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The Waters will Spread: Reclamation and Flood Control in the Sacramento Valley, 1850-1920

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The Waters will Spread: Reclamation and Flood Control in the Sacramento Valley, 1850-1920

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To my life and loves, Sara, Evan, and Rufferford.

Abstract

The settlement of the Sacramento Valley by people from the United States between 1850 and 1920 was shaped by the practical challenges for settler reclamation in a volatile political, social, and environmental climate. Nineteenth and early twentieth century Americans believed that white settlers possessed the unique capacity to reclaim land. Californians considered it only natural that settlers would transform swamp and overflowed lands into productive small farms. But droughts forced settlers to abandon their lands, floods destroyed their farms, and economic activities such as hydraulic mining and extensive agriculture depleted soil fertility or made the rivers incapable of transporting crops.

The practical challenges of reclaiming the Sacramento Valley compelled settlers to deviate from the idealized notions and popular theories about reclamation. It meant breaking from the tradition of family farming and directly appealing to so-called "capitalists," men whose principal living came not from directly laboring on the land but from investing in its development and exploitation. Settlers also sought state interventions, but they usually disagreed on how much taxes they should pay or whether the state should be able to compel construction of reclamation and flood control works on private lands.

Engineers tasked with making the valley safe for settlers also had to grapple with the Sacramento Valley's topological and climactic diversity. Engineers sought guidance from nature, but nature's lessons were ambiguous and capricious. Their proposals operated on assumptions, understandably overgeneralized, based on incomplete information. Thus, even after the creation of the Sacramento River Flood Control Project in 1911, the processes of adapting to a volatile climate and environment shaped by settler and capitalistic process yet never fully subordinated to them would continue.

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Introduction

The settlement of the Sacramento Valley by people from the United States between 1850 and 1920 was shaped by the practical challenges for settler reclamation in a volatile political, social, and environmental climate. For nineteenth and early twentieth century Americans, a "settler" was someone who lived on the land they owned or worked. It became the principal term for Anglo-migrants during the nineteenth century.[1] As opposed to Indigenous peoples, nonwhite immigrants, and corporations, settlers supposedly reclaimed the land, or brought it into permanent cultivation.[2] The English and their Anglo-American peers equated arable farmland with proper civility, and civility with full humanity.[3] Historian William DeBuys characterized reclamation as redemption of fallen lands, an evangelical view of landscape.[4] He was referring to deserts, and traditionally reclamation has been associated with the irrigation of arid lands in the American West.[5] But Californian politicians, newspapers, and boosters also applied the term to swamplands, which were low lying lands covered with water for much of any given year, as well as overflowed lands, which were lands subject to occasional flooding.[6] Californians considered it only natural that settlers would transform swamp and overflowed lands into productive small farms. Small farms supposedly nurtured a hardy, independent population loyal to a state that

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[1] James Belich, *Replenishing the Earth: The Settler Revolution and the Rise of the Anglo-World, 1783-1939* (Oxford: Oxford University Press, 2009), 151-152.
[2] Jason E. Pierce, *Making the White Man's West: Whiteness and the Creation of the American West* (Boulder: University Press of Colorado, 2016), 32-33.
[3] James D. Rice, *Nature and History in the Potomac Country: From Hunter-Gathers to the Age of Jefferson* (Baltimore: The John Hopkins University Press, 2009), 77.
[4] William DeBuys and Joan Myers, *Salt Dreams: Land and Water in Low-Down California* (Albuquerque: University of New Mexico Press, 1999), 11-13.
[5] Lawrence B. Lee, "100 Years of Reclamation Historiography," *Pacific Historical Review* 47, no. 4 (1978): 508, https://doi.org/10.2307/3637371.
[6] As an example of the use of reclamation for swamplands, see "Report of the Commissioners Appointed by an Act of March 28, 1868, on the Reclamation of the Swamp Lands in the Sacramento Valley," in *Appendix to Journals of Senate and Assembly of the Eighteenth Session of the Legislature of the State of California, Vol. II* (Sacramento, 1870).

recognized its property.[7] Thus, the reputed goal of most nineteenth century land policy was, in the words of a mid-nineteenth century California assemblyman, to "secure to every citizen a competency," by which he meant self-sustaining farms.[8] But the climate, environment, and political economy of the Sacramento Valley and Northern California continually undermined settler efforts to reclaim swamp and overflowed lands. Prolonged droughts forced settlers to abandon their lands. Floods destroyed their farms. Economic activities that exploited the Sacramento Valley's streams, flatlands, and surrounding mountains, such as hydraulic mining and extensive agriculture, could deplete soil fertility or make the rivers incapable of transporting crops.

The practical challenges of reclaiming the Sacramento Valley sometimes compelled settlers to deviate from the idealized notions and popular theories about reclamation. It could mean breaking from the tradition of family farming and directly appealing to so-called "capitalists," men whose principal living came not from directly laboring on the land but from investing in its development and exploitation. Advocates of capitalist investment in reclamation argued that only capitalists, with their cosmopolitan foresight and exceptional appetite for risk, could make inhospitable environments suitable for settlement. They viewed capitalists as builders animated by the same entrepreneurial spirit which supposedly distinguished white civilization from Indian cultures.[9] But many settlers considered capitalists rootless exploiters of

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[7] Eric Foner, *Free Soil, Free Labor, Free Men: The Ideology of the Republican Party before the Civil War* (New York: Oxford University Press, 1970), 11-39

[8] *Journal of the Proceedings of the House of Assembly of the State of California at their First Session Begun and Held at Puebla de San Jośe on the Fifteenth Day of December, 1849* (San José, 1850), 810-812. On the concept of competency, see Daniel Vickers, "Competency and Competition: Economic Culture in Early America," *The William and Mary Quarterly* 47, no. 1 (1990), 3-29; Susan Lee Johnson, *Roaring Camp: The Social World of the California Gold Rush* (New York: W.W. Norton and Company, 2000), 135.

[9] "The Land Monopoly Question," *Greens' Land Paper*, February 3, 1872; Brian W. Dippie, *The Vanishing American: White Attitudes and U.S. Indian Policy* (Lawrence: University Press of Kansas, 1982), 30-41 and 59-67; Patrick Brantlinger, *Dark Vanishings: Discourse on the Extinction of Primitive Races, 1800-1930* (Ithaca: Cornell University Press, 2003), 45-67.

land and foreign labor who extracted environmental resources without regard to the damages such extraction wrought on local communities.[10] Settlers also sought state interventions, but they usually disagreed on how much taxes they should pay or whether or not the state should be able to compel construction of reclamation and flood control works on private lands.[11] No matter the policy, settlers had to operate with unstable conditions, conflicting interests, and incomplete information. Any solutions could only be temporary and contingent, even as a populous and wealthy society emerged and depended on those solutions.

The unique geography of the Sacramento Valley fostered two distinct reclamation patterns until the twentieth century. Geologically, the tectonic movement of the Pacific Plate along with volcanic processes formed the Coast Ranges on the western edge of Northern California and the Sierra Nevada Mountains on the eastern edge.[12] In the distant geological past a sea separated the Sierra Nevada and Coast Ranges. As sun, wind, and rain eroded the mountains, sediment thousands of feet deep filled the sea in, forming the Central Valley. The Sacramento Valley is the 150 mile long and 50-60 mile wide upper third of the Central Valley.[13] It includes

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[10] For examples of the use of "capitalist" to refer to outsiders who exploited labor and land, see J. Ross Brown, *Report of the Debates in the Convention of California on the Formation of the State Constitution in September and October* (Washington, J.T. Towers, 1850), 137-148; "Legislation for the Mines," *San Joaquin Republican*, November 20, 1852; "Settler League Circular: J. Neely Johnson and John Bigler, Candidates for Governor, on Settlerism," *San Joaquin Republican*, August 22, 1855; "Stockton—Enterprise," *San Joaquin Republican*, December 16, 1856; Horace A. Higley, *Annual Report of the Surveyor General for the Year 1860* (Sacramento: 1860), 99. "Doubtful Move," *Daily National Democrat*, February 25, 1860; "A Pertinent Question," *Sacramento Daily Union*, October 20, 1866; "The Navigable Streams of California," *Sacramento Bee*, December 19, 1879. The term was cultivated in the early twentieth century, as businessmen sought to naturalize their interests and depict worker movements as unnatural social interventions in the economy. See Martin Sklar, *The Corporate Reconstruction of American Capitalism, 1890-1916: The Market, the Law, and Politics* (Cambridge: Cambridge University Press, 1988), 3

[11] Richard H. Peterson, "The Failure to Reclaim: California State Swamp Land Policy and the Sacramento Valley, 1850-1866." *Southern California Quarterly* 56, no. 1 (1974): 51. https://doi.org/10.2307/41170515; "Annual Report of the Swamp Land Commissioners for the Year 1862," in *Appendix to the Journals of Senate and Assembly of the Fourteenth Session of the Legislature of the State of California* (Sacramento, 1863), 4, 28

[12] Crane S. Miller and Richard S. Hyslop, *California: The Geography of Diversity*, 2nd ed. (Mountain View: Mayfield Publishing Company, 2000), 73.

[13] William L. Willis, *History of Sacramento County California with Biographical Sketches of the Leading Men and Women of the County Who Have Been Identified with its Growth and Development from the Early Days to the Present* (Los Angeles: Historic Record Company, 1913), 11-13.

all or part of Sacramento, Colusa, Yuba, Colusa, Yolo, Sutter, Glenn, Solano, Butte, Shasta, Placer, El Dorado, and Tehama Counties.[14] The Sacramento River runs through the center of the Sacramento Valley. Two major river rivers, the Feather and the American, drain into the Sacramento River from the Sierra Nevada Mountains with the Yuba River merging into the Feather. Numerous creeks, most notably Cache and Putah, flow into the Sacramento River from the Coast Ranges. When these rivers and creeks overflow during winter and spring storms, they deposit sediment onto their banks. Over thousands of years sediment deposit built natural levees of fine to sandy sediments up to twenty feet high.[15] This led to the paradoxical situation in which, according to historian Kenneth Thompson, "the highest land on the valley bottom was the strip of natural levees bordering the stream."[16] These natural levees imperceptibly slope downward, sometimes for ten miles, until they reach a low-point or trough. On the other side of these troughs the land slopes upward again towards other rivers or creeks or the foothills of the coastal or Sierra Nevada Mountains.[17] These troughs, or basins, can fill up with water for most of any given year.[18] Altogether, there were 1,254 square miles of lands naturally subject to flooding in the Sacramento Valley, compared to 2,444 square miles of highlands, areas near the foothills of the mountain ranges or on the natural levees. [19] The highlands were much easier to reclaim

[14] *Bulletin No. 23 of the Sacramento Valley Development Association* (Sacramento, 1905), 1.
[15] John Thompson, *The Settlement Geography of the Sacramento-San Joaquin Delta, California: A Dissertation* (Palo Alto: Stanford University, 1957), 34.
[16] Kenneth Thompson, "Historic Flooding in the Sacramento Valley," *Pacific Historical Review* 29, no. 4 (1960): 352, https://doi.org/10.2307/3636308.
[17] *Report of the Examining Commission on Rivers and Harbors to the Governor of California* (Sacramento, 1890), 9.
[18] Elna Bakker, *An Island Called California: An Ecological Introduction to Its Natural Communities*, 2nd ed., Revised and Expanded (Berkeley: University of California Press, 1984), 144; *Fifth Annual Report of the Reclamation Service* (Washington: Government Printing Office, 1907), 94.
[19] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 11.

than the lowlands, and they became sites of productive cultivation, especially of wheat. The lowlands, however, remained mostly desolate until the twentieth century.[20]

Because of the Sacramento Valley's climate, even settlement on the highlands was precarious. Much of the American West is arid, a condition where too little rains falls to grow crops without irrigation.[21] The average amount of annual precipitation in the Sacramento Valley is technically sufficient to support agriculture, twenty inches a year, but the average misleads.[22] The Sacramento Valley oscillates between dry years and wet years. Compounding the irregularity of annual rainfall is the concentration of it to six months outside the growing season, between November and April. This rainfall comes from a few storms, or atmospheric rivers, which are cyclones that form at higher altitudes than hurricanes. As moist ocean air from the Pacific reaches the mountains, it rises, cools, and condenses, filling mountain canyons with snow and ice. Winter storms can pack mountain reservoirs with ice hundreds of feet deep.[23] When warm Pacific storms douse the mountains during the spring, the snow rapidly melts, and the

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[20] *Annual Report of the Swamp Land Commissioners for the Year 1862*, 4; A.S. Dudley, "Sacramento is Center of Agricultural Empire," *Sacramento Union*, March 31, 1921.

[21] On aridity, some notable works include Walter Prescott Webb, *The Great Plains* (Lincoln: University of Nebraska Press, 1931); Norris Hundley Jr, *Water and the West: The Colorado River Compact and the Politics of Water in the West* (Berkeley: University of California Press, 1975); Donald J. Pisani, *From the Family Farm to Agribusiness: The Irrigation Crusade in California and the West, 1850-1931* (Berkeley: University of California Press, 1984); Donald Worster, *Rivers of Empire: Water, Aridity, and the Growth of the American West* (New York: Oxford University Press, 1985); Marc Reisner, *Cadillac Desert: The American West and its Disappearing Water* (New York: Penguin Books, 1987); Donald J. Pisani, *To Reclaim a Divided West: Water, Law, and Public Policy, 1848-1902* (Albuquerque: University of New Mexico Press, 1992); Mark Fiege, *Irrigated Eden: The Making of an Agricultural Landscape in the West* (Seattle: University of Washington Press, 1999); Norris Hundley, Jr, *The Great Thirst: Californians and Water: A History* (Berkeley: University of California Press, 2001); Donald J. Pisani, *Water and American Government: The Reclamation Bureau, National Water Policy, and the West, 1902-1935* (Berkeley: University of California Press, 2002); Stephen Grace, *Dam Nation: How Water Shaped the West and Will Determine its Future* (Guilford: Globe Pequot Press, 2012); Mark Arax, *The Dreamt Land: Chasing Water and Dust Across California* (New York: Vintage Books, 2019).

[22] H.M. Chittenden, "Flood Control—with Particular Reference to Conditions in the United States," in *Sacramento River Floods, Hearings Before the Committee on Flood Control, House of Representatives, Sixty-Fourth Congress, First Session on Floods of the Sacramento River, April 5, 1916* (Washington: Government Printing Office, 1916), 38.

[23] Jeffrey F. Mount, *California Rivers and Streams: The Conflict Between Fluvial Process and Land Use* (Berkeley: University of California Press, 1995), 146-157.

amount of water flowing through the Sacramento River watershed into the Suisun Bay can increase from around five thousand to over a million cubic feet per second.[24] This is too much water for Sacramento Valley rivers to contain within their banks. When they overflow, the basins formed by the natural levees and mountains hold the water like bowls, and the Sacramento Valley becomes a 100-mile-long inland sea.[25] One winter storm could undo decades of reclamation.

When migrants from the United States came to California in 1849 during the gold rush, they contended not just with climate and geography but also with existing social and political conditions. One hundred fifty thousand Indians already lived on the land.[26] Migrants, ranchers, politicians, and Indians fought and accommodated each other in their own ways. Drawing on traditions of Indian war, migrants and ranchers organized militias and massacred or drove Indians from their lands.[27] Indians resisted by stealing, by killing whites, and by working for white ranchers in exchange for protection. Ranchers needed labor, which they acquired by exploiting militia violence against Indians. Under the pretext of protecting Indians, California

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[24] United States Army Corps of Engineers, *Partial Report on Sacramento, San Joaquin, and Kern Rivers, Calif*, 34; Robert Kelley, *Battling the Inland Sea: Floods, Public Policy, and the Sacramento Valley* (Berkeley: University of California Press, 1989), 5, 314.

[25] B. Lynn Ingram and Frances Malamud-Roam, *The West Without Water: What Past Floods, Droughts, and other Climatic Clues Tell Us About Tomorrow* (Berkeley: University of California Press, 2013), 58-59.

[26] Benjamin Madley, *An American Genocide: The United States and the California Indian Catastrophe* (New Haven: Yale University Press, 2016), 3.

[27] Brantlinger, *Dark Vanishings*, 57; Patrick Wolfe, *Traces of History: Elementary Structures of Race* (New York: Verso, 2016), 168. Settlers legitimately conceived of the world through the lens of civilization and savagery, but such a lens occluded inconvenient facts that might have delegitimized settler land grabs, such as the fact that settlers relied on Indigenous lands, labor, and knowledge to expand into the so-called wilderness. It also denied the diversity amongst Indigenous peoples as well as the possibility of their assimilation or effective adaptation. Even when natives adopted sedentary agriculture and other aspects of English political economy, settlers still dispossessed them, because the appeals to efficient land use were pretexts for plundering. Such was the case with the so-called five civilized tribes of the Southeastern United States. See Brian W. Dippie, *The Vanishing American: White Attitudes and U.S. Indian Policy* (Lawrence: University Press of Kansas, 1982), 30-41 and 59-67. Settlers could easily invent pretexts for plundering natives, because they could build on centuries of mythmaking about indigenous indolence, the widely shared fantasy that Anglo-expansion was natural and divinely ordained, and the longstanding dehumanization of natives as racialized others.

passed the "Act for the Government and Protection of Indians."[28] Through this act, ranchers enslaved as many as twenty thousand Indians, who became an important source of labor for the Sacramento Valley's highland farms and ranches.[29]

But politicians still worried that because most migrants came to California just to get rich quick and leave, settlement would remain sparse. Settlement was critical, because agrarian republicanism, according to historian Tamara Venit-Shelton, "taught nineteenth-century Americans to associate landownership with economic independence and the virtue necessary for self-governance." The seeming abundance of "free land" in California "promised to increase opportunities for landownership, and, by extension, class mobility and democracy."[30] However, Spanish-Mexican land grants covered most of the fertile lands in the state's coastal valleys, making it difficult for migrants to claim lands under the 1841 Preemption Act. Because few Spanish-Mexican land grants extended into the swamplands, politicians saw the swamps as critical for keeping large numbers of settlers in the state. The federal government had granted "swamp and overflowed" lands to the states through the 1850 Arkansas Act. Citing traditions of pioneer wilderness homesteading, politicians such as California Governor John Bigler believed reclamation could "be best effected by donating [land] to actual settlers."[31] In 1855, 1858, and

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[28] "An Act for the Government and Protection of Indians," in *The Statutes of California Passed at the First Session of the Legislature*, Chap. 133 (Passed April 22, 1850). Some works which have explored the effects of this law include James J. Rawls, *Indians of California: The Changing Image* (Norman: University of Oklahoma Press, 1984); Albert L. Hurtado, *Indian Survival on the California Frontier* (New Haven: Yale University Press, 1988); Michael Magliari, "Free Soil, Unfree Labor: Cave Johnson Couts and the Binding of Indian Workers in California, 1850-1867," *Pacific Historical Review* 73, no. 3 (2004): 349-390, https://doi.org/10.1525/phr.2004.73.3.349; Richard Steven Street, *Beasts of the Field: A Narrative History of California Farmworkers, 1769-1913* (Stanford: Stanford University Press, 2004), 115-135; Michael F. Magliari, "Free State Slavery: Bound Indian Labor and Slave Trafficking in California's Sacramento Valley, 1850–1864," *Pacific Historical Review* 81, no. 2 (2012): 155-192, https://doi.org/10.1525/phr.2012.81.2.155; Stacey L. Smith, *Freedom's Frontier: California and the Struggle over Unfree Labor, Emancipation, and Reconstruction* (Chapel Hill: The University of North Carolina Press, 2013).
[29] Jim Gerber, "The Origin of California's Export Surplus in Cereals," *Agricultural History* 67, no. 4 (1993): 51, http://www.jstor.org/stable/3744553.
[30] Tamara Venit Shelton, *A Squatter's Republic: Land and the Politics of Monopoly in California, 1850-1900* (Berkeley: University of California Press, 2013), 1.
[31] "Governor's Message," *Sacramento Daily Union*, January 6, 1854.

1859 California passed acts that allowed settlers to claim up to 640 acres of swampland. But migrants eschewed these lands because it was difficult to obtain clear title and to drain them of overflowed water.[32] By the end of the 1850s, migrant and bound labor worked productive highlands of the Sacramento Valley, while the lowlands remained mostly unreclaimed and unsettled.[33]

The first systematic attempt at reclaiming swamplands from floods started in the 1860s, but these attempts failed because of the complications of federalism, climatic and geographic challenges, and competition between settlers and state officials about how best to use the land. In 1861 California created a board of swampland commissioners to coordinate reclamation, flood control, and drainage works throughout the Sacramento Valley. The first obstacle to beginning and sustaining work came from state disagreements with the General Land Office over what constituted "swamp and overflowed" lands. Because California is only "wet" for four to six months of the year, its overflowed lands often appeared dry to federal surveyors, who worked during the summer. Consequently, there was always a danger that the federal government could sell lands that already been sold by the state as swampland.[34] The board also faced continuous resistance from the substantial minority of settlers who wanted to keep swamplands as commons as well as from settlers who believed flooding improved the fertility of their lands.[35]

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[32] Horace A. Higley, *Annual Report of the Surveyor General for the Year 1858* (Sacramento, 1859), 4-7; Paul Wallace Gates, "California Land Policy and its Historical Context: The Henry George Era," in *Land and Law in California: Essays on Land Policies* (Ames: Iowa State University Press, 1991), 312; "Richard H. Peterson, "The Failure to Reclaim: California State Swamp Land Policy and the Sacramento Valley, 1850-1866," *Southern California Quarterly* 56, no. 1 (1974): 48, https://doi.org/10.2307/41170515.
[33] Gerber, "The Origin of California's Export Surplus in Cereals," 40-45.
[34] "Surveyor General's Report," *Sacramento Daily Union*, December 7, 1864; James F. Houghton, "Annual Report of the Surveyor General for the Year 1863," in *Appendix to Journals of Senate and Assembly of the Fifteenth Session of the Legislature of the State of California, Vol. 1* (Sacramento, 1864), 16.
[35] "Annual Report of the Swamp Land Commissioners for the Year 1862," in *Appendix to the Journals of Senate and Assembly of the Fourteenth Session of the Legislature of the State of California* (Sacramento, 1863), 4; Peterson, "The Failure to Reclaim," 51.

Furthermore, the board suffered from massive setbacks caused by flooding in 1861-1862 and a subsequent three year drought. Given the continuous opposition and slow progress of reclamation, California abolished the board in 1866.

After the failure of the swampland reclamation board, Colusa newspaper editor and assemblyman Will S. Green concluded that only capitalists could ever reclaim the swamplands of the Sacramento Valley. Republican politicians suggested that the state could reclaim swamplands by employing "cheap labor," especially from China, but Sacramento Valley newspaper writers, referencing the genocide of Indigenous Americans as well as the Civil War, argued that the interests of non-whites would always "conflict with whites" leading to annihilation, slavery, or expulsion of one or the other.[36] Green argued that reclamation would happen only if the state allowed capitalists to acquire as many as acres as they wanted. This defied the prevailing belief that settlement should be undertaken by individual settlers on smaller plots of land, and it aggravated prevailing fears about land monopoly.[37] Nineteenth century Californians considered anyone who owned land he did not personally cultivate a "land monopolist."[38] In 1868, Green wrote a land law that simultaneously limited swampland purchases to whites and removed all restrictions on purchases for corporations and speculators. After the state passed the Green Act, corporations and capitalists amassed virtually all the state's

[36] "How it Works," *Colusa Sun*, January 6, 1866; "Bidwell on Equality and the Case of the War," *Colusa Sun*, March 26, 1866. The relationship of electoral politics to racism against African Americans and Chinese immigrants in mid-nineteenth century U.S. politics is explored thoroughly in the following work: Naji Aarim-Heriot, *Chinese Immigrants, African Americans, and Racial Anxiety in the United States, 1848-1882* (Chicago: University of Illinois Press, 2003).
[37] "Large Locations," *Colusa Sun*, February 18, 1871; Reclamation and Irrigation," *Green's Land Paper*, May 15, 1872. On land monopoly, see Shelton, *A Squatter's Republic*; Arthur P. Dudden, "Men Against Monopoly: The Prelude to Trust-Busting," *Journal of the History of Ideas* 18, no. 4 (1957): 587–93, https://doi.org/10.2307/2707570; David B. Griffiths, "Anti-Monopoly Movements in California, 1873-1898," *Southern California Quarterly* 52, no. *2* (1970): 93-121; Donald J. Pisani, "Squatter Law in California, 1850-1858," *Western Historical Quarterly* 25, no. 3 (1994): 277-310; Jonathan Earle Halperin, *Jacksonian Antislavery and the Politics of Free Soil, 1824-1854* (Chapel Hill: University of North Carolina Press, 2002).
[38] Venit-Shelton, *A Squatter's Republic*, 3.

remaining swamplands.[39] But these private, capitalist schemes of reclamation failed for the same reasons that the schemes overseen by the Board of Swamp Land Commissioners failed. Settlers who objected to the privatization of swamplands sabotaged levees, dikes, and dams, and storms created floods that demolished these works.[40]

By the 1870s, mining debris threatened to destroy the reclaimed farms on the highlands, so Sacramento Valley settlers organized against the hydraulic mining industry. Drawing on existing and emerging populist ideas, they argued that the state should promote the broader interests of society.[41] Populists were most concerned with monopoly, which by the 1870s referred to individuals or organizations who received special privileges from the state, who could limit or distort competition, and who could impose rents or taxes on society through their control of critical infrastructure. "Monopoly" had become synonymous with corporations.[42] Sacramento Valley settlers did not fear competition or domination, but annihilation. Extractive industry was a significant part of the American West's economy, yet it created what scholars now call "sacrifice zones," geographic areas permanently maimed by economic development.[43] Mining capitalists argued that the state should devise technical solutions to mediate between existing industries, such as building dams to contain mining debris. Farmers rejected this solution. They believed

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[39] "Report of the Joint Committee to Inquire into and Report upon the Condition of the Public and State Lands within the Limits of the State," in *Appendix to Journals of Senate and Assembly of the Nineteenth Session of the Legislature of the State of California, Vol. II* (Sacramento, 1872), 62-64; "Brief Reference," *Sacramento Daily Union*, May 29, 1877; Gates, "Public Land Disposal in California," 263-266.

[40] Will Semple Green, *Colusa County, California: Illustrations Descriptive of its Scenery* […] *With Historical Sketch of the County* (San Francisco, 1880), 57-60.

[41] Elizabeth Sanders, *Roots of Reform: Farmers, Workers, and the American State, 1877-1917* (Chicago: University of Chicago Press, 1999), 30-147; Charles Postel, *The Populist Vision* (New York: Oxford University Press, 2007), 137-173; Ariel Ron, *Grassroots Leviathan: Agricultural Reform and the Rural North in the Slaveholding Republic* (Baltimore: John Hopkins University Press, 2020).

[42] Chestur McArthur Destler, "Western Radicalism, 1865-1901: Concepts and Origins," *Mississippi Valley Historical Review* 31 (Dec. 1944): 340-341; Richard White, *Railroaded: The Transcontinentals and the Making of Modern America* (New York: W.W. Norton and Co, 2011), 111-112.

[43] Steve Lerner, *Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the United States* (Cambridge: The MIT Press, 2010); Chris Hedges and Joe Stucco, *Days of Destruction, Days of Revolt* (New York: Hachette Book Group, 2012).

dams would only store the risk of annihilation. When these dams inevitably collapsed, farmers would lose everything even as hydraulic mining capitalists kept their profits.[44] Farmers, however, offered no alternatives that could ameliorate the mass displacement which banning hydraulic mining would cause. Instead, they resorted to anti-Chinese racism by essentializing hydraulic mining as an industry of "coolie" labor.[45] Valley settlers personified the unsettling effects of extractive industry in Chinese immigrants and hydraulic mining.[46]

To address issues of mining debris, flooding, navigation, and irrigation, the legislature created the office of the state engineer, which produced the first comprehensive study of flooding and drainage in the Sacramento Valley. State Engineer William Hammond Hall's 1880 report demonstrated a nuanced understanding of the Sacramento Valley's climate and topography. Hall believed that no matter what flood control and drainage system engineers could design, there was always a flood in the future that would surpass the capacity of flood control infrastructure. He wrote that "it should be fully understood that floods" would "occasionally come which must be

[44] "The Spirit of the Greedy Ones," *Sacramento Bee*, November 14, 1881; "The Evil of Hydraulic Mining," *Sacramento Bee*, August 6, 1878.

[45] There is an extensive literature on anti-Chinese racism and exclusion. Here are some of the more significant works: Stuart Creighton Miller, *The Unwelcome Immigrant: The American Image of the Chinese, 1785-1882* (Berkeley: University of California Press, 1969); Alexander Saxton, *The Indispensable Enemy: Labor and the Anti-Chinese Movement in California* (Berkeley: University of California Press, 1971); Aarim-Heriot, *Chinese Immigrants, African Americans, and Racial Anxiety in the United States*; Jean Pfaelzer, *Driven Out: The Forgotten War Against Chinese Americans* (Berkeley: University of California Press, 2007); Beth Lew-Williams, *The Chinese Must Go: Violence, Exclusion, and the Making of the Alien in America* (Cambridge: Harvard University Press, 2018); Mai Ngai, *The Chinese Question: The Gold Rushes and Global Politics* (New York: W.W. Norton and Company, 2021).

[46] Iyko Day observed that the attributes of "abstractness, intangibility, universality, mobility" that antisemites associate with the Jews "are striking in their resonance with characteristic forms of Asian racialization in North America." Iyko Day, *Alien Capital: Asian Racialization and the Logic of Settler Colonial Capitalism* (Durham: Duke University Press, 2016), 7, 16. Workers equated Chinese immigrants with labor commodification, which threatened their republican visions of good homes, citizens, and communities. Land, however, constitutes the core concern within a settler colony. For Sacramento Valley settlers, the Chinese personified not just the commodification of labor. They also personified the destabilization caused by extractive industries such as mining and bonanza farming. Extraction comprised the West's primary industries, yet it undermined the settler project of transforming Indigenous lands into permanent white communities.

allowed to spread."[47] Farmers ignored Hall's proposals for flood control, instead blaming the problem of flooding entirely on the hydraulic mining industry and on Chinese workers. Farmers fought state attempts to implement Hall's proposals.[48] They eventually got the Ninth Circuit of Appeals to abolish California's hydraulic mining industry in the case of *Edward Woodruff v. North Bloomfield Mining Company*.[49] This victory did not resolve their problems with flooding and reclamation.

After the injunction against hydraulic mining, Sacramento Valley settlers sought state interventions as flooding, poor river navigability, and drought continued to threaten reclamation. By the 1880s, productive highlands made the Sacramento Valley a leading wheat exporter and increasingly a grower of fruits and vegetables.[50] The precarity of these valuable enterprises encouraged settlers throughout the Sacramento Valley to finally explore state-coordinated efforts, especially after a break in the Sacramento River in 1889 caused the formation of a sand bar that blocked river traffic.[51] During the next decade California would create the Department of Public Works and the federal government would create the California Debris Commission, which was tasked with reviving hydraulic mining, maintaining the navigability of valley rivers,

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[47] William Hammond Hall, "Part II: Drainage of the Valleys and the Improvement of the Navigation of Rivers," *Report of the State Engineer to the Legislature of the State of California—Session of 1880* (Sacramento, 1880), 14.
[48] Joseph J. Hagwood Jr, *The California Debris Commission: A History of the Hydraulic Mining Industry in the Western Sierra Nevada of California, and of the Governmental Agency Charged with its Regulation* (Sacramento: U.S. Army Corps of Engineers, 1981), 22-23.
[49] For accounts of the Woodruff decision, see Robert Kelley, *Gold vs Grain: The Hydraulic Mining Controversy in California's Sacramento Valley* (Glendale: The Arthur H. Clark Company, 1959), 230-244; Marilyn Ziebarth, "California's First Environmental Battle," *California History* 63, no. 4 (fall 1984): 294-304; Waverly B. Lowell, "Where Have all the Flowers Gone? Early Environmental Litigation," *Prologue* 21, no. 3 (Fall 1989): 247-255; J.S. Holliday, *Rush for Riches: Gold Fever and the Making of California* (Berkeley: University of California Press, 1999), 282-299.
[50] *Report of the Examining Commission on Rivers and Harbors to the Governor of California* (Sacramento, 1890), 128-137.
[51] "Damage by Floods," *San Jose Mercury*, December 14, 1889; "The Paine Break," *Daily Appeal* (Marysville), December 18, 1889; J.R. Price, "Report on the Condition of the Sacramento River During the High Water of January 1896," in *Appendix to the Journals of the Senate and Assembly of the Thirty-Second Session of the Legislature of the State of California, Volume VII* (Sacramento, 1897), 8-10.

and flood control.[52] Investigations into the problems of the Sacramento River culminated in several key reports. These reports reveal how engineers grappled with reconciling the unique topography and climate of the Sacramento Valley with the Humphreys Thesis, the prevailing flood control doctrine that prescribed only levees for flood control and navigation.[53] Engineers such as C.E. Grunksy, who helped write reports in 1890 and 1895, emphasized working with the natural features of the Sacramento Valley instead of against them. Grunsky wrote that it was only when they copied "closely after nature's own provisions for relief" that they could "hope to establish a system of drainage which [would] be a success."[54] Because Sacramento Valley basins naturally filled with water during overflows, Grunsky believed that a successful flood control system must allow for some flooding during a major storm. State engineers revised the Humphreys Thesis, promoting the use of bypasses, which are strips of low land protected on each side by a levee that could serve as auxiliary channels during major storms.[55] After the invention of the Bates Hydraulic Dredger in 1896, which made it seem possible to deepen rivers, the Public Works Department jettisoned bypasses.[56] Furthermore, stagnation in the Sacramento Valley's wheat sector after the mid-1890s encouraged investors and settlers to seek policies that would not just protect the agricultural sector but reinvigorate it. These groups embraced multiuse

[52] Hagwood, *The California Debris Commission.*
[53] For accounts of Humphrey's Thesis, see James P. Kemper, *Rebellious River* (1949: Reprint, New York: Arno Press, 1972), 34-57; Martin Ruess, "Andrew A. Humphreys and the Development of Hydraulic Engineering: Politics and Technology in the Army Corps of Engineers, 1850-1950," *Technology and Culture* 26 (January 1985), 1-33, https://doi.org/10.2307/3104527; Robert Kelley, *Battling the Inland Sea: Floods, Public Policy, and the Sacramento Valley* (Berkeley: University of California Press, 1989), 129-130; Todd Shallat, *Structures in the Stream: Water, Science, and the Rise of the U.S. Army Corps of Engineers* (Austin: University of Texas Press, 1994), 174-178; Ari Kelman, *A River and its City: The Nature of Landscape in New Orleans* (Berkeley: University of California Press, 2003), 163-191.
[54] Valley Drainage," *Sacramento Daily Record-Union*, December 21, 1888.
[55] "Report of the Commission of Public Works to the Governor of California, 1895-1896," in *Appendix to the Journals of the Senate and Assembly of the Thirty-Second Session of the Legislature of the State of California, Volume II* (Sacramento, 1897), 9-43.
[56] "Public Works Commission," *Sacramento Daily Record-Union*, May 29, 1899.

reservoirs that could irrigate lands losing fertility due to drought and overcropping.[57] The creation of the Reclamation Service in 1902 would seem beneficial to Sacramento Valley settlers, but its provision that reservoirs only irrigate farms no larger than 160 acres made it anathema to the valley's large landowners.[58] Advocates of conservationism, on the other hand, opposed state level investments and laws for reservoirs because they feared that large landowners would prevent reclamation by small settlers.[59] Despite nearly two decades of searching, valley settlers still could not commit to a system of flood control and reclamation.

In the first decade of the twentieth century, business interests from San Francisco became more assiduous about promoting settlement and preserving investments in the Sacramento Valley. Observing how the active engagement of Los Angeles businessmen had transformed Southern California into a "Mecca for civilized men," San Francisco commercial interests believed they could do the same for the Sacramento Valley.[60] Initially, their efforts centered on attracting immigration, but after widespread flooding in 1904, they held a state water problems conference and organized the River Improvement Drainage Association. This association employed a team of engineers, led by Army Corps Engineer T.G. Dabney, to devise a comprehensive flood control system for the Sacramento Valley.

The Dabney Commission approached the Sacramento River watershed as a flawed system that needed correcting. Rejecting the bypasses proposed by the Public Works Department a decade earlier, the Dabney Commission recommended a levees-only system that would

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[57] Pisani, *Water and American Government*, 132.
[58] *Report of Irrigation Investigations in California Under the Direction of Elwood Mead* (Washington: Government Printing Office, 1901), 32; The most comprehensive work on the Reclamation Service in the early twentieth century is by Pisani, *Water and American Government.*
[59] Donald J. Pisani, "Water Law Reform in California: 1900-1913," *Agricultural History* 54, no. 2 (1980): 304-308, http://www.jstor.org/stable/3743047.
[60] "A Confession of Judgement," *San Francisco Chronicle*, January 29, 1902.

progressively correct the tendency of Sacramento Valley rivers to overflow.[61] They also believed it was important to clothe the state with arbitrary authority to carry out these projects.[62] In 1905, the state created the Sacramento Drainage District, which had the power to oversee all flood control, drainage, and reclamation works in the Sacramento Valley. Most importantly, the legislature tasked the Sacramento Drainage District with carrying out the Dabney Plan. This district was challenged in the courts by George Chapman, a large landowner from the town of Winters. Chapman argued he had already successfully reclaimed his lands.[63] The courts upheld the Dabney Plan, but Chapman's challenge delayed the plan's implementation. Terrible storms in 1907 and 1909, which were more than two times as large as the kind of floods the Dabney Plan was designed to contain, indicated that a levees-only system would have cost at least three times as much as anticipated. Businessmen instead united behind a plan proposed by the California Debris Commission, which expanded the bypass system conceived by the Public Works Department. In 1911, California created a reclamation board to oversee the Sacramento River Flood Control Project.[64]

The survival of the Reclamation Board was precarious as settlers fought over the meaning and practice of reclamation and conservation. The 1911 act precipitated enormous capital investment in the Sacramento Valley. The state reclamation board relied on private capital for the building of levees. In relying on private capital, the board often agreed to the demands of corporations, such as moving the location of the bypasses to spare lands that had

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[61] *Report of the Commissioner of Public Works to the Governor of California, Together with the Report of the Commission of Engineers to the Commission of Public Works Upon the Rectification of the Sacramento and San Joaquin Rivers and their Principal Tributaries, and the Reclamation of the Overflowed Lands Adjacent Thereto* (Sacramento: W.W. Shannon, Superintendent State Printing, 1905).
[62] Drainage Act Cause for Extended Debate," *Sacramento Union*, February 3, 1909.
[63] Chapman vs Sacramento Drainage District, "Appellant's Reply Brief," 1634 Jos. M Anderson 82-83 (Cal.1908).
[64] *Reports on the Control of Floods in the River Systems of the Sacramento Valley and the Adjacent San Joaquin Valley, Cal. June 29, 1911, Referred to the Committee on Rivers and Harbors* (Washington: Government Printing Office, 1911), 7-15.

been acquired by large companies. Settlers protested the cooperation between corporations and the Reclamation Board.[65] At the federal level, California struggled to obtain funding and approval. Budgetary conservatives saw the Sacramento River Flood Control Project as pork-barrel spending for large landowners in the Sacramento Valley.[66] Conservationists supported a plan from Nevada Senator Francis Newlands to create a national waterways commission that would oversee all flood control, reclamation, and drainage works in the country.[67] They also advocated multiuse reservoirs, as they considered a system which allowed floodwaters passage to the sea a gigantic waste. They were motivated by a belief that successful nations conserved their natural resources.[68] Advocates of the bypass plan warned that since it took decades to finally get a flood control system for the Sacramento Valley, replacing the Reclamation Board with a national commission could delay needed flood control for a decade or more.[69] Additionally, they doubted that reservoirs could store more than a fraction of floodwater.[70] The passage of the National Flood Control Act of 1917, which provided approval and funding for the Sacramento River Control Project, hinged on factors not within the valley, such as devastating flooding in the Mississippi Valey and Woodrow Wilson's need for support from Southern

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[65] "Private Capital Rushing Flood Control Project," *Sacramento Bee*, November 23, 1912.
[66] "A Shot at Home Rule on the Sacramento," *Pacific Rural Press*, April 15, 1916; Wilson's Splendid Conservation Policy," *The Salinas Valley Rustler*, September 8, 1916; "Fight Bill for Calif. Flood Control," *Los Angeles Herald*, December 19, 1916.
[67] Samuel Hays, *Conservation and the Gospel of Efficiency* (Pittsburgh, University of Pittsburgh Press, 1999), 1-3.
[68] Ian Tyrell, *Crisis of the Wasteful Nation: Empire and Conservation in Theodore Roosevelt's America* (Chicago: University of Chicago Press, 2015), 9-16, 109; Hays, *Conservation and the Gospel of Efficiency*, 6. According to Ian Tyrell, conservationism underpinned an early twentieth century culture of empire characterized by anxiety over civilizational decline. Prominent Americans feared that the failure to classify land according to best uses could invite decay in the way that Qing China purportedly decayed from a failure to conserve. Qing China suffered bare mountainsides, eroded soils, and clogged waterways. Conservationist irrigation was central to a settler colonial vision of development. Conservationists believed that American civilization could continuously expand—internally by "civilizing" Indians and uplifting uncouth immigrants and externally as Anglo-Saxon peoples spread across the globe—by maximizing use. Theodore Roosevelt, for example foresaw irrigation as invigorating the nation and fostering the growth of American world power. Water conservation pivoted on multiuse dams, which could make flood waters available for irrigation, hydroelectric power generation, flood control, and municipal water supplies.
[69] "Don't Risk Greatest River Improvements," *Pacific Rural Press*, April 1, 1916.
[70] *Hearings Before the Committee on Flood Control, House of Representatives, Sixty Fourth Congress, First Session on Floods of the Sacramento River, April 15, 1916*, 17-51.

