1906 to 1931 there was a steady increase with a pack of white asparagus of 2,633,000 cases, declining during the Great Depression to around 2,000,000 on average. Green asparagus by contrast was only one-fourth to one-third of the total pack with declining sales as the Depression worsened. Even so, canned asparagus was a Delta hallmark by 1940. The crop that year yielded 3.1 million cases for the United States at large with 2.1 million or two-thirds coming from California. This represented 53.8 tons of the highly-prized vegetable with another 34.7 tons sold fresh at markets.²⁴⁹ The *Canners' League Annual Survey* for 1941 showed 82,504 acres of asparagus in Sacramento and San Joaquin counties, most of it in the Delta. Only 700 acres was grown in other counties, most of it in the Imperial Valley and around Los Angeles. In short, at one time California produced ninety-five percent of the nation's asparagus, most of it coming out of the Delta.²⁵⁰

Almonds provide a final example of growth. First introduced by Spanish missionaries, many early settlers in the 1840s had several trees. Commercial production is associated with the nurseries of A. P. Smith in Sacramento in 1859. John Bidwell had ninety acres in almonds on his estate at Chico by 1878. A. T. Hatch, a grower in Suisun, is credited with experimenting with several varieties of the tree, two of which became California standards—the “Ne Plus Ultra” and the “Nonpareil.”²⁵¹ While almonds never became an important crop in the Delta itself, Hatch's pioneering experiments in Suisun led to one of the region's most important crops. In 1921, 41,184 acres were dedicated to almond orchards in California producing 6,200 tons. By 1942, 79,200 acres

²⁴⁷ Table, “West and U. S. Pack of canned Tomatoes and Tomato Products for 1938 to 1942;” Table, “National Pack of Canned Tomato Paste;” Table, “California Canned Vegetable Pack, in Cases, All Sizes,” *Western Canner and Packer Yearbook* (1943), 168-69, 191.

²⁴⁸ Thompson, “Settlement Geography,” Appendix, Map Plate A: Truck Crops and Tomatoes.

²⁴⁹ Table, “California Asparagus Output,” *Western Canner and Packer Yearbook* (1943), 171.

²⁵⁰ Hutchison, *California Agriculture*, 142-43.

²⁵¹ Hutchison, *California Agriculture*, 170-76.

were in almonds, producing 22,000 tons of the nut crop.²⁵² By war's end, over half of California's almonds were the Nonpareil variety, most of the others serving as pollinizers.²⁵³

Agriculture and technology

Parallel with advances in the canning industry, several technologies made commercial agriculture in the Delta feasible and profitable most years. In addition to local applications of non-mechanized items such as the tule shoe, the most important of these were (1) steam-powered dredges and pumps; (2) the electrification of the Delta and the introduction of electric motors on pumps, bridges and in factories; (3) rail transportation by steam, electric, and later by diesel-electric; (4) the internal combustion engine and the many applications that came with it, especially bulldozers and backhoes as well as gasoline-powered pumps, cars and trucks; and (5) mechanized planting, disking, and harvesting equipment.

Pick up any illustrated history of any aspect of Delta history and three of the more prominent images are of dredges, steamboats and bridges. Mechanical powered earth-moving equipment for levee building was introduced in 1865. Before that all levee-building was done by hand using technology that had changed little in millennia for Chinese laborers. Hand cutting peat was slow and the peat itself porous, so early levees often became saturated and failed. **Dredges and ditchers** began to change this around 1870. A prototype of a steam-powered mechanism, or "steam paddy" was introduced in 1869. Designed to build a mile of levee per day, in reality it averaged only 320 feet of five-foot-high levee. A mechanical "ditcher" came into use in 1871. It cut a four-by-four foot ditch and carried the fill by a chain elevator to the opposite side of the excavation. Floating steam shovels were introduced in Stockton in 1875. The *Samson* and *Goliath* were built for leveeing parts of Roberts Island where horse-drawn equipment could not be employed. The dippers lifted soil from depths of thirty feet and carried the material over a bank at a distance under fifty-five feet from either side of the scow.²⁵⁴

The **clamshell bucket dredge**, introduced in the 1870s, became the most successful levee-building device. It was superior to the steam shovel dredge because of its longer reach and greater flexibility for placing fill.

²⁵² Table, "U. S. Packs and Acreage of Nuts;" Table, "California Almond Production," *Western Canner and Packer Yearbook* (1943) from U.S. Department of Agriculture data.

²⁵³ Hutchison, *California Agriculture*, 172.

²⁵⁴ Thompson, "Settlement Geography," 265-72. Examples of these technologies are on exhibit and have been interpreted by David Stuart, Director, San Joaquin Historical Society, Micke Grove. Our thanks to Dr. Stuart for a tour of the earth-moving exhibit on 3 February, 2015. His labels for these machines are a valuable interpretive resource for anyone interested in this subject.

Designed by John Ferris, Superintendent of Glasgow California Land Company, and built by the Stockton Iron Works²⁵⁵ in 1878, its first large-scale use was near Clarksburg in the Lisbon District in 1879. An eighty-foot boom was powered by a forty-horsepower steam engine which lifted a two- or three-yard bucket. In time, clamshell dredges increased reach and capacity. By 1900 models with 110 or 120-foot booms were in use; ten years later, 190- to 220-foot models used a bucket with a five-to-six cubic yard capacity. Fifteen of these monster dredges were in use in the 1920s, many of them built in Stockton by the Stockton Iron Works, which dates back to 1868.²⁵⁶ Other companies that designed and/or built dredges for use on the Delta include the Globe Iron Works of Stockton (1858-1912), the Risdon Iron Works of San Francisco (1897-1911), which was absorbed by Union Iron Works, a division of Bethlehem Steel Company. The latter continued to build and service dredges well into the 1960s.²⁵⁷

Of all dredging companies, the Dutra family is best known on the Delta. Since 1878, members of this Azorean family have been engaged in sidedraft clamshell dredging. Born in the Lisbon District, Antone S. Dutra began working as an owner-operator in 1905, building his first dredge, the *Mallard*, in 1916. Other notable Dutra dredgers include Edward Dutra, who began his career in San Francisco in 1933, establishing his own company in 1955 and founding the Dutra Museum of Dredging in Rio Vista. Today, the Dutra Dredging Company operates around the world repairing levees and deepening channels, harbors, and marinas.²⁵⁸

Horse-powered **drainage and irrigation pumps** were introduced in the 1870s and by the end of the decade, these pumps were steam-powered. By the end of the century, some of the steam pumps had developed into large capacity pumps moving as much as 38,000 gallons per minute, but costing around \$20,000 on average. Smaller volume pumps were promoted for individual farmers, one promoter noting:

The farmer owning his own pumping plant is the most independent man on earth. . . .The cost of establishing a pumping plant including boring well, building pump house, good three-horse power engine and 2 or 2 ½ inch pump, suitable to irrigate five to ten acres will be from about \$350

²⁵⁵ Stockton Iron Works was founded in 1868 by G. C. Hyatt and H. Farrington. It manufactured steam engines, mining machinery, saw and grist mill works, agricultural implements, house fronts, and iron and brass castings in addition to dredging equipment. San Joaquin Historical Society, Micke Grove. Label in museum exhibit.

²⁵⁶ Thompson, "Settlement Geography," 271-72; Stockton Iron Works *Catalog 13A* (Stockton, CA: 1913); John Thompson and Edward A. Dutra, *The Tule Breakers: The Story of the California Dredge* (Stockton, CA: Stockton Corral of Westerners International, University of the Pacific, 1983), 28-38.

²⁵⁷ Thompson and Dutra, *The Tule Breakers*, 202-03.

