How the Sacramento-San Joaquin Delta was Settled

By Dr. John Thompson

The drainage from more than one-third of California arises in the basins of the Sacramento and San Joaquin rivers. The floodplains of these arterial streams merge about 50 miles northeast of San Francisco, and the rivers pass through a complex network of interconnecting channels before discharging into the easternmost of the chain of bays which breaches the Coast Ranges. The segment of the Central Valley where the rivers merge and enter Suisun Bay is the Sacramento-San Joaquin Delta. Roughly delimiting the region of tidal and river overflowed swamp are the cities of Sacramento, Stockton, Tracy, and Antioch. Over half of this region's 535,000 acres is at or below sea level; the remainder of the delta, where elevations do not exceed 10 feet, was subject to river overflow.

Before man started working in the Sacramento-San Joaquin Delta it had the surface features generally associated with deltas developed by low gradient rivers upon entering tidal water. There were meandering distributary channels, flanking banks or natural levees that diminished in breadth and height seaward, and island or mainland tracts of tidal marsh. The delta is unusual compared to others in that an exceptionally large volume of indigenous organic fill, peat, occupies its core. Most deltas are built up by the deposition of fine rock particles. Here the rock particles have shared delta building with plants.

The peat is a capping layer to the delta; it is 50-60 feet thick in the west central areas and thins out to the north, east, and south. This peat and the ample water supply of the delta are the basic resources. The peat makes exceptionally rich soil.

The Sacramento-San Joaquin Delta differs from most great deltas in that here the river channels converge toward a narrow outlet whereas other deltas and delta channels spread out toward the sea.

Exploration

In the late 18th century, when the Spanish were first exploring this part of the interior, the delta center and northwestern and southwestern margins were sparsely populated compared to the wooded valleys and plains that extended eastward toward the Sierra Nevada. The less populated areas, predominantly tule or grassland, offered less rich and varied food-procuring opportunities to the Indians. The islands and eastern
delta margin during the first two or three decades of the 19th century were a refuge area for Indians who chose to avoid or escape the alien European culture. Suggesting the refuge nature of the delta was the swelling of villages in the Sherman Island-Staten Island area to 1,000 or 1,200 residents. Prior to this unsettled period a large village would have housed 200 souls.

The military and clerical explorers gained a reasonably comprehensive idea of the delta’s extent and of the nature of its land and waterways by 1817. Exploration had been peaceful at first; but, after 1810, punitive forays were frequent. The pressures of border warfare and of displaced peoples produced a breakdown in tribal areas and society. Nevertheless, the Indians remained sufficiently strong to parry raids from the coast with their own forays against San Jose, Santa Clara, and Solano.

**Trappers**

At the time when the Indians were contesting with the Californians, the Rocky Mountain men and Hudson’s Bay company trappers entered the delta. Jedediah Smith and party arrived in 1827; and from 1828 to 1843 the Hudson’s Bay Company brigades trapped the fine peltries of the delta and San Francisco Bay. Customarily the brigades camped for a few days on the lower Mokelumne, lower Calaveras, at French Camp, and near the mouth of the Stanislaus. From these various camps canoe parties would ply the waterways. Trapping was difficult; tides interfered and the beavers were wary. Moreover, the parties had to contend with horse-stealing Indians, swarms of mosquitoes, and harassing by General Vallejo and Captain Sutter. Even Governor Alvarado increased the hazards of trapping by inducing one brigade to join a raid upon an Indian settlement. Later, when the Governor agreed to the licensing of the trappers and to the establishment of a trading post, it may be presumed that he appreciated the value of strong, cooperative, trapping parties in an interior peopled by inflamed Indians, would-be empire builders, and an unknown number of transient whites. The Hudson’s Bay Company, reluctant to have its brigades diverted from their primary job, instructed trappers to refrain from violence, to show sympathy for the government cause, but to avoid being identified with that cause. These were temporary matters for the Company operations in the delta ended in 1843 and the San Francisco post was closed two years later.