Democrats, who wanted funds for the Mississippi River Commission, during World War I.[71] Valley settlers continued to battle against the Reclamation Board, especially in Sutter County, and eventually forced concessions from the state.[72]

Immediately following the cessation of conflict with the Reclamation Board, settlers mobilized to ensure that any newly reclaimed lands would be for "caucasians only."[73] Unlike anti-Japanese labor organizations, white Sacramento Valley settlers did not seek to expel and exclude Japanese farmers. Instead, they sought to dispossess Japanese farmers so they could exploit their labor.[74] White settlers succeeded in 1920 with an amendment to the 1913 Alien Land Law. Japanese farm ownership dramatically declined after 1920, but land concentration worsened.[75]

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[71] Karen O'Neil, *Rivers by Design: State Power and the Origins of U.S. Flood Control* (Durham: Duke University Press, 2006), 119-125; Matthew T. Pearcy, "A History of the Ransdell-Humphreys Flood Control Act of 1917," *Louisiana History: The Journal of the Louisiana Historical Association* 41, no. 2 (2000): 133-159, http://www.jstor.org/stable/4233654; Anthony E. Carlson, "Forging Transcontinental Alliances: The Sacramento River Valley in National Drainage and Flood Control Politics, 1900-1917," in *River City and Valley Life: An Environmental History of the Sacramento Region,* ed. Christopher J. Castaneda and Lee M.A. Simpson *(*Pittsburgh: University of Pittsburgh Press, 2013).

[72] "Sutter Basin Flood Compromise Saddles Cost on Whole State," *San Francisco Call*, March 24, 1919.

[73] "Must Eradicate Japanese Blight," *Sacramento Union*, July 2, 1919. The Sacramento River Flood Control Project opened white settlers to the potential of creating a "white man's land" free from both Japanese tenants and big farms. In this event, whiteness consisted of more than just a psychological wage. This kind of racialization, Michael O'Malley has argued, occurred because "a society confronted with the boundlessness" of the market economy "protected itself by elaborating theories of intrinsic, biological, and non-negotiable difference." Michael O'Malley, *Face Value: The Entwined Histories of Money and Race in America* (Chicago: The University of Chicago Press, 2012), 3. Whiteness operated as an economic safety net against capitalist processes of dispossession. No amount of productivity, improvement, self-reliance, or striving could entitle Japanese settlers to belonging in the American polity. Japanese immigrants would open lands up for white settlers while at the same time creating a large, cheap, proletarianized labor force. In was a form of progressive era reform. As Marily Lake wrote, "just as settlers in postcolonial narratives 'pioneered' the 'wilderness,' so too progressives cast themselves cast as natural 'pioneers' of labor reforms. Marilyn Lake, *Progressive New World: How Settler Colonialism and Transpacific Exchange Shaped American Reform* (Cambridge: Harvard University Press, 2019), 18.

[74] "Asiatic Issue Laid Before Governor," *Sacramento Daily Union*, August 12, 1919; John S. Chambers, "John S. Chambers Urges Californians to Save State from Alien Grasp," *Stockton Daily Independent*, October 24, 1920. Having made the lands valuable, laws would effectively confiscate lands, and other racialized minorities, most notably Mexican and Filipino laborers, would toil on formerly Issei lands. Farm industrialists fell in love with Mexican labor during the 1920s, and at least 150,000 worked in the fields during those years. See Carey McWilliams, *Factories in the Field: The Story of Migratory Farm Labor in California* (Berkeley: University of California Press, 1935), 124-133.

[75] Masao Suzuki, "Important or Impotent? Taking Another Look at the 1920 California Alien Land Law," *The Journal of Economic History* 64, no. 1 (2004): 134-137. http://www.jstor.org/stable/3874944; "Agriculture: Volume IV," *Fifteenth Census of the United States: 1930* (Washington: Government Printing Office, 1932), 82.

Most of the primary sources for this dissertation come from newspapers. For settlers in the American West, newspapers denoted political legitimacy and served as a forum for discussing and developing political ideas.[76] In some cases, such as with Will S. Green, newspaper editors were politicians who belonged to the interest groups for whom they advocated. Sometimes powerful interests used newspapers to promote their own interests. Such was the case with the *Sacramento Record-Union*, which the Southern Pacific Railroad secretly acquired in the 1870s. Very often newspapers took partisan stances and fought with newspapers championing opposing political views.[77] The *Sacramento Bee*, *Sacramento Daily Record Union*, and the *Marysville's Express* vigorously defended the interests of Sacramento Valley farmers in the mid-to-late 19th century. The San Francisco-based *Daily Alta*, along with papers from mining counties such as the *Grass Valley Union* and the *Nevada City Transcript*, tirelessly fought for the mining industry in the 1870s and 1880s, and the *San Francisco Chronicle* became the organ for advancing the ambitions of San Francisco businessmen in the first decade of the twentieth century. More than just editorializing and summarizing events of the day, newspapers could include entire speeches from politicians, reprinting of state laws, copies of proposed bills, petitions, resolutions from advocacy organizations, and even dozens of pages of transcripts from important court cases and legislative debates.[78]

Historian Robert Kelley also relied extensively on newspapers for his history of flood control in the Sacramento Valley, but his analytical framework reduced historical actors to political typologies. For Kelley, the historical actors in the Sacramento Valley constituted

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[76] Barbara Cloud, *The Coming of the Frontier Press: How the West was Really Won* (Evanston: Northwestern University Press, 2008), 4.
[77] Cloud, 113; Michael Schudson, *Discovering the News: A Social History of American Newspapers* (New York: Basic Books, 1978), 65.
[78] Gerald J. Baldasty, *The Commercialization of News in the Nineteenth Century* (Madison: The University of Wisconsin Press, 1992), 96.

allegories for a national political drama, the contest between "Democratic America," which favored individualism, laissez faire, and local control, as well as practical knowledge, and "Whig-Republican America," which championed large scale federal projects, state-coordinated planning, and scientific expertise in governance. According to Kelley, after a half century, this political contest "concluded in a solid and enduring Whig-Republican victory." For the broader narrative, the Sacramento Valley case study illustrated how laissez faire Democratic America failed. Operating within these constraints, activism and court rulings simply sprung from "adamant, ideologically undiluted, Jeffersonian public policy" until the accumulation of failures finally compelled settlers to change their ideologies.[79]

More recent scholarship undermines Kelley's typologies. "Democrats" often favored large scale government projects, such as the building of canals, and "Whig-Republicans" often opposed government schemes if they directed too much power away from private interests. As Elizabeth Sanders has shown, the major expansions of the American state in the half century leading up to World War I, which included the creation of the Federal Reserve, Federal Trade Commission, and immense growth of the Department of Agriculture, stemmed from the 1890s capture of the party by the western and southern farming blocs.[80] Farmers may have adopted the label of Jeffersonian or Jacksonian, but such labels predicted little about their policy positions. As Charles Postel has commented, the policies favored by farmers of the South and West who comprised the Populist Movement, such as bimetallic currency and nationalization of railroads, would have appalled Thomas Jefferson and Andrew Jackson, who espoused hard money and limited government.[81] According to Michael Kazin, appeals to patron democratic saints

[79] Kelley, *Battling the Inland Sea*, 30-39, 330.
[80] Sanders, *Roots of Reform*, 3-4.
[81] Postel, *The Populist Vision*, 160-161.

represented an American language that ordinary people could deploy against elites supposedly undermining American institutions. When settlers placed themselves within Jeffersonian or Jacksonian legacy, they were more legitimizing their own ideas than adopting a historically transcendent political ideology.[82]

This dissertation shows that settlers responded practically to the diverse conditions of the Sacramento Valley. Settlers certainly brought with them ideas and ideologies from the eastern half of the United States, but the topographical and climactic diversity of the American West challenged their ideals, especially related to small farms or anti-monopoly. As Donald Worster has argued, western aridity discouraged small farming while intensifying exploitation, hierarchy, and monopoly.[83] Not only was the American West more arid than the eastern half of the United States, but it included lands uniquely difficult to reclaim, including high plains, lofty mountain ranges, alkali valleys, dead lake bottoms, alluvial benchlands, badlands, and rain-shadow deserts. The topographical diversity of the American West is why, in the late nineteenth century, geologist John Wesley proposed a settlement method that subdivided lands into irregular, topographically aligned plots which ensured every farmer water frontage and access to irrigation systems.[84] Likewise, settlers in the Sacramento Valley found that its climate and topography precluded the importation of eastern solutions. Some lands overflowed only during large storms, while other lands lay underwater up to nine months a year. Some lands consisted of a thin layer of topsoil over hardpan clay, while other lands could contain thick, organic material dozens of feet deep. When settlers disagreed, it was more so because their interests conflicted than it was

[82] Kazin, *The Populist Persuasion*, 18-24
[83] Donald Worster, "Hydraulic Society in California: An Ecological Interpretation," *Agricultural History* 56, no. 3 (1982): 503–15. http://www.jstor.org/stable/3742550; Worster, *Rivers of Empire*, 1-16.
[84] Wallace Stegner, *Beyond the Hundredth Meridian: John Wesley Powell and the Second Opening of the West* (Lincoln: University of Nebraska Press, 1953), 214-240. Donald Worster, *A River Running West: The Life of John Wesley Powell* (New York: Oxford University Press, 2001), 350-380.

due to Jeffersonian or Hamiltonian ideology. A settler might oppose a state scheme for any number of practical reasons, including that they could not afford to pay taxes, that their lands benefitted from occasional overflow, or that they used swamplands as a common where they could graze their cattle for free.

Kelley's framework also ignores the Sacramento Valley's racial diversity and how white settlers used racist appeals to gain advantages. Patricia Nelson Limerick remarked that the American West was "an important meeting ground, the point where Indian America, Latin America, Anglo-America, Afro-America, and Asia intersected."[85] At this intersection, white settlers secured state aid, formed alliances, and temporarily allayed contradictions through racist appeals. As settler colonial theorists have argued, white settlers could be motivated by a logic of elimination.[86] But depending on the context and goals, settlers could also be motivated by logics of exploitation, exclusion, or dispossession, and sometimes multiple logics simultaneously. During the 1850s, for example, the logic of exploitation and of elimination operated concomitantly. Settlers killed Indians to take their land, and settlers offered Indians protection to secure much needed labor. White settlers could justify plunder and exploitation by building on centuries of mythmaking about indigenous indolence, the widely shared fantasy that Anglo-expansion was natural and divinely ordained, and the longstanding dehumanization of Natives as racialized others.[87] According to this mythmaking, white pioneers constituted civilization's vanguard.[88] In subsequent conflicts, settlers referenced their past relations with Indigenous peoples to rationalize why they had to expel, abolish, exclude, or destroy some racial minority or

[85] Patricia Nelson Limerick, *The Legacy of Conquest: The Unbroken Past of the American West* (New York: W.W. Norton and Company, 1987), 27.
[86] Patrick Wolfe, "Settler Colonialism and the Elimination of the Native," *Journal of Genocide Research*, 8:4, (2006); 387-390; Lorenzo Veracini, *The Settler Colonial Present* (New York: Palgrave Macmillan, 2015), 39-40.
[87] Brian W. Dippie, *The Vanishing American: White Attitudes and U.S. Indian Policy* (Lawrence: University Press of Kansas, 1982), 30-41 and 59-67.
[88] Walter L. Hixson, *American Settler Colonialism: A History* (New York: Palgrave MacMillan, 2013), 21.

racialized industry. During the 1910s, for instance California progressive republican Chester Rowell argued for the exclusion of Japanese immigrants because unlike "the Indian," who died from the unjust treatment by white settlers, Japanese settlers would "neither die nor submit."[89] Nevertheless, white settlers needed labor in the early twentieth century. Instead of exclusion, white settlers advocated dispossessing Japanese settlers to simultaneously eliminate them as competitors and transform them into exploitable laborers. The exclusion of Chinese immigrants from acquiring swamplands in the 1850s, 1860s, and 1870s appears "impractical," as white settlers already eschewed swamplands, but it served the political ends of democratic politicians who could link republic support for "cheap" foreign labor and black suffrage to threats against white supremacy.[90]

Just as farmers and politicians grappled with the topological and climactic diversity of the Sacramento Valley, so did the engineers tasked with making the valley safe for settlers. The engineering profession rapidly expanded during the mid-to-late nineteenth century. Between 1850 and 1870, the number of civil engineers in the United States increased nine-fold.[91] Civil engineers were called upon to make possible the development and expansion of the nation.[92] In trying to reclaim the Sacramento Valley, engineers had to reconcile the Humphreys Thesis with how the Sacramento Valley's natural behavior deviated from the thesis. They all claimed to be restoring the rivers to their natural condition. It was not just about dominating nature, or in the words of Reclamation Service Director Frederick Newell, "substituting the will of man for the

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[89] Van Nuys, "A Progressive Confronts the Race Question," 13.
[90] Ngai, *The Chinese Question*, 85-87; Aarim-Heriot, *Chinese Immigrants, African Americans, and Racial Anxiety in the United States* 99-100.
[91] Shallat, *Structures in the Stream*, 187; Raymond H. Herritt, *Engineering in American Society, 1850-1875* (Lexington: University Press of Kentucky, 1969), 10; Edwin T. Layton Jr,. "Mirror Image Twins: The Communities of Science and Technology in Nineteenth Century America," *Technology and Culture 12* (October 1971): 562-580, https://doi.org/10.2307/3102571.
[92] Shallat, *Structures in the Stream*, 175-187.

unregulated forces."[93] Man had gone too far.[94] Something had gone wrong. All shared blame. Hydraulic mining capitalists recklessly dumped debris into the rivers. Farmers carelessly closed natural outlets. Now engineers had to protect haphazardly established farms and homes collectively worth hundreds of millions of dollars even as the ambitions of settlers pushed them to reclaim even more precarious lands in a volatile climate.

Engineers sought guidance from nature, but nature's lessons were ambiguous and capricious. Historical data was extremely limited. No one could say with confidence how big storms could get or how long droughts could last. Their proposals operated on assumptions, understandably overgeneralized, based on incomplete information. William Hammond Hall assumed that there would always be a greater flood in the future than man had ever experienced or could account for, while Army Corps engineer T.G. Dabney assumed that topographic data could tell engineers with certainty the maximum potential of floods.[95] The California Debris Commission operated under the assumption that the waters of the rivers must be allowed to spread (if only for financial reasons), but they assumed that the 1907 and 1909 floods represented peak discharges for the Sacramento Valley.[96] Often the analysis molded to fit an agency's goals. To reconcile their support for multiuse reservoirs with the data indicating reservoirs could never hold all flood waters, the Reclamation Service argued that reservoirs could serve as supplements for bypass and levee systems against storms greater than what those

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[93] Quoted in Anthony E. Carlson, "The Other Kind of Reclamation: Wetlands Drainage and National Water Policy, 1902–1912," *Agricultural History* 84, no. 4 (2010): 451–78. http://www.jstor.org/stable/27869012.
[94] The awareness that man's actions regarding nature could backfire was growing in this period, most famously through the writing of George Perkins Marsh. See George Perkins Marsh, *Man and Nature: Or, Physical Geography as Modified by Human Action* (1864); Robert L. Dorman, *A Word for Nature: Four Pioneering Environmental Advocates, 1845-1913* (Chapel Hill: The University of North Carolina Press, 1998), 3-46.
[95] *Report of the Commission of Engineers to the Commission of Public Works Upon the Rectification of the Sacramento and San Joaquin,* 33-35.
[96] *Reports on the Control of Floods in the River Systems of the Sacramento Valley and the Adjacent San Joaquin Valley,* 7-15.

systems had been designed to handle.[97] The safest assumption was that no solution could be certain, or eternal.

As the creation of the Sacramento River Flood Control Project between 1910 and 1920 was a response to practical demands under conditions of uncertainty and incomplete knowledge, it represented neither the culmination of progress nor a tragic crystallization of oligarchic power. Writers such as Donald Worster and Marc Reisner argued in the 1980s that corporate capital and political technocracy created a hierarchical society in the American West built on immense wealth concentration as well as ruthless environmental and social exploitation. They prophesied the impending collapse of this society.[98] By the 1990s, historians countered that the tragic narrative of domination and collapse was overly simplistic and mechanistic. All environments are a combination of human and natural creations. The relationship between humans and nature is ongoing, interactive, and contingent. In recent years scholars have followed how governments and activists have taken steps, with some success, to improve human relations with nature as well as within the communities which depend upon the rivers.[99] "Nature changes what humans build," Mark Fiege writes, "often in unanticipated ways; sometimes nature comes back more powerful than before."[100] Richard White classified the interaction between nature and infrastructure as "hybrid landscapes" which do not fit the typologies of wild, rural, or urban.

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[97] *Report on Iron Canyon Project by the Office of the Reclamation Service at Portland, Oregon, October, 1914*, 42-50.
[98] Donald Worster, "Hydraulic Society in California: An Ecological Interpretation," *Agricultural History* 56, no. 3 (1982): 503–15, http://www.jstor.org/stable/3742550; Worster, *Rivers of Empire*; Reisner, *Cadillac Desert*.
[99] Richard White, *The Organic Machine: The Remaking of the Columbia River* (New York: Hill and Wang, 1995); Fiege, *Irrigated Eden*; Philip Garone, *The Fall and Rise of the Wetlands of California's Great Central Valley* (Berkeley: University of California Press, 2011); Daniel McCool, *River Republic: The Fall and Rise of America's Rivers* (New York: Columbia University Press, 2012); Patricia Nelson Limerick and Jason L. Hanson, *A Ditch in Time: The City, the West, and Water* (Wheat Ridge: Fulcrum Publishing, 2012); John Fleck, *Water is for Fighting Over and other Myths about Water in the West* (Washington D.C.: Island Press, 2016).
[100] Fiege, *Irrigated Eden,* 9.

These landscapes are neither conquered nor preserved, and there is hope in them.[101] The environments and societies created by the Sacramento River Flood Control Project constantly change in the perpetual push and pull between people and nature. Thus, though the story in this dissertation ends in 1920, the processes of adapting to a volatile climate and environment shaped by settler and capitalistic process yet never fully subordinated to them would continue.

[101] Richard White, "From Wilderness to Hybrid Landscapes: The Cultural Turn in Environmental History," *The Historian* 66, no. 3 (2004): 563. http://www.jstor.org/stable/24453057.

1. High not Low: Establishing the Pattern of Settlement and Reclamation, 1850-1860

Before the California Gold Rush attracted masses of migrants from around the world, the Sacramento Valley was a plain filled with oaks surrounded by grassy hills. According to a contemporary observer, oak groves could be "miles in width."[1] Bunchgrasses, which leave small patches of bare soil between their clumps, stood above lowlands. Popular guidebook author Lansford Hastings reported that during winters rivers could rise eighteen to twenty feet, submerging much of the lowlands. These overflowed sections enjoyed "luxuriant growth of vegetation."[2] In coming from the Sierra Nevada Mountains, one might be slowed from reaching the Sacramento River by thick growth of a reed called tule.[3] The miles of tule-choked swamps in the valley emitted the smell of methane from marsh grass, and "innumerable flocks, of geese and ducks" continually flew to and from these lowlands, "blackening the very heavens with their increasing numbers."[4] Many parts seemingly made good grazing lands due to the abundance of wild oats. From Stony Creek to Sutter's Fort (near modern day Sacramento City), "miles and miles" of wild oats and other grasses stretched "so thick that a horse could hardly get through them."[5] Massive herds of antelopes roamed the plains, while deer rummaged in the oak groves along the rivers and elks foraged among the tules in the sloughs and lakes of southern Sacramento County. [6] Clover, red and white, grew four to five feet in height continuous to the

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[1] Edwin Bryant, *What I Saw in California: A Description of its Soil, Climate, Productions, and Gold Mines, with the Best Routes and Latest Information for Intending Emigrants* (Philadelphia, 1849), 245.
[2] Lansford Hastings, *The Emigrants Guide to Oregon and California* (Cincinnati, 1845), 74.
[3] *The Diary of Ensign Gabriel Moraga's Expedition of Discovery in the Sacramento, 1808*, Trans. And Ed. By Donald C. Cutter (Glen Dawson, 1957), 15-22.
[4] Hastings, *The Emigrants Guide to Oregon and California*, 356.
[5] Will Semple Green, *Colusa County, California: Illustrations Descriptive of its Scenery* […] *With Historical Sketch of the County* (San Francisco, 1880), 66; *By the Sacramento's Waters: A California Story* (San Francisco: Lyon and Hoag, 1902).
[6] William L. Willis, *History of Sacramento County California with Biographical Sketches of the Leading Men and Women of the County Who Have Been Identified with its Growth and Development from the Early Days to the Present* (Los Angeles: Historical Record Company, 1913), 8.

rivers.[7] Along the natural levees woody vegetation towered. Edwin Bryant, who visited the Sacramento Valley in the late 1840s, glimpsed these riparian forests lining the Sacramento River from the Sierra Nevada. He remembered seeing "a broad line of timber running through the centre of the valley."[8] Though called riparian, the banks of the natural levees more resembled a jungle. The foliage of trees merged with their neighbors without interruption. Underlayers were, according to Elna Bakker, "savage conglomerations of fallen limbs and other debris, berry vines, wild rose snarls, poison oak patches, rank herbaceous growth, and saplings."[9] Some portions of the Sacramento Valley were sterile, "being mere beds of sand and gravel," although these were comparatively small.[10]

The Sacramento Valley was not, however, pristine. At one-point Indian villages studded the Sacramento River, but in the early 1830s a malaria epidemic significantly reduced the valley's Indigenous population. Nevertheless, some parts still contained many Indians, including Colusa County, which ten thousand Colus called home at the end of the 1840s. Their villages marked the boundaries of sloughs.[11] Indians principally lived on grass seeds, acorns, and fish. Indians periodically set fires to clear underbrush, encourage the growth of grass, and open oak lands for game animals.[12] Men sometimes killed antelope, deer, or other game. The Sacramento River, Butte Creek, and several sloughs were full of fish that Colus Indians caught by means of nets made of wild hemp or by constructing dams and weirs across the Sacramento River. Every spring, when the salmon swam up the river, Indians caught and dried enough fish to last nearly

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[7] Hastings, *The Emigrants Guide*, 87.
[8] Bryant, *What I Saw in California*, 239.
[9] Elna Bakker, *An Island Called California: An Ecological Introduction to Its Natural Communities,* 2nd ed., Revised and Expanded (Berkeley: University of California Press, 1984), 146.
[10] Hastings, *The Emigrants Guide to Oregon and California*, 74.
[11] Green, *Colusa* County, 28, 33, 35.
[12] Albert L. Hurtado, "John A. Sutter and the Indian Business," in *River City and Valley Life: An Environmental History of the Sacramento Region*, ed. Christopher J. Castaneda and Lee M.A. Simpson (Pittsburgh: University of Pittsburgh Press, 2013), 20.

the entire year. Sacramento Valley Indians forged agreements of mutual aid. When drought killed the acorn crop, hill Indians could gather in the valley, and when valley resources failed, valley Indians went to the hills.[13]

The presence of Indians in the Sacramento Valley attracted the earliest white settlers. The first permanent white settlement in the Sacramento Valley was a fort along the Sacramento River called New Helvetia (now Sacramento City). It was built in the fall or winter of 1840.[14] This fort, belonging to John Sutter, was enclosed by adobe walls eighteen feet high and three feet thick. Sutter employed at least one hundred men, mostly Indians, to tend his herds, which numbered an estimated twenty thousand.[15] Sutter saw valley Indians as a labor resource with a variety of traditional and new skills. Many of the interior Indians had escaped from coastal Spanish Missions and brought with them mastery of horses and mules.[16] Furthermore, the fur trade and horse rustling connected the Sacramento Valley to the outside world. Since 1837, Nisenan Indians had traded at the Hudson Bay Camp on the Feather River. Sutter recruited some Indians through intimidation with canons and with his infantry. Other Indians went to Sutter's Fort for trade.[17]

Outside of New Helvetia lay scattered settlements of individual farms fenced in by rails split from the native oaks. Horses in herds almost innumerable were used actively. Hastings reported that he frequently rode for five to six hours uninterrupted through the plains of California in 1843. Some herdsmen had at many as thirty thousand cattle, and they employed

[13] Green, *Colusa County*, 29-30.
[14] Green, 34.
[15] Hastings, *The Emigrants Guide to Oregon and California*, 102-110.
[16] Hurtado, "John A. Sutter and the Indian Business," 17-22.
[17] Hurtado, *Indian Survival on the California Frontier*, 48-52.

either Indians or the "lower order of Mexicans" to tend them. Wheat growing was also taking off. Hastings observed that wheat grew abundantly, sometimes up to 120 bushels an acre. [18]

Writers extolled California for its purportedly cheap, docile, and plentiful Indian labor supply. In several letters to newspapers and friends, Sacramento Valley ranchero John Marsh characterized Indians, especially when caught young, as "willing serfs" who submitted to "flagellation with more humility than negroes."[19] Hastings claimed that farmers could obtain Indian labor "for a mere nominal consideration."[20] Writer Alonzo Delano also asserted in 1849 that California Indians became "willing slaves" to those who would "feed and clothe them," if they were "not overworked."[21] According to one observer, Indians performed the whole labor on Sutter's Ranch in the Sacramento Valley.[22] Likewise, seven hundred Indians attended the sixty-six thousand acre Ranch of Don Guadalupe Vallejo.[23] A judge wrote to a friend in the Northeastern United States that he employed Colus Indians, who resided in Colusa County, to improve the same lands over which their fathers had "spent their lives in idleness and nakedness for thousands of years." He bragged that "the word of the land-holder" was "the Indian's law."[24]

These rosy accounts contradicted the reality of intractable Indians. Such intractability is indicated by the policies aimed at subordinating Indian laborers. In September of 1846, Captain John B. Montgomery, commander of the Northern Department of California, decreed that all

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[18] Hastings, *The Emigrants Guide to Oregon and California*, 89-93.
[19] John Marsh, "Letter of Dr. John Marsh to Hon. Lewis Cass," *California Historical Quarterly* 22 (1943): 315. Quoted in Albert L. Hurtado, *Indian Survival on the California Frontier* (New Haven: Yale University Press, 1988), 73-75.
[20] Hastings, *The Emigrants Guide to Oregon and California*, 103.
[21] Alonzo Delano, *Life on the Plains and Among the Diggins, Being Scenes and Adventures of an Overland Journey to California* […]. (New York, 1857), 130.
[22] Edward Gould Buffum, *Six Months in the Gold Mines: From a Journal of Three Years' Residence in Upper and Lower California, 1847-48-49* (Philadelphia, 1850), 54.
[23] Andrés Reséndez, *The Other Slavery: The Uncovered Story of Indian Enslavement in America* (New York: Mariner Books, 2016), 248.
[24] Quoted in Justus H. Rogers, *Colusa County: Its History Traced from a State of Nature Through the Early Period of Settlement and Development to the Present Day* […]. (Orland, 1891), 34-35.

Indians living in the settled parts of California could not "wander about in an idle and dissolute manner," but must find employment. A year later, California's secretary of state introduced a certificate system which required traveling Indigenous workers to obtain passes from local authorities.[25] These laws do not appear to have worked. The *California Star* reported in December of 1847 that ranchers from Northern California could not "retain their Indian laborers, even by the best and most conciliatory treatment" since the government neglected to protect ranchers from theft and desertion. The American government's failure to corral Indian labor, according to the ranchers, "proved a sad detriment to farming operations throughout the valleys." The *California Star* called for the new government to enact "some stable and reliable" laws for "the subordination of the Indians."[26]

The California Gold Rush only made it harder for Anglo settlers to obtain labor. Newspapers compared the gold rush to a "fever."[27] The fever struck the modest California population in January of 1848 shortly after rumors circulated about the discovery of gold at John Sutter's mill in Coloma. James Carson, a Monterey resident, described how a "general stampede took place in the different settlements." Some bordered on "insanity, raved around crying for pick-ax, shovel and pan, had started off at railway speed."[28] Workers abandoned Sutter's fort in a desperate race to the American River. One of Sutter's workers recalled how a "frenzy" seized his soul," filling his "fevered imagination" with "piles of gold," "castles of marble," and "thousands of slaves."[29] In 1848 and 1849, John Sutter watched his crops rot in the fields as his Indian labor

[25] Reséndez, *The Other Slavery*, 263.
[26] *California Star*, December 11, 1847.
[27] Rodman W. Paul, *California Gold: The Beginning of Mining in the Far West* (Lincoln: University of Nebraska Press, 1947), 30; Malcolm J. Rohrbough, *Days of Gold: The California Gold Rush and the American Nation* (Berkeley: University of California Press, 1997), 28-29; J.S. Holliday, *Rush to Riches: Gold Fever and the Making of California* (Berkeley: Oakland Museum of California and University of California Press, 1999), 86.
[28] James H. Carson, *Early Recollections of the Mines, and a Description of the Tulare Valley* (Stockton, 1859), 9-10.
[29] Quoted in J.S. Holliday, *The World Rushed In: The California Gold Rush Experience* (Norman: University of Oklahoma Press, 1981), 34.

force vacated to the placers.[30] One government report estimated that in 1848 Indians made up more than half of California's gold diggers.[31]

Just as ranchers and farmers lost their primary labor supply, California's population exploded. Historian J.S. Holliday wrote that after President James K. Polk confirmed in his 1848 State of the Union Address the presence of abundant gold in the California territory, "a contagion of confidence spread through the thirty states and the world."[32] Gold seekers mortgaged and sold their homes and farms, withdrew life savings, or borrowed from friends and fathers-in-law.[33] Unlike the farm-oriented population which had typically traveled in family units to the Trans-Mississippi West prior to 1850, gold rushers usually hailed from urban centers, seldom brought their families, and rarely planned to stay long.[34] They "came as exploiters, transients, ready to take, not to build."[35]

United States census data on occupations adumbrates this desire to get rich and leave. Only a small percentage of California's white population farmed, even though farming was the country's largest occupation. In 1850, the census classified 63 percent of California's population as miners and only 2 percent as farmers.[36] Nationwide, only 1.4 percent of free adult males over fifteen mined whereas 44 percent farmed.[37] The 1860 census listed close to a quarter of

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[30] Jim Gerber, "The Origin of California's Export Surplus in Cereals," *Agricultural History* 67, no. 4 (1993): 51, http://www.jstor.org/stable/3744553.
[31] James J. Rawls, "Gold Diggers: Indian Miners in the California Gold Rush," *California Historical Quarterly* 55, no. 1, (1976): 28-33.
[32] Holliday, *Rush to Riches*, 84.
[33] Holliday, 105.
[34] John David Unruh, *The Plains Across: The Overland Emigrants and the Trans-Mississippi West, 1840-1860* (Urbana: University of Illinois Press, 1979), 96-98.
[35] Quoted in Holliday, *The World Rushed In*, 297.
[36] Percentages calculated from *The Seventh Census of the United States: 1850* (Washington, 1853), lxxiii and lxxxvii. The 1850 census lacked returns from San Francisco and for two other counties. According to Rodman Paul, total population was probably undercounted by about 19,000. Paul, *California Gold*, 24.
[37] Robert A. Margo, "The Labor Force in the Nineteenth Century," in *The Cambridge Economic History of the United States: Volume II, The Long Nineteenth Century,* ed. Stanley L. Engerman and Robert E. Gallman (New York: Cambridge University Press, 2000), 215.

California's 358,000 white residents as miners, a decline in proportion since 1850 but an absolute increase in number.[38] Farmers still made up less than half the number of miners.[39]

Migrants persisted in pursuit of mining riches despite low rates of success and considerable hardship. California's exorbitant cost of living dissipated high mineral earnings. After comparing costs and returns, the *Louisville Journal* estimated that between 1849 and 1854 miners had lost $180 million.[40] Costs eventually fell, but wages fell faster, with average daily mining wages declining from ten to less than three dollars a day over the course of the fifties.[41] Despite falling wages, miners still willingly endured constant injuries such as blistered hands, crushed fingers, and sprained ankles and knees. New Jersey emigrant Theodore Johnson claimed that virtually all miners who spent any extended period in the diggings suffered from scurvy or rheumatism.[42] Nevertheless, miners persisted by psychologically subsisting on the ubiquitous stories about lavish placers. Miners were, in the words of historian Rodman Paul, "forever abandoning one district and hurrying off to another at the first whisper that rich ground had been found."[43] Many endured deferred dreams in the goldfields because it was their best chance to win the wealth necessary to buy middle class status, defined by acquiring a "competency," or a comfortable self-sufficiency, through owning their own farm or shop. In the Northeastern United States, where population growth diminished available per capita farmland and where steam-powered production, along with the invention of interchangeable parts, forced independent artisans into dependent wage work, the prospects for competency were abating even as free labor

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[38] *Population of the United States in 1860: Compiled from the Original Returns of the Eighth Census, Under the Direction of the Secretary of the Interior* (Washington, 1864), 593, 668.
[39] *Population of the United States in 1860*, 593 and 662.
[40] James Belich, *Replenishing the Earth: The Settler Revolution and the Rise of the Anglo-World, 1783-1939* (Oxford: Oxford University Press, 2009), 314.
[41] Paul, *California Gold*, 349-350.
[42] Theodore T. Johnson, *Sights in the Gold Region, and Scenes by the Way* (New York, 1849), 192.
[43] Paul, *California Gold*, 84.

ideology taught that any man willing to work, barring singular misfortune, would achieve independence.[44]

Anglo migrants, as white travelers from the United States were called, ameliorated their hardships by organizing with other Anglos who brought with them traditions from the eastern half of the country.[45] Scottish born artist John Borthwick, who traveled to California in 1851, remarked that Anglo-Americans were,

> of all people in the world the most prompt to organize and combine to carry out a common object. They [were] trained to it from their youth in their innumerable, and to a foreigner unintelligible, caucus-meetings, committees, conventions...[46]

Cooperation began with the journey. Most overland travelers joined a company, groups of usually about forty men living close together.[47] Gold-seekers organized joint-stock companies. Each member paid equal amounts for the purchases of wagons, teams, and provisions.[48] In Massachusetts alone 102 joint-stock companies sent 4,567 members to California in 1849.[49] Camps operated as quasi frontier governments, guided by articles of associations, or constitutions, where majority vote ruled.[50]

Almost immediately Anglos mobilized against foreigners. In 1848, California's governor prohibited foreigners from the mines. Immigrants defied him. That same year, men from Oregon and some Yankees met at Sutter's Mill to drive out foreigners from the mines on the north and

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[44] Eric Foner, *Free Soil, Free Labor, Free Men: The Ideology of the Republican Party before the Civil War* (New York: Oxford University Press, 1970), 11-39. On the deskilling of artisans, see Bruce Laurie, *Artisans into Workers: Labor in Nineteenth Century America* (New York: The Noonday Press, 1989), 15-46.
[45] Reginald Horsman, *Race and Manifest Destiny: The Origins of American Racial Anglo-Saxonism* (Cambridge: Harvard University Press, 1981), 190-207.
[46] John David Borthwick, *Three Years in California* (London, 1857), 369.
[47] Rohrbough, *Days of Gold*, 64-76.
[48] Holliday, *The World Rushed In,* 51.
[49] Holliday, *Rush to Riches*, 97.
[50] Holliday, 97.

south forks of the American river.[51] Anglo miners more systematically excluded foreigners through town laws. One of the resolutions of the Jacksonville town laws and regulations, which forty-niner Daniel Wood called "the mode of government common among the miners," declared that "no person coming direct from a foreign country" should "be permitted to locate or work any lot within the jurisdiction of this encampment."[52]

Though Anglos railed against all foreigners, they especially despised immigrants from Central and South America. In April 1849, American prospectors near Sutter's mill ordered all Mexicans, Chileans, and Peruvians to leave. Other digger communities, such as Dry Creek in Amador County, also commanded Hispanics to get out.[53] In July of 1850, citizens living in Mormon Gulch resolved that all Mexicans and South Americans should move out within one week. They also promulgated their readiness to join other townships or counties for the purpose of clearing out Mexicans and South Americans.[54] Anglos seemed to have taken such an attitude for granted. The *San Joaquin Intelligenc*e, for example, rejoiced at the arrival of 1,500 immigrants from various parts of the American South because they believed these "stalwart, industrious western and southern men" would "soon" participate in the expulsion campaigns.[55]

Anglos hatred towards Central and South Americans partly stemmed from fear of economic competition. The first foreigners to arrive in California hailed from Sonora, a state in Northwestern Mexico marked by vast, rugged desert terrain dotted with rich silver deposits mined by generations of Sonorans. Up to twenty thousand Sonorans migrated to the diggings

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[51] William Redmond Ryan, *Personal Adventures in Upper and Lower California, in 1849-9, With the Author's Experience at the Mines* (London, 1850), 296.
[52] Daniel Bates Woods, *Sixteen Months at the Gold Diggings* (New York, 1851), 125-127.
[53] Richard H. Peterson, "Anti-Mexican Nativism in California, 18484-1853: A Study of Cultural Conflict," *Southern California Quarterly* 62, no. 4 (1980): 310.
[54] "Late and Very Important from Sonora," *Sacramento Transcript*, August 3, 1850.
[55] "San Joaquin Intelligence," *Daily Alta California*, August 2, 1850.

between 1849 and 1851.[56] As the most experienced miners, they recognized choice gravels and seemingly grew rich quickly. This swiftly incurred the wrath of American miners.[57] A writer for the largest newspaper in California, the *Daily Alta California*, lamented that it was not "right that foreigners should be allowed to come here from all parts of the world, gather their pile, and return from whence they came."[58] According to historian Stacey Smith, white Californians racialized Latinos as "peons." They defined the peon as a dependent whose degradation threatened the independence of free white laborers. Denunciations of serf like Mexicans and Chileans, who supposedly worked their masters' claims for next to nothing, represented deep concern about the power of the market to reduce laborers to degraded slaves.[59]

Nevertheless, even well-off Anglos were racist against Hispanics. In the words of sociologist Tomás Almaguer, "there existed an 'elective affinity' between the material interests of whites at different class levels and the racial ideologies that simultaneously structured the new Anglo-dominated society in California."[60] As historian Reginald Horsman has shown, successful colonization convinced many white Americans that they composed the vanguard of an ancient progressive race, the Anglo-Saxons, who were bringing universal progress to the world, which required eliminating supposedly inferior races.[61] Anglos associated Mexicans with the "unproductive" semi-feudal rancho economy of pre-gold rush California.[62] Yankees particularly derided the perceived indolence of California's Mexican inhabitants. New Englander Thomas

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[56] Peterson, "Anti-Mexican Nativism in California," 309; Stacey L. Smith, *Freedom's Frontier: California and the Struggle over Unfree Labor, Emancipation, and Reconstruction* (Chapel Hill: The University of North Carolina Press, 2013), 24.
[57] Richard Henry Morefield, "Mexicans in the California Mines, 1848-1853," *California Historical Society Quarterly* 35, no. 1 (1956): 37-39.
[58] "Important Resolutions," *Daily Alta California,* January 28, 1850.
[59] Smith, *Freedom's Frontier*, 80-81.
[60] Tomás Almaguer, *Racial Fault Lines: The Historical Origins of White Supremacy in California* (Berkeley: University of California Press, 1994), 3.
[61] Horsman, *Race and Manifest Destiny*, 190-207.
[62] Almaguer, *Racial Fault* Lines, 14.

Jefferson Farnham wrote that Californians, "destitute of industry,' constituted an "imbecile, pusillanimous race of men" who were "unfit to control the destinies of that beautiful country."[63]

Anglo writers cited the failure to develop California's lands as justification for an Anglo-American takeover. Usually Anglos argued that Indigenous peoples never obtained land rights because of a supposed failure to reclaim, but Anglos readily applied this argument to other races and ethnic groups, including Californios.[64] Explorer Sir George Simpson wrote that California was a splendid country wasted on men who did "not avail themselves of their nature to a much higher degree than the savages whom they [had] displaced."[65] Lansford Hastings predicted that a time would come "when those wild forests, trackless plains, untrodden valleys, and the unbounded ocean" would "present one grand scheme of continuous improvements, universal enterprise, and unparalleled commerce…"[66] Luther Schaeffer, a gold miner and Maryland native, wrote that when California "belonged to the thriftless and indifferent Mexican, these hills and valleys lavished upon the desert air their wealth and beauty." He believed it would be up to the "indomitable and thorough-going Anglo-Saxon race, to bring forth the mineral and agricultural wealth" of California.[67] Writer Washington Irving shared such sentiments, claiming that

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[63] Thomas Jefferson Farnham, *Travels in the Californias and Scenes in the Pacific Ocean* (New York, 1844-1845; reprint ed, Oaklan, 1947), 148. This perspective was not uniquely Anglo. Historian David Langum found that "an image of Californio indolence [could] be developed, separately and independently of American sources, for Russian, French, English, German, Swedish, and even Spanish writers." David J. Langum "Californios and the Image of Indolence," *The Western Historical Quarterly* 9, no. 2 (1978): 182, https://doi.org/10.2307/966826. However, only Anglos cited the failure to develop California's lands as justification for takeover.