²⁵⁸ Thompson and Dutra, *The Tule Breakers*, 261; *The Dutra Museum of Dredging* (pamphlet).

to \$375. To irrigate ten to fifteen acres use a five-horse power engine and three-inch pump. To irrigate twenty to thirty acres use a [sic] eight-horse power engine and 3-inch pump.²⁵⁹

By 1905, electric pumps had replaced most steam-powered pumps in the Delta. Where the land was too soft for foundations to place pumps, barges served as platforms on open water.²⁶⁰

Tracked vehicles are as important as dredges and pumps in Delta development. In 1883, brothers Benjamin and Charles Holt opened the Stockton Wheel Company, manufacturing harvesters and other devices for farmers. The first experimental steam-traction wheeled engine was built in 1890. According to the company's own history, in this decade, ". . . most Holt steamers were used for farming. But freighting quickly became a major market for traction engines--especially for transporting lumber, ores, and supplies, where roads were marginal and the cost of animal hauling high."²⁶¹

Located at the corner of Church and Aurora streets, in 1892 the company incorporated as Holt Manufacturing Company and continued research on various traction devices, leading in 1904 to a steam-powered machine that moved on self-laying tracks, two feet wide and nine feet long, rather than wheels. Named the "Caterpillar," it revolutionized construction projects large and small thereafter. In 1908 Holt converted his Caterpillar from steam to gasoline. Soon competitors copied his idea. Holt's main competition was C. L. Best Tractor Company of San Leandro. In 1925 the two companies merged as Caterpillar Tractor Company, moving operations that same year to be closer to sources of steel in the Midwest at Peoria, Illinois, but retaining dealerships in California. For levee construction and maintenance, as well as clearing land and laying out waterways, the tracked bulldozer and its cousin, the backhoe, became essential tools on the Delta.²⁶²

Holt-Best's competitors in the region included Samson Iron Works. Founded in Stockton in 1898 by John Kroyer, the company started out making centrifugal water pumps for reclamation and irrigation, but soon after began making engines for those pumps. In 1902, Samson Iron Works made its first

²⁵⁹ Martin, comp., *The Delta Lands of California*, 18.

²⁶⁰ Thompson, "Settlement Geography," 278-81, citing *The Byron Times*, Special Booster Edition, 1908-09.

²⁶¹ Caterpillar, Inc., *The Caterpillar Story*, 2nd revised ed. (Peoria, IL: Caterpillar, Inc., 1990), 7.

²⁶² <http://www.holtca.com/company/company-history> Retrieved 7 January, 2015. The Rio Vista Museum has a Best Caterpillar 30 that predates the merger in 1925. Also see Walter Payne, ed., *Benjamin Holt: The Story of the Caterpillar Tractor* (Stockton: University of the Pacific, 1982) and Reynold M. Wik, *Benjamin Holt & Caterpillar Tracks & Combines* (St. Joseph, MI: American Society of Agricultural Engineers, 1984). The Haggin Museum of Stockton has a permanent Holt exhibit with one of his earliest tracked combine-harvesters, his metal shop, and other family records. The San Joaquin County Historical Society has the largest collection of historical agricultural implements in San Joaquin County. It includes many later Holt machines after the switch to diesel in the 1930s.

tractor, the Samson Sieve Grip, a three-wheeled vehicle which ran on gasoline. In 1916 the company changed its name to Samson Tractor Company and changed yet again in 1917 to Samson Sieve-Grip Tractor Company. General Motors Corporation purchased the company in 1917 to compete with Ford, which was also building tractors. A distinction of the Sieve-Grip model is its Remy electric governor, an early form of cruise control which kept a steady speed (maximum 3.5 MPH) and allowed the operator to multitask while driving.²⁶³

Electrification of Sacramento began in 1885 with steam-powered electric generators, which lit a small portion of the downtown, as well as the Capitol grounds. With completion of Folsom Dam in 1895, hydroelectric power was transmitted twenty-two miles along the nation's then-longest alternating current corridor to supply Sacramento's street lights, trolleys and industrial buildings.²⁶⁴ Gas lights provided some illumination of downtown Stockton as early as 1888. Four years later, electric lights were installed.²⁶⁵ Electricity entered the Delta before 1905, with the construction of lines peaking between 1911 and 1915.²⁶⁶ Three companies ran power through or alongside the Delta by 1913: Great Western Power Company, Pacific Gas & Electric Company, and American River Electric Power Company. For all, placing poles and transformers proved difficult in the soft peat soils.²⁶⁷

Telecommunications in Sacramento date to 1879, only three years after Alexander Graham Bell invented the telephone. The Sunset Telephone Company was first. By 1883 a long distance line connected Sacramento with San Francisco via a relay in Benicia. Two years later copper lines eliminated the need for delayed relay. After 1893 the individual telephone user called to Central where operators connected to the receiver.²⁶⁸

Stockton Telephone Company opened for business in 1881, the tenth telephone office in the state. In 1884 a long distance line was completed from San Francisco to Stockton and later extended to Sacramento and Marysville. The following table shows the growth of telecommunication in Stockton:²⁶⁹

| | |
|------|----------------|
| 1882 | 44 subscribers |
| 1890 | 351 |

²⁶³ San Joaquin Historical Society exhibit of Samson Sieve Grip 30X, 1918 model. Label by David Stuart, Director.

²⁶⁴ *Folsom Powerhouse State Historic Park Brochure* (Sacramento: California State Parks, 2002).

²⁶⁵ Martin, et al., *Stockton Album*, 33.

²⁶⁶ Thompson, "Settlement Geography," 281.

²⁶⁷ "General Map of the Sacramento Valley, California . . . Showing Cities and Towns. . . Power Lines, Etc."

(Sacramento: Reynolds & Whitman, Engrs., 1913). Archives, Center for Sacramento History, City of Sacramento.

²⁶⁸ G. Walter Reed, *History of Sacramento County, California with Biographical Sketches* (Los Angeles: Historic Record Co., 1923), 236-37.

²⁶⁹ Martin, et al., *Stockton Album*, 72.

| | |
|------|--------|
| 1900 | 1,300 |
| 1930 | 16,000 |
| 1939 | 17,000 |
| 1956 | 55,275 |

Rail transportation

Steam and electric power were introduced to the Delta soon after these two technologies were available generally. Not so rail transportation. As previously noted, beginning in 1856, the Sacramento Valley Railroad and its successor, the Central Pacific, linked the upper Delta at Freeport to the Capital and the mines via Folsom. Despite completion of the first transcontinental line in 1869, no rail line except the short-lived branch of the Sacramento Valley Railroad from Freeport to Brighton (1856-1866) was built in the Delta until 1906. Steamboats efficiently moved produce as well as people, goods and livestock throughout the peak period of Delta reclamation in the nineteenth century. Furthermore, cost per mile and risk of subsidence and flooding discouraged investors in rail lines to enter the Delta. Enough traffic was needed to convince officials in San Francisco and Sacramento that a rail could succeed in the Delta. Logistical obstacles of transporting canned goods could be easily overcome; however, shipping a fresh pear or bunch of grapes was an entirely different matter.

Early ventilated box cars were introduced throughout the United States prior to the Civil War but were unsatisfactory for shipping fresh produce long distances. Refrigerated cars using blocks of ice were in use on some rail lines in the eastern United States by the 1870s, with Armour Meat Packing pioneering this technology and dominating shipping of perishables by the 1880s up through 1906.²⁷⁰ Increasingly, grocers and consumers of fruit demanded fresh produce from California in stores and on kitchen tables. The problem was both distance and schedules of rail lines, which often delayed shipments of crated fruit, expecting more freight or experiencing mechanical problems. Steven Stoll has analyzed this problem and concludes, "Fruit required speed and good storage on its way to market, but the railroads provided neither." He adds, "The only California fruit most retailers had ever seen in the 1880s was expensive and soft. Grocers treated it more like caviar than a common element of diet."²⁷¹

²⁷⁰ John H. White, *The Great Yellow Fleet: A History of American Railroad Refrigerator Cars* (San Marino, CA: Golden West Books, 1986).

²⁷¹ Steven Stoll, *The Fruits of Natural Advantage: Making the Industrial Countryside in California* (Berkeley: University of California Press, 1998), 66, 70-71.