**Land Grants**

Although there was some interest in establishing missions in the interior, this type of stabilizing or buffer-forming institution never materialized. However, such a buffer institution was developed later through the granting of frontier land to private parties. The grants of the delta periphery, awarded between 1835 and 1844, included Los Meganos (1835), in the undulating plains northwest of Byron; Los Medanos (1839), near Antioch; the rancho El Pescadero and Paso del Pescadero (1843), at the southern end of the delta; Campo de los Franceses (1844), largely to the south of the Calaveras and east of the San Joaquin; Los Ulpinos (1844), west of the Sacramento and south of Cache Slough; and Sutter’s New Helvetia (1839).

Ranching was initiated by Californians of Spanish extraction on the grants southwest of the delta, but it was the naturalized Californians (Marsh, Weber, and Sutter) who ultimately made a success of these enterprises. While the summer grazing value of the
tules appears to have been appreciated, the land grant areas generally did not embrace tidal swamps.

Notably successful in maintaining friendly relations with the Californians and the interior Indians, were Sutter and Weber. These squires who lived beyond the tules and beyond effective reach of Mexican authority, were stabilizing factors as far as the Indian problem was concerned. While their behavior was largely apolitical, their motivations were not.

The delta vicinity grant holders believed in the growth potential of townsites situated at the outlet to the Central Valley and on firm ground near year-round heads of navigation. Colonies were developed in 1846 and 1847 at the present Pittsburg and near Collinsville (Montezuma); at Rio Vista (Brazoria), Stockton, and Sacramento. Only the Sacramento and Stockton experiments showed promise on the eve of the Gold Rush. At the time the delta remained essentially unoccupied except for a few Indians.

**Traffic Routes**

The main delta channels became arterial thoroughfares during the Gold Rush but the tules remained a barrier to land movement. The land routes to the mines from San Francisco skirted the delta, more or less establishing the lines followed by present highways from the Carquinez Straits to Sacramento (U.S. 40), from the Livermore Valley to Stockton (U.S. 50), and between Stockton and Sacramento. The trails crossed the Sacramento and San Joaquin flood plains where they were narrowest. To have crossed either river downstream would have involved more channels to get over.

**Settlement**

After the initial Gold Rush upheaval many men turned to working the soil rather than gravel. Numerous miners who entered the delta and adjacent bottomlands and became gardeners and wood choppers, first selected the tree-cloaked natural levees fronting on the Sacramento or lying athwart the trails. The natural levees were attractive because they afforded timber, friable soil, a year round supply of water, and easy access to the transient consumers. The location was good too for reaching Sacramento, the mines, and San Francisco. The tules, particularly to the northwest of Stockton and north of Rio Vista, were used for grazing and for resting stock driven in from the south. During summer the receding waters of the delta bared lush growth; at the time winter range on the valley floor was drying up. The tules were burned each fall or early winter in the belief that the grazing resource was improved thereby.

In 1850 the most active area of delta settlement followed the narrow lines of Sacramento River natural levees between Freeport and Grand Island; also, there were gardens near Rio Vista, along the lower Calaveras, at French Camp and the San Joaquin crossing, and northeast of Antioch. Two years later the delta margins at the Mokelumne, Calaveras, Stanislaus and San Joaquin rivers were entirely occupied. By 1857 the Sacramento River east bank settlers had established a continuous corridor of farms from Sacramento to opposite Rio Vista. The west bank was occupied from about Clarksburg to lower Grand Island. South of Rio Vista, where natural levees were modest in height and width, the gardens were small and thinly scattered. As far as has been learned, there was no significant amount of settlement in the San Joaquin part of the delta until
about 1869, when Chinese gardeners and whites had cleared a number of natural levee farms along the San Joaquin between Rough and Ready Island and the crossing. Potatoes, onions, and beans, and a variety of more perishable vegetables were raised.

Among the earliest settlers there were those who intended to claim pre-emption rights; others were merely taking up residence until such time as they could return to the gold country or to the old country. In an average of one out of two years in the 1850’s high water threatened or ruined garden crops and other improvements, so the advantage of placing a shanty on pilings or a cabin on an Indian mound was appreciated early. The houses and barns of the delta have become more elaborate since, but until recently they were almost always placed high enough to escape anticipated floods. Artificial and natural mounds, and piling-supported structures are common today.