[64] Almaguer, *Racial Fault Lines*, 4; Lorenzo Veracini, *The Settler Colonial Present* (New York: Palgrave Macmillan, 2015), 21, 38; Cheryl L. Harris, "Whiteness as Property," *Harvard Law Review* 106, no. 8 (1993): 1714. https://doi.org/10.2307/1341787; Jason E. Pierce, *Making the White Man's West: Whiteness and the Creation of the American West* (Boulder: University Press of Colorado, 2016), 32-33; Veracini, *Settler Colonialism,* 16-20; Aziz Rana, *The Two Faces of American Freedom* (Cambridge: Harvard University Press, 2010), 10; Natsu Taylor Saito, "Tales of Color and Colonialism: Racial Realism and Settler Colonial Theory," *FLORIDA A&M UNIVERSITY LAW REVIEW* 10, No. 1 (2014): 27.

[65] George Simpson, *Narrative of a Journey Round the World During the Years 1841-1842* (London, 1847), 1: 408.

[66] Hastings, *The Emigrants Guide to Oregon and California*, 151.

[67] L.M. Schaeffer, *Sketches of Travels in South America, Mexico, and California* (New York, 1860), 90.

Mexicans had "not the skill and industry to cultivate properly the fertile tracts along the coast."[68] Even writers who rejected characterizations of Hispanic peoples as intrinsically inferior mongrels still shared the racist fantasy of Anglo-American domination, which meant the domestication, assimilation, or expulsion of Hispanic Californians. As the writers at the *Daily Alta* wrote, "the ambitious energies and vaunted enterprise of the Anglo-Saxon" found "field and favor in California." They averred that the glory and grandeur of the Anglo-Saxon would compel the "relics of a declining race" to "assume the habits, manners, and customs of the manifest destiny million."[69]

The various reports about the problem of foreigners in the 1849-1850 meeting of the California State Senate and Assembly, though staking distinct positions, ultimately related to the goal of promoting settlement in the state's valleys.[70] In a report for the Select Committee on the Public Domain and Mineral Lands, Sacramento assemblyman Madison Walthall lamented that in the previous year swarms of foreigners extracted hundreds of thousands of dollars' worth of gold and then returned "to their respective homes without contributing anything to the prosperity of a people, whose hard-earned and honorably purchased wealth" they had "appropriated to themselves." This unearned wealth, he predicted, would entice ever larger and greedier swarms of foreigners to come. Supposedly, foreign populations eschewed American institutions. The ever-growing presence of these foreigners, driven by a desire to glut "their thirst for gold," allegedly rendered citizens insecure. Without explanation, Walthall asserted that a large presence of foreigners discouraged American families from settling in the state's fertile valleys, which

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[68] Quoted in Richard H. Peterson, *Manifest Destiny in the Mines: A Cultural Interpretation of Anti-Mexican Nativism in California, 1848-1853* (San Francisco: R and E Research Associates, 1975), 11.
[69] "Honorable Emulation," *Daily Alta*, May 24, 1850.
[70] Veracini, *The Settler Colonial Present,* 21. The goal of settlement reflected the "indigenizing" project of settler-colonialism where settlers claim a natural right to the land because they have earned it.

otherwise presented "strong inducements to farmers to bring their families." He then asserted that "every correct principle of political economy" called "for an early settlement of these sections by moral, industrious, and liberty loving citizens." He proposed excluding foreigners not taking steps to becoming American citizens or who were ineligible for American citizenship.[71]

The minority report was even more blunt about the peril foreigners posed for the permanent presence of American citizens. Allegedly, competition "with the Mexican peon, Chilean slave, or Sandwich Island [Hawaiian] serf" threatened the mineral earnings of American citizens. While the majority report permitted the possibility of assimilation, the minority report evinced a racist understanding of citizenship, insisting that non-white foreigners lacked "intelligence sufficient to appreciate the true principles of a free form of government." It thickly laid on the vitriol, calling non-white foreigners "vicious, indolent, and dishonest" with "habits of life low and degraded" and "an intellect but one degree above the beast of the field" so that they were "not susceptible of elevation" and instead constituting altogether "a curse to any enlightened community."[72]

The minority report linked the presence of foreigners with agricultural instability but explained why through a republican framework. As historian David Roediger argues, one of the pillars of nineteenth century American politics was herrenvolk republicanism, which frequently warned that elites would conspire with servile, alien people of color against native-born, middling whites.[73] Assemblyman Hughes displayed herrenvolk republicanism in his prediction that open mineral lands would lure foreign capitalists who would increase the foreign population

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[71] *Journal of the Proceedings of the House of Assembly of the State of California at their First Session Begun and Held at Puebla de San Jośe on the Fifteenth Day of December, 1849* (San José, 1850), 803-805.
[72] *Journal of the Proceedings of the House of Assembly of the State of California at their First Session, 1849*, 809.
[73] David R. Roediger, *The Wages of Whiteness: Race and the Making of the American Working Class, Revised ed.* (New York: Verso, 1999), 59-60.

tenfold in the next three years by bringing over dependent "hordes of the worst population of the Old World." Hughes feared that foreign puppets would consume scarce domestic production without moving into agriculture. Both leasing rights for working in the mines and sales of mineral lands, Hughes warned, would eventually place the entire ownership of mineral districts "in the hands of a few monied monopolists." Hughes advocated excluding foreigners and affirmed that the government's true purpose was to secure a competency for every citizen. To that end, he called for government surveyors to secure "tillable land contiguous to rivers and small water courses" and to California apply preemption, the right of US citizens to purchase 160 acres of public land that they had settled on for at least fourteen months.[74]

Senator Thomas Jefferson Green's leasing bill, rather than exclusion, prevailed. Green argued the Constitution prevented California from abolishing immigration even though foreigners hurt the American people. This raised an apparent quandary, for foreign presence provoked a "national wrath" that was "evidently growing stronger every day." Green simply took for granted the inevitability of Anglo-violence towards non-Anglos. Anglos were a conquering people, whose conquest earned them the right to the land's wealth.[75] Green suggested that taxing foreigners would mollify Anglos. Furthermore, a tax could drive Central and South American immigrants into the employ of Anglos. Green hoped that licensing fees would compel foreigners to borrow from merchants, who could use these loans to compel labor from foreigners.[76] He

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[74] *Journal of the Proceedings of the House of Assembly of the State of California at their First Session*, 810-812.
[75] As scholars of settler colonialism have argued, settlers were made by conquest, and Americans viewed the basic engine of republican freedom to be conquest. Aziz Rana, *The Two Faces of American Freedom* (Cambridge: Harvard University Press, 2010), 11-13. Patricia Limerick has argued that conquest constitutes the quintessential form of economic growth in American history, and that conquest stems from the transformation of land into private property. Patricia Nelson Limerick, *The Legacy of Conquest: The Unbroken Past of the American West* (New York: W.W. Norton and Company, 1987), 27-30.
[76] Smith, *Freedom's Frontier*, 87-91.

predicted that the tax would yield $200,000 of revenue to the state coffers every month.[77] The 1850 Foreign Miner's Act levied a twenty dollar a month licensing fee on any foreign miner.[78]

The tax neither augmented revenues nor saved foreigners from Anglo aggression. Most Mexican miners could not afford the tax. Up to three-fourths of the Mexicans fled the southern mines after a few months.[79] Violent campaigns expelled most of the remaining Mexican miners as Anglos burned down Mexican houses, disarmed Mexican immigrants, and forcibly removed the Mexican population from San Andreas and the forks of the Calaveras River.[80] Merchants and coastal newspapers denounced the tax as "injurious and oppressive to a large majority of the people of this state," whose effect was to "derange and almost to destroy business in all the inland towns."[81] In 1852 the state repealed the tax, but for Anglo settlers the damage was irrevocable. Hispanics would not become the state's primary source of agricultural labor in the 1850s.

A large source of labor for 1850s Sacramento Valley farms and ranches came from violently reintegrating Indians into the labor force. This violence initially stemmed from Anglo desires for Indian land and labor. A contemporary traveler observed that whites erected mining towns on top of the sites of burnt-off Indian settlements.[82] Federal Indian agents also found that whites located their houses near Natives so that they could "more readily command the services of the Indians." Whites not only constructed their own homes near Indian villages but laid out towns around and over them, which eventually had to "drive [Indians] from such houses.[83]

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[77] *Journal of the Senate of the State of California at their First Session*, 493-495.
[78] "An Act for the Better Regulation of the Mines, and the Government of Foreign Miners," in *The Statutes of California Passed at the First Session of the Legislature,* Chap. 97 (Passed April 13, 1850).
[79] Morefield, "Mexicans in the California Mines, 40.
[80] Peterson, "Anti-Mexican Nativism in California," 313.
[81] "The Latest from Stockton," *Daily Alta*, June 4, 1850.
[82] Carl Meyer and Ruth Frey Axe, *Bound for Sacramento: Travel-Pictures of a Returned Wanderer* (Claremont: Saunders Studio Press, 1938), 112.
[83] Quoted in Robert F. Heizer, *The Destruction of California Indians* (Santa Barbara: Peregrine Smith, 1974), 179.

Fences blocked animal migrations, and cattle consumed the best grasses.[84]A special committee for the California Senate detailed the perils of such practices, reporting that when a white man selected the site of an Indian village, he soon wanted the land which they occupied and cut down the oak trees which Indians relied on for food.[85] The consequence of the "intrusion of the white man upon the Indian's hunting grounds" was that Indians suffered every winter for sustenance.[86]

Direct settler violence thrust Indians into a state of precarity. According to historian Brendan Lindsay, most Anglos heard stories about wars fought against blood-thirsty savages to seize arable land in the eastern half of the United States. The image of the blood-thirsty savage intensified on the overland trails, where "sensationalized accounts of violence and savagery, obtained by rumor and superficial conclusions in trail narratives and guides, were vivid in the minds of many emigrants."[87] Californian Indians represented, in the words of Tomás Almaguer, "the metaphoric 'devils of the forest' for many settlers, mere extensions of the wilderness Anglos needed to transform."[88] A writer for the *Sacramento Transcript* referenced the tradition of Indian killing to explain supposed US superiority to Mexico. He wrote that "the almost complete annihilation of the Indian tribes by the settlers of New England and the Atlantic States" was "one of the principal causes of the present differences between the condition of Mexico and the condition of the United States."[89] Before arrival, emigrants heavily armed themselves, spending six million dollars between 1848 and 1852 on pistols and knives alone, which they wielded profusely.[90] Contemporary observers remarked that whites rampaged at every perceived slight.

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[84] Elliott West, *Continental Reckoning: The American West in the Age of Expansion* (Lincoln: University of Nebraska Press, 2023), 44.
[85] *Journal of the Third Session of the Legislature of California*, 603.
[86] "Indian War," *Sacramento Union*, February 3, 1855.
[87] Lindsay, *Murder State*, 37-39.
[88] Almaguer, *Racial Fault Lines*, 5.
[89] "Southern Mines—Races," *Sacramento Transcript*, August 6, 1850.
[90] Benjamin Madley, *An American Genocide: The United States and the California Indian Catastrophe* (New Haven: Yale University Press, 2016), 78.

Swiss immigrant Heinrich Lienhard wrote that "whenever anything was stolen the so-called Christian miners would invariably say 'kill every d—Indian you can find!'"[91] A Federal Indian Agent commented that affairs where whites killed Indians over missing livestock that eventually returned was "becoming frequent."[92]

Ranchers and government officials warned that only "domestication" could protect Indians from extermination and passed "protective" laws that facilitated Indian enslavement. The most significant attempt came through the 1850 "Act for the Government and Protection of Indians."[93] The original draft entailed substantial protections for Indians, including districts administered by a justice of the peace elected by Indians as well as rights to hunting, fishing, and gathering sites.[94] These provisions were tabled in the final draft of the bill prepared by ranchers John Bidwell, Mariano Guadalupe Vallejo, and David F. Douglass.[95] Though the 1850 Act nominally protected California Indians from abuse, it nullified those protections by delegating enforcement to white citizens. The second section, for example, required that proprietors of Indian lands allow Indians to peaceably reside on their land, "unmolested in the pursuit of their usual avocations for the maintenance of themselves and families." But it allowed a white person to limit and reduce Indian lands through a justice of the peace. Furthermore, section 6 stipulated that in no case should "a white man be convicted of any offense upon the testimony of an Indian."[96] By barring Indian testimony against whites, the law denied Indians the ability to legally defend themselves against marauding whites.

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[91] Heinrich Lienhard and Marguerite Eyer Wilbur, *A Pioneer at Sutter's Fort, 1846-1850: the Adventures of Heinrich Lienhard* (Los Angeles: The Calafia Society, 1941), 186.
[92] Quoted in Heizer, *The Destruction of California Indians*, 43.
[93] "An Act for the Government and Protection of Indians," *The Statutes of California Passed at the First Session of the Legislature*, Chap. 133 (Passed April 22, 1850).
[94] Hurtado, *Indian Survival on the California Frontier*, 129-130.
[95] James J. Rawls, *Indians of California: The Changing Image* (Norman: University of Oklahoma Press, 1984), 89.
[96] "An Act for the Government and Protection of Indian," 409.

For ranchers and farmers, the most important provisions empowered settlers to enslave Indians. Section 3 enabled whites to obtain Indian minors with permission from their parents or "friends of the child."[97] Judges often let kidnappers stand in as friends of the family. This section encouraged a robust slave trade, as whites raided Indian rancherías in search for children. Between 1852 and 1867, whites enslaved up to four thousand Indian children. Small ranches and farms desired Indians boys who could perform menial drudgery as field hands, stock herders, woodchoppers, and kindling gatherers. Buyers prized girls the most, especially "handsome, 'clean' girls up to 12 years of age and in 'prime conditions' (virgins)."[98]

Other sections empowered ordinary whites to participate in the Indian slave trade. Sections 11 and 16 gave whites the right to arrest Indian debtors "without process." Section 20 allowed any white person to accuse an Indian of loitering, drinking liquor, begging, or "leading an immoral or profligate course of life." Since Indians could not contravene white testimony, accusations almost always became convictions. Once convicted, the court would auction the Indian off to the highest white bidder for a period of indenture, usually four months.[99] Indians driven to wage labor by white marauding, ecosystem collapse, and dispossession competed for scarce jobs that paid one-sixth the typical miners income. If an Indian could not secure one of these jobs, a settler could arrest him for vagrancy and sell him into indentured servitude. Under

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[97] "An Act for the Government and Protection of Indians," 408.
[98] Richard Steven Street, *Beasts of the Field: A Narrative History of California Farmworkers, 1769-1913* (Stanford: Stanford University Press, 2004), 127. More than just laborers, Indian wards signified "free adult manhood" for their captors. Smith, *Freedom's Frontier*, 118. Nineteenth century republican citizenship, as scholars have explained, rested on the dichotomy between independent white men and their dependents, which included nonwhites, women, and children. Wherever possible, Anglo-men avoided domestic service, and acquired dependents—women, children, slaves, and servants—to do it for them. Belich, *Replenishing the Earth*, 157. Given the paucity of women in 1850s California, Indian children helped buttress the masculinity of white settlers. Evelyn Nakano Glenn, *Unequal Freedom: How Race and Gender Shaped Citizenship and Labor* (Cambridge: Harvard University Press, 2004), 23.
[99] "An Act for the Government and Protection of Indians," 409-410.

the 1850 act and the expanded 1860 act, up to twenty thousand California Indians suffered indenture.[100]

Contemporary reports indicate that Indians constituted an important source of labor for Sacramento Valley ranchers and farmers. Prominent Sacramento Valley rancher John Bidwell commented that Indians were "all among us, around us, with us—hardly a farm house—a kitchen without them."[101] He employed Mechoopda Indians who planted, harvested, and threshed three hundred acres on his rancho, tended livestock, and constructed buildings, including his adobe mansion.[102] A visitor to the ranches along the American River in the early 1850s felt "perfectly astonished" at the grain and herds tended by Indian workmen, including making up the entire labor force of at least one farm.[103] Indian labor was, in the words of a contemporary observer, "indispensable in a country where no other species of laborers were to be obtained at any price."[104] Jim Gerber has argued that grain farming likely could not "have taken off when it did without the 20,000 Native American men, women, and children eventually bound under the [indenture] law's various provisions."[105]

Some scholars have asserted that Indians could not have comprised much of California's early agricultural labor force, but this assertion rests on a flawed reading of the evidence. The impression of Indian irrelevance, according to historian Richard Steven Street, is falsely reinforced by census surveys conducted in May and June, several months before Natives would have begun working at grain harvesting and threshing. Moreover, the census counted Indian labor in the category of "other."[106]

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[100] Lindsay, *Murder State*, 153-156.
[101] Quoted in Magliari, "Free State Slavery," 158.
[102] Street, *Beasts of the Field*, 151.
[103] Jacob D.B Stillman, *The Gold Rush Letters of J.D.B. Stillman* (Pao Alto: Lewis Osborne, 1967), 63.
[104] Johnson, *Sights in the Gold Region*, 193.
[105] Gerber, "The Origin of California's Export Surplus in Cereals," 52.
[106] Street, *Beasts of the Field*, 139.

A reductive understanding of Indian-settler relations also reinforces the impression that Indian labor was scant. One historian contends that since Americans "were seemingly more interested in killing the Indians than in using them for labor," Indians could not have been a source of cheap labor.[107] Settlers certainly slaughtered Indians, and the killings were greatest in areas where Indian subsistence conflicted with settler land hunger. In Mendocino County, free-roaming cattle decimated vital sources of subsistence for Indians, who fought back by killing cattle. If not for starvation, witnesses confessed, Indians would not kill cattle, as whites retaliated by murdering ten to fifteen Indians for every cattle that went missing.[108] U.S. Army Officer Edward Dillon stated he firmly believed that certain parties wanted to get rid of Mendocino Indians "to extend the stock range."[109] The settler desire to extend their stock range and farms by massacring Indians, however, conflicted with the growing labor demands entailed by an expanding stock range. Even as settlers called for the extermination of Indians to protect stock, they also commonly raided nearby rancherias to "take the Indians and put them to work."[110] On one occasion a party of citizens came to the house of John Lawson, a Round Valley farmer and stock raiser, to kill his Indians. When he told them that he wanted his Indians to work for him, the party let him pick out the Indians he wanted to work so they could kill the remainder.[111]

The party did not end up killing any of Lawson's Indians, but the fact that they would distinguish between "productive" and expendable Indians indicates that labor constituted one potential defense mechanism for Indians and a means of reconciling settler expansion and labor demand. As historian William Bauer has found, Round Valley Indians often willingly lived with

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[107] Ellen Liebman, *California Farmland: A History of Large Agricultural Land Holdings* (Totowa, N.J.: Rowman & Allanheld, 1983), 26.
[108] "Majority and Minority Reports of the Special Joint Committee on the Mendocino War," 22-24.
[109] "Majority and Minority Reports of the Special Joint Committee on the Mendocino War," 60.
[110] "Majority and Minority Reports of the Special Joint Committee on the Mendocino War," 23 and 65.
[111] "Majority and Minority Reports of the Special Joint Committee on the Mendocino War,"73.

white squatters, whom they looked to for protection.[112] According to a letter writer, the Colus Indians also looked to "the white man who owns their land as the 'Great Chief'" and expected him to "defend them from the attacks of their neighbors."[113] Though ranchers obtained bound labor for domestic work, it made more sense to attract labor that they only needed seasonally with wages.[114] Many Indians took advantage of this labor arrangement. Chief Sioc of the Colus, who Will S. Green described as "a remarkable man standing a full six feet tall, straight as an arrow, and "every inch a king," understood that great numbers of whites could come in all sides with great guns and destroy his people.[115] Sioc granted settlers first call on their labor in exchange for protections of their rights of occupancy.[116] The ability to call upon Indian labor remained critical during a decade when white laborers remained, according to historian Michael Magliari, "notoriously transient and prohibitively expensive."[117] During harvest season white workers could command up to seventy-five dollars per month, whereas Indian farm hands typically received seventy-five cents per day, or about twenty dollars a month. Destruction of habitats diminished Indians traditional sources of food, and the apparent endless growth of the Anglo population convinced some Indian tribes that peaceful coexistence was more viable than violent resistance.[118]

Nevertheless, many Indians fought whites, raided cattle, and mined gold. The *Sacramento Transcript* complained in January of 1851 that Indians worked a great part of the richest mines.[119] In an 1851 report, the Committee on Indian Affairs recommended that the legislature

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[112] William J. Bauer Jr, *We Were All Like Migrant Workers Here: Work, Community, and Memory on California's Round Valley Reservation, 1850-1941* (Chapel Hill: The University of North Carolina Press, 2009), 46-47.
[113] Quoted in Rogers, *Colusa County*, 33-35.
[114] Magliari, "Free State Slavery," 160.
[115] Green, *Colusa County*, 32.
[116] Magliari, "Free State Slavery," 164.
[117] Magliari, 157.
[118] Magliari, 165.
[119] "Our Indian Relations," *Sacramento Transcript*, January 30, 1851.

"suppress existing hostilities" by "prompt and energetic legislation.[120] Reports of Indian-perpetrated murders also abounded, although, as Federal Agent Redick McKee wrote in a letter to Governor Bigler, it would have been "an endless as well as thankless task" to "correct the thousand extravagant statements made on this subject."[121] Indians did kill 362 whites between 1840 and 1860, but whites killed as many as 16,000 Indians.[122]

The state supported extermination campaigns because settler militias traditionally secured American sovereignty. The nineteenth-century United States relied on state militia units and volunteers for defense. Recruitment always worked best among settlers in frontier states who believed they were fighting for their way of life. The specter of the "other," and the right of white Americans to wage ruthless war against this imagined ruthless other fostered a shared American identity. "The political failure to build a more capacious state," Gary Gerstle wrote, "heightened the importance of race as a sinew of sovereignty."[123] In 1851, California's government borrowed $500,000 for past and future anti-Indian operations. Politicians who wanted more weapons and ammunition for the militias built a state arsenal. By April, the arsenal held 120 stands of arms, 400 muskets, and 90,000 cartridges.[124] California's second governor, John Bigler, warned that a continuation of the status quo would unavoidably annihilate Indigenous Californians.[125] He wrote to Indian Agent John McKee that he deplored the violent

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[120] *Journals of the Legislature of the State of California at Its Second Session*, 1014.
[121] *Journal of the Third Session of the Legislature of California*, 719.
[122] Madley, *An American Genocide,* 78, 351.
[123] Gary Gerstle, *Liberty and Coercion: The Paradox of American Government* (Princeton: Princeton University Press, 2015), 51-54.
[124] Madley, *An American Genocide,* 190-199.
[125] As a settler collective relies on the fantasy of Indian disappearance, the continuing presence of Indians "ruptured the settler colonial fantasy." Veracini, *Settler Colonialism*, 77; Walter L. Hixson, *American Settler Colonialism: A History* (New York: Palgrave MacMillan, 2013), 21. The assumption of extinction carried with it an assumption of intrinsic guilt. Indian Agent J. Ross Browne wrote that settlers killed Indians who "failed to perish from hunger or exposure…on the general principle that they must have subsisted by stealing cattle." J. Ross Browne, *Crusoe's Island: A Ramble in the Footsteps of Alexander Selkirk, with Sketches of Adventure in California and Washoe* (New York: 1864), 286.

and unsettled conditions in the northern parts of the state but could do nothing about it, as the "steady, august, and resistless" progress of civilization had "always been attended with perils."[126] In a message to the legislature, Bigler claimed that American experience demonstrated that Indians and whites could not "live in the same vicinity in peace." As Indians supposedly shirked manual labor yet craved the comforts of life created by white labor, they could not help but steal. White men, in return, resolved "upon a war of extermination."[127]

This genocidal status quo encouraged the U.S. Indian Affairs Commissioner in 1851 to send Redick McKee, Colonel George W. Barbour, and Dr. Oliver M. Wozencraft to negotiate treaties with California Indians. Before the 1850s, the U.S. government typically removed Indians from the areas east of the Mississippi to territories farther west.[128] With supposedly no more west, the federal agents claimed they could only offer two options: "extermination or domestication."[129] This was a false dichotomy. They could move Californian Indians to western territories east of California, such as Oklahoma, where the U.S. government moved the Modocs in 1873.[130] But false choice rendered compulsory labor a humane option. "Domestication," they wrote, included "all proper measures for their protection and gradual improvement" and secured

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[126] *Journal of the Third Session of the Legislature of California*, 714.
[127] "The Governor's Message," *Sacramento Transcript*, January 10, 1851. Sympathetic whites deplored the plight that Indians faced, but they still consigned Indians to inevitable extinction. The *Alta* acknowledged that "the settlement of the whites in the plains and valleys has necessarily driven the game from the old grounds when the Indians derived their supplies." Nevertheless, they celebrated California as a God-given "goodly heritage" "rich with virgin soil as yet untended by the plough-share of the husbandman" and settler labor as destined to make California the "entre-pot for the riches of the Indies, the whole eastern continent and the islands of the western seas." "Our Indian Relations," *Daily Alta*, January 21, 1851; "California—Her Future Prospects," *Daily Alta*, February 18, 1851. California's fifth governor, John Weller, confessed that whites caused starvation by destroying the trees from which Indians obtained their food and by driving the fish from streams. But he insinuated that nothing could be done for Indians, as supposedly efforts to teach them agriculture and disabuse their minds "of the opinion (common to all savage races) that labor is dishonorable" all came to naught. "Governor's Message," *Sacramento Daily Union*, January 6, 1859. Sympathetic whites accepted that the Indians must be "annihilated by the advance of the white man," but disagreed that such annihilation should have been accelerated by "the deadly rifle." "Indian War," *Sacramento Union*, February 3, 1855.
[128] Damon B. Atkins and William J. Bauer Jr, *We are the Land: A History of Native California* (Oakland: University of California Press, 2021), 139.
[129] "Address of the Indian Agents," *Sacramento Transcript*, January 17, 1851.
[130] Madley, *An American Genocide,* 336-345.

"to the people of the state an element greatly needed in the development of its resources, viz: cheap labor."[131] Throughout 1851, the federal agents met with California Indians and negotiated eighteen treaties reserving 7.5 million acres of land. They generally ignored Indigenous people from coastal areas, where Spanish-Mexican grants claimed much of the land and where rancheros had taken mission lands intended for Indian habitation. They also intended the reservations to keep Indian labor accessible for American and California ranchers. The treaties reserved substantial tracts in the San Joaquin and Sacramento Valleys.[132]

California legislators balked at the treaties, partly because they contained interior lands considered critical to the republican future of the state. In a memorial to the US Senate and House of Representatives, state legislators waxed poetic about the wisdom of "giving to every head of a family land enough to live upon" which made them "industrious in peace and patriotic in war."[133] But, warned the special committee which examined the treaties, Indians tribes were "wholly incapable, by habit or taste," of appreciating" the value of the lands made exclusive for them.[134] In an assembly report on Indian reservations, legislators questioned why the reservations should embrace "extensive tracts of the most desirable mineral and agricultural lands in California" only to make room for the "settlement of a few tribes of ignorant barbarians."[135]

As an alternative to reservations, legislators championed the tradition of Indian removal. Indian removal, according to a California senate special committee, ensured the co-extensive power of the state within its limits. California legislators argued that it was the federal government's responsibility to extinguish Indian titles and "remove every obstruction to the

[131] "Address of the Indian Agents," *Sacramento Transcript*, January 17, 1851.
[132] Atkins and Bauer Jr, *We are the Land*, 144-146.
[133] *Journal of the Third Session of the Legislature of California,* 583.
[134] *Journal of the Third Session of the Legislature of California*, 597.
[135] *Journal of the Proceedings of the Assembly* (1852), 202.

complete jurisdiction of the State Government to the soil." Since 1829, the federal government had extinguished 120 million acres of Indian land, and between 1829 and 1837 moved forty thousand Indians to homes west of the Mississippi, to the purported happiness of both "red man" and the white. The committee asked why California should not receive the same service from Congress.[136]

Despite the demand for traditional federal Indian policy, California's legislature suggested a policy which reflected the varying adaptive strategies of Natives. Legislators distinguished between semi-civilized "mission" Indians and completely savage "wild" Indians.[137] According to a special committee, mission Indians had "lost their wandering character, abandoned their hunter state, and had become valuable, and indeed, indispensable servants to the large rancheros." By offering them reservations, the federal Indian agents allegedly threatened not only to take away "from the labor of California some of her most important agricultural districts," but also endangered mission Indians. The committee feared that general unhappiness with the new conditions would incite conflict between mission Indians and whites. To save the mission Indians, the committee recommended, the government should leave them alone, or at least refuse to give them reservations, thereby restoring "much needed" labor.[138]

As for the so-called wild Indians, the minority report of the special committee laid out the prospect of elimination. There was no place to locate wild Indians. Oregon, Utah, and New Mexico would not take them. East of the Sierra Nevada was "desert and sterile regions" where

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[136] *Journal of the Third Session of the Legislature of California*, 599-600. Traditional settler colonies, according to political scientist Adam Dahl, are premised on imperial dependence, on the subordination of the colony to the metropole. But American settler colonialism is based on imperial equality, which grants new states the same rights as old states. Central to the federalist principle of equality is the fantasy of an empty wilderness. Adam Dahl, *Empire of the People: Settler Colonialism and the Foundations of Modern Democratic Thought* (Lawrence: University Press of Kansas, 2018), 25-26. But the petitions of California legislators indicate they understood their equality not as a right to empty wilderness but as a right to removing Indians and sending them into some purported wilderness.
[137] *Journal of the Third Session of the Legislature of California*, 589.
[138] *Journal of the Third Session of the Legislature of California*, 598.

they would die of starvation. Flavoring the compassion with racism, they warned that even if some Indians survived after removal to the east, they would become "the Arabs of America." Thus, a policy of removal in the context of California's geographical position was eliminationist. It would be "better," the committee wrote, "far better, to drive them at once into the ocean, or bury them in the land of their birth."[139]

On July 7, 1852, the United States Senate rejected the treaties, thereby preserving California's interior lands for white settlers. The California Indian Superintendent proposed reservations occupying about seventy-five thousand acres each. Federal agents would not negotiate treaties. They would simply invite California Indians to assemble on government lands. According to historian James Rawls, this proposal was significant because it "included the essential features of the reservation system that was to be adopted in California and eventually extended across the west." At its peak, however, military reservations only affected up to ten thousand California Indians, and federal troops refused to protect Indians or their property, even when on these military reserves.[140]

Securing the interior lands, however, did not lead to dense white settlement after 1852. Other impediments to widespread white settlement remained. Spanish-Mexican era land grants constituted one the most significant obstacles. Spanish and Mexican officials had made some eight hundred grants of land with indeterminate boundaries covering thirteen or fourteen million acres, encompassing practically all the good coastal valley land.[141] These grants were defined vaguely by their features, such as a hill or grove of trees.[142] Unclear boundaries allowed grant-

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[139] *Journal of the Third Session of the Legislature of California*, 602.
[140] Rawls, *Indians of California*, 148-152.
[141] Paul W. Gates, *Land and Law in California: Essays on Land Policies* (Ames: Iowa State University Press, 1991), 4; Paul W. Gates, *History of Public Land Law Development* (Washington D.C.: Public Land Law Review Commission, 1968), 206.
[142] West, *Continental Reckoning*, 72.

holders to "float" their claims over farms and mineral lands already under development by settlers.[143] Claimants often delayed the confirmation process so they could extract rents from farmland they ultimately would lose.[144] Under the 1848 Treaty of Guadalupe Hidalgo, California agreed to honor Mexican land laws. Mexican law would have nullified most of these grants since their holders failed to convert the lands into operating ranchos. But canceling or confirming a grant on average took seventeen years.[145] The complications with determining the legitimacy and boundaries of the grants made it difficult for settlers to take advantage of preemption.[146]

Swamp and overflowed lands (wetlands) presented a potential solution to the bane of Spanish-Mexican grants. Ill-defined in law, swamp and overflowed lands referred to lands where farmers could not profitably farm because of periodic inundation.[147] Though Spanish-Mexican grants extended into the Sacramento Valley, they did not cover most swamplands. In Sacramento County, Spanish-Mexican grants only accounted for fifteen thousand of its estimated one-hundred-thirty thousand acres of overflowed lands.[148] Congress donated wetlands to the states through the General Swamp Land Act of 1850, which is also known as the Arkansas Act. Usually, the federal government sold public lands directly, but Congress willingly dumped swamplands on the states because they viewed them as useless and unhealthful.[149] California politicians and newspaper editors recognized the potential to attract large numbers of settlers to the swamplands. In his 1852 message to the state legislature, Governor John McDougal implied that Spanish-Mexicans grants took up virtually all the arable non-swamplands as wetlands

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[143] Gates, *Land and Law in California*, 13.
[144] Gates, 42.
[145] Gates, 36.
[146] THE PREEMPTION ACT OF 1841 27th Congress, Ch. 16, 5 Stat. 453 (1841).
[147] Gates, *History of Public Land Law Development*, 325-327.
[148] Seneca H. Marlette, *Annual Report of the Surveyor-General of the State of California* [Session 1855] (Sacramento, 1855), 43.
[149] Gates, *History of Public Land Law Development*, 321-323.

embraced “almost the entire arable public lands in the State.” He requested a law to secure each settler land for a homestead, which would make a large portion of the state “lying in a useless condition” productive.[150] The *San Joaquin Republican* argued that swamplands offered superior inducement to any other location because “good and undoubted titles [could] be obtained to them.”[151] Though swamplands existed throughout the state, legislators were likely thinking about the Sacramento and northern San Joaquin Valley, as those regions contained 83 percent of surveyed swamplands through 1855.[152]

By 1855 California still lacked any law for the settlement of swamplands, a delay owing in part to disagreements over the feasibility of swampland reclamation. Some recognized that individual settlers could not reclaim swamplands. A senate committee in 1852 asserted that only a grand system could convert California’s overflowed valleys and alluvial swamps, from which arose “noxious vapors destructive of health,” into “rich meadows, luscious vineyards, blooming orchards, and cheerful villas.” The committee warned that if the state first sold out, donated, or divided the lands among many proprietors, it could never implement a grand system as each proprietor would seek to secure his own interests first. The committee advised that the state first determine the extent of the lands before adopting any general system.[153] In 1854, California’s surveyor general suggested that a general system could reclaim swamplands more economically. He recommended creating a board of land commissioners with full power, under proper restriction, to make all necessary surveys.[154]

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[150] “Governor McDougal’s Message,” *Daily Alta*, January 16, 1852.
[151] “The Swamp and Overflowed Lands,” *San Joaquin Republican*, October 2, 1855.
[152] John A. Brewster, *Annual Report of the Surveyor General for 1856* (Sacramento, 1856), 9.
[153] *Journal of the Third Session of the Legislature of the State of California* (San Francisco, 1852), 697-698.
[154] Seneca H. Marlette, *Annual Report of the Surveyor-General of the State of California* [Session 1855], 10.

Officials advocated a more general system because swamplands presented unique challenges for individual settlers. First, settlers had to drain them with ditches. County surveyor C.D. Semple reported that large parts of Colusa County swamplands could become reclaimable by running a ditch from a marsh south-east into Sycamore Slough. A slough is a small, marshy waterway. Sycamore Slough emerged from the Sacramento River about six miles south of Colusa, running south-west for eleven miles until it disappeared in swamplands. The ditch running from Sycamore Slough would have to be six feet deep and half a mile long. The slough would have to be cleared of all brush and vegetation. Not only would building such a large ditch require extensive labor, but no small tract of land would contain the entire ditch. More problematically, the ditch and the slough were in Yolo County. Colusa County lacked authority to build the ditch, and Yolo County officials might have one day wanted to reclaim Sycamore Slough for their own landowners. For that reason, Semple recommended the state redraw county boundaries.[155]

Levee building presented another challenge for settler reclamation. Settlers protected their farms on highlands with low artificial mounds called "shoestring" levees that could at best withstand an ordinary high tide. Many settlers on the highlands did not mind occasional overflows, as the waters drained quickly and left behind sediment that renewed the soil, leading to a subsequent bumper crop. [156] Swamplands, on the other hand, drained slowly, and when water sat for long periods, thick reeds called tule grew.[157] Levees large and stable enough to contain high waters and withstand heavy waves during storms had to be from seven to seventeen feet

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[155] Seneca H. Marlette, *Annual Report of the Surveyor-General of the State of California* [Session of 1856], 232.
[156] "Richard H. Peterson, "The Failure to Reclaim: California State Swamp Land Policy and the Sacramento Valley, 1850-1866," *Southern California Quarterly* 56, no. 1 (1974): 52, https://doi.org/10.2307/41170515; David Vaught, *After the Gold Rush: Tarnished Dreams in the Sacramento Valley* (Baltimore: John Hopkins University Press, 2007), 77-85.
[157] *Journal of the House of Assembly of California at the Eleventh Session of the Legislature Begun on the Second Day of January 1860, and Ended on the Thirtieth Day of April, 1860, at the City of Sacramento*, 493-494.

above the natural levee, with the crown of the manmade levee up to twenty feet in width and the base up to one hundred feet wide. Building such large levees would have required a lot of labor considering that it had to be done by hand.[158] The labor-intensiveness of building a swampland levee might have been feasible for small settlers if it was a one-off effort. But swampland levees had to be restored every one to three years. Because material was transported by wheelbarrow, it usually came from the nearby environment. Swamplands were surrounded by peat, or soils filled with organic matter. Peat shrank upon drying, causing a levee made with such material to lose a third to half of its volume. As the material shrank, cracks formed, opening the way for seepage and collapse. Peat also floats, resulting in large segments of a levee rising on high tides.[159]

Despite the challenges of swampland reclamation, most newspaper editors and politicians advocated a policy that would disperse land ownership. A writer for the *Sacramento Transcript* opined that the General Swamp Land Act "touche[d] the masses." He called for the right of preemption to preclude speculators from buying up immense tracts of land and holding a monopoly "disastrous to the interests of a large portion of citizens."[160] In 1852, San Francisco Senator J.R. Snyder introduced a swampland bill to sell lands to "actual settlers only." It would have entitled each settler to 640 acres of swampland. He promised that "proper and rapid advancement of the country" would follow if the state granted lands to actual settlers. The *Alta* favored the bill, writing that too much land concentration would "retard the advancement in wealth and power of the State with whose destinies the interest of each citizen" was "so intimately interwoven." Nevertheless, the *Alta* writer believed that 640 acres was too much. He called for the state to dispose of public domain lands in the "smallest possible quantity." Echoing

[158] John Thompson, *The Settlement Geography of the Sacramento-San Joaquin Delta, California: A Dissertation* (Palo Alto: Stanford University, 1957), 248.
[159] Thompson, 240.
[160] "The Disposition of the Lands Belonging to California," *Sacramento Transcript*, December 5, 1850.