To overcome this problem and to make shipping profitable for both the producer and the railroads, farmers banded together into cooperatives and investors formed shipping companies for these specialized refrigerated cars. In 1900, the Union Pacific had 758 ventilated fruit cars and 404 ice refrigerator cars. The Southern Pacific had 804 ventilated and 188 ice cars. The Santa Fe had 538 ventilated and 1,032 ice cars.²⁷²

In 1906, Congress passed the Hepburn Act which set maximum freight rates, required railroads to seek court relief in disagreements on Interstate Commerce Commission rulings, and made railroads responsible for reasonable icing charges. In addition, all interstate railroads were required to provide refrigerated cars, whether their own or leased and show charges for icing. The act encouraged growers and wholesalers and boosted California's fruit industry, including Delta farms which shipped produce after 1907 on the Pacific Fruit Express Company (PFE), a joint Union Pacific and Southern Pacific venture that lasted until 1978. In 1919, PFE had 15,970 ice refrigerator cars.²⁷³

Sacramento Southern Railroad (SSRR) was incorporated in July, 1903 as a project of the Southern Pacific Railroad, five of whose officers served as its directors. Construction began in 1906 from Sacramento to Freeport. It reached Walnut Grove in 1912 with further extensions to Isleton in 1929 and a three-mile branch to the Golden State Cannery on the Mokelumne River in 1931. The main purpose was to haul fruit and vegetables to the Southern Pacific's yards in Sacramento and Roseville for shipment across the nation. In March, 1920 the *Southern Pacific Bulletin* boasted of the year-round bounty of the Delta. It stated that the Walnut Grove station alone shipped celery from November to February, asparagus from February to May, fruit from May through September, and seeds from September through November.²⁷⁴ The SSRR continued operations until October 10, 1978, facing stiff competition from refrigerated trucks beginning in the 1950s. Rails and ties have all been pulled since, leaving occasional stretches of flattened right-of-way but little other evidence of the energy and scale of this historic operation.²⁷⁵

The other main freight line that penetrated the Delta was the Sacramento Northern (SNRR), which ironically ran further south than the SSRR. Its beginnings date back to two independent electric rail lines. The Northern

²⁷² White, *The Great Yellow Fleet*, 150.

²⁷³ Hepburn Act (1906) as summarized by Anthony W. Thompson, Robert J. Church and Bruce H. Jones, *Pacific Fruit Express*, 2d ed. (Berkeley and Wilton, CA: Signature Press, 2000), 6; White, *The Great Yellow Fleet*, 151 (beginning of Pacific Fruit Express), 152 (size of fleet in 1919).

²⁷⁴ *Southern Pacific Bulletin*, March, 1920, as quoted by Hecteman, *Sacramento Southern Railroad*, 9.

²⁷⁵ Hecteman, *Sacramento Southern Railroad*, 9. For a map of the line in 1951 see frontispiece.

Electric Railway was completed from Chico to Sacramento in 1907, but went bankrupt in 1918, reorganized as the Sacramento Northern Railway. The other electric line was the Oakland, Antioch, and Eastern Railway, completed from Oakland to Sacramento in 1913. It too went bankrupt in 1920 and reemerged as the San Francisco-Sacramento Railroad. In December, 1928, the two merged to become the Sacramento Northern Railroad. Through legal agreements and partnerships, the line actually should be thought of as one that connected the northern Sacramento Valley at Chico with San Francisco via the Oakland Mole (ferry terminal). Stations included Moraga (Saint Mary's College), Lafayette, Walnut Creek, Concord, Port Chicago, Pittsburgh, and Antioch. At West Pittsburg, a ferry was used to transport the cars over the water to Chipps Island. From there the rail resumed to Montezuma, Rio Vista Junction (west of the town of Rio Vista), Creed, Arcade (Lisbon), and through West Sacramento to downtown. To cross the Sacramento, the line crossed the M-Street Bridge, which was built in 1911 and rebuilt in 1933 and now called Tower Bridge (also Capitol Avenue Bridge) which graces Sacramento's old town wharf district.²⁷⁶

The Western Pacific Railroad (discussed below), which owned majority interest in the Sacramento Northern, began discussions about building rail service along the west side to Rio Vista through the Holland District (Tract). Construction began in 1928 starting east of the Lisbon Trestle at Riverview next to Arcade. The line was built to a railroad-created end point given the name of Oxford and finished in 1929. It was freight-only and never completed as originally envisioned to Rio Vista. A short branch line was built to the new Amalgamated Sugar Company mill at Clarksburg, which began production in 1934. Journalist and railroad historian Paul Trimble notes, "Of the 10 California interurbans that could be called freight haulers, the average life beyond passenger service was 34 years; on the SN it was 35 years. Of those 10 interurban railways, the average lifespan overall was 57.6 years, while for the SN it was about seven decades."²⁷⁷

Another railroad that had great potential but a rocky and sordid history is associated with Claus Spreckels, the "sugar king." In opposition to the Southern Pacific, in 1893 a group of investors organized the San Francisco-Stockton & San Joaquin Valley Railroad, intending to compete with the SP as far as Bakersfield. Funds were raised in earnest to make this a multi-city cooperative. Antioch, San Jose, and Oakland competed with Stockton as a terminal point. Surveying and laying of grade commenced in 1895. Tracks

²⁷⁶ Paul C. Trimble, *Sacramento Northern Railroad* (Charleston, SC: Arcadia, 2005). For a map of the line in 1939 see frontispiece; for a map showing additional modern stations and stops see p. 110.

²⁷⁷ Trimble, *Sacramento Northern Railroad*, 77.

reached Fresno in 1896 from Stockton and, as previously noted, crossed the Alhambra Valley to Richmond through John Muir's property at Martinez. Three years later, Spreckels sold his majority interest in the road to the Atchison, Topeka and Santa Fe, which had its eyes on the route all the time. Thus the Santa Fe was able to complete a line from Chicago to San Francisco via Richmond Point using stops in California's Central Valley without having to negotiate rights-of-way and with benefit of both public and private money.²⁷⁸

The Western Pacific Railroad (WPRR) was the last of the transcontinental lines to connect the country and ran along the Delta's eastern edge between Stockton and Sacramento. The brainchild of a group led by George Gould, son of Gilded Age-entrepreneur Jay Gould, the goal was to connect San Francisco with the East via Salt Lake City where it partnered with the Denver & Rio Grande Western Railroad. Incorporated in 1903, survey work began that summer, with completion of the 1,207.5 miles in August, 1910 at a cost of \$60 million. Both a passenger and freight line, WPRR utilized ferry transfer from San Francisco to Oakland, and rail via Niles, Stockton, Sacramento, Oroville and on to Nevada across Beckwourth Pass. Stockton and Sacramento were connected in 1908 with passenger service commencing between Stockton and San Francisco two years later, three trains per day.²⁷⁹ In 1916, the line went bankrupt and was reorganized as the Western Pacific Railroad Corporation. Its roster included 125 locomotives, 54 passenger cars, and 3,390 freight cars in 1917. The new company took advantage of the boom in asparagus production as well as other fresh produce, adding a spur west to Terminous at the junction of the South Fork of the Mokulumne River and Little Potato Slough on Highway 12 west of what is now Interstate 5 in 1927.²⁸⁰

Riverboats brought freight to the landing for loading onto rail cars. The Western Pacific was one of the first lines to convert from steam to all-diesel in the early 1950s. The tracks to Terminous were subsequently abandoned and pulled in the 1960s as a result of competition with trucks. The WPRR was absorbed by the Union Pacific in 1982, which still uses the tracks between Stockton and Sacramento.²⁸¹

Impact of the internal combustion engine on the Delta

²⁷⁸ Tinkham, *History of San Joaquin County*, 256.

²⁷⁹ Tinkham, *History of San Joaquin County*, 256-57.

²⁸⁰ Robertson, *EWRRH, Vol. 4: California*, 299-301; David Myrick, *Western Pacific: The Last Transcontinental Railroad*. Colorado Rail Annual No. 27 (Golden, CO: Colorado Railroad Museum, 2006); Thompson, "Settlement Geography," 411 (asparagus boom and railroad extension).

²⁸¹ Jack Witthaus, "Terminous Junction to Terminous," *Abandonedrails.com*. Retrieved 5 January, 2015.