Early Reclamation

Perhaps earlier, and certainly by 1852, the settlers were throwing up low levees to protect their lands. Such embankments, appropriately termed “shoestring levees,” were first common on Grand, Tyler, and Merrit islands, and near where the Mokelumne and Calaveras rivers enter the delta. Many settlers hesitated to invest in the costly improvements which leveeing represented because the California legislature and the executive branches of both the State and Federal governments were laggard in clarifying title to swamp and overflowed land. Besides, a good many people were convinced that floods could not be contained and that the delta’s future would have to lie in natural hay production.

The protection of the swamp and overflowed land with levees began as the independent enterprise of owner-operators, but gradually the farmers pooled their resources to develop uniform river-front levees. Between 1861 and 1866 the individual reclaimers formed districts which, with the technical assistance of a State Board of Reclamation Commissioners, attempted the orderly enclosure of individual islands and delta margin tracts. After 1866 the responsibility for reclamation was assumed by the various county boards of supervisors. Then began an era of strongly competitive, frequently irrational, independent levee building by reclamation districts. Owners leveed along property lines rather than cooperate in the leveeing of island units; some owners created independent districts within the larger districts in order to avoid assessments for the very levees which were their neighbor’s as well as their own protection.

The Land Boom

After 1868, when a 640 acre ownership limit requirement was repealed by the legislature, wealthy individuals and corporate speculators undertook extensive rejections. As much as 250,000 acres were held in the name of single individuals at one time. The serious droughts of the period enhanced the attractiveness of the swamp lands, and the increment in land value that followed reclamation made it a lucrative business. The land, bought for 50c to $5.00 per acre, was worth $25 per acre drained, and $40 to $60 per acre when broken. From the late 1860’s, then, land developers overshadowed individual settlers as the moving force in bringing land into cultivation; their operations generally took place in island back-swamps or on islands where the natural levees were small. Reclamation of such areas required labor, skills and equipment which
only the capitalists could underwrite. The projects were undertaken usually with the intention of leasing reclaimed land, although some developers participated in farming on a large scale and one or two sold property as family farms.

Reclamation Equipment

In choosing to reclaim the Delta the entrepreneurs unwittingly assumed a long-term task that was laborious, costly, and frequently disheartening. Many individuals were ruined by the delta. But the operators as a group invented or perfected successful steam powered mechanical devices for dredging, levee building, ditching, land clearing and draining.

The early levee building was done by manual effort and horsepower on the firm natural levee soils; in areas of peat, shovel and wheelbarrow gangs did the work. The artificial levees usually rose 3-17 feet above the surface of the natural levee; they were 3 or 4 to 20 feet wide at the crown; and the bases varied from 12 to 100 feet wide. Hand labor and horse-drawn scrapers and earth moving machines approached the limit of practicable utilization in the late 1870’s. They were supplanted by steam dredges and ditchers which for half the price moved twice the volume of fill onto a levee. The clamshell dredge became the most successful type of machinery used in reclamation. The various types of mechanical earth moving equipment ultimately made reclamation and large scale farming possible. Without the big equipment there would not be much to farm in the delta.

Delta Scenes

In the several decades after 1870 the average riverside scene along the Sacramento and in the south delta downstream to about latitude of Stockton included a thinly wooded, often cropped or grazed natural levee face. Surmounting the levee was an artificial embankment that served as roadbed and flood defense; behind it on mounds or piling, stood houses and barns. Pump houses showed up on the levees here and there, and fruit or vegetable sheds and brush landings or small wharves marked the homesteads. Squalid waterside “Chinatowns” were especially numerous along the Sacramento, there was the occasional village with commercial houses and wharf, and here and there were isolated school, church, or lodge buildings. From Rio Vista to Collinsville clusters of fishermen’s shacks might be seen among the tules.

Farm buildings varied from modest thatched sheds to striking frame mansions. The more elaborate homes were surrounded by cluttered gardens of subtropical and middle latitude flowers, shrubs, and trees. The Sacramento in particular offered an interesting trip for the riverboat passenger. Houses, shanty towns, fields, orchards, and pastures were easily seen from the steamboats.