Governor McDougal, the writer reminded his readers that Spanish-Mexican grants had already converted a large share of fertile land into private property.[161]

The belief that distributing small plots of land to individual settlers would accelerate reclamation and prevent land monopoly reflected popular republican ideologies.[162] According to these ideologies, labor was precedent to capital. As Abraham Lincoln put it, "capital is only the fruit of labor, and could never have existed if labor had not first existed."[163] The idea that labor preceded capital underpinned the ideas of influential nineteenth century political economists such as Francis Wayland and Henry Charles Carey. According to one historian, Carey was the most broadly influential American economist before the Civil War.[164] In his book, *Principles of Political Economy*, Carey wrote that labor was "the sole cause of value" and capital "the accumulated results of past labor." Carey also argued that each man's labor created more capital than he could consume.[165] Wayland reinforced with scholarly authority the popular idea that private property inspired men to accumulate wealth. A practical implication of these ideas was that widespread land ownership nurtured social growth, while land monopoly threatened it.[166] In 1853, Democratic Governor John Bigler stated that donating the public domain in small tracts would serve state interest, because without adequate cultivation of the "vast and productive lands of the state," unscrupulous capitalists and speculators would "monopolize the very necessaries of life, and thus reduce the laboring classes…to the verge of starvation."[167] In his 1854 message to the state legislature, Governor Bigler noted that hundreds of enterprising citizens had already

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[161] "Major Snyder's Bill for the Sale of the Swamp Lands," *Daily Alta*, February 3, 1852.
[162] Heather Cox Richardson, *The Greatest Nation of the Earth*: *Republican Economic Policies During the Civil War* (Cambridge: Harvard University Press, 1997), 18-19.
[163] Cong. Globe, 37th Cong., 2d Sess. 4 (1861).
[164] Richardson, *The Greatest Nation of the Earth*, 21-23.
[165] Henry Charles Carey, *Principles of Political Economy* (Philadelphia: Carey, Lea & Blanchard, 1837), 7-19, 294.
[166] Richardson, *The Greatest Nation of the Earth*, 23.
[167] "Settler League Circular: J. Neely Johnson and John Bigler, Candidates for Governor, on Settlerism," *San Joaquin Republican*, August 22, 1855.

located on swamplands. He asserted that liberal terms would induce reclamation, and he affirmed that reclamation could be best achieved by donating land to "actual settlers" in small quantities.[168]

Proponents of settler reclamation also believed that distributing small plots of land would work faster than a systematically planned mode carried out by corporations or by the state. Governor John Bigler noted that the state must either reclaim each tract as sold or devise a general plan of operations. He warned that a general plan would require years of labor, delaying improvement and "greatly retard the prosperity of the state." Instead of a general plan, he exhorted the legislature to adopt a policy which donated up to 320 acres to actual settlers.[169] An 1855 report from the Yolo County Surveyor General hints at why some desired speedy settlement. He observed that settlers had already improved much of the swamplands in Yolo County by fencing, levies, and cultivation, but only concrete rights would allow these settlers to become a "community of lords of their own soil" who had "a permanent abode and interest." Crucially, it would supposedly attract more farming-oriented families by proving that California was a land of "permanent, prosperous, moral, and law-abiding people."[170]

Proponents of settler reclamation, paradoxically, slowed swampland reclamation by prohibiting settlement by Chinese immigrants. From 1851 to 1852, the Chinese population in California doubled.[171] Governor John McDougal suggested that the Chinese could reclaim swamplands, as they were supposedly suited to "the climate, and the characters" of those lands. While the legislature debated "coolie" bills that would have encouraged the importation of

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[168] "Governor's Message," *Sacramento Daily Union*, January 6, 1854.
[169] *Journal of the Fifth Session of the Legislature of the State of California* (Sacramento, 1854), 23.
[170] *Annual Report of the Surveyor-General of the State of California* (Sacramento, 1855), 278-279.
[171] Mai Ngai, *The Chinese Question: The Gold Rushes and Global Politics* (New York: W.W. Norton and Company, 2021), 85-87

contract labor, McDougal stated that granting swamplands to individuals could "induce a further immigration and settlement of the Chinese." [172] However, McDougal's successor, John Bigler, courted the state's white miners by slandering Chinese immigrants as "coolie" servants of capitalists. According to Mae Ngai, the "coolie question" constituted a core element of "Biglerism" and became one of the California Democratic Party's bedrock principles.[173] Instead of recruiting Chinese immigrants to settle the state's swamplands, California's government levied a tax on foreign miners (which at this time was primarily Chinese). Unlike the 1850 tax, the 1852 tax was meant to milk foreigner miners, not drive them out. Between 1852 and 1870, the Foreign Miners' Tax accounted for about half of California state revenues. [174]

The Foreign Miner's tax was not sufficient to reduce the state's debt, and swampland reclamation promised another source of revenue.[175] Even though miners comprised a large majority of California's population, they paid little tax since the federal government owned the mining lands.[176] The small tax base starved California's government and inflamed sectional tensions, as Southern California paid twice the property tax of the twelve mining counties in 1852 despite containing only 5 percent of their population.[177] It concerned members of the assembly that the "impoverished condition of the treasury" might require "ruinous and onerous taxation" which could scare away capital and alienate agricultural counties.[178] Governor McDougal emphasized that rapid swampland reclamation would contribute "largely to the State

[172] *Journal of the Third Session of the Legislature of the State of California*, 15.
[173] Ngai, *The Chinese Question*, 85-87.
[174] West, *Continental Reckoning,* 265.
[175] *Journal of the Fifth Session of the Legislature of California*, 12.
[176] *Journal of the Third Session of the Legislature of the State of California*, 13.
[177] Donald J. Pisani, *From the Family Farm to Agribusiness*: *The Irrigation Crusade in California and the West, 1850-1931* (Berkeley: University of California Press, 1984), 25.
[178] "Report of the Select Committee of Thirteen," in *Appendix to the Journal of the Fourth Session of the Legislature of the State of California* (San Francisco: 1853), 4-5.

treasury."[179] Two years later Governor Bigler claimed that speedy settlement and cultivation of swamplands would be a "great moment to the state, because it [would] add immensely to the amount of taxable property."[180]

In 1855, the state legislature finally passed a law allowing settlers to purchase swampland. The law addressed monopoly fears by limiting purchasers to 320 acres. It addressed the state's need for revenue by charging purchasers one dollar per acre. And it tried to make it easier for poorer settlers to acquire lands by giving them five years to pay the fee, with 10 percent annual interest. Settlers could also buy lands on time, which required the purchaser to reclaim half of the lands within five years.[181] In the law's first year, settlers bought only 41,358 acres of swamplands.[182]

Californians blamed the uncertainty of titles for paltry acquisition of swamplands. Since it was nearly impossible for surveyors to work during the rainy season, federal agents surveyed lands during the dry summer and fall months. Additionally, the federal government deemed any land which cultivated a staple crop for any time of year ineligible for inclusion under the Arkansas Act. The conflicting state and federal ideas about swamplands meant a settler who bought from the state risked losing his land in a federal auction.[183] After the Panic of 1857 decimated federal revenues, President James Buchanan opened eleven million acres of California land for auction.[184] Because of this complication, the Senate Committee on Swamp and

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[179] "Governor McDougal's Message," *Daily Alta*, January 16, 1852.
[180] *Journal of the Fifth Session of the Legislature of the State of California*, 23.
[181] "The Swamp Lands—Senator Holden's Report," *San Joaquin Republican*, April 10, 1859; California, *Statutes,* 1855, Chapter CLI, p. 189-191.
[182] *Journal of the Seventh Session of the Senate of the State of California* (Sacramento, 1856), 39.
[183] Horace A. Higley, *Annual Report of the Surveyor General for the Year 1858* (Sacramento, 1858), 4-7; Peterson, "The Failure to Reclaim," 48.
[184] Gates, "California Land Policy," 312.

Overflowed Lands in 1858 recommended postponing all legislation about swamplands until title was vested in the state.[185]

Settlers also complained that federal policy punished them for successful reclamation. California's surveyor general wrote to the General Land Office that settlers had already erected levees to confine waters within their banks. Settlers drained sloughs with ditches, making lands fit for cultivation. Federal surveyors coming in 1858 or 1859 were not seeing lands as they existed in 1850, but lands already improved. Compounding the difficulty of proving lands were swamp in 1850, California's migratory population left few long-term residents who could serve as witnesses for affidavits.[186]

Not all the settlers' problems derived from disagreements with the federal government. The state failed to create a land office until 1858, and the state only supplied it with a single surveyor general and two clerks.[187] Consequently, according to Surveyor General John Brewster, the process of obtaining swampland title was "tedious, troublesome, and expensive." Prospective buyers had to pay an individual county to survey the tract they wished to purchase. In some cases, it was unclear as to where one county ended and another began, often leading to surveyors from adjacent counties offering patents to two individuals for the same land.[188]

Even after the creation of a land office, officials still increasingly recognized that settlers could not reclaim the swamplands. The surveyor general recommended abolishing restrictions on the sale of overflowed lands because the redemption of large tracts was "now in many places almost impossible, from the difficulty of a combination of capital and labor among the

[185] *Journal of the Ninth Session of the Senate of the State of California,* 383.
[186] Horace A. Higley, *Annual Report of the Surveyor General for the Year 1860* (Sacramento, 1860), 12-17.
[187] Liebman, *California Farmland*, 22.
[188] John A. Brewster, *Annual Report of the Surveyor General for the Year 1857* (Sacramento, 1858), 12.

proprietors of small tracts."[189] The state legislature increased the maximum individual acreage from 320 to 640 in 1858. Even with extended acreage, land sales were not as "numerous as it was anticipated they would be," and agents only surveyed 30,258 acres in 1858.[190] Surveyor General Horace Higley noted that few of the swamplands had been sectionized.[191] This was an allusion to the Public Land Surveying System. Under this system, surveyors divided western lands into 160-acre plots within sections of four plots, or 640 acres.[192] The suggestion that the state authorize an agent to explain to the U.S. Land Commission the peculiarity of California's topography indicated that California's surveyor general wanted to break from the Public Land Survey System. More broadly, the need to break from this system reinforced the surveyor general's position that only corporate or systemic forms of reclamation could conquer wastelands. While the 1855 Act relied entirely on settler efforts, the 1858 Act stipulated that the state put money from land sales in a swampland reclamation fund. As the surveyor general noted, the legislature passed the act with the understanding that at some future day the state would devise a general system of reclamation.[193]

The limits of settler reclamation also came to the fore in debates over amending California's incorporation law to include agricultural lands. This law would have allowed corporations to own up to 1,280 acres of farmland, with a maximum of one hundred acres per individual shareholder. It instigated fierce debate. R.M. Anderson, the Lieutenant Governor and President of the Senate, warned that it would encourage land monopolies, which supposedly created systems of peonage and serfdom. Comparing Spanish and American ownership of lands,

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[189] Brewster, *Annual Report of the Surveyor General for the Year 1857*, 13.
[190] Higley, *Annual Report of the Surveyor General for the Year 1858,* 12, 15.
[191] Higley, 10.
[192] Roxanne Dunbar-Ortiz, *Not a Nation of Immigrants: Settler Colonialism, White Supremacy, and a History of Erasure and Exclusion* (Boston: Beacon Press, 2021)*,* 19-20.
[193] Higley, *Annual Report of the Surveyor General for the Year 1860*, 50.

Anderson insisted out that one upheld manhood and independence, while the other promoted arbitrary rule and serfdom.[194] Humphrey Griffith, the senator from Yolo County, concurred, asserting that American government had always tried to prevent land accumulation. To him, the ability of corporations to transcend human lifespans made them especially pernicious. When individuals died, heirs would divide up the estate. But corporations never died. He also warned that agricultural corporations would accomplish in California what wealthy churches had in Mexico, the transformation of the population into peons and tenants. "Peons" threatened to replace self-reliant, patriotic, independent men with a "community of serfs and servants" who lacked any "abiding interest in the welfare and prosperity of the state."[195]

Incorporation proponents reconciled their support for corporate farming with republican modes of settlement through a racialized understanding of independence. One of the San Francisco senators, T.G. Phelps, assured Griffith that they held "it to be a cardinal principle of our government that men, so far as possible, should be the owners of the soil upon which they labor." But he believed some circumstances defied the capabilities of individual reclaimers. It would be impossible, he explained, for one man to reclaim a wild prairie farm that was far from timber. Likewise, it was impossible for a single person to reclaim 160 acres of California swampland. Still, Phelps assured Griffiths that monopolies could never compete with the kinds of men who worked their own soil. Samuel Bell, a senator representing Alameda and Santa Clara counties, explicitly appealed to racist distinction. He accused Griffith of wanting Americans to "come down to the primary Indian," who was "a living exemplar of the doctrines of the gentleman from Yolo." The anti-corporate factions, he mocked, would have no manufactures or railroads, and delighted in "the primitive and rural savage way of life." Whereas Phelps argued

[194] "California Legislature," *Sacramento Daily Union*, February 11, 1858.
[195] "California Legislature," *Sacramento Daily Union*, February 19, 1858; Smith, *Freedom's Frontier*, 80-81.

for incorporation from necessity, Bell claimed that it was impossible for the individual to do much alone. By association and incorporation, "the power to produce" was "multiplied a thousand-fold." Nevertheless, he agreed with Phelps that corporations could never displace independence-loving white farmers.[196] Neither offered argument beyond assertions. The legislature neglected to pass the bill, but earnest consideration of the bill portended a shift small settlement to corporate reclamation.

By 1860, the Sacramento Valley's highlands were sites of productive cultivation. At the end of the 1850s California was the number one barley producing and the number twelve wheat producing state.[197] Most of this production occurred in the Sacramento Valley. This had to do with the location and geographic advantages of the Sacramento Valley. The entire state only contained 54.5 miles of railroad.[198] Thus, crops had to be transported by rivers. Lined with several major waterways which drained into a river that ran to the Suisun Bay, along with its proximity to mining regions, the Sacramento Valley became a logical site for extensive agricultural production. In 1860, the Sacramento Valley grew more wheat and barley than the Bay Area, San Joaquin Valley, and South and Central Coast combined.[199]

There is no clear data as to how much of this production took place on the highlands as opposed to the lowlands, but statements from county officials hint that farms were mostly located on highlands. In 1855, Yolo County Surveyor W.M. Minis remarked that though the entire bank of the Sacramento River overflowed annually, there was a strip of land, "immediately upon the bank" that was tillable nearly every year. He stated that this land was "very generally

[196] "California Legislature," *Sacramento Daily Union*, February 19, 1858.
[197] Gerber, "The Origin of California's Export Surplus in Cereals," 40-45.
[198] Higley, *Annual Report of the Surveyor General for the Year 1860,* 43-44.
[199] Gerber, 48.

settled upon" and "considerably improved by being fenced, leveed, and cultivated."[200] In 1859, Yolo County's Assessor reported that farmers had felt the 1858 drought so keenly that "their faith" was "considerably shaken in their dependence on rain." He recommended "diverting of the waters of the Putah and Cache Creeks upon the highlands." In declaring that this recommendation would meet the interest of state in draining the tule lands and the interest of citizens in irrigating their homesteads, he indicated that most of the farms were on the highlands.[201] Such observations correspond with the limited quantitative data. An acre surveyed cannot be assumed to be an acre cultivated, but even if all the surveyed swamplands in Yolo County were cultivated, they would only account for 14,917 out of a total of the counties 39,698 cultivated acres in 1860, less than 38 percent of the total.[202] Likely, virtually none of Yolo County's surveyed swamplands were cultivated in 1860.

Cultivation on the highlands was also precariously limited by natural and manmade factors. Due to drought, 4,000 fewer acres were cultivated in Yolo County in 1860 than in 1859.[203] Furthermore, as Spanish-Mexican land grants contained most of the highlands in Yolo and elsewhere in the Sacramento Valley, the possibility that these areas would become dense areas of settlement was low. Farms in highlands tended to be quite large and were worked by Indian and migrant laborers.[204] Thus, it seemed that for Yolo and other counties of the Sacramento Valley to fill with permanent settlers, the swamps would have to be drained.

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[200] Marlette, *Annual Report of the Surveyor-General of the State of California* [Session of 1856], 278.
[201] Horace A. Higley, *Annual Report of the Surveyor General for the year 1859* (Sacramento, 1859), 112-113.
[202] Higley, *Annual Report of the Surveyor General for the Year 1860*, 8, 29.
[203] Higley, *Annual Report of the Surveyor General for the Year 1859*, 31; Higley, *Annual Report of the Surveyor General for the Year 1860*, 29.
[204] Liebman, *California Farmland*, 43-47; David Igler, *Industrial Cowboys: Miller and Lux and the Transformation of the Far West, 1850-1920* (Berkeley: University of California Press, 2001), 24-25; Pisani, *From the Family Farm to Agribusiness*, 8.

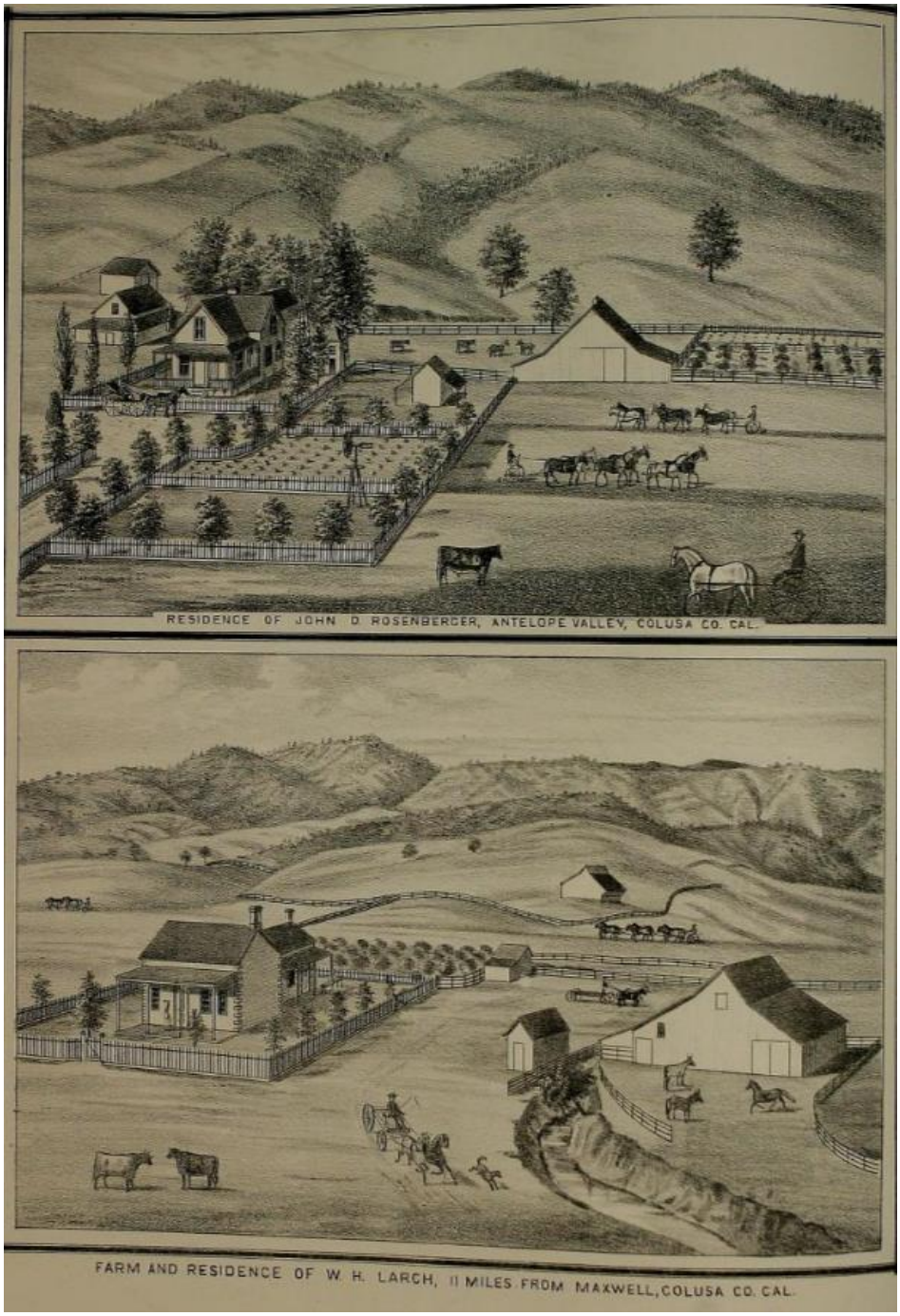

Figure 1. Illustrations of farms and ranches in Colusa County on the highlands near the foothills of the Coast Ranges. Will Semple Green, *Colusa County, California: Illustrations Descriptive of its Scenery* […] *Historical Sketch of the County.*

2. The First Systematic Attempts to Reclaim the Swamplands, 1860-1879

By 1860, senate and assembly committees were considering alternatives to settler reclamation. A senate select committee found that land grants failed to induce reclamation. They warned that lands covered with stagnant water most of the year would eventually harm general health.[1] Hence, valley swamplands imperiled civilization itself, as English norms correlated civilization with good health.[2] The Assembly Committee on Swamp and Overflowed Lands commented that the state had already sold all the lands that individuals could reclaim, leaving only "deep tule." Deep tule were lands that flooded up to ten feet for nine months of the year. The committee judged these lands "more than useless" for every purpose, but they assumed that with large sums of money tule lands could become "vastly productive" and furnish "homes for the men of the mountains and the valleys."[3]

Some officials also acknowledged that measures to prevent monopoly may have subverted settlement due to the topography of the Sacramento Valley. The 1858 and 1859 Laws limited ownership of lands adjoining any bay, lake, or navigable stream to no more than half a mile. This provision was meant to prevent monopolists from blocking access to navigation and irrigation by controlling narrow strips of land along the margin of watercourses. Though Surveyor General James Houghton conceded the justification behind this law, the topography of the Sacramento Valley made it so that it was impossible to own a moderate amount of lowland without bordering miles of waterway. Snaking from the creeks and rivers of the Sacramento Valley were numerous sloughs. For part of the year sloughs might be navigable by boat and

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[1] *Journal of the Senate of the State of California at the Eleventh Session of the Legislature Begun on the Second Day of January, 1860, and Ended on the Thirtieth Day of April, 1860, at the City of Sacramento*, 441-442.
[2] Ann Vileisis, *Discovering the Unknown Landscape: A History of America's Wetlands* (Covelo, California: Island Press, 1977), 35; Linda Nash, *Inescapable Ecologies: A History of Environment, Disease, and Knowledge* (Berkeley: University of California Press, 2006), 58-71.
[3] *Journal of the House of Assembly of California at the Eleventh Session of the Legislature Begun on the Second Day of January 1860, and Ended on the Thirtieth Day of April, 1860, at the City of Sacramento*, 493-494.

divided much of the Sacramento Valley into islands. Islands of just 320 acres could contain two miles of frontage. The surveyor general estimated that a mere 160 acres of swampland could easily exceed the half mile limit. He suggested amending the law to allow 640 acres anywhere provided the surveyor general was satisfied that the interests of the state would not suffer.[4]

In 1860 the legislature considered a swampland reclamation bill which proposed to remove acreage restrictions. With removed acreage restrictions, larger companies could come in and build better levees. Valley newspapers, however, objected to removing acreage restrictions. The *Daily National Democrat* (Marysville) asked what would hinder "capitalists and heavy moneyed speculators" from purchasing all the land and forcing the "industrious thousands" with "limited means and capital" to become "tenants to the wealthy landlords of the country."[5]

It is difficult to extricate anxiety about capitalist concentration from American ideologies of exceptionalism. Many Americans conceived of themselves as an independent and egalitarian people by contrasting their landed conditions to those of Europe. The availability of land for all, in the minds of some Americans, rendered North America inhospitable to radicalism.[6] Worries about the radicalizing effects of concentrated land ownership, and the consequential counterpart of landless masses, pervaded Sacramento Valley papers. From the ranks of "non-owners of real-estate," the *Sacramento Daily Union* surmised, would arise communists, socialists, and "flats of all kind."[7] The *Union* contended that one could not "properly be considered as a member of the brotherhood of man" until "he possesse[d] a portion of her surface." The millions of acres of uncultivated swamplands in the Sacramento and northern San Joaquin Valley comprised

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[4] *Annual Report of the Surveyor General for the Year 1860*, 21.
[5] "Doubtful Move," *Daily National Democrat*, February 25, 1860.
[6] John Higham, *Strangers in the Land: Patterns of American Nativism, 1860-1925* (New Brunswick: Rutgers University Press, 1955), 7.
[7] "How I Came to Buy a Farm," *Sacramento Daily Union*, October 31, 1860.

California's last refuge for manhood.[8] The *Union* urged the state to eschew autocratic commissioners and to repudiate contract systems which reeked a "scheming odor." Instead, they urged the state to leave reclamation to small farmers, who would build the ditches and levees that required "constant supervision to keep them in good condition," a commitment that they believed only the "actual owner or occupant of land" would voluntarily undertake.[9]

With the 1861 swampland reclamation act, legislators tried to balance economic democracy with the greater collective coordination required by the intricacies of swampland reclamation. The act created a five-member board of swampland commissioners to coordinate reclamation, but it maintained acreage restrictions. It allowed landowners to form a district within "an area of land susceptible to one mode or system of reclamation." Individual basins could encompass more than a hundred thousand acres. When at least a third of the landowners in such an area signed a petition, the Board of Swamp Land Commissioners would erect a district. The board could draw money from a fund generated by selling swamplands at one dollar an acre to surveys lands and construct a single system of levees for entire districts. The act forbade diverting funds raised from one swampland district to another. [10] Within five months swamp landowners petitioned for twenty-four districts, and in twenty-one districts engineers began surveying.[11] One of the first major proposed projects was to reclaim the Sacramento Basin with thirty-seven miles of levees and a floodgate to discharge gravity drainage to the south. These levees would have been 2.5-8 feet high and expected to cost $30,000.[12]

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[8] Evelyn Nakano Glenn, *Unequal Freedom: How Race and Gender Shaped Citizenship and Labor* (Cambridge: Harvard University Press, 2004), 21-27.
[9] "Swamp Lands," *Sacramento Daily Union*, March 19, 1861.
[10] "An Act to Provide for the Reclamation and Segregation of Swamp and Overflowed, and Salt Marsh and Tide, Lands, Donated to the State of California by Act of Congress," in *The Statutes of California Passed at the Twelfth Session of the Legislature, 1861*, Chap. CCCLII (Approved May 13, 1861).
[11] "Board of Swamp Land Commissioners," *Sacramento Bee*, November 4, 1861.
[12] John Thompson, *The Settlement Geography of the Sacramento-San Joaquin Delta, California: A Dissertation* (Palo Alto: Stanford University, 1957, 214.

Some officials wanted to comprehensively reclaim swampland districts by endowing commissioners with arbitrary powers to build flood control works such as dams and levees on private property regardless of the owner's wishes. To drain the western half of the Sacramento Valley, Surveyor General Houghton envisioned a canal running from the Sacramento River, as well as Putah and Cache Creek, to the Suisun Bay.[13] Extolling Southern Europe and Italy, regions with fertile wetlands reclaimed by levees and canals, Houghton declared that California's swamplands should become the most valuable properties in the state.[14] The Board of Swamp Land Commissioners proposed to reclaim the entire Yolo Basin north of Cache Slough and Ryer Island with a twenty-five mile long longitudinal drainage canal that would tap the sinks of Cache and Putah Creeks. [15] But officials such as Yolo County surveyor Amos Matthews feared that intransigent settlers would obstruct extensive levee and canal projects. Matthews recommended that the state authorize reclamation department executives to direct works "without regard to persons immediately interested as landholders."[16] The Board of Swamp Land Commissioners added that the legislature should give district commissioners discretionary taxation powers. It was, they reasoned, "no hardship" for owners of valuable lands to pay the money necessary for reclaiming entire districts, as they had paid a dollar an acre for lands worth from five to fifty dollars per acre, leaving only the "useless lands" to the state.[17]

The perception of the so-called "useless lands" starkly divided some settlers and state officials. Whereas the occasional great flood submerged nearly all lands, the useless (for state

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[13] "Annual Report of the Surveyor-General for the Year 1862," in *Appendix to the Journals of Senate and Assembly of the Fourteenth Session of the Legislature of the State of California* (Sacramento, 1863), 26.
[14] "Annual Report of the Surveyor-General for the Year 1862," 12.
[15] *Report of the Board of Swamp Land Commissioners for the Years 1864 and* 1865 (Sacramento, 1865), 4; Thompson, *The Settlement Geography of the Sacramento-San Joaquin Delta*, 214-215.
[16] "Annual Report of the Surveyor-General for the Year 1862," 99.
[17] "Annual Report of the Swamp Land Commissioners for the Year 1862," in *Appendix to the Journals of Senate and Assembly of the Fourteenth Session of the Legislature of the State of California* (Sacramento, 1863), 4.

officials) or common lands (for some settlers) flooded almost every year during seeding, growing, or harvesting seasons.[18] For many settlers, commons enhanced everyone lands and reinforced resiliency, because pasturage flourished after floods. Settlers wanted common lands along with absolute property rights. State officials wanted to transform all common lands into individual farms, but the state could only drain and levee swamplands by building through and on contiguous private farms. California officials believed that with the power to curb property rights, they could make useless lands "the finest agricultural land in the world," capable of carrying "millions of industrious farmers."[19] Without the power to curtail property rights, those common lands, in the eyes of state officials, would remain mostly waste, "and worse than useless—constantly breeding sickness and disease."[20]

The conflict between settlers and state officials was about more than simply different visions of what purpose the swamplands should serve. Piecemeal reclamation made it exceedingly difficult for the state to enclose and drain the swamplands. Some of the swamplands were shallow enough for settlers to drain them with just a dike made with earth from a ditch enclosure. Settlers were willing to claim these lands. That left the state with the swamplands covered by the deepest waters. To protect these lands from overflows, the state needed to build levees on the "high lands" between the swamps and the rivers.[21] The Board of Swamp Land Commissioners offered no details as to why they could only build levees on highlands. Other reports on flood control in the Sacramento Valley may offer some clues. Engineers wanted to place levees on top of hardpan clay surfaces, because other surfaces were more liable to erode,

[18] "Annual Report of the Swamp Land Commissioners for the Year 1862," 27.
[19] "Annual Report of the Swamp Land Commissioners for the Year 1862," 4, 28.
[20] "Annual Report of the Swamp Land Commissioners for the Year 1862," 27-28.
[21] *First Annual Report of Swamp Land Commissioners, December 15, 1861* (Sacramento, 1861), 10-11.

collapse, cave in, or shift.[22] In the lower half of the Sacramento Valley, hardpan surfaces were right on the banks of the rivers. But in the lowlands, hardpan was covered by a soft muck or slush with four to twelve feet of peat soil on top.[23] Levees also had to be above the estimated high-water mark. Building levees on lower lands thus would require building them taller. To prevent breaking, these levees would have to be wider as well. Taller and wider levees would not only require more labor, but they would have to be made of materials from the surrounding environment. As noted in chapter 1, lowland soils were full of organic materials that shrank upon drying, causing cracks. Even if engineers could build levees tall enough, wide enough, and sturdy enough in the lowlands, levees would still be subject to water seeping through and under them. As the ground saturates, water filtrates through the foundations of the levee. [24] With levees on higher banks, gravity pulls water away from the levee. On lower lands, gravity would pull water into the levee. As poor drainage was the principal problem with reclaiming lowlands, engineers would have to devise further means of removing waters that had accumulated next to the levee, such as with deep ditches or drainage pumps.[25] Hence, it was not feasible to build levees on lowlands, and without authority over the highlands, the state could not build the levees necessary for swampland reclamation. For this reason, the Board of Swamp Land Commissioners recommend the state pass a levee law creating a board of levee supervisors to oversee and direct levee construction on the highlands.[26]

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[22] William Hammond Hall, "Part II: Drainage of the Valleys and the Improvement of the Navigation of Rivers," in *Report of the State Engineer to the Legislature of the State of California—Session of 1880* (Sacramento: 1880), 68; *Report of the Examining Commission on Rivers and Harbors to the Governor of California* (Sacramento, 1890), 24.
[23] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 9.
[24] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 52; H.M. Chittenden, "Flood Control—with Particular Reference to Conditions in the United States," in *Sacramento River Floods, Hearings Before the Committee on Flood Control, House of Representatives, Sixty-Fourth Congress, First Session on Floods of the Sacramento River, April 5, 1916* (Washington: Government Printing Office, 1916), 25.
[25] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 60-61.
[26] *First Annual Report of Swamp Land Commissioners*, 28.

Before reclamation districts could build any levees, they needed more money. Outside of Sacramento, swampland districts could only pay for surveys.[27] By the end of 1861, civil engineers could not attribute a single reclaimed acre to the swamplands act.[28] Landowners accused engineers of "nursing" the job for personal aggrandizement. They claimed that surveys necessitated no instruments, for the water had "taken the level long ago with unerring certainty, and left its legible mark on numerous monuments."[29]

California's surveyor general suggested that the state back private enterprise for reclamation. He noted that along the banks of the Sacramento River, private enterprises were constructing considerable embankments, which are walls of stone or earth meant to keep out river water. Preventing overflows, along with the trampling of stock, kills surrounding tule reeds, which clover quickly replaced. He claimed that swamplands produced about twice the amount of crop per acre as highlands, "and throughout the world, when thoroughly reclaimed, this class of lands" was "regarded as much more valuable than uplands." In addition to wheat, he suggested that these lands could grow rice, sugar, and tobacco. But settlers were reclaiming little swamp and overflowed land under the current laws.[30]

The Board of Swamp Land Commissioners argued that districts should be able to levy taxes without waiting for approval from landowners, as people would supposedly never petition to raise taxes. They emphasized that it was "no hardship that the people who own[ed] these lands should pay the money necessary to reclaim." These people had "taken all of the best land at one dollar per acre" while "the lands still belonging to the State" were "useless." Under the existing

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[27] "Annual Report of the State Treasurer for the Year 1862," *Appendix to the Journals of the Senate and Assembly of the Fourteenth Session of the Legislature of the State of California* (Sacramento, 1863), 22.
[28] *The Journal of the Senate During the Thirteenth Session of the Legislature of the State of California: 1862* (Sacramento, 1862), 42.
[29] "Worthy of Note," *Sacramento Bee*, September 24, 1861.
[30] *Annual Report of the Surveyor General for the Year 1862,* 12-13.

law, every district retained all the money collected for lands sold within its boundaries, but not a single district had enough money for reclamation. The board recommended the state put money from swampland sales into a general fund without regard to district boundaries. If, for example, ten districts paid $10,000 each to the swampland fund, or $100,000 total, the commissioners could spend that $100,000 reclaiming one district, and then tax that district for money over what they paid. The board would return the money from taxes to the swampland fund. This would allow constant use of swampland funds. Otherwise, money from districts not yet ready for reclamation work would sit idle. The commission also noted that until capitalists were "convinced that [the land] has been or will be reclaimed," the land would be valueless to borrow money on.[31]

During the winter and spring of 1862, four floods drowned California. The floods killed a quarter of the state's cattle, destroyed a third of the state's property, and severely damaged seven out of eight homes. Water covered the Sacramento Valley from the foothills of the Sierra Nevada to the coastal ranges. Sacramento lay underwater for six months.[32] The *Sacramento Daily Union* reported that "so immense and so rapid was the accumulation of water from falling rain and melting snow, that scarce a hillside remained unfurrowed or a plain tree from overflow throughout the entire state." Furthermore, "dams, flumes, and mills, which had cost hundreds of thousands, were swept away like chaff."[33] The *San Francisco Mirror* bemoaned how the "raging and insatiate demon of the waters" devoured all moveable property.[34] Yolo County surveyor Amos Matthews inferred that the 1862 floods surpassed any other over at least the past century,

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[31] "Annual Report of the Swamp Land Commissioners for the Year 1862," 4-5; "Report of the Commissioner of Public Works," in *Appendix to the Journals of the Senate and Assembly of the Thirty-First Session of the Legislature of the State of California, Volume IV* (Sacramento, 1895), 27.
[32] B. Lynn Ingram and Frances Malamud-Roam, *The West Without Water: What Past Floods, Droughts, and other Climatic Clues Tell Us About Tomorrow* (Berkeley: University of California Press, 2013), 28-34.
[33] "State Agricultural Society," *Sacramento Daily Union*, March 13, 1862.
[34] "The Farming Interests," *Sacramento Bee*, January 21, 1862.

as they decimated century old Indian mounds. He reaffirmed the need for a general system of reclamation.[35]

[35] *Annual Report of the Surveyor-General of California for the Year 1862*, 102.