Road construction and maintenance have always been an engineering challenge on the Delta due to subsidence, periodic flooding, and especially oxidation of peat soils, which creates uneven undulations on road subsurface. As early as 1853, the Sacramento County Board of Supervisors considered improvements on the road south of “Sutter Town” (Sutterville) to get produce to market efficiently. In 1855 a road from Sacramento City to Georgiana Slough was surveyed and Road Districts 16 and 17 were created. The Board of Supervisors’ minutes read:

Commence at the intersection of Y and 28th via Southwick and Kadell’s ranch (an oak tree on the bank of the Sacramento River) thence down the bank of the river to Sharps at Georgiana Slough. Recommend 80 feet wide at commencement to Kadell’s ranch, balance laid out 30 feet wide.²⁸²

Another county road was approved in June of 1860 to circle Grand Island and was opened in January of 1861.²⁸³

Other roads followed these, but few were “permanent” and most were impassible during heavy rains. One of the more important developments on the crowns of Delta levees that improved roads was oiling of dirt surfaces, beginning in 1901, from Isleton to Sacramento. In 1914 the Sacramento County Highway Commission proposed forty-one public roads for improvement. These included River Road (37.7 miles), Grand Island West Road (11.9 miles), Grand Island East (16.9 miles), New Hope Road (7.64 miles), Ryde-Howard Road (2.34 miles), Sutter Island Road (6.02 miles), Brannan Island Road (3.88 miles), Twitchell Island Road (1.5 miles), Sherman Island Road (11.2 miles), Jackson Slough Road (1.5 miles), and a few roads providing entrance to the Delta including the Hood-Franklin Road (3.83 miles) and Thornton Road (1.26 miles).²⁸⁴

Concrete paving commenced in 1915 from Stockton to Holt, now part of Highway 4. By then, the “Horseless Age” had commenced and Americans had a fascination if not a love affair with the automobile. In 1910, despite its small population of less than 30,000, “exclusive of Japanese and Chinese,” Stockton car dealers offered Hudson, Chalmers-Detroit, Hupmobile, Thomas Flyer, Lozier, and Rambler-- in addition to the giant--Ford.²⁸⁵ In its September issue of 1916, *Sunset Magazine*, produced since 1898 as a promotional by the

²⁸² “River Roads,” from the Sacramento City/County Board of Supervisors Minutes, 1853-1861, in *SRDHS Newsletter* 11(2) December 1991, 5.

²⁸³ *Ibid.*

²⁸⁴ “Map Showing Roads Proposed for Permanent Improvement by Sacramento County Highway Commission,” 1914. Archives, Center for Sacramento History, City of Sacramento.

²⁸⁵ *Stockton City and San Joaquin County Directory, 1910* (Sacramento, CA: Polk-Husted Directory Co., 1910).

Southern Pacific, published an article titled “What is Home without a Garage?” In it the author argued that “second only in importance to the house itself nowadays is the garage.”²⁸⁶ Two years later, *Sunset* provided its readers a map of car ownership in the United States with California fifth in the nation in number of automobiles at 301,197 or one to every ten residents.²⁸⁷ By 1928, in Stockton alone, one could buy a new or used Buick, Cadillac, Chevrolet, Chandler, Chrysler, Dodge, Franklin, Hudson-Essex, Hupmobile, La Salle, Nash, Oldsmobile, Pontiac, Star, Steed-Nash, Whippet, Willys-Knight and Lincoln—in addition to Ford. And if in need of a rental, Hertz “Driveyourself System” was available on East Market Street.²⁸⁸

Of greater importance for Delta history would be the number of trucks, which is not given, but the aggregate number of trucks in the United States in 1917 was approximately 325,000. In 1930, 900,000 trucks were reported by the U. S. Department of Agriculture among 30,529,000 American farmers; by 1950 over two million trucks among twenty-three million farmers, whose numbers had declined while the number of vehicles on their properties had escalated.²⁸⁹ After 1910, the Ford “Model T” and its competitors, especially versions of flatbed trucks, gave Delta farmers a new technology to move goods more efficiently and quickly. By the 1920s, the Delta teemed with trucks. Trucking on the Delta, as in most rural areas of America, “grew like a field of weeds,” writes Stephen B. Goddard. Among his reasons: “entry into the industry took little money or skill, the heavy hand of government had not yet set up standards to keep people out, trucking offered an inherent flexibility of movement railroads could not match, railways had more business than they could handle, Americans were enjoying a technology-driven consumer revolution, and the profile of American cities was changing.”²⁹⁰

In time trucks and rails would compete, but during the two decades of 1910 to 1930, some of the truckers’ best customers were the rail lines themselves. Trucks could take fresh produce directly from the farm to the

²⁸⁶ Albert Marples, “What is Home Without a Garage?” *Sunset Magazine*, September, 1916, in *The Early Sunset Magazine, 1898-1928*, ed. Paul C. Johnson (San Francisco: California Historical Society, 1973), 161-63, at 161.

²⁸⁷ Map, *Sunset Magazine*, March, 1918 issue, as printed in *The Early Sunset Magazine*, ed. Johnson, 163. States in rank order: New York (408,512), Ohio (346,915), Illinois (340,291), and Pennsylvania (325,153).

²⁸⁸ *Humphreys & Matthews Directory of San Joaquin County, 1928-1929* (Stockton, CA: Rosensteel-Pulich Co. Printing, 1929), “Automobiles.”

²⁸⁹ Table 8.2, “Motor Vehicles on Farms in the United States, 1930-1965,” in John B. Rae, *The Road and the Car in American Life* (Cambridge, MA: MIT Press, 1971), 160; based on U. S. Department of Commerce, *Statistical Abstract of the United States*, 89th ed. (Washington, DC: Government Printing Office, 1968), 594; and U. S. Department of Agriculture, *Changes in Farm Production and Efficiency* (Washington, DC: Government Printing Office, 1969), 11.

²⁹⁰ Stephen B. Goddard, *Getting There: The Epic Struggle between Road and Rail in the American Century* (New York: Basic Books, 1994), 86.

railhead or to the cannery, not clogging up loading docks, steamboat landings, warehouses, or rail yards. Independent trucking companies, often attached to filling stations or mechanical garages, were eager to oblige railroads requiring short hauling of freight. As trucks became more mechanically reliable, independents also looked at the long haul as a way to make a better living, defying the conventional wisdom that trucks existed to serve railroads.

Local city directories and fire maps show numerous trucking operations in Stockton, Sacramento, Antioch, and Rio Vista as well as in the smaller towns of the Delta.²⁹¹ Ryde Garage and Machine Shop owned Studebakers while other firms had Internationals and Kleibers.²⁹² Some farmers ordered Graham trucks from Detroit; others flatbeds and cargo trucks from Transport Truck Company of Bay City, Michigan.²⁹³ Auto Car Company made trucks in far-off Pennsylvania. One now at San Joaquin Historical Society Museum was once owned by Henry Finnigan and used in both San Joaquin and Sacramento counties,²⁹⁴ but the most common carrier was the Ford. A 1923 Ford flatbed now at the Rio Vista Museum, once hauled milk and ducks to market. A 1924 model at San Joaquin Historical Society, recently restored, probably served similar rural tasks.²⁹⁵ Open- and closed-bed vans also carried goods on the Delta as is clear in photographs that survive in the region's museums and historical societies. But it was the individual farmer, shopkeeper, and delivery agent that kept America's assembly lines churning out trucks. After discontinuing production of the Model T and Model TT in 1927 (15 million vehicles later!), Ford opened the largest automobile assembly plant on the West Coast at Richmond in 1930 which later produced Jeeps, tanks, and half-tracks

²⁹¹ Stockton City Directories, 1919-1932, have long lists of automobile repair, servicing, and parts companies, as well as some trucking operations, which increase in number during the decade. Holt-Atherton Special Collections, University of the Pacific Library.

²⁹² Kathleen Graham Hutchinson, "Ryde, Part II," *SRDHS Newsletter* 21(2) December 2001:3. Kleiber trucks as well as Studebakers were used in the Clarksburg area by the Krull Brothers Ranch to load sugar beets. Friends of the Clarksburg Library Digital Photograph Collection, Yolo County Archives, Woodland, photos 1104, 1006.

Paul Kleiber began making trucks in Los Angeles in 1913. By the 1920s five models of the standad Kleiber Motor Truck were available from one-ton chassis to five-ton chassis. His cabs were enclosed but had no doors. He continued to manufacture trucks until 1937, a victim of the Depression.