Within the delta an almost continuous strip of fields and orchards lay along the natural levees of the Sacramento. Along the San Joaquin and Mokelumne, where natural levees were less well formed, settlement was more sparse. In all areas the riverside strips of row crops and orchards were gradually being broadened into the tules that occupied the island centers. The procedure for opening the virgin land was to dike, ditch, then drain the swamp; roll or burn off the vegetation, and plow or burn the dry tule sod. Once the four to ten inch bed of ashes cooled, a grain, usually wheat, was broadcast and brushed or harrowed in. Sometimes sheep were driven across the fields to
tramp in the grain. Remaining tule swamps commonly were cattle and swine feeding areas. As a matter of fact, on the less developed islands one could hunt or trap the feral swine. The captured young soon got used to man. Thus, in the last quarter of the 19th century an average island might be expected to have tule pasture in the lowest spot, large grain fields spreading over the recently reclaimed areas, and row crops—potatoes, onion, and beans—on the higher lands of the island periphery. There, too, were the orchards.

**Crops and Marketing**

Delta farmers, tenant and independent, had an advantageous situation for competing in the San Francisco produce trade. The soils were fertile and easy to work; irrigation, if needed, was low cost; transportation was cheap and fast; and the delta crops ripened early. As far as commercial orchard development was concerned, only the Sacramento River district really prospered. The orchard district, from Freeport to Isleton, specialized in deciduous fruits, with peaches apparently dominant and plums, apples, and pears in a lesser rôle. Although San Francisco was the first market, the opening of transcontinental rail service drew a good deal of fresh and dried fruit to Sacramento. At the time when the Eastern market was opening up, recurring floods and persistently high water tables were harming the stone fruit orchards. Fortunately for local orchard men, pear trees did well in spite of the water and the fruit was enthusiastically received in the East. The demand continues to the present; pears, chiefly Bartletts, dominate in the fruit trade of the Sacramento River district.

There tended to be a crop specialization among delta residents. Orchards were owner-operated for the most part, chiefly by the pioneer families that had secured the premium natural levee land. Riverside vegetable lands were worked by Chinese cash or share tenants, although later on Italians, Portuguese and Japanese were important. Land rented for $10-$20 per acre; or for 25-50% of the crop when seed, equipment, and horses were furnished by the owner. The grain land was farmed by Caucasians, many of them tenants. Dairying was an aspect of the general farming pattern that characterized the Sacramento River islands. As a rule it was the orchard operators, and Italian and Portuguese farmers near Freeport and Clarksburg, who maintained dairy herds.

**Hazards of Delta Settlement**

The fundamental hazard in reclaiming land for crops and in making a go of farming was that for every acre of swamp enclosed there was an acre less of floodplain over which the winter and spring run-off might spread. Reclamation also reduced the area of the delta tidal basin, thereby diminishing the scouring power of tidal water. The loss of tide scouring power was serious because great volumes of gold mining debris were pouring through the delta in the decades 1860 to 1910. Debris accumulations in the Sacramento River were as much as 10 feet deep below the capital.

The hazards of debris-choked channels was worsened by the levee builders who built their dikes hard by the river rather than set them back. It was a race between districts to build the highest levee, for the higher and stronger one was, the surer he felt that a levee break next door would save him. It is a curious thing; people leveed against each other as much as against the river. Since some people were thought to be capable of midnight levee cutting while under tension, there were times when men kept guns as well as shovels handy.
Even though bigger and better levees were devised, seepage and high water tables commonly drowned out crops or delayed spring plantings. Compounding the water problem was the subsidence of the reclaimed peat lands; the drained organic material lost 1/3 to 1/2 of its volume through dehydration and oxidation. The rate of subsidence was accelerated by the common farm practice of burning the peat soil. It was this high water table problem that brought drainage pumps into the delta.

To give a specific example of the difficulties that confronted the reclaimer may we refer to Sherman Island, which first was leveed with three to five foot peat block embankments in April 1869. Though there were spectacular crop yields and profits the price of farming the island came pretty high thereafter. Levees failed in six out of the next eleven years. Not much cropland was salvaged after any of the breaks; and the island remained under water from 1880 to 1894. After reclamation in '94, serious levee breaks again occurred in 1904, 1906, 1907, and 1909. One cannot calculate the cumulative losses. Other reclaimed districts were inundated less frequently; but, of the 300,000 acres of land more or less permanently reclaimed between 1870 and 1910, it is reasonable to state that, with the exception of tiny Randall Island, just north of Courtland, recurring levee breaks or seepage problems have required three or more post-reclamation drainings for each tract.