BAKER & HAMILTON
J. STREET, FROM THE LEVEE.
EBNER
K. STREET, FROM THE LEVEE.
INUNDATION OF THE STATE CAPITOL,
City of Sacramento. 1862.
Published by A ROSENFIELD, San Francisco

Figure 2

The widespread destruction wrought by the floods created conflicting needs between settlers and the state. The *Sacramento Bee* warned that the floods could drive away farmers and revert the country to wilderness.[36] California's surveyor general reported that because of the "great flood," swamp lands had been "in poor request."[37] For those who remained, the taxes to repair and construct infrastructure that would protect their property from another colossal flood exceeded their financial capacity.[38] Farmers would have to double outlays at a time when they could grow and sell nothing.[39] The decimation of industry eviscerated tax revenues. To pay debt, legislators passed a law lending $100,000 from the swampland bill to the general fund. The law, commented the *Sacramento Bee*, took money away from a fund paid by poor farmers.[40] The *Colusa Sun* insinuated that legislators used money from the swampland fund to visit liquor saloons and the classic melodeons of San Francisco.[41]

Some assemblymen capitalized on the disaster to attack the Board of Swamp Land Commissioners and to champion capitalist development.[42] A San Francisco assemblyman simplified reclamation to a practical work that involved no abstract questions of science or professional engineering.[43] A Sonoma County assemblyman added that the swampland commission accomplished little else than inefficient surveys. He demanded corporate driven reclamation schemes and offered up an amendment that would permit corporations to own up to

[36] "Another $100,000," *Sacramento Bee,* March 3, 1862.
[37] "Annual Report of the Surveyor-General of California for the Year 1863," in *Appendix to Journals of the Senate and Assembly of the Fifteenth Session of the Legislature of the State of California, Vol. 1* (Sacramento, 1864), 121.
[38] "Condition of the State," *Sacramento Bee*, August 25, 1862.
[39] "The Funds," *Sacramento Bee*, January 14, 1862.
[40] "The $100,000 Bill," *Sacramento Bee*, March 3, 1862.
[41] "What the Legislature is Doing," *Colusa Sun*, January 18, 1862.
[42] "Condition of the State," *Sacramento Bee*, February 3, 1862.
[43] "California Legislature," *Sacramento Daily Union*, January 30, 1862.

ten thousand swampland acres. The amendment would not have increased the individual 640-acre limit.[44]

Defenders of the swampland commissioners balked at the attacks. The *Sacramento Daily Union* protested that the assemblymen who wanted to dismantle the board voted to raid the swampland fund, thereby undermining confidence in the government. The *Sacramento Bee* implored legislators to focus more on helping individual settlers, the "best and most worthy citizens," than on contemplating capitalist reclamation schemes. As the *Bee* reminded its readers, individual settlers carried out the most noble mission, reclaiming so-called wastelands. This entitled them not just to the fruits of their labor, but to state protection. "To have them there and protect them there is the interest of all;" otherwise, they would become "beggars dependent upon public charity."[45]

The floods convinced officials of the critical need for reconciling their disagreements with the federal government over swamplands. The legislature appointed William H. Parks as land commissioner and sent him to Washington to negotiate titling for swamp and overflowed lands. Parks told J.M. Edmunds, the commissioner of the General Land Office, that the state was selling lands on credit because it could not give title until the state procured the patents. He asked Edmunds to clarify the meaning of the word "overflow." Parks interpreted the law to mean all land of a swampy nature and all that was "subject to overflow during seeding, growing, or harvesting seasons." The problem, Parks explained, was that the General Land Office disqualified lands where a crop could be raised, even if it was just a grass crop. But highlands could suffer from overflows which floated away all improvements, houses, barns, fences, and stock. He also explained to Edmund that the swamps could only be drained by constructing

[44] "Private Reclamation of Swamp Lands," *Daily Appeal* (Marysville), April 26, 1862.
[45] "What Shall be done with the Great Valleys?" *Sacramento Bee*, January 16, 1862.

levees across the highlands as well as ditches through them. But local settlers, Parks claimed, did "much to establish" the opinion that the lands they used for grazing should not fall under the category of swamp or overflowed land.[46] He also warned if the government were to permit preemptions auctions on lands already settled, there would be interminable lawsuits.[47]

Edmunds offered his sympathy to Parks, but he confessed that the General Land Office lacked the authority to depart from instructions given by the Arkansas Act. According to Edmunds, the law stated that "a casual overflow, merely temporary in its effects," did "not bring the land within the meaning of the law." For lands to meet the criteria of the Arkansas Act, the overflow had to "be of that nature as absolutely to prevent the raising of any crop on the land in its natural condition."[48]

Opposition to the Board of Swamp Land Commissioners intensified in 1862 when the legislature authorized county boards of supervisors to impose reclamation taxes on districts where a third of landowners approved the action.[49] The legislature revised the swamplands law because sales failed to raise sufficient revenues to cover reclamation costs.[50] For various reasons, many settlers opposed new taxes. Some owned stock farms and reclamation would reduce their range for cattle, horses, sheep, and hogs. Others lived on farms that seldom overflowed. Still

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[46] "Report of Hon. William H. Parks," 27.
[47] Report of Hon. William H. Parks, as Land Commissioner, to Visit the City of Washington," in *Appendix to Journals of Senate and Assembly of the Fourteenth Session of the Legislature of the State of California* (Sacramento, 1863), 10-27.
[48] "Report of Hon. William H. Parks, as Land Commissioner, to Visit the City of Washington," 10-27.
[49] Richard H. Peterson, "The Failure to Reclaim: California State Swamp Land Policy and the Sacramento Valley, 1850-1866," *Southern California Quarterly* 56, no. 1 (1974): 51, https://doi.org/10.2307/41170515; "An Act Supplemental to an Act to Provide for the Reclamation and Segregation of Swamp and Overflowed, and Salt Marsh, and Tide Lands," in *The Statutes of California Passed at the Thirteenth Session of the Legislature, 1862*, Chap. CLXXXVI (Approved April 11, 1862).
[50] *Report of the Board of Swamp Land Commissioners for the Years 1864 and 1865* (Sacramento, 1866), 4-5; Robert Kelley, *Battling the Inland Sea: Floods, Public Policy, and the Sacramento Valley* (Berkeley: University of California Press, 1989), 45-66.

others only possessed narrow fronts on the river and refused to lose part of it to make levees. Some simply could not afford more taxes.[51]

The drought that followed the 1862 floods made settlers even more resistant to taxes. No rain fell on the Sacramento Valley from the fall of 1862 to the winter of 1864-1865. At one point Californians had to import wheat from Chile.[52] Drought prevented settlers from growing crops even with an 1864 act that permitted deficit financing and the issuance of warrants based on swampland funds, reclamation taxes, the principal and interesting outstanding from previous sales, and the value of unsold lands at the rate of one dollar per acre.[53] By 1865, a mere fourteen of fifty-four districts appropriated money for reclamation. They reclaimed just ten to fifteen thousand acres.[54] All but one district spent enormous amounts of money on levees and ditches only to prematurely exhaust funds.[55] By March 1866 indebtedness of swampland districts had increased to such extent that the legislature proposed borrowing $87,000 from the general swampland fund to pay the warrants drawn on the reclamation districts.[56]

Many settlers considered the money spent on levees wasteful and dangerous. They felt justified by the growing realization that the Sacramento Valley's climate necessitated flood control solutions that deviated from those used in more humid parts of the world. San Francisco engineer T. Rowlandson pointed out that rain fell on England throughout the year, whereas rain

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[51] "Report of the Swampland Commissioners to the Governor," *Sacramento Daily Union*, December 13, 1861.
[52] David Vaught, *After the Gold Rush: Tarnished Dreams in the Sacramento Valley* (Baltimore: John Hopkins University Press, 2007), 82.
[53] "An Act to Amend an Act Entitled an Act Supplemental to an Act Entitled an Act to Provide for the Reclamation and Segregation of Swamp and Overflowed and Salt Marsh and Tide Lands Donated to the State of California," in *The Statutes of California Passed at the Fifteenth Session of the Legislature, 1863-1864*, Chap. CCXXXII (Approved March 24, 1864).
[54] "Report of the Board of Swamp Land Commissioners for the Years 1864 and 1865," in *Appendix to Journals of Senate and Assembly of the Sixteenth Session of the Legislature of the State of California, Vol. 2* (Sacramento, 1866), 3.
[55] Vaught, *After the Gold Rush,* 120.
[56] Peterson, "The Failure to Reclaim," 54.

or snow fell on California for only a few months of the year, in good years. Water in California lacked the chance to permeate the soil, leading to greater inundations. He believed this meant that flood control could not rely exclusively on levees.[57] The Board of Swamp Land Commissioners had planned to build seventy-nine miles of levees along the Sacramento River and Sutter Slough.[58] Settlers feared that the board's policy of closing sloughs and other outlets from the river with levees exacerbated flooding by forcing breaks in areas protecting farms.[59] In February of 1866, settlers organized at Benson's Ferry to oppose the construction of a levee. They asked the legislature to blot the Board of Swamp Land Commissioners from existence. In a petition they wrote that they looked "to [the legislature] for protection from the arbitrary doings of an overbearing and irresponsible body of men."[60] Citizens of Swamp Land District no. 2, which consisted of the Sacramento Basin, also beseeched legislators to abolish the board.[61]

The legislature could have defused some of the hostility by relieving landowners of their debts, but lawmakers stalled at the point of how to help landowners without fueling monopoly and speculation. In early 1866 the legislature debated whether to help landowners by remitting interest paid on their lands. Some assemblymen, such as C.H. Chamberlain of San Joaquin County and John Zuck of Santa Clara County, wanted to remit interest only for 640 acres of land. They worried that remitting interest on larger acreage would reward speculators who were holding land until it became of immense value. Chamberlain believed that limiting the amount of land for relief would compel land speculators to "disgorge some of the lands" they "monopolized." John Zuck suggested that the title of the bill should be changed to "An Act for

[57] "California Floods, Their Causes and Suggested Remedies—No. 9," *Sacramento Daily Union*, March 8, 1862.
[58] Report of the Board of Swamp Land Commissioners for the Years 1864 and 1865," 10.
[59] Peterson, "The Failure to Reclaim," 54.
[60] "Denouncing the Swamp Land Commission," *Stockton Daily Independent*, February 12, 1866.
[61] "California Legislature," *Sacramento Daily Union*, March 2, 1866.

the Relief of Land Speculators." Defenders of the debt relief, such as William Holden of Mendocino County, argued that unless men were allowed to hold more than 640 acres there could be no such thing as reclamation. The legislature could not agree on how much land should be exempt from interest, and the bill did not pass.[62]

The legislature gave up trying to pacify landowner opposition to the Board of Swamp Land Commissioners. On April 2, 1866, California abolished the board and devolved care of swampland districts to county boards of supervisors.[63] Instead of taxing improvements, the law imposed a uniform annual tax. Addressing farmers' complaints about graft, the law capped engineer pay to six dollars a day and laborer pay to three dollars a day. Swampland owners could still form reclamation districts by petition, and the law retained the one dollar an acre sale price for swamp and overflowed land. Unlike the Board of Swamp Land Commissioners, county boards of supervisors did not have to require that reclamation districts conform to topographic units.[64] Ironically, the federal government finally conceded to state demands for control over all the lands they claimed as swamp that same year.[65]

After abolishing the Board of Swamp Land Commissioners, prominent figures and officials continued championing a comprehensive plan for reclaiming the Sacramento Valley's swamplands. In his 1867 senate message, Governor Frederick Low bewailed the underwhelming swampland experiments as well as the lack of a comprehensive plan.[66] In his address to the

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[62] "California Legislature," *Sacramento Daily Union*, January 30, 1866.
[63] "An Act Supplemental to an Act Entitled an Act to Provide for the Reclamation and Segregation of Swamp and Overflowed and Salt Marsh and Tide Lands," in *The Statutes of California Passed at the Sixteenth Session of the Legislature, 1865-6*, Chap. DXIII (Approved April 2, 1866).
[64] *Biennial Report of the Surveyor General of the State of California, from August 1, 1873, to August 1, 1875* (Sacramento, 1876), 12; Thompson, *The Settlement Geography of the Sacramento-San Joaquin Delta*, 198-200.
[65] "An Act to Quiet Land Titles in California," in *Public Laws of the United States of America Passed at the First Session of the Thirty-Ninth Congress; 1865-1866*, Chap. CCXIX (July 23, 1866).
[66] *The Journal of the Senate during the Seventeenth Session of the Legislature of the State of California, 1867-8* (Sacramento, 1868), 35.

Annual State Fair, land baron and California politician John Bidwell connected the state of civilization to reclamation and agriculture. Agriculture was, in his estimation, intimately related to and dependent upon the arts and sciences. The advancement of a civilization depended upon its division of labor, a logic he applied to agriculture. He claimed the drainage of tule marshes was a necessity none could deny, and he called the drainage of the tule lands the "most vital question to the state." But it would require vast sums of money, considerable time, and a "grand system." Bidwell envisioned this grand system including canals, levees, and reservoirs at all feasible points. The usual method of paying for reclamation with money from land sales, which generated one or two dollars per acre, would not suffice. The state, according to Bidwell, should pay "liberal premiums" for "the best system of reclamation. Once reclaimed lands would be worth hundreds of dollars per acre.[67] He felt the state alone should control this system, expending liberal premiums not only to construct the system but to encourage immigration from the "best classes."[68]

As frustration grew with inaction and inadequate policy, newspapers and state officials increasingly pined for capitalist reclamation of the swamps. Chiding the *Sacramento Daily Union* and the *San Francisco Bulletin* for their "ill-advised tirades against land speculators," the *Sacramento Bee* advocated wooing capitalists. According to the *Bee*, people would go "wherever capital [was] invested." Touting the nature-defying powers of capital, they recalled how capitalists had built Sacramento on top of a swamp instead of on highlands simply because they became interested in the present site of the city.[69] Even newspapers that railed against speculators

[67] "Fourteenth Annual State Fair," *Sacramento Daily Union*, September 12, 1867.
[68] "Transactions of the California State Agricultural Society during the Years 1866 and 1867," in *Appendix to Journals of Senate and Assembly of the Seventeenth Session of the Legislature of the State of California, Vol. III* (Sacramento, 1868), 423-429.
[69] "Land Monopolies," *Sacramento Bee*, August 28, 1868.

and land monopolists conceived reclamation in terms of courting capitalists. The *Sacramento Daily Union* encouraged farmers to organize companies and subscribe to stock, not because they felt that farming associations would best develop the states resources, but because "the quickest way to induce capitalists to invest their means in such enterprises" was "an exhibition on the part of the people."[70]

Republicans recognized that swampland reclamation would require extensive labor regardless of the method. Chinese immigrants constituted one potential source of labor. Despite representing the party of free labor, republican legislators extolled laws which deprived Chinese immigrants of the privileges available to white settlers, such as voting or testifying in courts. They reduced Chinese laborers to pawns that "liberal, far-seeing legislators" could direct towards working out the state's "grand and glorious desire," and they envisioned Chinese workers toiling on lands where only "considerable time and much labor" could reclaim, such as the tule.[71] The Republican controlled legislature signaled the importance of Chinese labor to the state's agricultural development by imposing a tax on all Chinese working in non-agricultural occupations, but California's supreme court invalidated the tax.[72] Many abolitionists believed that "coolies" could serve as an industrious labor force that would make slavery unnecessary.[73] The editor of one of the nation's leading anti-slavery republican newspapers, Samuel Bowles, considered "cheap labor" necessary for the development of the Pacific Coast, "far more, indeed, than capital." He especially favored encouraging Chinese immigration and protecting immigrants

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[70] "A Pertinent Question," *Sacramento Daily Union*, October 20, 1866.
[71] "Report of Joint Select Committee Relative to the Chinese Population of the State of California," in *Appendix to the Journals of Senate and Assembly During the Thirteenth Session of the Legislature of the State of California* (Sacramento, 1862), 6-10.
[72] Robert F. Heizer and Alan J. Almquist, *The Other Californians: Prejudice and Discrimination Under Spain, Mexico, and the United States to 1920* (Berkeley: University of California Press, 1971), 161-162.
[73] Erika Lee, "The 'Yellow Peril' and Asian Exclusion in the Americas." *Pacific Historical Review* 76, no. 4 (2007): 546, https://doi.org/10.1525/phr.2007.76.4.537.

specifically because they did not "ask or wish for citizenship" and showed "no ambition to become voters."[74]

Democrats, on the other hand, fought to maintain a racial caste system during the Civil War and Reconstruction. As newspapers and politicians discussed swampland reclamation, Democratic newspapers inflamed hostile sentiment against Chinese labor.[75] The *Colusa Sun* explicitly racialized democracy. According to the *Sun*, every attempt to incorporate democracy among lower races ended in bloodshed and terror.[76] Republicans, according to the *Sun*, subscribed absolutely to the phrase "all men are created equal." The *Sun* considered this position Anti-American, because the Declaration of Independence was "an instrument drawn up by a slaveholder, voted for by slaveholders, and which when it was made good by seven years war, left hundreds of thousands of black men in bondage."[77]

The *Sun* expounded that wherever the white race contacted any other race, "that other has been forced to give away absolutely and unqualifiedly to the white." They directly cited the conquest of tribal nations, lecturing abolitionists and radical republicans to remember that "the Pilgrim Fathers made the interests of the red men of the forest succumb to what they conceived to be their interests." The *Sun* formalized genocide as an animating principle of American political economy. Upon the principle of white men's interests, the *Sun* wrote, Indians had "been almost entirely exterminated, and the last war, for their total annihilation," was "now being waged."[78] "Abstractly speaking," the *Sun* conceded, "a great outrage" had "been committed upon the red race." But "ill feelings towards the red, black, yellow" mattered not. Since the interests of

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[74] Samuel Bowles, *Our New West* (New York, 1869), 401.
[75] Saxton, *The Indispensable Enemy: Labor and the Anti-Chinese Movement in California* (Berkeley: University of California Press, 1971), 91.
[76] "Self-Government," *Colusa Sun*, January 21, 1865.
[77] "How it Works," *Colusa Sun*, January 6, 1866.
[78] "The Problem of the Races," *Colusa Sun*, June 15, 1867.

non-whites would "conflict with whites," either non-whites or whites would suffer annihilation, slavery, or expulsion.[79]

The *Sun* accused Republicans of humanitarian pretense. In their reading of American politics, Republicans fought to enfranchise African Americans and to import Chinese workers only to increase their own political power, as well as the economic power of capitalists. They mocked Republican attempts to rewrite American history as a story of progressive justice in the face of ongoing Indigenous genocide.[80] According to the *Sun*, Republicans fought for Black suffrage in the South and opposed Chinese suffrage in the West only as a matter of expediency.[81] Republicans needed the votes of freed persons. If they ever required Chinese votes, it would "be treason" to "say that the Chinaman and Digger shall not vote."[82] The *Sun* insisted that since races could never peacefully coexist, Republican immigration policies and the expansion of suffrage through the 15th amendment endangered the "good old order of things established by the Patriots of 1776," the order of things that placed whites atop the racial hierarchy.[83] Chinese immigration could only either supplant whites, or like African slavery, provoke war.[84]

The *Sun's* anti-Chinese arguments served to bolster arguments for capitalist reclamation. Ostensibly, The *Sun* was anti-capitalist. They lamented the precarity of labor's prosperity.[85] They

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[79] "How it Works," *Colusa Sun*, January 6, 1866; "Bidwell on Equality and the Case of the War," *Colusa Sun*, March 26, 1866.
[80] Carol Chomsky, "The United States-Dakota War Trials: A Study in Military Injustice," *Stanford Law Review* 43, 1990, 13-98; Paul N. Beck, *Columns of Vengeance: Soldiers, Sioux, and the Punitive Expeditions* (Norman: University of Oklahoma, 2013), 11-13; Nick Estes, *Our History is the Future: Standing Rock and the Dakota Access Pipeline, and the Long Tradition of Indigenous Resistance* (New York: Verso, 2019), 102-103; Kevin Bruyneel, *Settler Memory: The Disavowal of Indigeneity and the Politics of Race in the United States* (Chapel Hill: University of North Carolina Press, 2021), 52-53.
[81] Naji Aarim-Heriot, *Chinese Immigrants, African Americans, and Racial Anxiety in the United States, 1848-1882* (Chicago: University of Illinois Press, 2003), 99-100.
[82] "The Progressive Party, *Colusa Sun*, March 16, 1867.
[83] "The Progressive Party, *Colusa Sun*, March 16, 1867.
[84] "Cheap Labor," *Colusa Sun*, July 24, 1869.
[85] Self-Government," *Colusa Sun*, January 21, 1865.

declared labor "the basis of all material prosperity and the creator of wealth."[86] They proclaimed that a "happy yeomanry" was "far preferable in any land to a large number of millionaires."[87] But to them the factor that "badly adjusted" the relation between labor and capital was the presence of racialized others. On the West Coast those racialized others were Chinese immigrants. The recent history of the railroads supposedly foreshadowed the peril Chinese immigrants posed for white settlers. Just as Chinese laborers allegedly displaced nearly all white labor in that sector, they could eventually expel white labor from every other economic sector. The *Sun* accused Republicans of recreating southern plantations in California even as they rebuked the Civil War as an injustice instigated by the "fevered imagination of crazy fanatics" and Republican "traitors" who "sought to destroy the compact." So-called cheap labor could unsettle California. They asked who would abandon "comfortable homes in distant lands," brave the "dangers of the sea, or the perils of the plains," and endure "untold privations, hardships, and suffering," when Republicans intended to minimize all their sacrifices to "cheap labor."[88] Outside of encouraging white immigration and discouraging Chinese immigration, the *Sun* offered no means by which society could prevent capitalists from "pauperiz[ing] laborers."[89]

Chinese workers might have settled on swamplands. Despite the "coolie" slander, Chinese immigrants consciously worked to advance their economic positioning and wages. They established mining companies consisting of ten to twenty men and egalitarian cooperatives that operated according to a share system which divided profits and expenses equally among the members. Unlike the white collectives, Chinese cooperatives endured. "Built upon solidarities of native place and kinship," Mai Ngai wrote, "they might be considered a kind of refuge from—

[86] "Our Standard Bearer," *Colusa Sun*, June 29, 1867.
[87] "Cheap Labor," *Colusa Sun*, July 24, 1869.
[88] "Cheap Labor," *Colusa Sun*, May 12, 1866.
[89] "Aid to Immigration," *Colusa Sun*, November 27, 1869; "Cheap Labor," *Colusa Sun*, October 16, 1869.

even resistance to—capitalist wage relations." They worked as cooks and domestics and operated laundries feeding "nearly every branch of human industry."[90] Chinese immigrants made and sold everything from clothing and cigars to whiskey and whigs. As Elliot West put it, "they were advancing through the very system of enterprise and free labor that a few years before they were said to reject and threaten."[91] Even when Chinese immigrants worked for wages, they fought for better pay and conditions. Chinese workers on the Central Pacific Railroad struck for higher wages and an eight-hour day in the spring of 1867. They spurned an offer from the company for a meager four-dollar wage increase, insisting on a fourteen dollar a month raise and a two-hour reduction in the workday.[92] Chinese immigrants did work lowlands in the Sacramento-San Joaquin delta as tenants, but a land law allowing them to purchase swamplands might have encouraged Chinese settlement throughout the Sacramento Valley.[93]

The underlying white supremacy of American law hindered the possibility that Chinese immigrants could become swampland settlers. California's first swampland law permitted any person to claim swamplands, but the 1858 amendment limited that privilege to persons who could become citizens.[94] Under the Naturalization Act of 1802, only free white persons could naturalize.[95] Since Chinese immigrants could not naturalize, they could not purchase swampland.

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[90] Mai Ngai, *The Chinese Question: The Gold Rushes and Global Politics* (New York: W.W. Norton and Company, 2021), 48.
[91] Elliott West, *Continental Reckoning: The American West in the Age of Expansion* (Lincoln: University of Nebraska Press, 2023), 267.
[92] Ronald Takaki, *Iron Cages: Race and Culture in 19th-Century America* (New York: Oxford University Press, 1979), 230-231.
[93] Sucheng Chan, *This Bittersweet Soil: The Chinese in California Agriculture, 1860-1910* (Berkeley: University of California Press, 1986); Randall E. Rohe, "Chinese River Mining in the West," *Montano: The Magazine of Western History* 46, no. 3 (Autumn 1996): 14-29; Ping Chiu, *Chinese Labor in California: An Economic Study* (Madison: State Historical Society of Wisconsin, 1963).
[94] "An Act to Provide for the Sale of the Swamp and Overflowed Lands Belonging to this State," in *The Statutes of California Passed at the Sixth Session of the Legislature*, Chap. CLI (Approved April 28, 1855); "An Act to Provide for the Sale and Reclamation of the Swamp and Overflowed Lands of this State," in The *Statutes of California Passed at the Ninth Session of the Legislature, 1858*, Chap. CCXXXV (Approved April 21, 1858).
[95] Naturalization Law of 1802, Ch. 28, § 1, 2 Stat. 153, 153–54; *The Statutes of California Passed at the First Session of the Legislature of the Legislature* (San Jose, 1850), 39-43.

The *Sun* acknowledged that Chinese labor could prepare the state for millions of future immigrants just as Chinese labor had opened California to more eastern immigration by building the western half of the first transcontinental railroad. But the *Sun* obsessed over the prospect that radicals, who they accused of "doing anything to maintain ascendancy," would force "China suffrage upon us."[96] As scholars have documented, Democrats regained power in California after the Civil War largely through anti-Chinese racism.[97]

The *Sun's* editor and sole operator was Will S. Green. Originally from Kentucky, Green purchased the *Colusa Sun* on June 30, 1866, with John C. Addington, but afterwards he ran it alone.[98] He had become enamored with California at an early age after looking over a school atlas to find a place for a future home. During the gold rush, he borrowed money to go to California. He made a minor fortune from selling redwood shingles, which he used to buy a home in Colusa. In 1857 he was elected county surveyor for Colusa County, a position he held for the next ten years. He began his editorial career amid existing scenes of Civil War and by his own admission "maintained ultra–State Rights doctrines." In 1867, he was elected to represent Colusa and Tehama Counties in the state legislature.[99] Robert Kelley described Green as a states-rights Democrat who followed "Jeffersonian principles of unadorned, categorical localism and laissez-faire."[100] Though Green sympathized with the causes of the Reconstruction Era Democratic Party, his support for state-built drainage canals belied the notion that he dogmatically adhered to laissez faire. Green predicted that radical oppression would drive thousands of southern people to California, bringing with them "industry, talent, and the best

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[96] "The Future of California," *Colusa Sun*, November 14, 1868.
[97] Saxton, *The Indispensable Enemy*, 67-91; Najia Aarim-Heriot, *Chinese Immigrants, African Americans, and Racial Anxiety in the United States, 1848-1882* (Urbana: University of Illinois Press, 2003), 103-118.
[98] Will Semple Green, *Colusa County, California: Illustrations Descriptive of its Scenery* […] *With Historical Sketch of the County* (San Francisco, 1880), 65.
[99] Green, 75-76.
[100] Kelley, *Battling the Inland Sea*, 58-60.

order of us." He welcomed the immigration of southerners, if only to counteract the alleged radicalism that ravaged the nation in the delusions of Democratic demagogues like himself. With no sense of irony, Green hoped that southern immigration would make the Sacramento Valley safer and more certain than "the magnificent plantations along the Mississippi."[101]

In 1868, Green wrote a land law which simultaneously limited swampland ownership based on race while opening it up to capitalists. The 1868 Green Act repealed twenty-two land laws and codified all existing statutes. As with the 1858 swampland act, the Green Act blocked non-white immigrants from settling on swamplands by limiting sales to citizens and those who filed an intention to become a citizen. It kept the management of state lands in the surveyor general's office but enlarged and better defined his powers by making him the state locating agent and by authorizing him to represent the state in all cases of conflict with the federal government. Most importantly, the Green Act removed acreage restrictions on swampland purchases.[102] It permitted reclamation districts, but acreage determined the formation of these districts and the election of their leaders. That meant someone who owned more than half the acreage in a region susceptible to one mode of reclamation could create and control his own reclamation district.[103]

Critics of Green's bill targeted the power it conveyed to private individuals to carry out public functions. In a letter to Marysville's *Daily Appeal*, an unnamed Sacramento gentleman excoriated Green's land bill as "one of the most barefaced attempts to swindle the state and settler, on swamp and overflowed lands, ever presented by a member of the legislature." He

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[101] "The Future of California," *Colusa Sun*, November 14, 1868.
[102] "An Act to Provide for the Management and Sale of the Lands belonging to the State," in *The Statutes of California Passed at the Seventeenth Session of the Legislature, 1867-8*, Chap. CCCCXV (Approved March 28, 1868).
[103] Kelley, *Battling the Inland Sea*, 60-61.

warned that acreage-based voting could infuse individuals with the power of corporations, who could then assess all the land and freeze out farmers controlling a minority of the lands.[104] The *Sacramento Daily Union* concurred, adding that majority landowners could dispossess uncooperative minority landowners.[105] This opposition achieved nothing. With no debate, the state senate and assembly unanimously passed the Green Act.[106]

After the passage of his land law, Green served on a commission to explore reclamation of the Sacramento Valley swamplands. The commission devised a plan based on outlets and canals that could drain water from the basins into the Suisun Bay. By the commission's own admission, data was "very limited." Nevertheless, they were confident their proposals and estimates were sufficient based on twenty years of personal observation. Their principal observation was that the Sacramento and Feather Rivers run on a ridge, with "the land sloping back gradually" until it met "the land formed by the smaller streams flowing from the mountains." These ridges form a trough between the rivers, subject to annual inundation. They also observed several distinct basins of overflowed land in the trough, each one cut by sloughs or creeks running down from mountains or out from the river, forming their own high banks.[107]

There were several steps to making their plan work. First, they had to address the sluggish flow of water near the junction between the Feather and Sacramento Rivers. Above Colusa the slope of the Sacramento and Feather rivers was steep. A steeper slope results in faster flow. But the slope flattened where the Sacramento and Feather Rivers converged. It was, according to the commission, a "well settled fact" that "the height and velocity of the upper

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[104] *Daily Appeal* (Marysville), March 17, 1868.
[105] "Management and Sale of Lands," *Sacramento Daily Union*, March 13, 1868.
[106] *The Journal of the Assembly During the Seventeenth Session of the Legislature of the State of California, 1867-8* (Sacramento, 1868), 705, 898.
[107] "Report of the Commissioners Appointed by an Act of March 28, 1868, on the Reclamation of the Swamp Lands in the Sacramento Valley," in *Appendix to Journals of Senate and Assembly of the Eighteenth Session of the Legislature of the State of California, Vol. II* (Sacramento, 1870), 6.

section of a river gives velocity to the lower section." With a flat slope, the current in the river became "sluggish," and the water that came from basins through a few small sloughs kept "the river almost bank full for weeks and months." In other words, the sloughs and creeks flow into the rivers right at the point where the rivers were incapable of draining quickly, leading to overflows and stagnant water. Levees could help address this problem. By keeping more water within the channel, levees would theoretically increase the velocity at which they flow. Their plan called for about 168 miles of levees, four feet high and two feet wide at the top with a slope of 2-1 towards the river.[108]

There were still parts of the river which they believed could not hold all the water. At these points they proposed cutting holes in the banks to allow outlets for water to flow into the trough. Two parallel embankments, ten feet high and a thousand feet apart, would run through the bottom of the trough between the Sacramento and Feather Rivers, crossing the Sacramento at deep cuts made in the banks. These waters would then be conveyed by a five-mile-long canal starting at a slough on the westside of the Sacramento River thirty-five to forty miles south of the state capital going east through the Montezuma hills to reach Nurse Slough near the Suisun Bay. This canal would be one hundred feet wide. Its construction would require removing two million cubic yards of earth. In total, the embankments and canals entailed moving 11,877,385 cubic yards of earth, with an estimated cost of $2,575,477.[109]

[108] "Report of the Commissioners Appointed by an Act of March 28, 1868," 6-9.
[109] "Report of the Commissioners Appointed by an Act of March 28, 1868," 7-9.

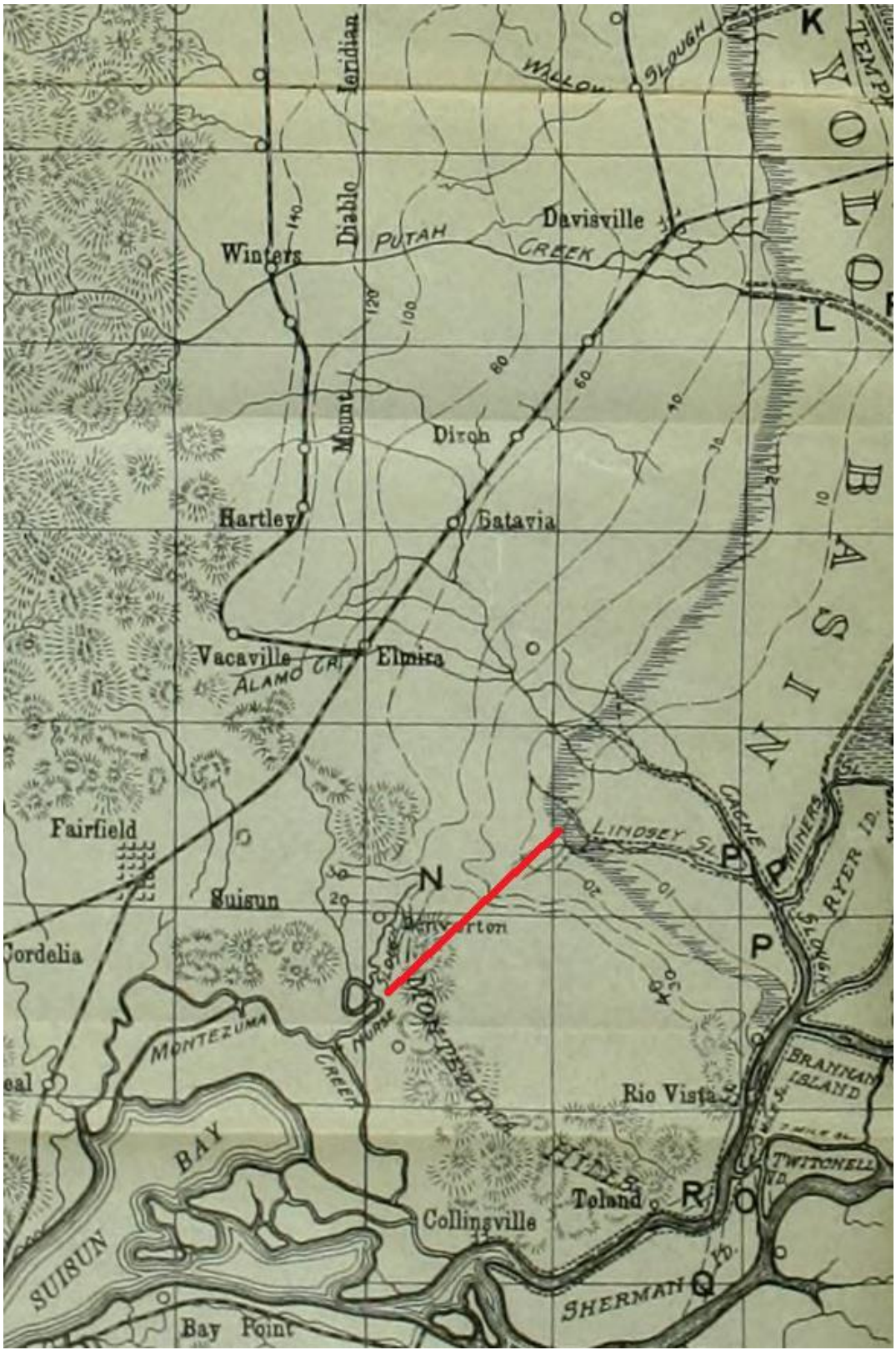

Figure 3: Map adapted by author to show approximate location of the proposed drainage canal (*red line*)

The cost of this plan effectively became a post facto justification for the 1868 land law. The commission acknowledged that the plan may have been financially "too formidable to warrant the commencement of the enterprise" by the state. But the commission also reported that during their investigations, they had been "thrown in contact with the majority of the owners of the swamp and overflowed lands throughout the entire district." They claimed that "a vast majority" of the owners were "heartily in favor of the immediate adoption of some effective plan." Without a comprehensive plan, landowners feared their lands would forever remain useless. The commission reported that the "owners of the larger tracts" which "had been "more recently" purchased from the state (i.e., through the Green Act), wanted it "particularly understood" that they asked, "no pecuniary aid from the State for carrying out of this or any other plan." All they required was legislation that enabled them to effectually "levy a tax upon the lands to be benefited and reclaimed," which they had already achieved through the Green Act.[110]

The Green Act also, predictably, facilitated land concentration. Between 1868 and 1871, corporations, capitalists, and speculators amassed most of the state's swamplands.[111] Of the 790,793 swampland acres the state sold in that period, nearly 80 percent lay in ninety farms spanning at least one thousand acres. The average acquisition was 9,083 acres, with the largest, comprising 81,861 acres, belonging to George D. Roberts, of San Francisco, whom the *Sacramento Daily Union* listed as a capitalist and swamp landowner.[112] The Green Act

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[110] "Report of the Commissioners Appointed by an Act of March 28, 1868, 11-12; "An Act to Provide for the Management and Sale of the Lands belonging to the State," 516.
[111] Philip Garone, *The Fall and Rise of the Wetlands of California's Great Central Valley* (Berkeley: University of California Press, 2011), 64.
[112] "Report of the Joint Committee to Inquire into and Report upon the Condition of the Public and State Lands within the Limits of the State," in *Appendix to Journals of Senate and Assembly of the Nineteenth Session of the Legislature of the State of California, Vol. II* (Sacramento, 1872), 62-64; "Brief Reference," *Sacramento Daily Union*, May 29, 1877.

culminated a decade where individuals, corporations, and land companies privatized eight million of California's public acres. Settlers could have established 50,000 farms of 160 acres on that amount of land. Only seven thousand laid stakes.[113]

Newspaper writers denounced this land rush. The *Sacramento Daily Union* pined for settlers rather than large land holders, for actual cultivation by the "plow and hoe more than magnificent schemes of reclamation," and for the filling of thousands of homes with prosperous families. They mourned how California got great bodies of land taken up as swamp by large monopolists.[114] The *Union* discovered that one speculator made over ninety thousand dollars in six weeks by buying up thirty five thousand acres of swampland for 37.5 cents an acre, investing less than thirteen thousand dollars, and then selling those lands for three dollars an acre to an English company.[115] The *Daily Alta* reported that speculators grabbed lands wholesale by paying county surveyors to list them as swamp.[116] Even if preemptors and homesteaders wanted to fight back against land grabbers, time and cost deterred defense. Usually, their best option was just to buy the lands they had already improved from the speculators and land companies claiming them under the Green Act. To commentators, the Green Act recreated the English land system that promoted feudalism and perpetual nobility.[117]

The 1868-1871 land rush drew the attention of non-California writers, as land monopoly was controversial beyond California. The Homestead Act of 1862, which allowed settlers to claim 160 acres of public lands for free if they lived on the land for at least five years, was already failing, for the most part, to promote small family farms and prevent land concentration

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[113] Paul W. Gates, "Public Land Disposal in California," in *Land and Law in California: Essays on Land Policies* (Ames: Iowa State University Press, 1991), 263-266.
[114] "The Swamp Landers," *Sacramento Daily Union*, December 26, 1870.
[115] "Swamp Lands," *Sacramento Daily Union*, December 21, 1871.
[116] "The Latest Wail of the Swamp Land Grabbers," *Daily Alta*, January 2, 1871.
[117] "Public Policy Regarding Land," *Sacramento Daily Union*, March 23, 1869.

in the West. Investigations found that "monied corporations and wealthy speculators" hired "gangs" of dozens of men to take up choice lands, lie under oath, and turn over relinquishments to land agents.[118] Furthermore, federal and state governments granted more than 180 million acres to railroads. The most famous work on mid-nineteenth land monopoly was *Progress and Poverty*, by Henry George. George began formulating his arguments for *Progress and Poverty* during his time in California. In articles about the evils of land monopoly, California starred as the archetype. "In no state," George wrote, "had land monopolization gone on as quickly as California." California was "not a country of farms, but a country of plantations and estates." George singled out the state's corrupt swampland policies. In defiance of US laws, the state sold to every purchaser who could get the county surveyor to segregate land he wanted. George estimated that as much as half the land sold by the state was not swamp, effectively removing the land from preemption.[119]

As he would in *Progress and Poverty*, Henry George attributed all social ills to land monopoly. It knotted up "business into the control of little rings." It diminished the wages of those in the mechanical trades. It destroyed personal independence and palpably differentiated between classes of rich and poor. These problems haunted older nations, and they emanated from the same source: the unequal distribution of wealth. Despite proliferating luxury, it was becoming "harder and harder for the poor man to live." George blamed land policy for "permitting a few to take and keep that which belongs to all."[120] None of this, in George's view,

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[118] West, *Continental Reckoning*, 350-351; Paul W. Gates, "The Homestead Act in an Incongruous Land System," *American Historical Review* 41, no. 4 (July 1936), 652-681; Leslie E. Decker, "The Great Speculation: An Interpretation of Mid-Continent Pioneering," *The Frontier in American Development: Essays in Honor of Paul Wallace Gates*, ed. David M. Ellis (Ithaca: Corney University Press, 1969); Richard Edwards, Jacob K. Friefeld, and Rebecca S. Wingo, *Homesteading the Plains: a New History* (Lincoln: University of Nebraska Press, 2017), 189-193.
[119] Henry George, *Our Land and Land Policy: National and State* (San Francisco: 1871), 20-25.
[120] George, 22-25.

was inevitable. He believed that the American people had a better chance and fairer field than any previous nation, enough land for two hundred million independent farms, given that the government wisely distributed its lands. Public policy, however, squandered this rich patrimony.[121]

California's 1872 "Report of the Committee on Land Monopoly" reflected ideas like those developed in the writings of Henry George. The report started by stating that land was "as much the support of animal and vegetable life as water or air." Without either, no living thing could be, and land was, therefore, "one of the primal necessities of human existence." Since land was finite and unreproducible, those who owned the soil of any country could "make all other who live therein pay tribute for the liberty of remaining in their native land." The report contrasted an exceptional new world with a corrupt, stagnant, hierarchical old world. The aristocrats, land monopolists of those countries, also made the laws, and with entail and primogeniture they locked up great possessions. In the United States, the people reputedly made the laws, and land was always for sale. Nevertheless, land monopoly, the "chief curse of civilization," cursed California worse than Great Britain. In California, two thousand people owned nearly seventeen million acres, an average holding of over seven thousand acres, four times greater than the average holding of British landlords. Spanish and Mexican era land grants accounted for some large holdings, but the biggest occurred where there were no foreign grants. "The evil, then," the committee wrote, came "not from Mexico" but from a "bad system of land laws."[122] The committee's work led them to recommend a 640-acre limit for future swampland sales, but speculators and corporations had already amassed the state's swamplands.[123]

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[121] George, 43-47.
[122] "Report of the Committee on Land Monopoly" in *Appendix to Journals of Senate and Assembly of the Twentieth Session of the Legislature of the State of California, Vol. V* (Sacramento; 1874), 193-195.
[123] Thompson, *The Settlement Geography of the Sacramento-San Joaquin Delta,* 201.

Green mocked the consternation about his land law, joking that "poor human nature" was "woefully given to exaggeration." He conceded that large proprietorships were "by no means desirable in any country," but he countered by appealing to the genocidal logic that justified American settler colonialism. The ravenous acquisition of cheap land, he argued, simply followed from the "same spirit of enterprise" that made "the Anglo-Saxon superior to the Aboriginal race they supplanted on this continent." Whether New York, Chicago, or elsewhere, settlers voraciously grabbed and hastily abandoned lands.[124] Green judged every man who was not a mere loafer as "more or less a speculator."[125]

Proponents of capitalist reclamation also argued that capitalists solved the endemic problems that critics of the Green Act accused it of causing, including excessive speculation. They explained that even though everyone desired to own land, floods forced settlers to abandon swamplands. Green estimated that one-third of swampland had been located and abandoned up to five times. He believed a capitalist who invested large sums would not abandon projects so wantonly. While commentators exulted the reclamation successes of Great Britain, Holland, and the Netherlands, Green retorted that Great Britain's swamplands remained uncultivated for more

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[124] William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: W.W. Norton and Company, 1991), 29; Alan Taylor, *William Cooper's Town: Power and Persuasion on the Frontier of the Early American Republic* (New York: Vintage Books, 1995), 126-129, 328, 373

[125] "The Land Monopoly Question," *Greens' Land Paper*, February 3, 1872. Anglo expansion in North America, as later historians found, occurred through explosive colonization backed by metropolitan capital. Belich, *Replenishing the Earth*, 9-25. Green's disparagements crudely parallel more considerate interpretations from later historians, particularly Patricia Nelson Limerick, who characterized westerners as stubbornly and self-consciously "innocent." Western settlers blamed capitalists, corporations, monopoly, dishonest promoters, or natives when their dreams desiccated in the desert or foundered in floods. Patricia Nelson Limerick, *The Legacy of Conquest: The Unbroken Past of the American West* (New York: W.W. Norton and Company, 1987), 35-54; 36-54 66-70. But all settlers, according to Sai Englert, fought over the distribution of colonial booty. Sai Englert, "Settlers, Workers, and the Logic of Accumulation by Dispossession," *Antipode, 52* (2020): 1658. https://doi.org/10.1111/anti.12659. "Past a point," Elliot West wrote, "posing farming against speculation is a false contrast. Land speculation has always been woven into western expansion;" West, *Continental Reckoning*, 351; See also Ray Allen Billington, "The Origin of the Land Speculator as a Frontier Type," *Agricultural History* 18, no. 4 (October 1945): 204-212; Robert P. Swierenga, "Land Speculation and its Impact on American Economic Growth and Welfare: A Historical Overview," *Western Historical Quarterly* 8, no. 3 (July 1977): 283-302. In the words of W.E.B. Du Bois, settlers fought "not to overcome but to share spoils with the large land speculators." W.E.B. Du Bois, *Black Reconstruction in America, 1860-1880* (New York: Touchstone, 1935), 239-240.

than five hundred years until capitalists enclosed them.[126] He warned that with interest rates high and other fields offering ample returns, capitalists would only invest in swamplands if they could monopolize them.[127] Before the State Agricultural Society, writer J. Ross Browne also defended monopoly, because the topography of the Sacramento Valley demanded "large brains to conceive, large means to execute, and the ownership of large bodies of land, the profits of whose improvement alone [could] justify the enormous expenses to be incurred." He considered proscriptions against large land ownings "tantamount to prohibiting reclamation." Rather than railing against capitalist monopoly, Browne told farmers to combine and convince British capitalists that long-term investments in the Sacramento Valley would pay better than mining and railroad bonds.[128] Green was not so uncouth as to suggest that economic concentration constituted an unalloyed virtue.[129] Rather, settler government faced "a choice of two evils." They could "let the lands lie for generations an unproductive waste," or they could "have them owned, managed, and reclaimed by large holders," who would "demand the price" they were "worth in the market after reclamation."[130]

Browne felt even more confident than Green that capitalist monopoly would align with settlement. "From the evils of monopoly," Browne wrote, "would come divisions into smaller tracts." Browne declared that after twenty-two years of "free competition" failing to improve the lands, the state was fortunate that capitalists could end the quagmire. Capitalists could sell land

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[126] "Large Locations," *Colusa Sun*, February 18, 1871.
[127] "Reclamation and Irrigation," *Green's Land Paper*, May 15, 1872.
[128] "Transactions of the California State Agricultural Society during the Year 1872," in *Appendix to Journals of Senate and Assembly, of the Twentieth Session of the Legislature of the State of California, Vol. III* (Sacramento, 1874), 395-399.
[129] Jonathan Levy, *Freaks of Fortune: The Emerging World of Capitalism and Risk in America* (Cambridge: Harvard University Press, 2012), 264-307. Green Act supporters prefigured early twentieth century capitalist ideologues, but their teleology of concentration applied specifically to swamplands. Capitalists such as J.P. Morgan and George Perkins preached that the economy naturally concentrated resources over time, as enlightened corporations maximized efficiency, managed risk, and assuaged the volatility of transnational commerce.
[130] "Swamp Land Reclaimer and Newspaper Howlers," *Green's Land Paper*, March 27, 1872.

on easy payment terms and lease shares of the crop (sharecropping). Corporations could advance seed, credit, and agricultural implements to settlers. They could construct canal and irrigation works even more extensive than those that corporations built for mining.[131]

The distance between supporters of capitalist reclamation and the anti-monopolists was not as large as it seemed. Both could conceive reclamation only in terms of maximum acreage development. They only disagreed on whether ultimate development entailed a few capitalists instrumentalizing every clod of dirt and every drop of water for profit or an army of settlers conquering the lands under the banner of economic and ecological imperialism. Even legislative committees that deplored the great haste which public lands passed into private ownership blamed the laws. Moreover, they denied the state's prerogative to undo the damage.[132] The land that capitalists accumulated through bad laws hardened into a permanent advantage, an immutable right. Possibly the state could build new henhouses, but it could never remove the fox from its charge of the old ones.