<http://www.american-automobiles.com/Kleiber.html> Retrieved 2 Feb., 2015. Also see Albert Mroz, *The Illustrated Encyclopedia of American Trucks and Commercial Vehicles* (Iola, WI: Krause Publications, 1996), 233-34.

²⁹³ SJCHS in Micke Grove has a 1920 Transport Truck Company 1 ½ ton model once owned by J. E. Handel to load lug boxes in the vineyard. The museum also has a Graham of Detroit truck, date unknown.

²⁹⁴ The Auto Car Company started in 1897 in Ardmore, Pennsylvania. SJCHS has a 1922 three-ton dump truck that uses gears, not hydraulics to raise and lower the bed. The company was absorbed by Volvo-White Corporation.

²⁹⁵ 1923 Model T Ford Flatbed Pickup owned by Doug and Manuel Machado, purchased from a Chinese man in Isleton around 1930. On exhibit, Rio Vista Museum. The 1924 Model T at SJHS in Micke Grove has a "shop manufactured" cab and wooden bed.

for the Pacific Theater during World War II.²⁹⁶ Much of Ford's competition came from General Motors from 1919 on. The *Stockton City and County Directory* for that year has a prominent advertisement by E. E. Tremain at 634 E. Market Street for "GMC Gas Motor Trucks." The 1935 directory includes a Mack International Motor Corporation dealer, one of the first in the area. Since 1918, Mack trucks had established a reputation as durable and capable of heavy loads, sporting the famous "bulldog" as a hood ornament.²⁹⁷

In 1921, Congress saw wisdom in funding a national program to link all county seats in the country with smooth surface roads. Engineers determined that around seven percent of all roads in the country qualified for subsidies, some 200,000 miles of highway. Eventually many of these "state" roads would be incorporated into the Interstate Highway System.²⁹⁸ Through this program and others, transportation had become important enough on the Delta to warrant paving of its principal roads. The most important is State Highway 160, or the "River Road" from Freeport to Antioch, where it joins State Highway 4, crossing and re-crossing the Sacramento River just south of Courtland at the Paintersville Bridge and again at the Isleton Bridge. Highway 160 began as patchwork sections of Delta roads. In 1922 the Victory Highway Association selected the "Netherlands Route" through what was being promoted locally as the Netherlands of America. It was shorter than the Lincoln Highway route to San Francisco from Sacramento via Stockton and Livermore, passing through the Delta in forty-two miles from Sacramento to Antioch. The *Byron Times*, a promotional organ published biannually by H. T. Hammond, endorsed the project noting in 1923 that the project would "uncork the Sacramento River Delta and connect with Contra Costa, bringing through these sections a greatly increased travel and result in subdivisions of many island tracts in Contra Costa and Sacramento counties."²⁹⁹

By 1927, a motorist could drive on solid concrete pavement from the Capital to the Bay along this route, using bridges and no ferries.³⁰⁰ If not inclined to drive, one could also take a comfortable limousine, that is, a lengthened chassis vehicle with multiple side doors, from the Delta. In that

²⁹⁶ "Ford Motor Company Assembly Plant" and "World War II in the San Francisco Bay Area," websites of the National Park Service. Retrieved 7 January 2015. Also Clymer, *Treasury of Early American Automobiles*, 100 (15 million Model Ts).

²⁹⁷ *Husted Directory Company's Stockton City and San Joaquin County Directory*, 1919 (n.p.: Polk-Husted Directory Co., 1919); *Polk's Stockton City Directory, 1935* (San Francisco, CA: R. L. Polk & Co., 1935).

²⁹⁸ U. S. Department of Transportation, *America's Highways, 1776-1976* (Washington, DC: Federal Highway Administration, Department of Transportation, 1976), 108.

²⁹⁹ H. T. Hammond, "Proposed \$700,000 Highway," *Byron Times Eighth Booster Edition* (1922-1923), 77-78. Courtesy of the Haggin Museum of Stockton.

³⁰⁰ Charles A. Bohakel, *The Historic Delta Country: A Guidebook to State Highway 160, the Bayou of the West* (Antioch, CA: Charles A. Bohakel, 1979).

same year, the Rio Vista Transit Company ran a multi-passenger bus service in handsome vehicles designed and built by Bowman's of Sacramento. One route left Isleton several times a day, starting at 7:00 A.M., stopping at Rio Vista, Rio Vista Junction, Pittsburg, Bay Point, Oakland, and arriving in San Francisco at 10:30 that same morning. Its counterpart started out from San Francisco at 7:40 A.M., arriving in Isleton at 10:35 A.M. A mid-day and an evening run were also available. The second route to Sacramento left five times a day from Rio Vista, stopping only once at Rio Vista Junction (for passengers and possibly freight), taking around an hour and a half to get to Sacramento. Passengers could buy a daily round-trip ticket, a four-day open ticket, or a special weekend rate transit.³⁰¹ Rio Vista Transit was not unique. A number of companies provided bus and freight service on wheels in the 1920s. River Auto Stage of Sacramento boasted its "comfortable motor stages, careful drivers, courteous service and regular schedule every day in the year."³⁰² California Transit Company of Stockton guaranteed "dependable service and hourly departures" along the "San Joaquin Valley and Inland Routes."³⁰³ Pacific Greyhound Lines competed on major roads beginning in the 1920s, but had only one line from Vallejo to Stockton through the Delta and another from San Francisco through Tracy to Manteca. Still, during the Depression the company claimed "Greyhound fares are tuned to modern reduced incomes . . . you'll arrive at your destination with dollars to spare."³⁰⁴

Crossing the Delta from east to west, State Highway 12 from Lodi to Fairfield intersects Highway 160 just east of Rio Vista, making it the most important east-west artery on the lower Delta as it cuts across the Terminous Tract, as well as Bouldin, Andrus, and Brannan Islands. Funded by the Bond Act of 1919 and completed in 1921, after the intersection with California 160/River Road, westbound California 12 leaves Brannan Island and crosses the Sacramento River on the Rio Vista Bridge. The bridge is a lift bridge that allows large boats and ships to pass underneath it.

Rail and riverboat freight traffic began diminishing with the growth of trucking and better roads. Truck capacity increased from one-to-two tons at most early in the century to around fifteen tons by the 1930s. A 1932 map of the "Bay Region & Delta Lands" shows how far road-building had progressed

³⁰¹ Rio Vista Transit Company Time Schedule No. 8, Effective May 15, 1927, Rio Vista Museum. Both the schedule and the photo of the Bowman limousine are framed and on display in the museum.

³⁰² Advertisement, "River Auto Stage," *Byron (California) Times Ninth Special Booster Edition* (1924-1925), ed. H. T. Hammond. Courtesy of the Haggin Museum of Stockton.

³⁰³ Advertisement, "Travel by Motor Coach, California Transit Company," *Byron (California) Times Ninth Special Booster Edition* (1924-1925), ed. H. T. Hammond. Courtesy of the Haggin Museum of Stockton.

³⁰⁴ Pacific Greyhound Lines advertisement, "This Year Go By Bus," *Byron Times Fifteenth Development Edition* (1934-1935), ed. Harry Hammond. Courtesy of the Haggin Museum of Stockton.

since 1915, with nearly every modern road completed, save the interstates.³⁰⁵ The tipping point came in the 1950s with the widespread use of refrigerated tractor-trailers, many capable of hauling twenty-to-thirty tons, which continues to this day and was a factor in the relocation of canneries to the Central Valley and the San Jose area.³⁰⁶

Mechanization in Agriculture

A number of firms in Sacramento and Stockton manufactured mining equipment from 1850 on. By the mid-1870s, these same companies transitioned to agricultural machines. In 1878, ten firms are listed in the Statistical County Directory for San Joaquin County, all of them in Stockton. These included two windmill factories, five farming device factories, including the Stockton Iron Works that manufactured “steam engines, agricultural implements and architectural designs, machinery in general, and forgings.” Another, the Grangers’ Union of San Joaquin Valley, established in 1874 and located at 280 Main Street, offered a full line of “agricultural implements, wagons, hardware, iron, steel, blacksmith’s tools, belting, rope, paints, oils, etc.” The company’s ad included “Wheeler and Champion Combined Reapers and Mowers, Osburne Self Binding Harvester, Pitts’ Buffalo Separator, Ames and Enright Straw burning Engines,” as well as “Sulky Rakes, Tipping rakes, Scythes, Sneaths [handles], Forks, Hoes, Scoops, Shovels, Etc.: . . . “Everything in fact, and a little more, can be found in the establishment that is usually kept in a first-class hardware store.” Matteson & Williamson patented and manufactured the iron gang plow known as “American Chief,” as well a “new improved header, Stockton Chief.” H. C. Shaw sold the “Stockton Gang Plow,” as well as spring wagons and buggies. Three carriage and wagon companies are also listed in the 1878 directory.³⁰⁷