Reclamation Sequence

By 1900 the reclaimed land included tracts immediately adjacent the Sacramento from Sherman Island to Sacramento and all of the land adjoining the Mokelumne. In the southern half of the delta Roberts and Union islands were reclaimed, as were adjacent mainland areas west and north of Stockton; some land was effectively enclosed too. During the decade 1900-1910 the tule islands bordering the right bank of the San Joaquin were enclosed and farmed.

Factors Favoring Reclamation

Among the factors involved in the post-1910 successes were improved machines and techniques in leveeing, and the post-1911 assumption by the State of responsibility for an over-all Central Valley flood control and reclamation program. Confidence in the State’s program and in existing technology, plus a good market for the land accelerated reclamation. The attraction of virgin land was related most to potato growing; to obtain premium crops the potato farmers required fresh soil. An uncontrolled fungus disease usually limited potato cropping to three years on any one field. Reclaimers and the large-scale operators cooperated closely in central delta development. By and large, Japanese share-tenants were the potato farmers.

Paralleling this development of new peat land in the east and west central delta was the transformation of the north central delta into asparagus production. By World War I, when asparagus acreage also was common to the west of Stockton, there were a dozen or more canneries in the delta. Antioch, Isleton, Rio Vista and other towns prospered.

The favorable economic situation of the period also fostered plantings of celery, tomatoes, field corn, sugar beets, and alfalfa throughout the delta. Dairying flourished in the San Joaquin districts but declined in the Sacramento districts. The old staples of
delta farming—potatoes, beans, onions, and wheat—were being supplemented (and after the war supplanted) by new crops. The pattern of tenantry, and the use of manual and horse power changed also. What has been called the "new industrial farming" was developing. The tracked and wheeled tractor replaced the traction engine; the use of fertilizers and of improved seeds was adopted. Between 1910 and 1926 electric power and telephone service, paved roads, and motor vehicles spread through the delta. The improvements in communications and transportation had a marked effect upon the old way of doing things. It became attractive to replace tenant labor with wage earners; labor camps gradually lost their usefulness as operators chose to haul men to the fields from neighboring towns. The once numerous "mosquito fleets" of passenger launches and the freight vessels gradually disappeared. Farmers became product-standards-conscious, and they became contract sellers rather than consignment shippers. General crop interests and the areal distribution of particular crops, crop handling methods and the nature of the labor force continue to change. These changes are reflected not only in the appearance of the fields but in the structures of the delta.

Landscape Changes

The riverside asparagus canneries are all but gone, and the big frame barns and the levee-top cribs are disappearing. Older sections of some delta towns are badly deteriorated. On the other hand, one now sees the occasional new grain elevator, corrugated metal packing sheds, substantial single houses, and new residential sections through the area. A striking feature of farm and home construction in the last quarter century has been the tendency to build on the island floors. Earlier the orientation was clearly riverside and on high ground. Today's farmers do not have the ties with the river that they had when it was main street. However, there is a great deal of interest in the waterways. Boat liverys and vacationist camps have flourished in the past quarter-century. They should prosper, along with the farmers, as the urban Bay Area grows.

Conclusions

To conclude, may we state that the delta is essentially a "man-made" landscape. Few rural regions have been so altered from the natural state as this Sacramento-San Joaquin Delta. The cultural imprint takes several forms. Depressed crop land has replaced the sea-level tule swamp of the pre-reclamation era. Natural hummocks and natural levees are planed to flatten island floors. The major landmarks in the delta are the massive earthworks that cloak the natural levees. Channels have been altered and even created by dredging. The delta soils are essentially man made; they could not have evolved without draining the tules. Neither would the incidence of mineral soil be what it is without mining debris and peat subsidence. The atmosphere, too, occasionally clouds up with evidence of man's impact upon the area; not only are we consuming the peat, but in draining the swamps we have interrupted the processes by which the very wealth of the delta was created. While this may sound bleak, I am confident that any society that could produce a Sacramento-San Joaquin Delta is going to devise means to conserve it.