The discussion of bad laws missed how settlers found other uses for the swamplands. In 1871, a joint senate and assembly inquiry into the fraudulent acquisition of swamplands unwittingly revealed common land use. Settlers like William Reynolds, who had lived in Colusa since 1852, pastured their stock on the prairie lands. Reynolds relied on common land in his first few years of settlement. Even on lands less marginal than swamp, starting a farm daunted the most resourceful settlers. It required several years' worth of salary for seed, tools, and land, as well as the means to survive until the first harvest. On average, it took two years to set up a farm

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[131] "Transactions of the California State Agricultural Society during the Year 1872," 412-419.
[132] "Memorial and Report of the California Immigrant Union to the Legislature of the State of California," in *Appendix to the Journals of Senate and Assembly of the Nineteenth Session of the Legislature of the State of California, Vol. III* (Sacramento, 1872), 47; "Transactions of the California State Agricultural Society during the Years 1870 and 1871," in *Appendix to Journals of Senate and Assembly of the Nineteenth Session of the Legislature of the State of California, Vol. III* (Sacramento, 1872), 210.

that could feed a family.[133] Reynolds also testified that without overflow, there was no good crop. Another 1852er, E.C. Bunker, confirmed that so-called swamps encompassed some of the state's best grazing lands because of how naturally they sprouted wild clover and oats after floods. Other witnesses testified that thousands of sheep and stock pastured on swamplands.[134]

In a joint senate and assembly investigation, multiple witnesses insisted that many of the lands that barons acquired through the Green Act were not in fact swamp. One witness even recalled that during floods he drove his horses and cattle to lands now classified as swamp. Several witnesses from Colusa County singled out L.F. Moulton as an insidious character. Moulton was a real estate speculator who operated in Butte and Colusa Counties. With Will S. Green, Moulton surveyed a route for a Chico and Colusa Railroad, promoted that route, and then proceeded to sell four thousand acres along the proposed route for a "cheap" twenty to twenty-five dollars an acre.[135] Witnesses testified that L.F. Moulton grazed anywhere from 1,500 to 5,000 sheep on land he claimed was swamp.[136] Most likely Moulton was enclosing common grazing lands. According to the joint committee report, Moulton bought 4,160 acres of swampland during the 1868-1871 land rush.[137] In subsequent years Moulton advertised wheat land for ten to twenty dollars an acre, more than a dozen times his cost of purchase.[138]

The actions of corporations and speculators like L.F. Moulton failed to improve reclamation in the Sacramento Valley. By 1875, reclamation districts in California had spent at least two dollars an acre attempting to reclaim 506,696 swampland acres. The Sacramento Valley encompassed almost two thirds of that number, about 334,444 acres. According to the

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[133] Richard White, *"It's Your Misfortune and None of My Own": a New History of the American West* (Norman: University of Oklahoma Press, 1993), 185.
[134] "Report of the Joint Committee," 17-27.
[135] "Chico and Colusa Railroad," *Chico Enterprise*, June 2, 1876.
[136] "Report of the Joint Committee," 20-23.
[137] "Report of the Joint Committee," 62.
[138] *Daily Appeal,* October 16, 1873; "Wheat and Vegetable Land for Sale Cheap," *Colusa Sun*, November 27, 1875.

surveyor general, reclamation was complete for 126,955 acres, but the Sacramento Valley accounted for less than a quarter of the reclaimed lands at 30,218 acres. To put that in perspective, in the Sacramento Valley spending two dollars an acre successfully reclaimed swamplands 9 percent of the time, whereas outside of the Sacramento Valley, two dollars an acre successfully reclaimed swamp or overflowed lands 56 percent of the time.[139]

Even that 9 percent figure misleads. Given that well-made levees were still subject to breaking, overtopping, and sabotage, swamplands could never be considered permanently reclaimed. Such was the experience of the Sacramento Valley Reclamation Company, which acquired thirty-one thousand acres of lowlands in Yolo County in 1869 and proceeded to form Reclamation District no. 108. Altogether, Reclamation District no. 108 encompassed 108,000 acres. This district spent almost half a million dollars to keep the water of Sycamore Slough from draining into their land. District 108 constructed levees from the town of Knight's Landing to the head of Sycamore Slough. At the head of Sycamore Slough, they built a bulkhead, which is essentially a wall, to keep water from coming out of the Sacramento River. The dam, levees, and bulkhead broke during the storms of 1873-1874. The winter of 1877-1878 was also a "disastrous one for the basin." The levees broke in several areas, including near the head of Sycamore Slough, and water ran through these breaks for the entire winter. After the storms receded, District no. 108 immediately went to work repairing and strengthening their levees, but on December 22, 1879, a party of men from the east side of the Sacramento River cut the levees. The levees had created a dam at Wilkin's slough, and the disgruntled men claimed that the

[139] Robert Gardner, *Biennial Report of the Surveyor-General of the State of California from August 1, 1873, to August 1, 1875* (Sacramento, 1875), 13.

slough raised the water on their land. By the end of the 1870s, only 20,000 of the 74,000 acres in Reclamation District no. 108 were under cultivation.[140]

Reclamation companies also operated in a space of enormous uncertainty. Nineteenth century Californians did not know the precise location of the basins. Settlers had to surmise the location of basins and proactively create flood-control works they hoped could protect them from overflows during storms. L.F. Moulton conjectured that since the Feather and Sacramento Rivers ran on a ridge after they entered the valley, there must be a basin between them. To complicate this matter, there are several creeks and sloughs between the Feather and Sacramento Rivers, most notably Butte Creek. These creeks and sloughs in turn can form their own ridges from accumulated silt deposit, creating smaller basins within the larger basin. Additionally, waters also escaped during flood time through sloughs over the banks from creeks and the rivers. Moulton wanted to place levees along the sloughs and creeks to keep their water from spilling out into the basins. But keeping water out of one basin would mean more water accumulating in other basins. Thus, settlers often opposed large-scale levying. As Moulton concluded, "all sloughs must be stopped or none." He decided he would not "build levees until settlers would fight for, not against them."[141]

Landowners near the Butte Slough were not as patient as Moulton. To reclaim land on the east side of the Sacramento River and south of the Butte Slough, these landowners conceived of building a dam across a narrow neck of land between the Slough and the Butte Mountains. The idea was that as water backed up in the dam, it would eventually find its way back into the Sacramento River through Butte Slough. As the south and west side of the slough had already been lowered this would form a continuous dam from the river to the mountains. But landowners

[140] Green, *Colusa County*, 57-58.
[141] Green, *Colusa County*, 59-60.

above the dam vehemently opposed the scheme. In December of 1871, a party of men cut a hole in the dam, and it washed out. The next year it was rebuilt, but this time, in 1874, storms broke the dam. It was rebuilt yet again only for it to break again in January of 1875. In January of 1876, a party of masked men went to the dam to cut it again. Finally, the Supreme Court enjoined the rebuilding of the dam, and the land south of the Butte Slough would remain swamp.[142] By then end of the 1870s, The *San Francisco Bulletin* advised landowners in swamp and overflowed lands to build high mounds where they could locate their houses and barns, as it was increasingly becoming apparent that levying against floods was useless.[143]

[142] Green, *Colusa County*, 58-60.
[143] "The Sacramento Delta," *San Francisco Bulletin*, February 26, 1878, Quoted in Thompson, *The Settlement Geography of the Sacramento-San Joaquin Delta*, 223.

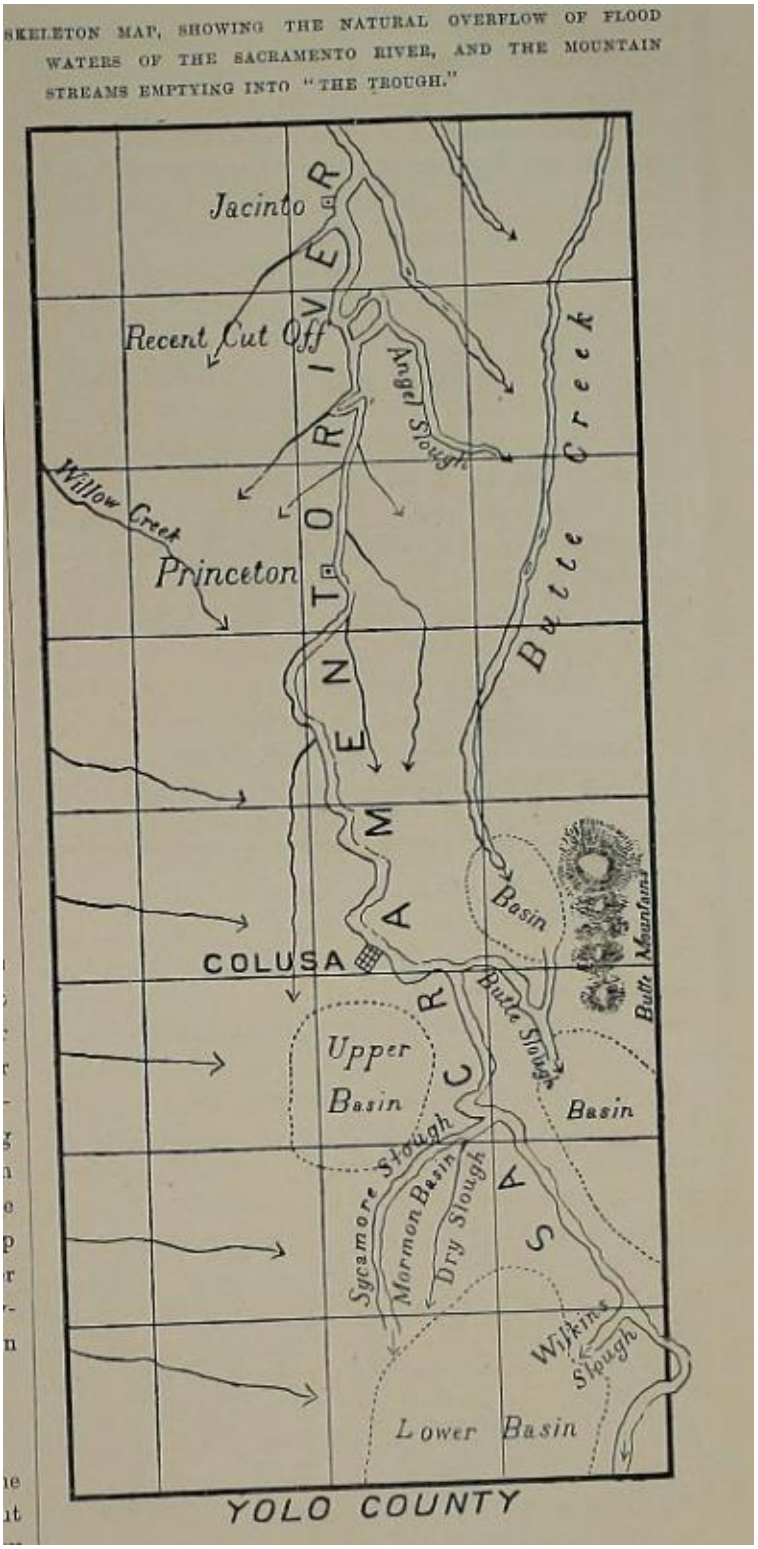

Figure 4. Map of overflow areas in Colusa and Yolo County from Green's history of Colusa County

3. Saving Reclaimed Lands from Hydraulic Mining, 1872-1884

The conditions which made the Sacramento Valley a fertile region also made it vulnerable to the hydraulic mining industry. Gold is created by exploding stars called supernovas or by colliding neutron stars. Sometimes the gold dust floating in space coalesces with other minerals to form planets and celestial objects. Most of earth's gold is in its core, but some has come to the surface through volcanic and tectonic activity. In creating the Sierra Nevada, the collision of the Pacific and North American Plates lifted gold out of the subterranean layers of the Earth. The same erosive processes that formed the Central Valley by filling in the ancient inland sea also liberated gold from the mountains. This gold is concentrated in the tertiary gravels of abandoned riverbeds, often buried under hundreds of feet of accumulated debris.[1]

Hydraulic mining, the process of separating precious metals from soil and rock with pressurized water, was the most effective means of obtaining tertiary gold. Miners invented hydraulic mining in 1852 and 1853 when they discovered they could send water from flumes to hoses with nozzles attached. This early form of hydraulic mining was twenty-five to one hundred times more effective than hand washing soils with a pan or rocker, but it came with limitations. Hoses burst easily, and iron nozzles rusted. Hydraulic mining also requires a considerable quantity of water as well as a large "head," or pressure, of water. These requirements confined hydraulic mining to hilly regions where sufficient waterfall could be obtained.[2] Disintegrating soils created massive quantities of debris that choked nearby streams and creeks, making it impossible to carry on operations. To alleviate this problem, miners dug great shafts to the bottom of each deposit, and then ran a tunnel from the bottom of the shaft to the nearest river

[1] Elliott West, *Continental Reckoning: The American West in the Age of Expansion* (Lincoln: University of Nebraska Press, 2023), 3-4.
[2] Rodman W. Paul, *California Gold: The Beginning of Mining in the Far West* (Lincoln: University of Nebraska Press, 1947), 154-158.

canyon. They then washed deposits down the shaft through a tunnel. These tunnels were very costly. North Bloomfield's 8,000-foot-long tunnel, for example, cost 500,000 dollars.[3]

Farmers had suspected that debris from hydraulic mining damaged their farms. Unlike the lighter soils that normally washed down from mountains, hydraulic mining debris was heavy with sand and gravel. It often blew out of riverbeds during floods which receded leaving a layer of this debris, called a slicken, high in alkali and low in phosphorous and nitrogen and toxic to plants. [4] The floods of 1862 deposited slickens on thousands of acres of farmland, but the floods were so generally severe and widespread that settler protests went unheeded. [5] The subsequent drought nearly ended the mining industry for want of water to wash the gravel, and industry revenues fell from forty-four million in 1860 to just seventeen million a year by 1866.[6]

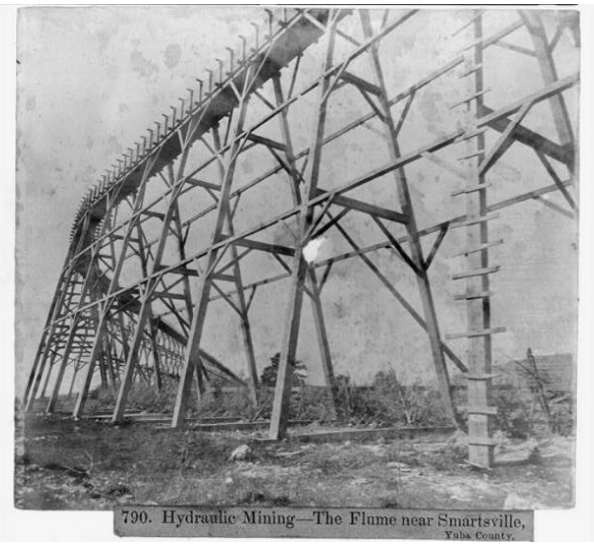

Figure 5. Lawrence & Houseworth, *Hydraulic Mining—The Flume near Smartsville, Yuba County. 1866*, https://www.loc.gov/item/2002724178/.

[3] Robert L. Kelley, "Forgotten Giant: The Hydraulic Gold Mining Industry in California," *Pacific Historical Review* 23, no. 4 (1954): 349-353, https://doi.org/10.2307/3634653.
[4] Andrew Isenberg, *Mining California: An Ecological History* (New York: Hill and Wang, 2005), 45.
[5] Joseph J. Hagwood Jr., *The California Debris Commission: A History of the Hydraulic Mining Industry in the Western Sierra Nevada of California, and of the Governmental Agency Charged with its Regulation* (Sacramento: U.S. Army Corps of Engineers, 1981), 19.
[6] Paul, *California Gold*, 241-242.

Hydraulic mining revived in the mid-1860s as rain returned and new technologies attracted investors. Especially important was the invention of the hydraulic "monitor." A hydraulic monitor had an eight-inch cast-iron nozzle that could discharge water at 150 feet per second, or 185,000 cubic feet per hour. It received water from a lake above the mine. Large iron pipes, eleven to twenty-two inches in diameter, dropped four hundred to five hundred feet to these giant cast-iron nozzles. [7] As a congressman would write some decades later, "against this immense force mountains, 300 or 400 feet high, melted like sugar." To break up compacted soils that resisted pressurized water, miners blasted hillsides with thirty to forty tons of gunpowder. These blasts left three hundred- to four-hundred-foot-deep craters in the mountains. Miners discharged debris from the water pressure and gunpowder blasts into Sacramento Valley rivers. Over forty days, the Miocene Mine could discharge into the Feather River above Oroville three hundred thousand cubic yards of debris, equivalent to about 52,500 railroad carloads. The Yuba River annually received about 22,362,500 cubic yards of debris, a quantity sufficient to fill up the Erie Canal as it then existed.[8] With the invention of Hoskin's Little Giant Monitor, hydraulic mining revived after 1868. By 1872 English investors had spent a million dollars purchasing nearly all the gravel deposits between Dutch Flat and Nevada City.[9] With this revival of hydraulic mining, rivers of debris flowed into the rivers of water.

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[7] Kelley, "Forgotten Giant," 354.
[8] Charles F. Curry, "Flood Control of the Sacramento River," *Sacramento River Floods, Hearings Before the Committee on Flood Control, House of Representatives, Sixty-Fourth Congress, First Session on Floods of the Sacramento River, April 5, 1916* (Washington: Government Printing Office, 1916), 35-37.
[9] Robert Kelley, *Gold vs Grain: The Hydraulic Mining Controversy in California's Sacramento Valley* (Glendale: The Arthur H. Clark Company, 1959), 45-46.

Figure 6: Lawrence & Houseworth, *Hydraulic Mining near French Corral, Nevada County* (Nevada County California, 1866), https://www.loc.gov/item/2002719066/.

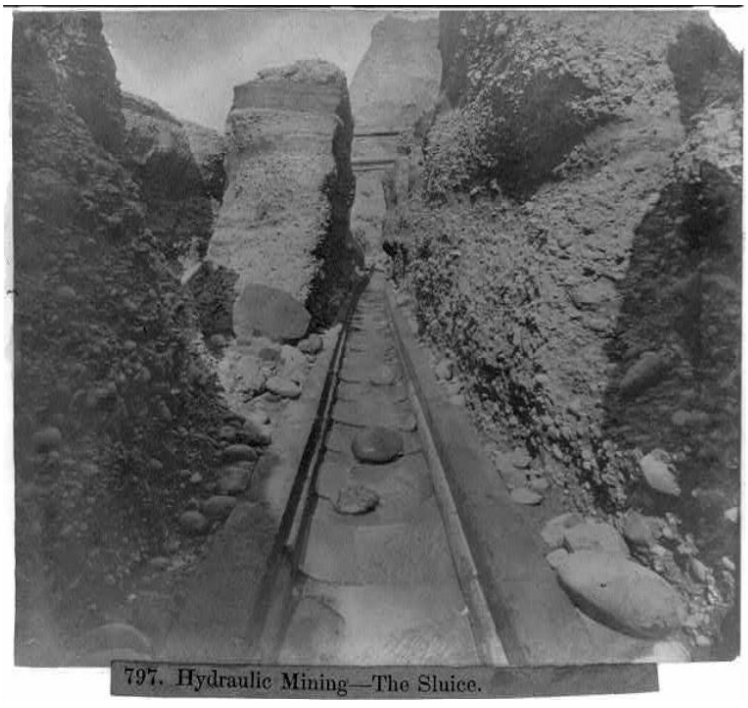

Figure 7: Lawrence & Houseworth, *Hydraulic Mining—The Sluice 1866,* https://www.loc.gov/item/2002723808/.

In 1872, Sacramento Valley farmers began suing mining companies for dumping debris into the rivers. The first case came from Butte County farmers against the Spring Valley Mining Company.[10] They lost. The court ruled the parties were misjoined since farmers could not separate the damages caused by the Spring Valley Mining Company from the other companies which operated in the area. Furthermore, the court deemed the mines more valuable than the farms.[11] In 1874, farmers gathered at Biggs to launch another protest movement. To quell the unrest, the Spring Valley Mining Company constructed a long ditch, the Cherokee Canal, to transport debris to Butte Creek. This solution, however, could not work for other counties, particularly Sutter and Yuba, where numerous mines tailed into three converging rivers.[12]

In 1875, winter storms flooded large parts of the Sacramento Valley, including Marysville. Sitting at the confluence of the Yuba and Feather Rivers, Marysville was the largest settlement and most vulnerable to winter storms. By 1868, the beds of the two rivers rose higher than the city's streets. Marysville's residents subsequently built levees that circled the town and reached as high as the tops of houses.[13] When storms pounded the mountains and flatlands in January of 1875, floodwaters overtopped Marysville's levees, turning the city into a vast dump for mining debris. The debris also destroyed fifteen thousand acres of farmland along the Yuba River and eleven thousand along the Bear River, equaling two million dollars in property loss. Sutter County suffered an estimated three million dollars in property damage. Former Marysville mayor W.T. Ellis Jr recalled looking out the second story of his father's home at 8th and D Streets, and "watching the rush of waters down that waterway, carrying with it some barns, small houses, several cows, and particularly a side of a barn, with a lot of chickens on it, the roosters

[10] Joseph McGowan, *History of the Sacramento Valley, Vol. 1* (New York: Lewis Historical Pub. Co, 1961), 295.
[11] Hagwood Jr., *The California Debris Commission*, 19.
[12] Kelley, *Gold vs Grain,* 63-65.
[13] Kelley, 58.

doing a lot of excited crowing." Ellis received a whipping when, in defiance of his father's orders, he ventured into the first floor living room and slipped on and into the muddy slime left behind by the flood.[14]

Two positions emerged in response to the storm. William H. Parks, an original forty-niner who constructed the state's first levee, held that the state should find a solution that was equitable to both miners and farmers. The other position, articulated by former miners turned farmers William Keyes and George Ohleyer, demanded an end to hydraulic mining in the name of the general welfare. As a compromise, Sacramento Valley farmers organized a committee with subscribers from both positions to draft a law which would hold mining companies liable for dumping debris into rivers. They also drafted a memorandum requesting that the legislature investigate the problem and find an acceptable plan for both sides.[15]

Some Sacramento Valley farmers feared that the progressive nature of science and capitalism would cause hydraulic mining to simultaneously become more destructive and productive over time. At a Yuba City Meeting in December of 1875, farmers stated that as science developed improved processes for washing away the bluffs of mountain claims, the quantity of debris sent down by rivers steadily increased.[16] In a meeting at Marysville, prominent Sacramento Valley residents claimed that hydraulic mining was in its infancy, and that science and inventive genius was devising means by which larger quantities of debris would be washed down in a shorter time.[17] In January of 1876, a Sutter County assemblyman presented a concurrent resolution and memorial to the United States Senate and House of Representatives.

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[14] W.T. Ellis Jr, *Memories: My Seventy-Two Years in the Romantic County of Yuba, California* (Eugene: The University of Oregon, 1939), 146.
[15] Kelley, *Gold vs. Grain*, 73-78.
[16] "The Valleys and Mountains," *Sacramento Daily Union*, December 24, 1875.
[17] "Hydraulic Mining and Agriculture," *Sacramento Daily Union*, January 3, 1876.

The memorial stated that hydraulic mining had desolated hundreds of homes. It warned that unless Congress speedily averted the danger, hydraulic mining would make the most "inviting and productive valleys on the continent" uninhabitable."[18]

Though the resolution's tone was apocalyptic, the attached bill was moderate. It only called for a three-person commission to gather statistics and to survey lands for mining and agriculture. After ascertaining the amount of detritus annually discharged, the commission could then suggest a plan for containing debris.[19] In short, the leading representative of the Sacramento Valley's agricultural districts proposed to preserve the hydraulic mining industry through the coordination of the state and federal governments.

Mining interests took the petition from the agricultural districts as a threat. In September of 1876, the owners of northern Sierra mine and ditch companies gathered in San Francisco and formed the Hydraulic Miners Association. Mining representatives argued that their storage reservoirs actually abated the flood danger in the Sacramento Valley.[20] Some argued that it was plowing, not mining, that filled up waterways with debris.[21] L.L. Robinson, the Vice President of the Miners Association, claimed before the U.S. Land Commission that soil degradation increased ten to fifty times since farming began in the state.[22] Mining capitalists brought out professors and scientists to cast doubt on the grievances against their industry.[23] One professor asserted that mining debris fertilized the soils of the Sacramento Valley in the same way that

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[18] "Mountain Debris vs Valley Land and Rivers," *Marysville Daily Appeal,* January 11, 1876.
[19] "Hydraulic Mining Act," *Grass Valley Union*, February 9, 1876.
[20] "Agriculture and Mining," *Marysville Daily Appeal*, January 21, 1876.
[21] "Mining Debris," *Sacramento Daily Union*, February 6, 1878.
[22] "Important Facts Bearing Upon the Debris Question," *Sacramento Daily Record-Union,* October 17, 1879.
[23] These tactics seem to prefigure more recent industry efforts to cast doubt on science, and even common sense. See Naomi Oreskes and Erik Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Climate Change* (New York: Bloomsbury Press, 2010).

sediment from the Nile sustained agriculture in Egypt for millennia.[24] A letter writer claimed that slickens made once barren spots yield bountiful harvests four times a year.[25]

Mining advocates agreed with farmers that hydraulic mining would only grow over time. The largest pro-mining newspaper, San Francisco's *Daily Alta*, extolled the future of hydraulic mining as it was "clear production [would] increase from year to year." Moreover, they lauded hydraulic mining as an industry belonging "to the permanent class, such as agriculture."[26] The data supported the predictions of mining persistence. After 1870, British investors poured four million pounds into California placer mining, and the peak year would come almost a decade after the *Daily Alta* made its prediction.[27]

By antagonizing farmers, mining capitalists instigated an "irrepressible conflict."[28] After the assembly indefinitely postponed Berry's bill, Sacramento Valley farmers began to argue that hydraulic mining was an ephemeral industry which threatened the future and "proper development of the agricultural wealth" of California.[29] However, the *Sacramento Daily Record-Union* still hoped that the federal and state government would mediate between mining and agriculture. Its editor lamented that a resolution in the courts could only destroy one industry or the other.[30] From the miner's perspective, hydraulic mining entailed huge sunk costs that investors only undertook because the state assured them the means to realize profits from their investments. They pointed out that mining lands cost twice as much to purchase as farmlands, that miners had purchased rights before settlers had set up farms, and that the "improvements" on

[24] "Mining Debris," *Sacramento Daily Union*, March 9, 1876.
[25] "Letter to the Alta," *Grass Valley Union*, October 8, 1881.
[26] "The Gold Beds of Plumas County—New Enterprises Inaugurated—Immense Extent and Richness of the Claims—The Future of County, Etc," *Daily Alta*, May 28, 1875.
[27] Isenberg, *Mining California,* 32*;* Kelley, *Gold vs Grain*, 51.
[28] "The Mining Debris Question," *Sacramento Daily Union,* February 15, 1876.
[29] "The Farmers of Sutter and the Mining Debris Question," *Sacramento Daily Union*, April 3, 1876.
[30] "The Future of Hydraulic Mining," *Sacramento Daily Record-Union*, September 23, 1876.

mining lands cost a hundred-fold more than the improvements on agricultural land. Furthermore, state law already recognized mining rules.[31] If the state failed to protect mining investments, they argued, then no investments were safe. Investors would flee, leading to "commercial death of the state."[32] Sacramento Valley newspaper writers countered that agriculture had to contend not just with the customary forces of nature, but with "artificial agencies" which were "continually increasing their destructive capacity." If the operations of nature alone were in question it would be practical to devise a levee system "as would afford full security for an indefinite period." But they feared that the flow of mineral matter would increase every year.[33]

In February of 1878, another storm deluged the Sacramento Valley, which finally compelled the state government to act. Unlike the 1875 flood, the 1878 storm inundated the state capitol itself. The *Placer Herald* reported that "the breaking of the levee on the east side of the Sacramento River" probably resulted "in the destruction of property to a greater amount than all the previous losses combined." The *Solano Republican* reported that the floods destroyed fine fruit orchards and vineyards, the result of ten years work, at one fell swoop, and rushing waters turned 700,000 acres of farmland into a wilderness.[34] In response to the floods, as well as to drought in Southern California, the legislature created the office of the state engineer. The legislature tasked the state engineer with devising a comprehensive plan for flooding, drainage, and irrigation.[35]

During the state engineers' investigations, Sacramento Valley newspapers and farmers articulated a populist and republican theory of government that placed public interest above

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[31] "The Debris Question: A Miner's Review of the Situation," *Pacific Rural Press*, January 13, 1877.
[32] "Slickens—The Amount Involved," *Grass Valley Union*, June 14, 1881.
[33] "Flood and Debris: Opinions of the Press," *Sacramento Daily Record-Union*, March 9, 1878.
[34] "The Mining Debris Question: Voices from the Press," *Sacramento Daily Union*, February 14, 1878.
[35] "An Act to Provide a System of Irrigation, Promote Rapid Drainage, and Improve the Navigation of the Sacramento and San Joaquin Rivers," in *The Statutes of California Passed at the Twenty-Second Session of the Legislature, 1877-8,* Chap. CCCCXXIX (Approved March 29, 1878).

private rights. They vigorously argued that the state should choose agriculture for its future over mining. Mining interests mostly appealed to the right of private property. They argued that mining claims preceded farm purchases. Those mining claims vested them with the right to appropriate water for draining hillsides. Farmers acknowledged the prior rights of miners, but they countered that the basis of mining's favored status was state interest rather than property. In the quarter century after the California Gold Rush, state interest had shifted from mining to agriculture.[36] Therefore, agriculture deserved state protection. This was true not only because farming was becoming more profitable than mining, but also because gold benefited foreign capitalists more than it did the state and local communities.[37] Hydraulic mining, farmers exclaimed, was a monopoly, a system where rich men get richer.[38] A writer from the *Bee* wrote that, corporations were "said to be soulless," and foreign hydraulic mining corporations were "the most soulless of all."[39]

Farmers' arguments derived from republican ideals which envisioned society as an extension of the state and the interests of the polity as superior to the rights of individuals.[40] Gilded Age Americans in general thought in terms of collectivities. They sought to create "good" homes, as evidenced in policies ranging from the Homestead Act to the Dawes Severalty Act.[41] The concern with soulless foreign corporations was akin to the anti-monopoly populism of the era which perceived that syndicates based in New York and London stood for lawlessness and impeded rural progress.[42] The anti-mining activists wanted the government to go beyond

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[36] "The Mining Debris Question," *Sacramento Daily Record-Union*, July 31, 1878.
[37] "The Navigable Streams of California," *Sacramento Bee*, December 19, 1879.
[38] "The Great Question of the Day," *Grass Valley Union*, June 27, 1879.
[39] "Had to Come to It," *Sacramento Bee*, September 22, 1883.
[40] Brian Balogh, *A Government Out of Sight: The Mystery of National Authority in Nineteenth-Century America* (New York: Cambridge University Press, 2009), 14-24.
[41] Richard White, *The Republic for Which it Stands: The United States During Reconstruction and the Gilded Age, 1865-1896* (New York: Oxford University Press, 2017), 5.
[42] Charles Postel, *The Populist Vision* (New York: Oxford University Press, 2007), 28.

promoting profitable farms and stable homes, beyond even regulating or nationalizing large corporations. The anti-mining activists wanted the government to actively choose a winner and a loser. They wanted "the whole public to decide" whether one should "be sacrificed to the other."[43] In pursuit of their goal of ending hydraulic mining, a large crowd of farmers and townsmen met in Yuba City on the twenty-fourth of August in 1878 and formed "The Anti-Debris Association of the Sacramento Valley."[44]

Sacramento Valley newspaper writers hinted at a vision that pitted capitalism, or at least certain kinds of capitalism, against the state itself. Interference was not just a matter of making the economy work more efficiently or maximize profits. It was a recognition that not only did some economic activity harm the environment and society, but that all economic activity operated within a framework established by the state, "even as individual interests appeared to govern at the dearest cost of the people of the entire state."[45] Sacramento Valley farmers understood that capitalists would continue to invest in new and ever more efficient technologies for "dismantling the earth" until they had "acquired the very last flake of gold that could be sold at a profit." "The *Bee* opined that the gold would be taken out because "greedy, conscienceless corporations" cared "only for gold and nothing for society and humanity."[46] Farmers feared that unless the state intervened, the Sacramento Valley would be sacrificed for the profits of hydraulic mining capitalists.[47] At times farming interests could sound downright communistic. One Sacramento Valley writer declared that "the right to land as property" was "inimical to the

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[43] "The Great Question of the Future," *Sacramento Daily Record-Union*, March 16, 1878.
[44] Kelley, *Gold vs Grain*, 115.
[45] "Editorial Expression of the Pacific Express*," Sacramento Daily Union*, March 16, 1878.
[46] "The Spirit of the Greedy Ones," *Sacramento Bee*, November 14, 1881.
[47] Extraction depletes land and communities of resources, creating "sacrifice zones," geographic areas permanently maimed by economic development. Steve Lerner, *Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the United States* (Cambridge: The MIT Press, 2010); Chris Hedges and Joe Stucco, *Days of Destruction, Days of Revolt* (New York: Hachette Book Group, 2012).

welfare of society." This, to be sure, was not an appeal for the nationalization of land, but a claim that only those who directly improved the soil and lived on and off it could rightfully claim it.[48]

In 1880, State Engineer William Hammond Hall finished his investigations. His report confirmed that hydraulic mining debris harmed Sacramento Valley rivers and farms. He found that hydraulic mining had destroyed forty thousand acres of prime farmland along the Feather, Bear, and Yuba Rivers. Sediment build-up from smaller debris diverted the Yuba River a mile away from its original course. Debris had reduced the carrying capacity of the Feather and Sacramento Rivers by an average of 30 percent and at points by as much as 50 percent. Hall surmised that just by removing debris, flood capacity would double in some areas.[49]

Hall blamed inadequate state coordination for the Sacramento Valley's problems. He insisted that debris would not have accumulated in riverbeds if not for a defective levee system. Levee breaks diverted the stream, disturbing the regimen of the main channel, thus reducing its scouring power. In other words, sediment would not build up so much in the rivers if properly constructed levees ensured steady and undiluted river flow. According to Hall, flooding stemmed more from the state's failure to coordinate economic development in a flood zone than from the individual activities of varying interests.[50]

To contain mining debris, Hall proposed that the state build brush dams. These dams would allow water to pass through while catching and containing heavier debris. After a dam filled up with sand and gravel, it would become a facing to a hillside over which falls the water. By Hall's calculation, the dams would hold the heavier materials for thirty-two years.[51] To

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[48] "Water 'A Public Use,'" *Daily Morning Times*, June 23, 1883.
[49] William Hammond Hall, "Part III: The Flow of the Mining Debris," *Report of the State Engineer to the Legislature of the State of California—Session of 1880* (Sacramento: 1880), 14.
[50] William Hammond Hall, "Part II: Drainage of the Valleys and the Improvement of the Navigation of Rivers," *Report of the State Engineer to the Legislature of the State of California—Session of 1880* (Sacramento: 1880), 11.
[51] Hall, "Part III: The Flow of the Mining Detritus," 37-39.

conduct these policies, the state would have to take over all drainage works, which Hall assured would ward off any danger "without any radical interference with existing interests."[52]

Hall, however, made it clear that even absent mining debris, much of the Sacramento Region was still subject to flooding. About three thousand square miles of the Sacramento Valley, such as the dry plains and high hill lands (i.e., the Marysville Buttes) were "above reach of all overflow." But about 450 square miles of dry plains were subject to flooding, along with 1,274 square miles of low basin lands, tule swamps, and island swamps.[53] During the high water of March 1879, about 847 square miles of lowland in the Sacramento Valley flooded. This could not be avoided, because the mountain watersheds which drained into the Sacramento River are 2.5 times larger than the valley itself. The Sierra Nevada alone received anywhere from 24 to 102 inches of precipitation a year, mostly as snow. This mountain range was drained by the American, Bear, Yuba, and Feather Rivers, along with numerous other small streams, which in total amounted to 8,298 square miles at an elevation of 7,000-11,000 feet above the sea. The creeks which flowed from the Coast Ranges drained an area of 3,075 square miles. All the streams which enter the Sacramento River were torrential in character, "that is to say, they [were] subject to sudden freshets of considerable magnitude, but generally of short duration." They did not usually come all at once, except when after several moderate storms of a season, there occurred a violent and somewhat prolonged storm, or succession of rainstorms, immediately followed by a quiet and warm rain, which melted the snow on the mountains, causing waters to enter the valley torrentially from all the surrounding watershed at the same time, producing extraordinary flood.[54]

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[52] Hall, "Part II: Drainage of the Valleys and Improvement of the Navigation of Rivers," 74.
[53] Hall, "Part II: Drainage of the Valleys and Improvement of the Navigation of Rivers," 7.
[54] Hall, 8-10.

According to Hall, the Sacramento River had "always been of poor regimen." For the 106 miles above the head of Butte Slough the Sacramento River was wider than the sixty-four miles below, down to Feather River. A narrowing river acted as a clogged drain that caused water to back up in the upper valley. Furthermore, several shallow bars slowed passage of flood waves. Levees exacerbated these conditions. By blocking the general and natural escape of waters from the rivers, levees caused pressure to build up in the channel, until the water broke through levees. River flows would then diminish downstream of the break, allowing soils to settle in the channel bed and causing the formation of new bars.[55] Many sections of the Sacramento River were too tortuous, causing bend resistance. Hall considered the alignment of the channel in many parts "exceedingly irregular." These irregular and "oftentimes grotesque alignment of the banks" caused eddies, whirls, and water dams at the time of flood, which impeded the flood of the waters.[56]

Hall's investigations also started delineating the basins of the Sacramento Valley. The most important was the Yolo Basin. This basin lay west of the Sacramento River and extended parallel to the general course of the river from near the mouth of the Feather to the east slope of highland known as the Montezuma Hills, and from north to south from Grant Island to Collinsville. Its lowest depression ranged one to five miles from the river. The Yolo Basin received drainage from streams flowing out of the Coast Ranges on the west, most notably Cache and Putah Creeks, as well as overflow waters from the Sacramento. This basin lacked a steep enough grade to quickly drain surplus waters of the watershed. In the middle twenty miles of

[55] Hall, 10-12.
[56] Hall, 17.