Machines that work well on dry to damp soils do not work well on the Delta. Early efforts to add super-wide wheels and rollers on agricultural equipment experienced mixed success. Not until tracked vehicles were developed was this problem overcome. As has been noted, in 1883, brothers Benjamin and Charles Holt opened the Stockton Wheel Company, manufacturing harvesters and other devices for farmers. The company incorporated as Holt Manufacturing Company in 1892, developed the tracked

³⁰⁵ “Map of the Bay Region & Delta Lands of the Sacramento & San Joaquin Rivers in Contra Costa, Sacramento, San Joaquin, Solano and Adjoining Counties, California,” (Stockton, CA: Chas. H. Widdows, Civ. Eng., 1932). Holt Atherton Special Collections, University of the Pacific.

³⁰⁶ Trevor Williams, *A History of Invention: From Stone Axes to Silicon Chips*, Rev. ed. updated by William E. Schaaf, Jr., with Arianne E. Burnette (New York: Checkmark and Facts on File, 2000), 250.

³⁰⁷ *Statistical County Directory of San Joaquin County* (Stockton, CA: D H. Berdine, 1878), 11-18, 242 [brackets ours on Sneaths as handles].

tractor in 1904, patented machines under the name Caterpillar in 1910, and then merged with Best of San Leandro before moving manufacturing operations to Peoria, Illinois in 1925, retaining dealerships as Holt of California.³⁰⁸

Despite advances in steam, gasoline and eventually diesel technology, well into the twentieth century much harvesting on the Delta was done by hand with migrant labor, most of it non-Anglo, and physically demanding. The Delta's special requirements included not only tracked vehicles but devices specific to crops. Samson Iron Works of Stockton produced the Samson Sieve-Grip Tractor in 1915 at a cost of "only \$575."³⁰⁹ It and other machines were adapted for Delta soils to avoid getting stuck in the muck, literally. All too frequently, tracked vehicles spent much of their time pulling out or towing other equipment mired in mud as shown in historic photographs.³¹⁰

In addition to Holt-Best, advances in machinery for Delta construction projects and farms came from the firm of R. G. LeTourneau. A motorcycle mechanic, in 1911, LeTourneau opened the Superior Garage in Stockton, one of the town's first full-service automobile dealers and repair shops. It did well until he left for service in World War I, returning to a failed business. Taking a job at Holt, LeTourneau repaired Holt crawler-tractors, adding a Fresno-type scraper. He eventually opened his own business specializing in regrading. His engineering skills led to many technologies in earthmoving that are still used today: use of large low pressure rubber tires, the double-wheel tractor unit, which he patented as the "Tournapull," electric wheel drive, cable drives for lowering and raising devices (prior to hydraulic drives), and many others. Letourneau never really competed with Caterpillar until the mid-1940s. He let Caterpillar build machines to which his devices could be attached or pulled. The applications were so successful that during World War II, LeTourneau's factories across the United States supplied seventy percent of the heavy earthmoving equipment used by the Allied forces in the war.³¹¹

³⁰⁸ <http://www.holtca.com/company/company-history> Retrieved 7 January, 2015. The Rio Vista Museum has a Best Caterpillar 30 that predates the merger in 1925. Also see Walter Payne, ed., *Benjamin Holt: The Story of the Caterpillar Tractor* (Stockton: University of the Pacific, 1982). The Haggin Museum of Stockton has a permanent Holt exhibit with one of his earliest tracked harvesters, his metal shop, and other family records. The San Joaquin County Historical Society has the largest collection of historical agricultural implements in San Joaquin County.

³⁰⁹ *Stockton Iron Works, Engineers, Founders, Machinists: Manufacturers of Dredging Machinery*, Catalog No. 13 A (Stockton, CA: Atwood Printing Co., n.d.).

³¹⁰ "Merwin and Yelland Ranch. A tractor towing a mired sugar beet truck," n.d. (ca. 1930). Friends of the Clarksburg Library Digital Photograph Collection, Yolo County Archives, Woodland. Photo 1176.

³¹¹ R. G. LeTourneau, *Mover of Men and Mountains* (New York: Prentice-Hall, 1960). This autobiography is self-promoting but is validated by at least one author. See Thompson, "Settlement Geography," 445; also Eric C. Orlemann, *R. G. LeTourneau Heavy Equipment: The Mechanical Drive Era, 1921-1953* (n.p.: Enthusiast Books, 2014). SJCHS has a number of LeTourneau machines on exhibit, interpreted by Director David Stuart.

Other advances in technology include many tractors imported from other states. These include products from John Deere and others such as the Farmall wheeled tractor, introduced in 1924 by International Harvester. With its short wheel base, the Farmall could make sharper turns than any previous device. With small front wheels and an offset engine and steering, the Farmall was perfect for Delta vegetable growers, nurseries, and landscapers. It competed favorably with Deere's L and LA models from 1947 to 1964.³¹² Other devices specific to the Delta include sugar beet harvesters such as the one in the Rio Vista Museum and machines for wheat, asparagus, grape, and almond farming which can be seen at the San Joaquin Historical Society's agricultural barns.

Boat builders, ports, and waterborne transportation, 1900-1950

Unlike land transportation, technology on the Delta's waterways did not change much as California entered the twentieth century. Steam-powered vessels continued to ply the Sacramento and San Joaquin Rivers often towing barges. But with the development of the internal combustion engine, recreational boating became more popular and as incomes grew people had more leisure time to spend on the water. Concurrently, relatively inexpensive outboard motors became available for small watercraft. Ole Evinrude of Milwaukee patented his three-horsepower outboard in 1909, manufacturing thousands between 1909 and 1912. ELTO (Evinrude Light Twin Outboard) was a second Evinrude enterprise beginning in 1920, eclipsing the earlier company in profit by 1928. Meanwhile Johnson Outboard Motors, founded in 1922 in Terre Haute, Indiana surpassed all in sales by the decade's end. On the eve of the Great Depression OMC (Outboard Motor Corporation) was created by the merger of Evinrude (by then owned by Briggs & Stratton), ELTO, and Lockwood Motor Company in 1929.³¹³

Fishing, game bird hunting and speed boating, as well as family outings on house boats became popular in the 1920s as motors replaced oars and sails. In Stockton, Theodore (Thode) and Robert (Roy) Stephens began boatbuilding in their backyard in 1902. Their twenty-five foot motor launch, the *Gee Whiz* was their first commission, completed in 1903. For the next two decades the Stephens Brothers made one-of-a-kind motor launches, tugs, and freighters, as well as pleasure craft and mahogany rowboats prior to 1925. In that year they entered the recreational speed boat industry, taking advantage

³¹² Lee Klancher, *Farmall: The Golden Age, 1924-1954* (St. Paul, MN: MBI Publishing Company, 2002). SJCHS has a 1948 International Harvester Farmall F Cub made in Louisville, Kentucky once owned by Calvin O. Krienke of Lodi. On exhibit. Label by Julie Blood, Curator.

³¹³ Bob Whittier, "The History of Outboards," *Yachting Magazine* (1957).

of Stockton's Samson Iron Works, which manufactured marine gasoline engines. A staple of their production was the "Spud Boat," which sped merchants and brokers who would depart Stockton with price quotes for the various agricultural products of the Delta—often potatoes—and race out to the growers to secure the commodities at the most advantageous price. An example of a Spud Boat "Runabout" is on display at Stockton's Haggin Museum.³¹⁴ Fuel for gasoline-powered vessels came from competing sources: Shell Oil had a tank farm on the Yolo side of the Sacramento and Standard Oil had its own facility on the Sacramento side. The Standard Oil refinery at Richmond (now Chevron) dates to 1902. Shell's Martinez refinery followed in 1915.