Yolo Basin the bottom of the depression only sloped down twenty feet, giving an average grade of nine inches per mile.[57]

The biggest issue, as Hall saw it, was bringing water of ordinary flood volume from the upper to lower region of the Sacramento River without flooding the lower region. This required widening the lower river as well as containing all its waters within its banks during an ordinary flood. His ideas fell in line with the predominant theory of flood control, the Humphreys Thesis. Andrew Humphrey conceived the thesis during his studies of flooding along the Mississippi River in the 1850s and 1860s. In 1861, he reported to Congress that the best way to maintain the navigability of a river while also preventing flooding was to confine all a river's waters to its channel with levees. During high water marks, confined waters would flow faster, causing the river to scour its bottom, thereby deepening it, and removing any obstructions that might cause overflows.[58] Hall noted that the "most potent influence for general good must ever be the transporting power of the current in the stream itself, produced by the outflow of land drainage waters."[59]

Hall aimed to scour the river by increasing the velocity of water in the channel. By accelerating river velocity, the waters would naturally remove the sand bars which had formed in Sacramento Valley rivers. Spur dikes, or rock structures that protrude into the river, would increase scour the same way partially covering the nozzle of a hose increases the velocity of water coming out of it. By placing spur dikes on the side of the river where the banks curve away from the channel, the velocity of the river would increase against the banks on the side of the

[57] Hall, 24-26.
[58] Martin Ruess, "Andrew A. Humphrey's and the Development of Hydraulic Engineering," *Technology and Culture* 26 (January 1985), 1-33, https://doi.org/10.2307/3104527; Andrew A. Humphreys and H.L Abbot, *Report upon the Physics and Hydraulics of the Mississippi River* (Washington D.C.: 1867).
[59] Hall, "Part II: Drainage of the Valleys and Improvement of the Navigation of Rivers," 63.

river that curve into the channel, carving and straightening it out over time.[60] Finally, uniform levees would intensify natural scour. The state would have to ensure that levees were built eight to fourteen feet in height on each side of the river and as far apart as topography and soil allowed, but with a maximum limit of two miles. The wide distance between levees was necessary because the lower valley needed greater capacity to avoid backing up waters in the river, causing flooding in the upper valley.[61] Though the rivers would have to work to clear obstructions and sediment from their own channels, none of this would happen instantly, so Hall also proposed relief points capable of passing two thousand to five thousand cubic feet of water per second into a channel between embankments leading back into the Yolo Basin.[62]

Hall doubted the state could ever prevent great floods, such as those that occurred in 1852 and 1862.[63] To Hall, the people of the Sacramento Valley would have to plan around the unpredictable. They would have to raise, or protect by embankments, some tracts, such as cities and towns. They would also have to fully understand that floods occasionally "must be allowed to spread."[64] Far from the imperial approach to nature commonly reputed to nineteenth century engineering and science, Hall believed in building societies with resiliency, that prosperity and plenty could be obtained for nineteen years so that a "rich and populous section should be able to afford to be submerged on the twentieth."[65] Hall's vision entailed people living consciously with

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[60] Hall, 56-57.
[61] Hall, 67-70.
[62] Hall, 63-65.
[63] Hall, "Part II: Drainage of the Valleys and Improvement of the Navigation of Rivers," 11. Hall's conclusion has been vindicated by twentieth century scientists who have found an 1862 level flood event occurs on average every century. See B. Lynn Ingram and Frances Malamud-Roam, *The West Without Water: What Past Floods, Droughts, and other Climatic Clues Tell Us About Tomorrow* (Berkeley: University of California Press, 2013), 147; Alfred E. Holland Jr., "Dreams, Realizations, and Nightmares: The American River Parkway's Tumultuous Life, 1915-1911" in *River City and Valley Life: An Environmental History of the Sacramento Region,* ed. Christopher J. Castaneda and Lee M.A. Simpson (Pittsburgh, University of Pittsburgh Press, 2013), 243.
[64] Hall, "Part II: Drainage of the Valleys and Improvement of the Navigation of Rivers," 14-15.
[65] Hall, "Part II: Drainage of the Valleys and Improvement of the Navigation of Rivers," 15; On the imperial view of engineering science, see Donald Worster, *Nature's Economy: A History of Ecological Ideas* (Cambridge: Cambridge University Press, 1977), 114-177; Edwin T. Layton, Jr, *The Revolt of the Engineers* (Baltimore: John Hopkins

inevitable property destruction, although his vision did entail a certain degree of certainty about the frequency of great floods.

Sacramento Valley farmers believed that risk was created not by flooding but by hydraulic debris. They only agreed with Hall's assessment of the benefits of flooding before the resumption of hydraulic mining in the late 1860s. Hall observed that though Sacramento Valley lands were always subject to overflow, they receded rapidly and "effected no material damage to land or crops" before the hydraulic mining era. Hall commented that "the lands were sometimes in a high state of cultivation, and were dotted with prosperous homes, fruitful orchards, and luxuriant fields."[66] Farmers reiterated that without mining debris, flooding could benefit their farms. A man who had bought two hundred acres of land on the Bear River in 1853 recalled that before the 1870s, when waters subsided after a flood, everything sprung up more luxuriant than before "by this thorough baptism of the land by the rivers."[67] The *Colusa Sun* asserted that it was not floods that destroy lands, but slickens which poison them.[68] General M.G. Vallejo of Sonoma declared that they should "let the swelling waters overflow the natural banks and deposit fertilizing material, but not overspread the land with unproducing sand, gravel, and slickens from the mines."[69] A Butte County farmer wrote that the floods should, "when they come," be given "a chance to spread where they will" because "they renew and reinvigorate the earth."[70] The *Colusa Sun* told readers that they could live with floods by building mounds to place their farm equipment during floods.[71]

University Press, 1986), 55-60; Raymond H. Merritt, *Engineering in American Society, 1850-1875* (Lexington: University Press of Kentucky: 1969), 132; Ari Kelman, *A River and its City: The Nature of Landscape in New Orleans* (Berkeley: University of California Press, 2003), 164.

[66] Hall, "Part III: The Flow of Mining Detritus," 14.

[67] "What I Know About Mining," *Marysville Daily Appeal*, February 17, 1876.

[68] "Congressman Berry's Farm," *Colusa Sun*, November 19, 1881.

[69] "Slickens Again: More Opinions on the Subject from Many Prominent People*," Sacramento Bee*, March 8, 1882.

[70] "The Slickens Question," *Sacramento Bee,* April 14, 1882.

[71] "The Mound System," *Colusa Sun*, October 15, 1881.

Sacramento Valley farmers also argued that brush dams would enrich the wealthy at the expense of the poor. If the state maintained the dams, it would have to tax the whole populace to maintain an industry controlled by millionaire investors who lived in San Francisco, New York, and London. If the dams failed, investors would lose only the money put in, whereas Sacramento Valley residents would lose their homes and livelihoods. Yet if hydraulic miners paid for dam construction, mining would concentrate in even fewer hands, because smaller miners could not afford such infrastructure. To the farmers this did not look like an equally distributed risk. Even given the construction of debris dams and levees, hydraulic mining was "in its infancy," and "with the modern improvements in the use of water in these mines, dams as security to the people" would "be no security at all."[72] They worried that once hydraulic mining ceased earning profits from Northern California, nothing could compel investors living in other states and countries to maintain the dams. The state would have to take on the long-term externalities of mining, while mining investors reaped undeserved profits. Thus, farmers urged the state to intervene to protect itself from the threatened destruction.[73]

How settlers received Hall's plan was as much about conflict between competing visions of how to manage risk in a complex, industrial democracy as it was about the specific conflict between miners and farmers. When Sutter County citizens met in Yuba City to consider a bill to implement Hall's plan, they unanimously voted against it and declared rivers the common property of the whole people. They refused to concede the right of a private interest to dump debris into rivers, even if the state regulated dumping.[74] But not all agricultural interests opposed the bill. The state's largest corporation, the Southern Pacific Railroad, owned 11.6 million acres

[72] "The Spirit of the Greedy Ones," *Sacramento Bee*, November 14, 1881.
[73] "The Evil of Hydraulic Mining," *Sacramento Bee*, August 6, 1878.
[74] "Solid Against It," *Sacramento Bee*, March 2, 1880.

of land.[75] They promoted agriculture through their control of the *Sacramento Record-Union*, which became the leading advocate of a drainage bill to implement Hall's plan. [76] The *Record-Union's* editor ridiculed opposition to the bill, particularly from its rival the *Sacramento Bee*. At one point the *Record-Union* disparaged the *Bee's* writers as "ignorant of engineering science as a cow is of Sanskrit."[77] The *Record-Union* impugned the motives of the Anti-Debris Association, which they helped found. They accused the association of opposing a legislative solution to the conflict so that lawyers could "embark on a sea of litigation."[78] According to the *Record-Union*, science showed how all could be saved. Layman and politicians should have no say in solutions. The legislature's only role was to determine how to pay for relief.[79] Though the *Record-Union* clearly identified with the Sacramento Valley, and repeatedly stated that agricultural dominance was the state's future, they rejected the proposition that democracy should decide the issues confronting the state. Their disdain for democracy makes sense considering that reforms aimed at limiting the power of large corporations menaced the political and economic dominance of the Southern Pacific Railroad.[80] The owners of the Southern Pacific Railroad installed its chief land agent, William Mills, as the editor and proprietor of the *Record-Union* so that it would serve as a counter to the anti-railroad *Sacramento Daily Union*.[81]

In April of 1880, the governor signed into law "An Act to Promote Drainage." It passed the assembly by a vote of 43-36. Counties on the westside of Sacramento as well as San Joaquin

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[75] Donald Worster, *Rivers of Empire: Water, Aridity, and the Growth of the American West* (New York: Oxford University Press, 1985), 101.
[76] Richard J. Orsi, *Sunset Limited: The Southern Pacific Railroad and the Development of the American West, 1850-1930* (Berkeley: University of California Press, 2005), 433-434.
[77] "The Report of the Senate Committee on Debris," *Sacramento Daily Record-Union*, February 1, 1881.
[78] "Debris Question," *Sacramento Daily Record-Union*, March 11, 1880.
[79] "Erroneous Conclusion," *Sacramento Daily Record-Union,* March 30, 1880.
[80] William Deverell, *Railroad Crossing: Californians and the Railroad, 1850-1910* (Berkeley: University of California Press, 1994), 43-57.
[81] Orsi, *Sunset Limited,* 433-434.

and Stanislaus counties opposed the bill while the San Francisco delegation, at the behest of mining companies, supported the bill.[82] The drainage act established a board of drainage commissioners that could draw up plans for improving river channels and for flood prevention. The governor would select three residents from each drainage district to form a board of directors, which would have complete authority to reject or accept, in whole or in part, plans from the board of drainage commissioners. The boards of directors could construct levees and dams and condemn or purchase property for rights of way or storing debris, but they lacked the right to purchase or condemn existing levees.[83] The act allocated $600,000 for constructing debris dams on the Yuba, Feather, and American Rivers. Continuing hydraulic mining would require building more dams annually.[84]

Farmers bitterly opposed paying taxes for the drainage act. Mining interests liked to boast that hydraulic mining was an intensely important industry with tens of millions in investments, twelve million in annual revenue, and which provided the nation with gold during a deflationary era. Mining, moreover, was the parent industry of the state, with vested rights.[85] If hydraulic mining was so essential to the state and the nation because it provided gold, farmers countered, then the nation and the state should pay the costs of sustaining it. After all, the profits from mining did not accrue to the towns and farms of the valley, but to foreign investors.[86] The *Marysville Appeal* asked why, if mining was so immensely profitable, could hydraulic mining companies not compensate settlers for the damages they caused? [87] In February of 1881, a

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[82] "An Act to Promote Drainage," in *The Statutes of California Passed at the Twenty-Third Session of the Legislature, 1880*, Chapter CXVII (Approved April 23, 1880); Donald J. Pisani, *From the Family Farm to Agribusiness*: *The Irrigation Crusade in California and the West, 1850-1931* (Berkeley: University of California Press, 1984), 168.
[83] Kelley, *Gold vs Grain*, 147-148.
[84] "An Act to Promote Drainage," 124-126.
[85] "Miner's Resolution," *Placer Herald*, June 25, 1881.
[86] "Opposing their Best Interests," *Sacramento Bee*, March 3, 1880.
[87] "What I Know About Mining," *Marysville Appeal*, February 17, 1876.

committee of fifty-seven prominent residents of the Sacramento Valley decided to champion legislation that would end hydraulic mining by authorizing the attorney general to bring cases against mining companies. Because they believed corporations would gladly pay misdemeanor fines, they proposed to make it a felony to dump debris into rivers.[88]

Mining interests attacked farmers for rejecting the drainage act. The *Daily Alta* conceded the legitimacy of farmers' gripes, but they insisted that only engineers could solve those problems. They accused farmers of scapegoating slickens for their failure to pay debts.[89] The *Grass Valley Union* mocked farmers who blamed miners for natural phenomena and pointed to evidence of floodmarks a century earlier to prove that the Sacramento Valley was always vulnerable to all-encompassing inundations. They wrote it was "weak and querulous to ascribe to human agency" that which was "alone attributable to the forces of nature, and beyond human control."[90]

Mining interests also raised serious questions for how abolishing hydraulic mining could hurt mountain communities. They asked farmers to answer, where would all the miners go? And what would happen to the economies that depended on hydraulic mining? L.L. Robinson estimated that ending mining would render one hundred thousand people homeless and ruin eight or nine counties.[91] Sacramento Valley newspapers blithely suggested that miners could shift to other forms of mining, such as drift mining, or even better, start farms in the foothills and Sierras. The *Sacramento Bee* wrote that "the few men employed in the hydraulic mines would do vastly better by taking up little homesteads in the fertile foothills of the Sierra Nevada and

[88] "Anti-Debris," *Sacramento Bee*, February 21, 1881.
[89] "The Debris Question," *Daily Alta California*, August 5, 1881.
[90] "The Flood and the Debris," *Grass Valley Union*, February 2, 1881.
[91] "Hydraulic Mining: Testimony Before the Land Commission," *Grass Valley Union*, October 17, 1879.

improving them."[92] But as the *Placer Herald* pointed out, drift mining paid little, less than two dollars a day. As to farming in the hills, mountain frosts rendered agriculture in the mountains precarious.[93] Convertibility also mattered. It was no simple matter for "communities that for a generation" had "followed the occupation of mining, something radically and totally different from agriculture" to with "little effort be adapted to that latter pursuit." Miners told state mineralogist Henry Hanks that they sympathized with farmers, but they had "no other trade," nor other means of support for their families. One of the miners asked whether they should go to San Francisco, which was "already overpopulated and overstocked with unskilled laborers," and become "idlers and non-producers."[94]

Sacramento Valley writers dismissed these concerns by smearing hydraulic mining as an industry of "Chinamen."[95] They accused hydraulic mining companies of employing Chinese immigrants almost exclusively, cutting off the wages of white men, the result being that "a score of once beautiful villages" had "been ruined and depopulated, and their places filled with Chinatowns and Chinamen." Hydraulic mining and Chinese laborers, they warned, went hand in hand, so that, like Siamese twins, the two had to live and die together.[96] According to the *Colusa Sun,* hydraulic mining was fitting employment only for the Chinese, and Chinese employment directly caused hard times.[97] Sacramento Valley newspapers accused both of imperiling civilization itself. Where agriculture "builds permanent homes," they commented, hydraulic mining was a process of "disintegration and destruction" that only extracted from the land and labor to benefit foreign capitalists and the "Mongolians" who had supposedly "established a

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[92] "Too Much Gall and Bitterness," *Sacramento Bee,* November 21, 1883.
[93] "Press Opinions, Pro and Con, on Sawyer Decision," *Sacramento Daily Record-Union*, January 17, 1884.
[94] "Impracticable Advice," *Grass Valley Union*, January 25, 1884.
[95] Richard White, *Railroaded: The Transcontinentals and the Making of Modern America* (New York: W.W. Norton and Co, 2011)*,* 295-302.
[96] "A Miner on Hydraulic Mining," *Sacramento Bee*, June 25, 1881.
[97] "Chinese Hydraulicks," *Colusa Sun*, September 15, 1883.

perfect system of trading among themselves, thus cutting off every avenue" through which they might have otherwise conferred "some possible benefit upon the white population."[98]

Sacramento Valley newspaper writers also deployed colonial tropes of racial and geographical contamination. Nineteenth century colonial discourse associated races with places and climates. According to this discourse, race itself was both an outcome and principal determinant of one's fitness for any land.[99] Sacramento Valley newspapers claimed that slickens were a kind of racial contaminant which created land only the Chinese could farm. The *Marysville Appeal* asserted that no member of the white race could withstand the malaria of any slickens district. The *Appeal* insisted that if the state closed hydraulic mines, white people would cease abandoning their lands and plant many more fruit orchards.[100] The *Sacramento Daily Union* urged the state and federal governments to protect agriculture from pursuits of a transient nature, to save for posterity "those fertile valleys" which were "the pride and support of the nation."[101] They contended that just as the Chinese could not be assimilated, hydraulic mining could not be regulated. Sacramento Valley writers declared that the abolition of hydraulic mining, a "barbaric, ephemeral industry," would allow one hundred white men to "be profitably employed in the foothills where only a dozen, with a few chinamen" were employed.[102]

Characterizing Chinese immigrants as "pets of the hydraulic mine owners" short-circuited any nuanced debate over the social costs of abruptly ending hydraulic mining.[103] Dismissing the testimony of actual miners, the *Bee* asserted that the worries about banning

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[98] "The Mining Debris Question," *Marysville Daily Appeal*, March 11, 1876; "The Mining Debris Question," *Sacramento Daily Union,* February 7, 1877; "Now the Hydraulic Miners Employ Chinese," *Sacramento Bee*, July 29, 1882.
[99] Linda Nash, *Inescapable Ecologies: A History of Environment, Disease, and Knowledge* (Berkeley: University of California Press, 2006), 13.
[100] "Chinamen and Slickens," *Daily Morning Times* (San Jose), January 6, 1883.
[101] "The Farmers of Sutter and the Mining Debris Question," *Sacramento Daily Union*, April 3, 1876.
[102] "A Good Time Coming," *Sacramento Bee*, September 27, 1882.
[103] "A Fox in the Rear*," Sacramento Bee*, September 24, 1882.

hydraulic mining causing widespread unemployment was really propaganda from hydraulic mining companies which prated "about throwing laborers out of employment" yet employed "more Chinamen than white men."[104] Perhaps the most famous anti-Chinese racist of the time, Workingmen's Party leader Dennis Kearney, commented directly on the hydraulic mining controversy. Claiming to be "in a position to take a calm and unprejudiced view of the situation," Kearney ranted about English corporations employing Chinese labor to destroy the Sacramento Valley, all the while calling Chinese laborers "Asiatic coolies," "Chinese serfs," "pests," and the "pets" of English corporations.[105]

The racist attack on the mining industry easily converged with masculinist appeals to miners and farmers. To Sacramento Valley settlers, Chinese "coolies" represented Far-West versions of slavery.[106] In nineteenth century United States, masculinity denoted freedom and self-possession.[107] Slavery threatened masculinity.[108] Sacramento Valley newspapers frequently compared the labor systems of slavery and hydraulic mining and exploited the association between manliness and freedom to dismiss miners' concerns. They claimed that great corporations, mostly foreign, monopolized the mining grounds, thereby making "all mining laborers their slaves."[109] Just as abolition of slavery did not ruin the South, they reasoned, the abolition of hydraulic mining would not ruin mountain communities. The *Bee* tauntingly asked if "the people of the hydraulic mining districts" would "keep up this silly business as long as the

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[104] "The Slickens Case," *Sacramento Bee*, July 6, 1881.
[105] "Slickens Again: More Opinions on the Subject from many Prominent People," *Sacramento Bee*, March 8, 1882.
[106] Beth Lew-Williams, *The Chinese Must Go: Violence, Exclusion, and the Making of the Alien in America* (Cambridge: Harvard University Press, 2018), 31-33.
[107] Jeffrey Sklansky, *The Soul's Economy: Market Society and Selfhood in American Thought, 1820-1920* (Chapel Hill: The University of North Carolina Press, 2002), 20-21.
[108] [108] Evelyn Nakano Glenn, *Unequal Freedom: How Race and Gender Shaped Citizenship and Labor* (Cambridge: Harvard University Press, 2004), 23; David R. Roediger, *The Wages of Whiteness: Race and the Making of the American Working Class, Revised ed.* (New York: Verso, 1999), 25-35.
[109] "Bound to Open Their Eyes," *Sacramento Bee*, June 19, 1883.

'chivs's did," or would "they have manhood and sense enough to set about doing something else."[110] Valley writers also appealed to masculinity to galvanize farmers into demanding more of the state. A writer for the *Sacramento Bee* wrote that they "blush" and feel as if they had lost their "manhood" when they remembered that they had paid "thousands into the coffers of the state" while having been "so basely treated." The *Sacramento Bee* also called mine operators a "lawless" class of people and the government "weak" and "corrupt" for allowing that "renegade" class to fill up the streams.[111]

In appeals to both racism and to masculinity, Sacramento Valley papers attempted to essentialize the problems deriving from the hydraulic mining industry. According to this racist logic, it was hydraulic mining and its natural affinity with Chinese labor that despoiled the environment, stunted population and economic growth, stole from posterity, and fostered monopoly. They predicted that once hydraulic mining was abolished, all those problems would disappear. Thus, they personified the capacity to transform land into productive property that supported stable white communities via the white farmer. In the Chinese immigrant they saw personified the unsettling that occurs from extractive industry. Like the capitalist, the Chinese immigrant supposedly only came to take resources away. As both capitalists and the Chinese usurped the places that white workers ought to occupy, driving away the Chinese and abolishing hydraulic mining would allow "white men with families" to "take their places" and work out "a living in the auriferous hills of their own land."[112]

Miners perceptively highlighted the hypocrisy of their opponents' claims. To the claim that hydraulic mining was sinophilic, they pointed out that agriculture employed more Chinese

[110] "Why Cry Over Spilled Milk?" *Sacramento Bee*, June 21, 1882.
[111] "Slickens: What Leading Men of the State Say on the Subject," *Sacramento Bee*, February 28, 1882.
[112] "A Better Day Dawning," *Sacramento Bee*, August 17, 1882.

labor than mining. During the 1870s, mining lost more than half its Chinese labor, while Chinese tenant farmers became the primary growers of fruit and produce for Northern California.[113] As a writer for the *Grass Valley Union* noted, white men received 2.50 to 3.00 dollars a day from mining, which was far above agricultural pay rates where in some places and times could be less than a dollar a day. Not only did agriculture pay less than mining, but it was not inevitably more sustainable. Hydraulic mining defenders perceived that all development could decimate the environment. As a writer for the *Grass Valley Union* argued, the system of agriculture in California impoverished the soil. Without a positive law to compel farmers to replenish the soil, agriculture diminished the state's natural resources just as much as mining.[114]

This appeal to positive law implied a need for comprehensive state regulation. Absent positive laws any modern industry despoiled the environment, a position shared by latter conservationists of the Progressive Era.[115] Neither agriculture nor mining was exceptional in this regard. It was already becoming evident that wheat farming in the Sacramento Valley was depleting the fertility of the soil.[116] As a writer for the *Grass Valley Union* asked, "what right" had "any man or set of men, to crop land" until it became "a desert, thus destroying the right of generations to appear and live?"[117] Some mining advocates emphasized how mining provided a more reliable source of income for the state than Sacramento Valley agriculture. After all, the Sacramento Valley was "sometimes dry and unproductive, sometimes flooded and of little

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[113] Alexander Saxton, *The Indispensable Enemy: Labor and the Anti-Chinese Movement in California* (Berkeley: University of California Press, 1971), 4; Sucheng Chan, *This Bittersweet Soil: The Chinese in California Agriculture, 1860-1910* (Berkeley: University of California Press, 1986), 88-105.
[114] "Anti-Hydraulic Vagaries," *Grass Valley Union*, November 29, 1881; Richard Steven Street, *Beasts of the Field: A Narrative History of California Farmworkers, 1769-1913* (Stanford: Stanford University Press, 2004), 391.
[115] Ian Tyrell, *Crisis of the Wasteful Nation: Empire and Conservation in Theodore Roosevelt's America* (Chicago: University of Chicago Press, 2015), 9-16, 80-81; Samuel Hays, *Conservation and the Gospel of Efficiency* (Pittsburgh, University of Pittsburgh Press, 1999), 1-6.
[116] Pisani, *From the Family Farm to Agribusiness,* 288; Ann Foley Scheuring, *Valley Empires: Hugh Glenn and Henry Miller in the Shaping of California* (Rumsey: Gold Oak Press, 2010), 256.
[117] "Decisions Against Mining," *Grass Valley Union*, October 24, 1886.

value." It was a region that was "liable to overflow from causes other than hydraulic mining."[118] Whether it was environmental exhaustion, economic stability, or racial contamination, miners posited that these issues stemmed not from specific industries, but from broader processes of a modern industrial economy which only the state could resolve.

California's volatile climate ultimately helped the farmers make their case. In the early months of 1881, floods washed away the state-built brush dams on the Feather and Yuba Rivers.[119] These dam failures helped farmers obtain several key legal victories. In July 1881, Judge Denson of Sacramento County, at the request of the state attorney general, issued a temporary restraining order against the Gold Run Ditch and Gravel Mining Company. Then on September 26, 1881, the state supreme court ruled the drainage act unconstitutional. Among the court's reasons was that the storage of debris was a private matter, that the legislature lacked the power to tax everyone to benefit a few, and that the legislature could not delegate legislative authority to an independent commission.[120] Superficially, the ruling meant little for the continued operation of hydraulic mines. However, it hindered the state's capacity to legislate an engineering solution to the problems caused by hydraulic mining. Following the 1881 ruling, Judge Jackson Temple issued a ruling in the case of *The People v. the Gold Run Ditch and Mining Company*. Judge Temple ruled that since miners had never acquired the right to use the rivers as dumps, and that by preventing free use of riparian lands and free navigation, hydraulic mining constituted a public nuisance. He made the injunction against Gold Run Ditch and Gravel Mining Company indefinite until the company-built court-approved restraining works.[121]

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[118] "Debris Topics," *Daily Alta*, September 20, 1881.
[119] "The Debris Question," *Sacramento Daily Union*, March 5, 1881.
[120] Kelley, *Gold vs Grain*, 198-199.
[121] Hagwood Jr., *The California Debris Commission,* 22-23.

The gold run case set a precedent for the most important case relating to the hydraulic mining controversy, *Edward Woodruff vs North Bloomfield Mining Company*. Unlike other cases, which mostly pertained to individual mining companies, *Woodruff* applied sweepingly to hydraulic mining in Northern California and effectively ended the industry in California. The case began in October 1882 when Edward Woodruff, a citizen of New York who owned 1,700 acres of prime farmland along both sides of the Yuba River, filed suit in the Ninth United States Circuit Court for a perpetual injunction against North Bloomfield and all other mines along the Yuba River.[122] Not until January of 1884 would Lorenzo Sawyer, a former miner himself, deliver a decision, after visiting the brush dams built on the Yuba and Feather Rivers and reviewing twenty thousand pages of testimony.

What seemed to most impress Sawyer was the sheer and repeated failure to contain mining debris and the mass devastation those failures left in their wake. In his ruling he remarked incredulously that at "the first ordinary flood" in the rainy season following the passage of the drainage act, floods swept away large sections of the brush dams built under the supervision of the state engineer. The North Bloomfield Mining Company had constructed a fifty-foot-high dam to impound its debris, and within a couple of years the dam was full.[123] The breaking of the English Dam also weighed heavily on Sawyer. Located fifty miles above Yuba City, the English Dam was owned by the Milton Mining Company of California and New York, and by all accounts was "truly a work of engineering and skill."[124] Its site was particularly good for erection, with a base composed of solid masonry that rested directly on the granite of the riverbed. Still it broke, sweeping away bridges, trees, cabins, levees, and grain fields.[125] Sawyer

[122] Isenberg, *Mining California,* 171.
[123] Woodruff v. North Bloomfield Gravel Mining Co,18 F. 753, 766 (9th Cir. 1884).
[124] "A Calamity," *San Jose Weekly Mercury,* November 1, 1883.
[125] "In the Paths of an Avalanche," *Sacramento Bee,* February 8, 1887.

opined that the brief flood occasioned by the breaking of the English Dam illustrated that mining debris was a "continuing, ever-present, and, so long as hydraulic mining" was "carried out as now pursued" it would "ever continue to be, an alarming and ever-growing menace, a constantly augmenting nuisance…" He added that "all the practical experiments heretofore made, at great expense, under the supervision of the state and of competent engineers," had "been lamentable failures."[126]

The complainants near decade of continuous activism also compelled Sawyer. The defense argued that after three decades of hydraulic mining, miners had acquired prescriptive rights to dump in rivers. In other words, since farmers neglected to complain about dumping for two decades, they lost the right to suddenly start protesting. Sawyer dismissed this reasoning. He countered that no one could "obtain a prescriptive right to a public nuisance." He also echoed the farmers' arguments about the accelerating nature of extractive industry. The "acquiescence in a certain amount of nuisance," Sawyer explained, was "not acquiescence in a similar nuisance" which was "constantly increasing in magnitude."[127] He briefly reviewed the history of hydraulic mining in California, noting that when hydraulic mining first began in the mid-1850s, hoses contained nozzles no more than an inch in diameter. But with the invention of the Little Giant Monitor in the late 1860s, the size of nozzles increased to four to nine inches. He estimated that there were still six hundred million cubic yards that hydraulic miners could dump into the Yuba River. Finally, he commented that the "early, continued, and persistent action of the people affected, both in a public and private capacity, by common efforts to secure common relief from a common nuisance, and the difficulties encountered," could "properly be considered as bearing

[126] Woodruff v. North Bloomfield Gravel Mining Co,18 F. 753, 797 (9th Cir. 1884).
[127] Woodruff v. North Bloomfield Gravel Mining Co,18 F. 753, 755 (9th Cir. 1884).

upon the question of acquiescence."[128] In short, the farmer's activism and organization worked. Their continuous resistance encouraged Sawyer to rule in their favor. Sawyer declared the dumping of debris into rivers a public nuisance. Hydraulic mining could only continue if the state devised a means of safely containing hydraulic mining debris. The farms on the highlands next to the rivers would no longer be subject to new hydraulic mining debris, but they were not safe from accumulated debris nor the general problems of drought, flooding, and stagnation.

[128] Woodruff v. North Bloomfield Gravel Mining Co,18 F. 753, 796 (9th Cir. 1884).

4. The Search for a Comprehensive Plan, 1885-1902

After the Sawyer Decision, representatives from the mining counties immediately moved to restore hydraulic mining. Senator Cross of Nevada County introduced a bill in early 1885 that would have authorized the formation of corporations to build debris dams, condemn and take reservoir sites, and seize slickens covered bottomlands.[1] At the Democratic State Convention in 1886, delegates resolved that mining was "one of the great and beneficial industries of this state." They considered it "the duty of the Government to devise some means for mining to be continued without injury to any other industry."[2] In 1887, the state senate and assembly passed a joint resolution to acquire a federal commission for resolving the debris controversy and rehabilitating the mining industry. In the resolution they stated that vast interests, including thousands of homes and the fortunes of numerous hard-working people, depended upon mining. They added that hydraulic mining must be revived because the world produced too little money.[3]

As expected, farmers protested. The *Sacramento Bee* worried that dams would mean that each year "the breaking of a dam, and of the descent of a mighty mass of debris in some great flood, would necessarily increase" because "all artificial barriers" were "but temporary."[4] The people would dwell in constant apprehension, the *Bee* warned, and the damage that mining could inflict in a year would occur in a single day by the breaking of a dam.[5] Furthermore, with accumulated storage of debris, dams would be left a burden on the state. If hydraulic mining

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[1] "An Infamous Bill," *Sacramento Bee*, February 7, 1885.
[2] "The Mining Debris Bill," *Grass Valley Union*, October 27, 1888.
[3] "Assembly Joint Resolution No. 10," in *The Statues of California and Amendments to the Codes Passed at the Twenty-Seventh Session of the Legislature,* Chap. X, (Adopted March 10, 1887), 253-254.
[4] "The Storage of Danger," *Sacramento Bee*, February 21, 1885.
[5] "They Did Well," *Sacramento Bee,* September 27, 1887.

were to continue, the *Bee* declared, they wanted it to continue without dams so that "its ruins" would "be accomplished by gradual stages, and with as little loss of life as possible."[6]

Farmers also feared that the continuance of hydraulic mining would undermine their efforts to secure federal investment in Sacramento Valley rivers. The War Department told them it would release the $250,000 Congress had allocated for improving the Sacramento River through the work of the Army Corps of Engineers only after hydraulic mining ceased.[7] As miners illegally continued operations, The Anti-Debris Association deployed a corps of detectives to secure injunctions against mine operators. Miners employed a force of lookouts who gave advance notice of anti-debris detectives and would shut down mines for a few hours. Nevertheless, the detectives made it difficult for mines to operate without getting fined.[8] By 1887, the Anti-Debris Association had brought forty-eight cases for contempt of court.[9]

As with injunctions, farmers resorted to racism to procure greater state resources. The *Sacramento Bee* accused "Asiatics" of "operating mines which white men" had "been enjoined by the courts from working." They complained that the destruction of the Sacramento Valley was mainly "carried on by the Chinese" who were irresponsible, not easily identified, and "against whom the decree of the courts" could not "be effectively executed."[10] There was little reason to believe that Chinese immigrants solely carried out hydraulic mining operations. The behavior of Sierra residents indicated that white settlers were culpable too. When a United States Marshall appeared in Quincy (county seat of Plumas) in the spring of 1887, lodging houses refused him accommodations, no one would give him a horse to ride, some miners suggested tarring and

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[6] "The Storage of Danger," *Sacramento Bee*, February 21,1885.
[7] "The U.S. Government and the Debris," *Pacific Rural Press*, January 9, 1886.
[8] U.S. Congress, House of Representatives., Committee of the Whole on the State of the Union, *Report no. 616. Control of Floods on the Mississippi and Sacramento Rivers,* 64th Congress., 1st sess., 1916, H. Rep, 50-51.
[9] "What the Anti-Debris Association Has Done," *Grass Valley Union*, May 7, 1887.
[10] "Have Whites No Claim to Protection," *Sacramento Bee*, February 10, 1886.

feathering him, and he was greeted by a shotgun carrying owner when he finally reached a mine.[11] But making it an issue of protecting white farms against a supposedly lawless racialized other increased the probability that the state would intervene more aggressively.

The farmers' efforts to end hydraulic mining were seemingly nullified with a federal bill to revive hydraulic mining. In 1888, long-time pro-mining Congressman Marion Biggs submitted a bill in Congress that would appoint three officers from the engineering corps of the United States Army to survey injured river channels and devise a plan resolving the conflict between the farming and mining sections The *Sacramento Daily Record-Union* castigated Biggs for raising hopes that engineering science would "find a way to compass the impossible."[12] The *Marysville Appeal* warned that investigations would deter capital from investing in the region. Furthermore, they worried that even though engineering science established the impossibility of controlling debris, corruption or ignorance in Washington could lead to a bad law that attempted to resuscitate the industry.[13]

Despite farmer opposition, the Biggs bill easily passed through Congress and President Grover Cleveland signed it in October of 1888.[14] The bill created a three-person commission consisting of engineers from the United States Army. It allocated $10,000 for them to investigate the debris question.[15] The commission invited miners and farmers to testify, and it sent out circulars to all leading representatives of the mining element, to anti-debris dwellers in the Sacramento Valley, and to steamboat men.[16] Both Sacramento Valley and mining newspapers

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[11] Joseph J. Hagwood Jr., *The California Debris Commission: A History of the Hydraulic Mining Industry in the Western Sierra Nevada of California, and of the Governmental Agency Charged with its Regulation* (Sacramento: U.S. Army Corps of Engineers, 1981), 27.
[12] "Mr. Biggs' Bill," *Sacramento Daily Record-Union*, January 6, 1888.
[13] "The Debris Evil," *Pacific Rural Press*, January 28, 1888.
[14] "Congressman Biggs' Bill Passes the House," *Morning Union*, February 26, 1888; "The Biggs' Bill Signed by the President," *Morning Union*, July 15, 1888.
[15] "Congressman Biggs' Mining Debris Bill," *Grass Valley Union*, January 17, 1888.
[16] "The Debris Question," *Placer Herald*, December 1, 1888.

objected to testimonials, as they considered this solely an engineering question.[17] Valley newspapers expressed confidence that the commission would not revive the hydraulic mining industry. They asserted that hydraulic mining could only operate by exporting the costs of their industry to outsiders, a business only permissible "in savage or semi-civilized countries."[18]

Even though farmers opposed the Biggs Commission, they still sought government intervention for the problems caused by flooding and the accumulated debris in the rivers, especially after a levee break on the right bank of the Sacramento River near the ranch of Henry Paine on December 12, 1889. Newspapers and politicians called it the "Paine Break." The *San Jose Mercury* reported that the rushing of waters through the break covered ten thousand acres of seeded land.[19] Because the Paine Break was located above a bend in the Sacramento River, it threatened to ruin the navigability of the Sacramento River. A bend acts as a barrier for the water flowing from a break, causing sediment to accumulate. As an owner of large interests in river transportation put it, wherever a break occurred, "particularly at a bend in the stream, a bar [was] sure to form."[20] The Paine Break formed a crevasse two to three miles below the corporate limits of Sacramento. Half the mining debris above the break filled the river below the crevasse.[21]

In response to the Paine Break, Sacramento Valley commercial interests began considering lobbying the federal government for aid to restore the Sacramento River. A committee from the Sacramento Board of Trade appeared before the Board of Supervisors in December of 1889 to call for a convention of representatives from Sacramento Valley counties

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[17] "Will Turn on Dams," *Morning Union*, December 7, 1888.
[18] "The Debris Commission," *Marysville Daily Appeal*, October 26, 1888; "The Debris Situation," *Marysville Daily Appeal*, June 19, 1889.
[19] "Damage by Floods," *San Jose Mercury*, December 14, 1889.
[20] "The Paine Break," *Daily Appeal*, December 18, 1889.
[21] J.R. Price, "Report on the Condition of the Sacramento River During the High Water of January 1896," in *Appendix to the Journals of the Senate and Assembly of the Thirty-Second Session of the Legislature of the State of California, Volume VII* (Sacramento: 1897), 8-10.

where they could select delegates to visit Washington.[22] They were greatly concerned that this break could destroy the navigability of the Sacramento River, which transported 296,146 tons of goods in 1887. They feared that without river navigation, railroads would achieve a "perfect monopoly of the carrying trade."[23] Initially, the Army Corps of Engineers expressed little interest in the Paine Break. They considered it a matter of reclamation, as the levees protected private land, and their mandate was only navigation. Delegates argued that reclamation and navigation were "so closely interwoven" to make it "seem impossible to accomplish anything in the one direction without interfering with or affecting the other." When the break widened and deepened to the extent that it threatened to change the course of the river, the War Department decided to close the break.[24]

Valley commercial interests held the convention in January of 1890 to request the federal government do more than just close the break.[25] In the opening address, the President of the Sacramento Board of Trade, P.E. Platt, lamented the bad condition of the Sacramento and San Joaquin Rivers, stating "their usefulness as natural highways for navigation" was "greatly impaired and apparently about to be destroyed." Marsden Manson, the Chief Engineer of the State Board of Harbor Commissioners, told the delegates that the under Article 1, Section 8 of the United States Constitution, Congress had assumed control of navigable waters, which was exercised through the War Department. As the Mississippi and Missouri Rivers had their own

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[22] "The Sacramento River," *Daily Alta*, January 9, 1890.

[23] *Report of the Examining Commission on Rivers and Harbors to the Governor of California* (Sacramento, 1890), 135, 139. Railroad monopoly profoundly disturbed farmers in the late nineteenth century. Railroads made people dependent on them, and they could charge whatever the traffic could bear. Notably, the railroads could not compete with river traffic, so the railroads paid the Pacific Mail Company to keep its streamers at above market prices. As Richard White has argued, "the moral and political core of the Granger and antimonopolist critique of railroad corporations was that they had become an embodiment of special privilege and discrimination." Richard White, *Railroaded: The Transcontinentals and the Making of Modern America* (New York: W.W. Norton and Co, 2011), 111-112, 163-166.

[24] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 146.