As popular as gasoline and later diesel engines were for smaller craft, such engines did not replace the larger steam-powered vessels until later. The Southern Pacific Company owned river boats as well as the better-known railroad line. The *Apache* and *Modoc*, both built in 1880, served the company forty-eight years until both were abandoned in 1928. Passengers and freight were carried on these vessels, manned by crews of ten or more. Other SP boats, all named for American Indian tribes, went into service in the early twentieth century--the *Navajo* in 1909, the *Seminole* in 1911, and the *Iroquois* in 1927. Southern Pacific got out of the river boat business in 1930, selling its last Bay-Delta vessel, the *Navajo*, to the California Transportation Company (CTC).³¹⁵

Life aboard these passenger boats could be spartan or luxurious. Two stern wheel steamboats, *Delta King* and *Delta Queen*, built in 1926 by the CTC, survive today and are interesting case studies. Sister ships, their hulls were manufactured in Scotland and the ships completed in Stockton as a "last-gasp effort to stem the tide of increasing automobile use," notes Paul Trimble.³¹⁶ Costing around one million dollars each, they featured fine dining, staterooms, a saloon deck (after the end of Prohibition), and a "social hall." Options included sleeping on deck for \$1.80 one-way or \$3.00 round trip. Staterooms ranged from an additional \$1 to \$5. The menu featured a five-course dinner for \$.75. A few automobiles could be transported at a reasonable cost, making this option very popular, especially during the summer and on weekends.

They left Sacramento and San Francisco daily at 6:30 P.M., passing each other just below Rio Vista in the night on an overnight run. Despite these amenities and low fares, CTC declared bankruptcy in 1935. The ships were

³¹⁴ Barry Ward, "The adaptable Stephens Bros.: A Legacy of Fine Wooden Boats," *WoodenBoat* 175 (Nov/Dec. 2003):28-37; also Nicki Cederquist, Flannery LaGrave, James Lyons, Melanie Vieira and Judd Wendland, "Stockton Ships and Ship Builders," research paper, History of California Class, University of the Pacific, Fall, 2014. Paper on file, Department of History.

³¹⁵ Trimble, *Riverboats of Northern California*, 26-30.

³¹⁶ Trimble, *Riverboats of Northern California*, 45.

idled and dry docked, and in the years following were in intermittent service until 1941. They were given new life during World War II, as U.S. Navy vessels. Both *Deltas* served as emergency hospital transports, barracks, and later as military transport vessels in the Bay-area. Following World War II, the *Delta Queen* was purchased by Greene Line Steamers and moved to the Mississippi River where she operated until 2008, refurbished with the engines from the *Delta King*. The latter sat idle until 1998 when it was renovated as a permanently moored hotel on the river in Sacramento. The last paddle-wheel steamer in California carrying freight, the *Petaluma*, made her last voyage from Petaluma to San Francisco in 1950.³¹⁷

Because of their luxury and their survival, the twin *Deltas* are the best known. For example, John G. North's shipyards in San Francisco, perhaps the most famous, produced many steam vessels operating on the Bay-Delta. *Capital City* measured 220 feet and was completed in 1910 for the San Francisco-Sacramento run. In 1927 her route was changed: San Francisco to Stockton, and she was renamed the *Port of Stockton* in 1932. Another North Shipyards vessel, *Fort Sutter*, joined *Capital City* in 1912. Near-sister ships, they both had hot running water in their staterooms. Like the *Deltas*, these two boats remained in service until requisitioned during World War II.³¹⁸

These were the lucky large boats. Even at the outset of the Great Depression, steamboats were on the decline. Many lined harbors and wharves, idled by labor unrest and increasing use of trucks and automobiles and the increasing use of internal combustion engines on larger boats. A devastating fire across the Sacramento wharf at Broderick in Yolo County on August 28, 1932 destroyed thirteen steamboats and barges. They were not repaired or replaced, nor were they missed, signaling an end to an era.³¹⁹

During this same period, Stockton's waterfront was also undergoing substantial changes. Shortly after World War I, city officials sought support for a deep water port. Congress passed the Rivers and Harbors Bill in January, 1927, providing funds for deepening and straightening the channel suitable for ocean-going ships. The first arrived in February, 1933. The *Byron Times* published the header, "Stockton Acclaimed as a New World Port," predicting a "new era of commercial, industrial, and business expansion."³²⁰ Almost immediately it was apparent that the channel was not deep enough. Some

³¹⁷ Stan Garvey, *King and Queen of the River: The Legendary Paddle-Steamboats, Delta King and Delta Queen, from Roaring Twenties and New Millennium* (Menlo Park: River Heritage Press, 1995, 2004), Ch. 1.

³¹⁸ Trimble, *Riverboats of Northern California*, 32-33.

³¹⁹ West Sacramento Historical Society, *Port of Sacramento*, 28.

³²⁰ "Stockton Acclaimed as a New World Port," *Byron Times Fourteenth Development Edition* (1932-1933), ed. Harry Hammond. Courtesy of the Haggin Museum of Stockton.

progress was made through a 1937 additional appropriation. As the United States entered World War II, Stockton's boat builders helped the local economy and the war effort, constructing a total of 125 warships. These included Coast Guard picket boats, tugs, rescue-and-salvage craft, wooden minesweepers and PT boats. In addition to Stephens Brothers, Pollock-Stockton Company, Colberg Company and Guntert & Zimmerman contributed to the aggregate. Pollock-Stockton alone employed 5,000 employees, one-half of the 10,000 workers in Stockton shipyards during the war years. Following the war, in 1950 with passage of the Rivers and Harbors Act, the necessary improvements were made to continue deepening and straightening the channel. Still the eighty-six mile transit between Stockton and San Francisco required seven-to-ten hours and could be an arduous journey, especially in tule fog.³²¹

By 1953 the new port facilities employed more than 1,000 employees with a five million dollar payroll and a new 257-acre industrial park. By 1956, six major industries purchased sites in Stockton: California Packing Corporation, Deere and Company, Johns Manville, Diamond Walnuts, Nik-L-Silver Battery, and Larro-Sperry Feed Mills. Other companies were added in the 1960s.³²²

In 1949, work began building Sacramento's deep water port. Grain and rice elevators, warehouses, and a rail line preceded the funding for the deep water channel. Beginning in 1956, a straight channel was dug from just north of Rio Vista to West Sacramento where a turning basin was also constructed. The port was dedicated on July 19, 1963.³²³

Trade, Recreation, and Transportation on the Delta after 1950

Deeping the two inland ports offered the opportunity for the two cities to trade worldwide. At the same time, the ease and speed of overland transportation undermined traditional river transportation. The Eisenhower Administration funded both deep water ports and interstate highways. Interstate-80 was not completed in California until the mid-1960s and Interstate-5 not until the 1970s. However, by the 1960s, in the Delta, highways became the mode of choice for moving people and goods. This spelled the demise of commercial boating on the Delta. Railroads also suffered the loss of shipping fresh produce with the proliferation of large refrigerated tractor-trailers. Canneries and sugar beet mills practically disappeared leaving only some structures still in evidence. Warehouses, wharfs, and pilings became obsolete but some are still visible.

³²¹ Hardeman, *Harbor of the Heartland*, Ch. 6, 7, 8; 197 (number of ships and workers during World War II).

³²² Hardeman, *Harbor of the Heartland*, 198.

³²³ West Sacramento Historical Society, *Port of Sacramento*, 46-49, 91 (dedication, 1963).

The elaborate transportation network that had been built on the Delta served a new clientele by the 1960s as tourists and outdoorsmen discovered the Delta's unique recreational opportunities. These changes brought to the Delta a new source of income supporting bait-and-tackle stores, marinas, cafes, museums and historical societies. Stockton's Chamber of Commerce advertised "1,000 Miles of Navigable Fresh Waterways of the San Joaquin Delta," comparing the Delta to Florida's Everglades and the waterways of the Canadian province of Ontario.³²⁴

Heritage orchards, wineries, and quaint downtown shops, along with historic districts, remain as attractions to this day. Efforts by the California Department of Fish and Wildlife to restore fisheries has been only partially successful, but efforts have been made by federal Environmental Protection Agency listings and its California equivalent to identify several species as threatened or endangered, thus limiting or eliminating sports fishing. The table below reflects that effort:³²⁵

Status of Fish Species in the Sacramento–San Joaquin Delta Watersheds

| <i>Species</i> | <i>Year</i> | <i>Status</i> |
|--|-------------|---------------------------------------|
| Sacramento River winter-run Chinook salmon | 1989 | Endangered (CESA) Threatened (ESA) |
| Delta smelt | 1993 | Threatened (ESA and CESA) |
| Sacramento River winter-run Chinook | 1994 | Reclassified as endangered (ESA) |
| ^a Sacramento splittail | 1995 | Species of concern (CESA) |
| Longfin smelt | 1995 | Species of concern (CESA) |
| Sacramento perch | 1995 | Species of concern (CESA) |
| River lamprey | 1995 | Species of concern (CESA) |
| Central Valley steelhead trout | 1998 | Threatened (ESA) |
| Central Valley spring-run Chinook | 1999 | Threatened (ESA) |
| Sacramento River drainage spring-run Chinook salmon | 1999 | Threatened (CESA) |
| Central Valley fall-run and late-fall-run Chinook salmon | 2004 | Species of concern (ESA) |
| Southern green sturgeon | 2006 | Threatened (ESA) |

SOURCE: Department of Fish and Game (2006a), available at www.dfg.ca.gov/hcpb/species/t_e_spp/tefish/tefisha.shtml.

³²⁴ Stockton Chamber of Commerce, "1,000 Miles of Navigable Fresh Waterways of the San Joaquin Delta," pamphlet, n.d., Holt-Atherton Special Collections.

³²⁵ Envisioning the Sacramento-San Joaquin Delta, p. 39. Retrieved 25 January, 2014. http://www.ppic.org/content/pubs/report/R_207JLChapter2R.pdf

NOTES: ESA and CESA refer to the federal and California Endangered Species Acts, respectively.

^a The Sacramento splittail was listed as threatened under the ESA in 1999 but was removed from the list in 2003.

Even with these restrictions and decline in water quality, the Delta provides a fishing outlet for many anglers. Introduction of species not indigenous to California such as the striped bass have given much challenge and pleasure to anglers since 1879 when a barrel of that fish traveled by rail from New Jersey, to be dumped into waters near Martinez. They have thrived ever since. In addition to striped bass, today's sportsmen target salmon, largemouth bass, smallmouth bass, crappie, bluegill, shad, catfish, crawdads, and sturgeon. An annual October Bass Derby and Water Carnival has been held in Rio Vista since 1933 with a ceremonial gift of a striped bass presented to California's governor. Bay Point hosts a parallel Sturgeon Derby mid-winter while the Great Isleton Crawdad Fest is held in June followed by a Seafood Festival on the Pittsburg waterfront in September. For many years Walnut Grove hosted a Catfish Jubilee in August. The Delta also accommodates bird enthusiasts, both hunters and watchers.³²⁶

Perhaps of greater importance for leisure time activities are the many marinas that date back to the 1930s. Josephine and Albine Korth started Pirates' Lair Marina on Andrus Island in 1938. The Perry family began operations at Port Chicago in 1927, moving to Rio Vista in 1939 to open Perry's Boat Harbor on Andrus Island. Farrar Park on Bethel Island dates back to the 1930s as well, providing swimming as well as a marina. Frank's Fishing Resort on the same island featured rental of fishing boats as well as a large party boat.³²⁷ One look at Franko's "California Delta Adventure Guide" shows locations of over 100 "Delta Area Marinas, Resorts, Boat Launches & Fishing Piers," stretching from Vallejo and Martinez on the Bay to West Sacramento to the north and Tracy to the south. Forty yacht clubs are chartered and three houseboat rental companies listed.³²⁸ And since 1936, the sport of water skiing has been popular on the Delta's waters, introduced by Stockton snow skiers Ni Orsi, Sr., his sister Elsie, and friend Holly Thorns, who ordered skis from the East. According to Carol Jensen, "They were probably the first water – skiers in California." Especially after World War II, as household incomes rose and marine products became affordable to the middle class, houseboats, yachts, cruisers, speedboats, and open jet-powered personal watercraft for one or two riders have shared the Delta's waters with traditional sailing craft,

³²⁶ Dillon with Simmons, *Delta Country*, 112-13.

³²⁷ Jensen, *The California Delta*, 109.

³²⁸ "Franko's California Delta Adventure Guide: Complete Map and Guide of the San Joaquin and Sacramento Rivers for Boaters, Fishermen, and Everybody Who Love the California Delta" (n.d.; map in possession of the authors). Also www.frankomaps.com

dories, and rowing shells, as well as wind-surfers and foot-powered paddle-boats.³²⁹ In 1972, Delta boating enthusiast Bob Walters published *Cruising the California Delta*, a primer on the facilities then available. Former editor of *Pacific Motor Boat*, Walters promoted a “messing about in boats” philosophy that he argued perfectly fits the California Delta and the people who love the water, fishing, and the environment.³³⁰ By the end of the twentieth century, more than one hundred marinas and waterside resorts operated in the greater Delta Region.

Conclusion

By the mid-twentieth century, the Delta had undergone profound changes since entry by the first non-native persons less than two centuries before. Native peoples and their villages had practically disappeared. Native vegetation and water ways were radically altered. Native birds and animals had been drastically reduced. The area had become a rich farming landscape with high levees bordering the reduced number of waterways. The Delta’s development had begun in Gold Rush days, with reclamation in full swing only two decades later. First transportation was by boat, and shortly thereafter the steamboat was ubiquitous. Reclamation was first done by hand labor, largely Chinese, combined with horse-power, but as technology developed, especially steam driven machinery, substantial progress could be made in a very short length of time. Steam- and then electric-power allowed larger pumps to be used, and the process continued to snowball.

A parallel and interrelated change was true for crops grown. As the difficult process of clearing the tule commenced, crops that had included some grain growing and cattle raising began to give way to vegetable and orchard production, dependent on hand labor supplied principally by foreign groups. Roads became of concern to get this produce to the slough and river landings, which could be found all over the Delta. And the need to cross those waterways required ferries, and later moveable bridges to allow unobstructed boat traffic. The costs involved for production on the Delta meant that large capital sums were required, and therefore much of the acreage involved resulted in large landholdings, and fewer small-holdings. By the last quarter of the nineteenth century pears became an important fruit crop, often farmed by small-holders; with the advent of the refrigerated rail car, pears and other crops could be shipped east with little spoilage. At the same time, safe and inexpensive canning of fruits and vegetables was developed, and canneries began to be built in many places in the Delta. By the end of the nineteenth century large tractors and advanced agricultural machinery allowed substantial farming operations to be carried out, and new crops to be introduced. In the early twentieth century, along the east side of the Sacramento river, a railroad was

³²⁹ Jensen, *The California Delta*, 109.

³³⁰ Robert E. Walters, *Cruising the California Delta* (Reno, NV: Miller Freeman Publications, Inc., 1972), 190.

built to compete with the steamboats, and in 1929 a rail line was built on the west side as well. In the earlier twentieth century large scale crops included potatoes and a little later sugar beets. Although commercial fishing was mostly gone by the end of the nineteenth century, the waters of the Delta continued to provide sport fishermen with bounty. And the improvement of the internal combustion engine had not only supplanted the steam engine for commercial shipping, but provided the sport fisherman and recreational boater a dependable means of cruising the Delta.

But the internal combustion engine's largest effect felt in the Delta was the advent of the truck for transportation of crops. Trucking became increasingly important starting in the 1920's, and eventually supplanted both the steamboat and the railroad as the primary means of transport. With the advent of the refrigerated truck, after the 1950's fresh produce could be loaded in the fields and sent long distances. Delta canneries disappeared, paved highways were built, and new larger and stronger bridges constructed.

In the later twentieth century, many of the Delta's crops differed from earlier times. So also a different mode of transport was used, and the Delta presented a quite different appearance even from the later nineteenth century. It had developed an important and large recreational industry to add to its agricultural wealth. These two sources of income, of substantial importance to the wealth of California, assured the Delta of a prominent place in California's agriculture and tourism industries.

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