[25] "River Convention," *Sacramento Daily Record-Union*, January 16, 1890.

special commission, he suggested the Sacramento River receive the same. Other speakers claimed that up to 1880 the Sacramento and Feather Rivers had been navigable for large vessels, but the rivers had filled up with mining debris. They resolved that Congress should create a special commission for the Sacramento, with a budget of at least three million dollars.[26] The executive committee of the convention selected seven representatives to go to Washington.[27] This delegation secured $140,000 from the Rivers and Harbors Act.[28] Shortly after the executive committee of the River Improvement Convention recommended that the state create a board of public works that would ensure harmony between the work of the state and the federal government.[29] The river commission also recommended replacing the system of piecemeal reclamation with a system under a single authority established by the state.[30]

While Sacramento Valley commercial interests petitioned Congress for a federal commission, California's Examining Commission on Rivers and Harbors explored the problems of flood control and navigation in the Sacramento Valley under the direction of C.E. Grunsky. Born in San Jose, Grunsky had studied at German Universities in the 1870s and later received a doctorate from New York's Rensselaer Polytechnic Institute in engineering. In 1878 he worked

[26] "Extracts from the Proceedings of the River Convention Held in the City of Sacramento, January 17, 1890," in *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 140-145.
[27] "The River Delegation," *Sacramento Daily Record-Union*, February 17, 1890; Will S. Green, "To the People of Colusa County," *Colusa Sun*, February 22, 1890.
[28] "The New River Commission," *Sacramento Daily Record-Union*, November 15, 1890; *The Statutes at Large of the United States of America from December, 1889, to March 1891, and Recent Treaties, Conventions, and Executive Proclamations, Vol. XXVI, 1891 Fifty-First Congress. Sess. 1. Ch. 907. 1890*, 4}
951, 456; C*hap. 907. An Act Making Appropriations for the Construction, Repair, and Preservation of Certain Public Works on Rivers and Harbors, and for other Purposes. 668-Fifty-First Congress. Sess, I. Res. 4-6, 8; [No. 4] Joint resolution for removing damages caused by floods in Sacramento and Feather rivers.*
[29] "River Improvement," *Colusa Sun*, November 22, 1890.
[30] *Sacramento Daily Record-Union*, December 9, 1890.

as a topographer on William Hammond Hall's river surveying party with the California State Engineering Department.[31]

As Grunsky investigated the Sacramento River and its tributaries, he came to believe that a levees-only method of flood control would not work in the Sacramento Valley. In an 1888 paper, Grunsky observed that the preceding decades must have been unusually dry since Goose Lake, whose waters historically entered Pitt River which drained into the Sacramento River, had not overflowed for a lengthy period. From this observation Grunsky concluded that settlers must concede the possibility of greater rains and wetter winters in the future. Valley settlers would not be able to withstand greater rains and wetter winters, nor would individual reclamation schemes and levee plans suffice. He noted that at places it might require embankments at least forty feet above the natural height of the riverbanks to keep settlers safe with only levees. Because reclamation laws allowed the formation of quasi-corporations to carry out reclamation schemes, two lines of levees along the Sacramento River ran for about 150 miles, built from smaller schemes. But the levees had to break somewhere. Since a break on the wrong part of the river could kill a farmers' family, everyone lived in fear, leading to a never-ending war between farmers attempting to build their levees higher than their neighbors to guarantee that floods would go elsewhere. He concluded that "only when they closely copied "after nature's own provisions for relief" that they could hope to establish a successful drainage system. Settlers had to concede that there would be breaks in the rivers. The task of settlers and engineers was to determine where those breaks would be, and to construct works to drain the basins that received overflow waters.[32]

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[31] Anthony E. Carlson, "Forging Transcontinental Alliances: The Sacramento River Valley in National Drainage and Flood Control Politics, 1900-1917," in *River City and Valley Life: An Environmental History of the Sacramento Region*, ed. Christopher J. Castaneda and Lee M.A. Simpson (Pittsburgh: University of Pittsburgh Press, 2013), 145.
[32] "Valley Drainage," *Sacramento Daily Record-Union*, December 21, 1888.

The commission approached the problems of drainage, flooding, and navigation in the Sacramento Valley not as a case study in the application of Humphreys Thesis, but as problems that that they could only address with unique solutions based on the Sacramento Valleys' peculiar geological, topographical, and climatic conditions. As part of their investigations, they obtained hydrographic data such as the volume of river flow along important parts of their courses. They observed that depressions or troughs lay on each side of the Sacramento Valley's rivers and creeks. In times of floods these troughs filled up with water, forming a shallow, connected sea that discharged into the Suisun Bay. The key insight was that the banks of rivers served as overfall weirs which kept water within river channels except during periods of high flow. As opposed to Hall's idea to create a system where eventually river channels would contain all flood waters during an ordinary flood, the examining commission proposed a system that would permanently allow for controlled overflow during storms.[33]

The topography of the Sacramento Valley was one reason the commission considered a levees-only system unfeasible. The commission more thoroughly developed Green's observation from decades earlier that the upper Sacramento Valley had a steeper slope than the lower Sacramento Valley. At Red Bluff, where the Sacramento River enters the valley, the elevation is three hundred feet above sea level. This elevation falls 250 feet over the sixty-five miles from Red Bluff to Colusa, a fall of almost four feet per mile. From Colusa to Sacramento City elevation changes from fifty feet to eleven feet, with a fall of thirty-nine feet over fifty miles, or less than one foot per mile. From Sacramento City to Suisun Bay the river's course is almost level. A steep slope where the river enters the Sacramento Valley meant that water swiftly flows in. A more level slope as the river runs through the valley meant that the water drains out slower.

[33] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 5-9.

In other words, the more level the slope, the slower the river drains, causing it to back up and overflow. While engineers had long recognized the importance of major tributaries to the Sacramento River from the Sierra Nevada, the commission emphasized the importance of the numerous creeks and small streams which entered the valley between Chico Creek and Feather that lacked any direct outlets to the river. Instead, these waters discharged directly into the east-side valley trough. Creeks and rivers which flowed from the Coast Ranges discharged into the Colusa Basin, which extends from above Colusa to a ridge built out by sediment overflows from Cache Creek. The bottom of this basin was so low that complete drainage through the slough at that time was impossible. Meanwhile, Cache Creek, Putah Creek, and other smaller streams discharged into the Yolo Basin, which extends for forty miles along the west side of Sacramento River. This basin has an average width of over five miles.[34]

Sloughs in the lower Sacramento Valley suffered the opposite problem of the river in the upper valley. The gradual slope of the lower valley meant that the water flowed too slowly to remove sediment deposit from the channel bed. As these lands were filled with weeds, brush, and willows that impeded the flow of storm waters, they accumulated silt, creating bars that further deteriorated the waterway. Slow drainage in the lower valley only exacerbated the backup of waters in the upper valley.[35] Because of the vast differences in slope between the upper and lower Sacramento Valley, water that flowed into the Sacramento Valley in a matter twelve-to-forty-eight hours would take weeks to fully drain into the Suisun Bay.[36]

The backup of waters caused by flattening of slope from Red Bluff to Colusa also put back pressure on the natural banks in the upper valley, accelerating erosion. Sometimes the

[34] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 11-12.
[35] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 19-25.
[36] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 61.

waters broke through the banks, forming a new channel. The old channel would fill up with silt that another winter flood could slice through. As the river excavated new beds, creating tortuous bends in places, and shortening itself in others by cut-offs, the channel would move over riparian forests, as a dense growth of sycamores, cottonwoods, and some oaks covered alluvial banks. There were limits to this shift, as the rivers could not cut through hardpan clay. But the hardpan clay banks were on average a mile apart, allowing the river ample room to continually abandon and form new beds. Large sycamores became a danger for ships. The numerous shoals, or shallow places in the river, also threatened navigation.[37]

The commission argued that a levees-only policy would exacerbate bank erosion. They pointed to the fact that landowners had constructed levees on or near the riverbanks, creating continuous embankments on both sides of the river for many miles. The commission believed these levees did successfully increase the velocity of the flow, but they doubted it would deepen the channel in the upper valley to any great extent due to its gravelly bottom. Instead, they argued the levees accelerated the natural erosion of the banks, resulting in numerous caving banks.[38]

In the lower valley, the sudden influx of water into the Sacramento River about sixty-seven miles from Oroville further deepened the commissions' doubts about a levees-only policy. About 117 miles into its course, the Sacramento River receives the waters of the Feather and Sutter Basin. Exacerbating this sudden influx, the slope of the river at this point is only three inches per mile, falling to two inches per mile where the American River joins the Sacramento near California's capitol. The commission stated that it became "a very important question to

[37] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 19-25.
[38] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 23.

decide whether the river in this division" could "be made to carry flood volumes without impractically high artificial banks or levees."[39]

High artificial banks or levees, the commission argued, could create problems of seepage. Even if engineers and farmers could build levees tall enough to prevent overtopping and broad enough to resist breaking, the higher water plane meant that waters could still seep through the banks.[40] Seepage could cause the banks to collapse, or it could drown crops on the other side of the levee. This happened to the Abbot and Phillips Orchard on the west side of the Feather River, where subsurface pools of water killed half of their trees.[41]

Despite the commission's doubts about the feasibility of a levees-only system, levees still constituted an important part of their solution, especially in the lower Sacramento River where its bed had more sand than rocks. As they noted about the Paine Break, the crevasse formed because of buildup of silt at river bottom. Mining operations contributed significantly to this, raising the lower water plane of the Sacramento River six feet since 1849. The commission assumed that if mining were to stop, floods would be able to attack deposits in the beds. But the levees along the Sacramento River from the Feather River down were, "with little exception, very insignificant affairs," and had "been kept in poor repair." Much of the levee building simply consisted of farmers piling up earth as high as it would stand with the hope that during the first rise of the river it would overtop their neighbors' levees. They noted that only a few sections were well built and properly located. Considering that the bed of this section of the river was composed entirely of sand, an increased velocity could theoretically transport large volumes of silt to the Suisun Bay. They acknowledged that rivers had a "very great scouring capacity" so

[39] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 29-30.
[40] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 52-57.
[41] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 103.

long as inflowing silt was kept at a minimum. To effectively reduce river flows during major storms, they could not allow basins to receive any water from the river until its waterway was taxed to its utmost capacity. [42]

But not all parts of Sacramento Valley Rivers contained sandy channel beds, and given the risks of excessively tall levees, it was necessary to allow for selected overflows. This would ensure that except for the most exceptional floods, the river would still scour its bed and clear mining debris over time. The commission thus needed to account for the maximum storage capacity of each of the Sacramento Valley's major basins. The depression east of the Sacramento River was known as Butte Basin. It could carry up to twenty billion cubic feet of water. Below Butte Basin was the Sutter Basin, which had a capacity of twenty-five to thirty-nine billion cubic feet of water. The key was to carry floodwaters from the Butte to the Colusa without any additional overflows, which would require enlarging the outlet from the Butte into the Sutter Basin. The Colusa Basin was located on the west side of the Sacramento River and ran parallel to the Butte and Sutter Basin. It received water from the entire Coast Range foothills between the watersheds of Cache and Stony Creeks. When its waters got high enough, it connected with the Sutter Basin and the two inland seas became one. The Yolo Basin was the largest, with an estimated capacity of fifty billion cubic feet of water. It is forty miles long and seven miles wide and rejoins into the Sacramento River below the state capital near the Suisun Bay. It was separated from the Colusa Basin by the Knight's Landing Ridge created by sediment overflows from Cache Creek. This ridge was ten to twenty feet high from the foothills to the west bank of the river at Knight's Landing. To increase drainage from the Colusa to the Yolo Basin, the commission proposed cutting a path through the Knight's Landing Ridge.[43]

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[42] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 31-35.
[43] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 62-67.

The commission made several recommendations to the governor. They called for a system of relief outlets, along with a board of engineers to oversee this system. They suggested the board consist of a combination of U.S. Army Engineers and civil engineers representing the state of California. For navigation, the commission recommended the state create a department that could coordinate between the federal government, as the federal government exercised authority over navigable streams. Since the federal government was supposed to maintain the navigability of rivers, they proposed that it should pay for maintenance of the river channel. To prevent adversarial levee building, they advised placing all lowlands as well as delta lands in one drainage district. Waterways should be allowed to flow at maximum rate before allowing any escape.[44] They proposed protecting banks with mattress revetment and aimed to fix channels and maintain their present location.[45] This could include making twenty separate cut-offs of total 75,000 feet, or fourteen miles, to reduce the length of the river. They also proposed a new cut in the Yuba River to create a better junction with the Feather River. The bypass would consist of canals created by levees, as well as a deep cut in Knight's Landing Ridge.[46]

The report of the Biggs Commission contradicted the Examining Commission on Rivers and Harbors. In February 1891, the Biggs' Commission published their study, called the Heuer Report after the major who wrote it. The report asserted that the state could only develop the Sacramento River to its full capacity when it controlled the flood waters and made them pass, "in great part or in whole," between the rivers' banks. Heuer confessed that the federal government had "taken no step in investigation of the problem" of flooding in the Sacramento Valley. Furthermore, the federal government possessed "no estimate of extent of works, or cost, or

[44] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 107-112.
[45] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 118.
[46] *Report of the Examining Commission on Rivers and Harbors to the Governor of California*, 122.

interval of time necessary for the development of an adequate system of drainage." He also acknowledged that the subject had occupied California engineers. The lack of data and investigation did not diminish his certainty that drainage could "be affected only by a system of levees." As that would require increasing channel capacity for over two hundred miles of the river, it would take time.[47]

The more urgent matter for Heuer was navigation and mining debris. The major issue with the Sacramento River was that north of Colusa the banks were unstable, leading to trees falling into the river and causing snags. Unstable banks and a constantly shifting channel also meant that permanently deepening the river was not viable. Instead, Heuer advocated the use of snag boats to remove trees and for the construction of temporary barriers called wing-dams. Wing-dams were structures that extend only partly across a river, increasing the velocity and depth of waters passing next to the dam. Heuer advised the federal government to allocate $600,000 a year for removing obstructions from the river, for stabilizing the banks of the river near Colusa with wing dams, and for annual snagging. On mining debris, the commission suggested that permanent stone dams in the canyons of Sierra District mining streams could impound debris without injuring the rivers or adjacent lands.[48]

After the publication of the Heuer Report, Amador County representative Anthony Caminetti introduced a bill in Congress to implement the report's recommendations. In 1893, President Grover Cleveland appointed Colonel G.H. Mendell, Lieutenant Colonel W.H.H. Benyaurd, and Major W.H. Heuer as members of the newly formed California Debris

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[47] "Improvement of San Joaquin, Mokelumne, Sacramento, and Feather Rivers, Petaluma Creek, and Humboldt Harbor and Bay, California: Report of Major H.W. Heuer, Corps of Engineers, Officer in Charge, for the Fiscal Year Ending June 30, 1891, with Other Documents Relating to the Works," in *Annual Report of the Chief of Engineers, United States Army, to the Secretary of War, for the Year 1891. In Six Parts. Part V. Appendix VV* (Washington, 1891), 2993.
[48] "Engineers' Report Upon the Navigable Waters," 2990-3021.

Commission to carry out the Caminetti Act. Farmers protested, but, according to Joseph Hagwood, "The Caminetti Act, reduced to its basic elements, was a piece of compromise legislation, encouraged by a state desperate for new revenues, and passed by a congress frustrated with a nationwide depression." The California Debris Commission focused on issuing licenses to mining companies to build restraining dams for debris, but its mandate also included navigation and flood control.[49] Not until the twentieth century would the California Debris Commission play a significant role in flood control. For the duration of the 1890s, such efforts belonged to state agencies.

Farmer demands for government intervention grew more intense throughout 1892 and 1893. In January of 1893, delegates from Butte, Colusa, Placer, Solano, Sutter, Sacramento, Yolo, and Yuba Counties held a drainage and reclamation convention. They lamented that pioneers could grow only a crop or two during low water, and with millions of dollars at stake, the insisted that modern settlers had to adopt some plan of larger magnitude.[50] C.E. Grunsky offered his plan at the convention, which engineers Marsden Manson and J.C. Pierson endorsed. They estimated such work would cost eight to ten million dollars and protect eight hundred thousand acres of land in cities and towns. However, they warned that large bodies of privately owned tules could stymie a government program. If the government paid for reclamation, they suggested, it would have to break up large holdings.[51] At the conclusion of the convention, delegates considered two bills. One would create a state board of public works which would lay out drainage districts. This state board would oversee a larger district that included eight hundred

[49] Hagwood Jr., *The California Debris Commission*, 30-32.
[50] "Reclamation and Drainage," *Daily Appeal* (Marysville), January 19, 1893.
[51] "Big Expenditures Needed," *Morning Call* (San Francisco), January 20, 1893; "To Relieve the River," *Sacramento Daily Record-Union*, January 20, 1893.

thousand acres of land, including five hundred thousand acres of swampland.[52] The second bill provided for the organization and governance of drainage districts and for assessments to fund construction and canal maintenance. These bills would transfer power over reclamation from county boards of supervisors (who held the power since 1866) to the state board of public works. The state board of public works would have the right to enter upon any land to make surveys and could locate canals or drainage works on any land deemed best for such a location.[53]

These proposed bills garnered significant opposition. Some outlets, such as the *Sacramento Daily Record-Union*, rejected using public money for the benefit of private landowners. "Public funds," they wrote, were "only justifiable" if they created public property. Proponents argued that by increasing the value of private lands, and therefore the tax revenues generated by them, state and federal investments served public interest. But the *Record-Union* countered that if increased tax revenues justified state subsidies, then the state could justifiably subsidize any private business.[54] A meeting of Sutter County taxpayers resolved that it was "highly objectionable to the people of Sutter County."[55] Yolo County Representative I.W. Jacobs called the proposed public works commission one of the most monstrous propositions every submitted. He claimed that swampland men were behind the scheme. Referencing the Green Act, he asserted that after twenty years of failure, swampland monopolists were running to the state for aid. Colusa County Representative W.A. Vann mocked Jacobs as an obstructionist, stating that "if the member from Yolo had been present when God created the grandest of all creatures, women, from the rib of Adam, he would have said, 'oh, she can't work!'" Despite vociferous

[52] "The River Convention," *Daily Appeal* (Marysville), January 31, 1893; "Drainage," *Daily Colusa Sun*, January 30, 1893.
[53] "On the Right Track," *Sacramento Daily Record-Union*, January 30, 1893.
[54] "The Drainage and Reclamation Bills," *Sacramento Daily Record-Union*, February 10, 1893.
[55] "The Drainage Bill," *Sacramento Bee*, February 18, 1893.

opposition, the bill passed. The governor tasked the commissioner of public works with examining lands subject to flood and preparing plans and estimates for the cost to control floods. He would supervise construction too.[56]

As Commissioner A.H. Rose explored solutions for flood control and reclamation, Will S. Green offered his analysis. Green considered the Sacramento River "differently situated from any other river on the continent." Unlike the Mississippi River, the Sacramento River was surrounded by mountains which deposited rocks into the streams. Green believed that even if levees increased channel velocities, rocks and coarser mountain sediment would remain in the bed of the upper Sacramento River. Furthermore, if the river could no longer overflow in the upper valley due to levees, it would no longer deposit its sediment onto the banks. The sediment would stay in the river, until it settled and made the river shallower or formed bars where the Sacramento River became more sluggish. As Green noted decades earlier, above Colusa the Sacramento River was "wide" and moved "between hardpan banks something over a mile apart on average." Below Colusa the river was narrower, and the hardpan banks came to the very edge of the channel. The location of the hardpan material so close to the river made it unfeasible to place levees far apart, as other materials made unstable foundations for levees. Thus, the river had to overflow at these narrower points. Problematically, settlers liked the higher banks, because, at least initially, they could protect their farms with small, primitive levees made with a back-furrow or spade. As water follows the path of least resistance, the river would simply overflow on the opposite bank from the levee. But settlers created farms on both sides of the river, which they protected with levees, leaving no natural points of overflow. Settlers also closed

[56] "Vann's Parallel," *Sacramento Bee,* March 7, 1893; "An Act Creating a Commissioner of Public Works, Defining His Duties and Powers, Prescribing His Compensation, and Making Appropriation," *The Statutes of California and Amendments to the Codes, Passed at the Thirtieth Session of the Legislature, 1893*, Chapter CCXXXII (Approved March 24, 1893).

sloughs. This raised the high-water mark by up to six feet in places. Green considered this unsustainable. The river could not "be made to carry the water by means of levees. The country was not built that way." Green referenced the Paine Break, noting that when levees break, the river fills up with sediment below the break.[57]

Green's proposal was only skeletal in form, but it entailed restoring outlets for the river and conveying water to the Suisun Bay more efficiently. Water would be drained from the lands on the east side of the Sacramento River to an artificial waterway on the west side of the river. Green proposed levying creeks and sloughs so their waters would flow into the waterway. To drain this waterway, Green proposed revising his plan from 1870. Where the American River joins the Sacramento River at the state capitol, overflow waters escape into the Yolo Basin. But the Montezuma Hills blocked the Yolo Basin from the Suisun Bay. "If the Montezuma hills had not been thrown across the lower end of the trough or basin," Green wrote, they would have had "plain sailing." In his 1870 report on swampland reclamation, Green had proposed cutting canals through the Montezuma Hills. A drainage cut through the Montezuma hills would require eight to ten miles of deep cutting averaging forty feet in depth. He realized that it would be cheaper and easier to "bring the bay up to Cache Slough." Cache Slough was located at the southern end of the Yolo Basin. His revised proposal was to widen the river three hundred feet and deepen it thirty feet between Collinsville and Cache Slough.[58]

Green acknowledged that his plan would still be costly. He asserted that landowners who benefited from it "ought to be taxed, heavily taxed," but he disavowed responsibility on "the equity involved in the matter of assessment." For as long as landowners chose not to build levees up to the edge of the expanded waterway, "the waterway would simply be that much wider in

[57] Will S. Green, "The Sacramento River," *Sacramento Bee*, March 23, 1893.
[58] Green, "The Sacramento River."

that place." As for deepening and widening the river, Green offered no estimates. He claimed that a $200,000 dredger could move earth for less than five cents a yard, but he refused to offer a figure as anybody who knew "the multiplication table [could] make figures."[59] According to engineer J.R. Price, the cost of deepening rivers with mechanical dredgers was too great to justify serious consideration.[60]

[59] Green, "The Sacramento River."
[60] "Report of the Commissioner of Public Works to the Governor of California, 1895-1896," in *Appendix to the Journals of the Senate and Assembly of the Thirty-Second Session of the Legislature of the State of California, Volume II* (Sacramento: 1897), 41.

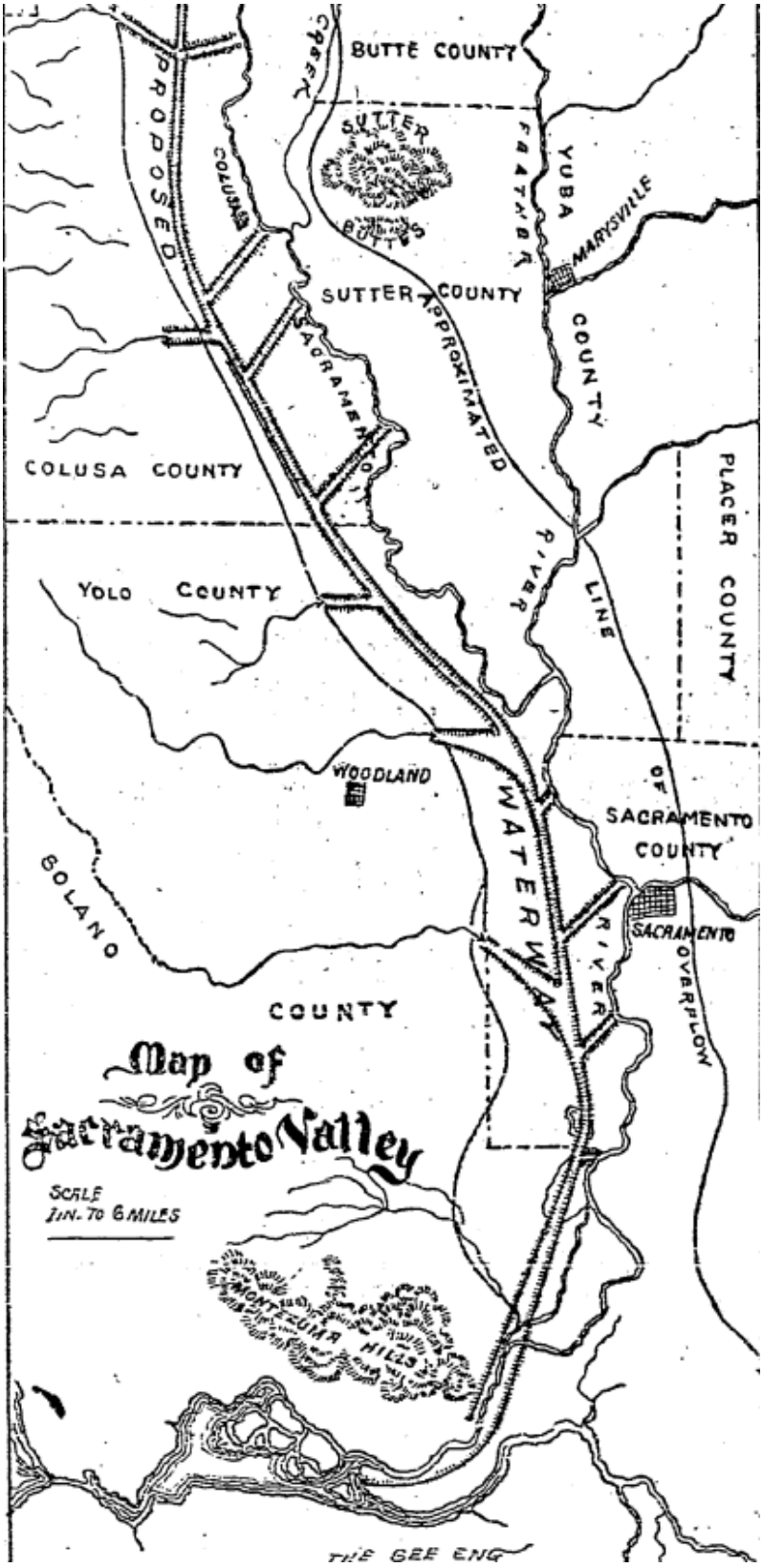

Figure 8: Green's map of the Sacramento Valley with proposed outlets and waterway.

In 1895, the Commissioner of Public Works released a report written by consulting engineers C.E. Grunsky and Marsden Manson on flood control in the Sacramento Valley. They mostly followed the recommendations in the 1890 examining commission report. Grunsky and Manson believed that rational treatment of the river could reestablish conditions like those that existed before Anglo-agriculture and mining. In natural conditions, numerous high-water sloughs and depressions by the river served as escapeways during flood times only. Since they did not allow water to escape during normal flows, silt did not build up in the rivers. They proposed to recreate natural conditions through well-constructed extended escapeways and called the bypass system "a return to first principles as pointed out by nature."[61] Channel improvements would include narrowing in some places, widening in others, and correct alignments.

They briefly addressed the most popular proposal among landowners, a drainage canal running from the Yolo Basin through the Montezuma Hills. For a drainage canal to provide as much relief as a bypass system, it would have to be 1200 feet wide and twenty feet deep. This would require excavating 56.5 million cubic yards of earth at a cost of at least fourteen million dollars. The bypass plan had an estimated cost of $9,287,000. They were also concerned that a cut through the Montezuma Hills would reduce the flood flow of the lower Sacramento River, allowing silt deposits to rapidly form and create bars obstructing the waterway.[62]

The canal proposal also failed to address flooding and drainage in areas other than the Yolo Basin. To prevent waters of the Coast Ranges from accumulating into the west side valley trough, Grunksy and Manson proposed building a bypass through the Colusa Basin. This bypass would be eight hundred feet wide with levees eleven feet high. "As a relief canal," Grunsky and

[61] "Report of the Commissioner of Public Works," *Appendix to the Journals of the Senate and Assembly of the Thirty-First Session of the Legislature of the State of California, Volume IV* (Sacramento, 1895)," 59.
[62] "Report of the Commissioner of Public Works," 49-50.

Manson noted, the Colusa Basin was "of secondary importance." Its "prime purpose" was taking in waters from creeks and streams that ran from the Coast Ranges. These creeks and streams would be directed into the Colusa bypass through ditches and canals. In some areas it would be necessary to use drainage pumps.[63]

For flood relief, the most important bypass would be in the Yolo Basin. Grunsky and Manson claimed that the Yolo Basin had always acted as a bypass for the Sacramento River. A bypass in the Yolo Basin would take in overflow waters from the Sacramento and American Rivers, Cache and Putah Creek, as well as from the Colusa bypass through a 600-foot-wide drainage canal cut through the Knight's Landing Ridge. They estimated that at the state capital, the Sacramento River had a capacity of seventy thousand cubic feet per second, but the river channel would have to accommodate almost two hundred thousand cubic feet of water per second to prevent flooding during a major storm. Thus, the Yolo Bypass would need a capacity of 130,000 cubic feet per second. To carry this amount of water, the bypass would be nearly a mile wide (4,000-4,500 feet) with fifteen-foot-tall parallel embankments. To convey water into the bypass, three escapeways on the Sacramento River below the Feather would be built into the levees. These escapeways would be created by weirs. Typically, a weir refers to a dam used to raise the water level of a river. For the bypasses, a weir was a lower section of the levee. Whereas most levees would be built higher than the extreme high-water mark, sections designated for overflow would be lower than the extreme high-water mark. As the sheets of water which flow over the top and down the landslide of a levee during overtopping can accelerate erosion on all three sides of the levee, these lowered sections would be covered in concrete. Grunsky and Manson proposed that the weirs for Yolo Basin be three feet lower than

[63] "Report of the Commissioner of Public Works," 60.

the estimated extreme height of water, which would mean they would range from twenty-five to thirty-three feet tall. The longest weir would be nearly half a mile long (2,500 feet). To ensure maximum flow, the bypasses would also have to be kept clear of trees and brush, although they could be used for pasturage and late annual crops. They estimated that the bypasses would protect over a million acres of land which already contained $100 million worth of property. With the bypasses, they believed only 46,400 acres of land would be inundated during ordinary floods.[64]

Besides the bypasses, their plan called for channel correction and establishing uniform standards for levees. They proposed creating a new point for the Yolo bypass to rejoin the Sacramento River through a slough about forty miles south of the state capital and two miles north of Rio Vista. This would entail making a cut in the slough about one thousand feet long, and five hundred feet wide for 4.5 miles. It would involve moving six million cubic yards of earth and acquiring rights of way. Levees had to be tall enough to prevent overtopping and wide enough to prevent breaking. The new standard for levees would require they be five to eight feet above the "danger line," eight to sixteen feet across the crest (top of the levee) with a landslide slope two times longer than the height of the levee and a waterside slope three times longer. All water slopes would be protected with broken rocks, called riprap, or brush. Grunsky and Manson did not provide estimates for how much bringing levees up to standard, as they considered these works "of local benefit only." They acknowledged that building such large levees would be costly but warned that landowners against dredging too close to the levees, as the trenches created by dredging could undermine the levees. The cost of channel correction and bypasses would also fall on landowners.[65]

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[64] "Report of the Commissioner of Public Works," 61-66, 70.
[65] "Report of the Commissioner of Public Works," 62, 64, 68.

The cost of the plan would deter legislative approval. Landowners balked at assessments. One senator reported that ninety-nine out of one hundred Yolo swamp landowners would give up their land before they would pay the first assessment.[66] Part of the opposition may have also stemmed from the fact that landowners were already spending enormous sums for private reclamation. As Manson and Grunksy reported, private landowners in the Sacramento Valley had already spent $11 million and were still removing about six hundred thousand cubic yards of earth per month from the Sacramento and San Joaquin Rivers with twenty-six dredgers. Only the construction of the Suez and Panama Canals rivaled the size of those operations.[67]

By 1896, the public works department had jettisoned the bypass plan. Chief Engineer J.R. Price sought a solution much closer in principle to the Humphreys Thesis. On the Humphreys Thesis, Price wrote that "the improvement of river channels" had been so "scientifically treated" that a "law has been demonstrated which, in its effect," was "as certain as the laws that govern the movements of the planets." He quoted several authorities on the Mississippi River, calling them a "compendium of nature's laws, verified by actual experience." He also cited examples from other countries. For instance, he mentioned that the River Seine had been deepened up to twenty-nine feet in places with levees. For Price, the only viable solution was increasing the channel capacity of the Sacramento River. He noted that since 1849, the Sacramento River had risen 8.5 feet in low water, reducing its capacity by 40-50 percent. A deeper river required "a return as nearly as possible to the conditions of nature before the silting of the stream." Price believed that the low water flow of four thousand cubic feet per second in the Sacramento River was sufficient to deepen the stream "very materially." Furthermore, if the channel could handle one hundred and two hundred thousand cubic feet per second flows, river velocity would

[66] "In Committee," *Sacramento Daily Record-Union*, February 14, 1895.
[67] "Sacramento Valley Tule Basin," *Sacramento Daily Record-Union*, June 14, 1894.

increase from two to five feet per second, giving ample force to erode the riverbed instead of allowing bars and shoals to form. This would mean removing shoals and bars that had formed in the river near the Suisun Bay, as well as closing crevasses in the levees.[68]

Price did break with the Humphreys Thesis on one key point. Humphreys reported that ordinary crevasses did not cause rivers to become shallower, or shoal. Price claimed that this may have been true for the Mississippi River, but the Sacramento River was different. The depth of the Mississippi River in places could reach 170 feet. The volume of water discharged from a crevasse in the Mississippi river never exceeded more than one-fifth the volume of flow and probably not more than a tenth. By contrast, at low water the Sacramento River below its confluence with the Feather had a depth of five to ten feet. At high water, its depth could increase fifteen to twenty feet, for a depth of up to thirty feet. That means three-fourths of storm water flowed outside the Sacramento River, which carried only six to ten feet of water. Sand and slickens carried from the mountains sank to the lower strata of water, weighing and slowing it down. Higher flows carried lighter sediment, allowing them to move faster. As the higher strata of water overflowed the levees and banks, the velocity remained slow in the channel, causing the heavier sediment to eventually settle. Water flowing outside the channel moved at six feet per second while water flowing in the channel moved at one to three feet per second. Thus, Price argued, if crevasses allowed water to escape from the channel, the rivers would become shallower over time. Price expected that if the conditions of the Sacramento River continued, they could expect to see "the flood line of Sutter Basin gradually increased in elevation" until "in flood times, no artificial works of man" could "resist the coming of the flood."[69]

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[68] "Report of the Commissioner of Public Works to the Governor of California, 1895-1896," in *Appendix to the Journals of the Senate and Assembly of the Thirty-Second Session of the Legislature of the State of California, Volume 1* (Sacramento, 1897), 17-21.
[69] "Report of the Commissioner of Public Works to the Governor of California, 1895-1896," 23-26.

The necessity of keeping water within the channel as much as possible led Price to reject drainage canals. A drainage canal would lower the volume of water disposed by the Sacramento River, reducing scouring action. Furthermore, the drainage canal would have to be built at a location higher than Suisun Bay. This is why the proponents of a drainage canal favored Linda Slough at the southern end of Yolo Basin. At low tide Linda Slough was eighteen to nineteen feet higher than the Suisun Bay. Since the drainage canal would be higher in elevation than the rest of the basin, water would not start draining through it until the valley was already full of water. As Price remarked, lands would already be devastated before the canal even began providing relief.[70]

Price may have been willing to jettison a bypass plan in favor of channel deepening because of the invention of the Bates Hydraulic Dredger. Price called the Bates Hydraulic Dredger "one of the most important inventions of the nineteenth century." The Mississippi River Commission had worked to improve the navigability of the Mississippi River between St. Louis and New Orleans. Their efforts proved costly and inefficient. After spending $20 million, they had only managed to increase the depth of water by eighteen inches for fifty miles. They contracted with L.W. Bates of Chicago to develop a more effective dredger. Under the terms of the contract, Bates would receive $172,000 if his dredger could remove 1,600 cubic yards of earth per hour. If his dredger could remove 2,400 cubic yards, Bates would receive a 50 percent bonus. The Bates Hydraulic Dredger contained six intake pipes in front of it, turned downward. Surrounding these pipes was a cylinder fitted with knives continuously revolving, thereby cutting up and chewing sandbars and mixing the sand with water. The pipes were powered by centrifugal pumps that pulled in the loosened mass of sand and water. On the official tests near Memphis,

[70] "Report of the Commissioner of Public Works to the Governor of California, 1895-1896," 32-34.

the Bates Hydraulic Dredger removed an average of six thousand cubic yards per hour, reaching as high as 7,798 yards. This dredger could slice through a sandbar at a speed of five to ten feet per second, cutting through a solid bank and leaving behind it a channel forty feet wide and twenty feet deep. Price remarked that hitherto the "cost of moving earth" had been "so great that the question of deepening rivers—enlarging their capacity by mechanical means," had been "to some extent, avoided by the engineer." The Bates Hydraulic Dredger seemingly made engineering rivers possible. "The field for such a monster earth-eater," Price crowed, was "broad." He believed that with this machine, the state could remove shoals between Sacramento and Suisun Bay within fifty days for just ten to twenty thousand dollars. He also envisioned the dredger increasing the capacity of the Sacramento River by 30 to 50 percent. He assumed that the expense of dredging the river, compared with the amount of valuable property settlers could reclaim, was practically nothing. For just $10,000 a month, engineers could construct a "perfect levee system" with "mathematical precision" which would allow the income of the Central Valley to increase by over $27 million annually. It could resolve the conflict between mining and agriculture. According to Price, the "shoals in every shallow river" would "disappear," and the friction existing between the miners and farmers would "be a thing of the past."[71]

Altogether, Price's plan included bringing levees up to standard, excavating parts of the river channel, building training walls to increase scouring of shoals, and some easements, or weirs. Though he wanted to keep all flood waters within the channels, he acknowledged that it would take time for the rivers to become deep enough to accommodate extreme floods. In the meantime, easements, or parts of the levees protected by concrete, would allow some flood waters to escape during the most extraordinary storms. The primary purpose of these easements

[71] "Report of the Commission of Public Works to the Governor of California, 1895-1896," 42-44.

was to prevent levees from breaking. His proposals did not include bypasses. The great virtue of his proposal was cost. Whereas Grunsky and Manson's proposals came with an estimated cost exceeding $9 million, the estimated cost of Price's plan was just over a million dollars.[72]

The plan garnered widespread support. This support included Will S. Green and the president of the Swamp and Overflowed Landowners Association, J.M. Stephenson.[73] Governor James H. Budd praised the plan and urged the legislature to appropriate money to acquire a Bates Hydraulic Dredger.[74] The Bates Dredger was the answer to everybody's problems. It also made unlikely allies. Miners believed that the dredger could finally solve the problem of debris. At a conference of the assembly and senate committees on mines and mining, farmers agreed to support a bill allowing resumption of mining if miners supported the construction of the dredger. The farmers were eager to let the state dike their lands and dredge the rivers at its own expense.[75]

Support from the mining counties was crucial for the eventual passage of a bill appropriating $300,000 to improve the channel of the Sacramento River. The bill passed even without support from San Francisco. Opposition, especially from Southern California counties, averred that the federal government should do the work. The *Los Angeles Herald* argued that dozens of smaller rivers all over the country received money for improvements many times greater than what California had received for the Sacramento River. Moreover, the appropriations bill was a measure to reclaim private overflowed land along the river.[76] Proponents countered that the federal government only cared about interstate rivers, and the Sacramento River flowed fully within California. Furthermore, once the state deepened the

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[72] "Report of the Commission of Public Works to the Governor of California, 1895-1896," 29.
[73] "Dredging the River is the Only Remedy," *Sacramento Daily Record-Union*, December 30, 1896.
[74]"Report of the Commission of Public Works to the Governor of California, 1895-1896," 69-70.
[75] "A Joint Meeting," *Daily Morning Union* (Grass Valley and Nevada City), January 16, 1897; "Men of the Valley and Mountains Unite," *San Francisco Chronicle*, February 3, 1897.
[76] "The State Appropriations," *Los Angeles Herald,* March 8, 1897.

rivers, repaired the levees, and restored navigation, private owners and syndicates would reclaim the lands. A self-described young populist from Kern County insisted that the proponents lied about costs. He declared that the government could not clear the river for $300,000 nor for three times that, so this appropriations bill would open the door for repeated biennial appropriations.[77] The final vote in the assembly was close, with forty-one ayes and thirty-six opposed. Of the fifteen San Francisco assembly members, thirteen opposed and only two supported. In return for mining counties support, farming counties backed a bill appropriating $250,000 for building debris dams, which first passed the state senate by a vote of 27-13.[78]

The magical obstacle-removing Bates Dredger, however, was not technologically advanced enough to remove political and administrative blockages. Some reclamation districts protested easements. The trustees of Reclamation District no. 108 claimed that the Butte Slough was a natural outlet of the Sacramento River, giving them rights to its flows under California's riparian water law.[79] The commissioner of public works also lacked sufficient administrative personnel to swiftly acquire right of ways. In some cases, the Sacramento Chamber of Commerce had to close deals on warrantee deeds.[80] Some of the snags were borderline risible. The legislature accidentally abolished the public works office with a law in 1897 that lacked provisions for the continuance of the office after 1898.[81] Commissioner E.D. Leaked sued the state controller for his salary, but the supreme court denied his application.[82] The governor then

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[77] "Making History, *Sacramento Daily Record-Union*, February 12, 1897; "Two Questionable Bills," *San Jose Daily Herald*, February 12, 1897.
[78] "The Dredger Bill Passed," *San Francisco Chronicle*, March 2, 1897; "Some Wholesome Laws are Made," *San Francisco Call,* March 20, 1897; "An Act Providing for the Appointment of an Auditing Board to the Commissioner of Public Works," in *The Statutes of California and Amendments to the Codes, Passed at the Thirty-Second Session of the Legislature, 1897,* Chapter XCIX, (Approved March 17, 1897).
[79] "Will Construct a Dredger, and if not Satisfactory, the Board Need not Keep it," *Sacramento Daily Record-Union*, May 6, 1898.
[80] "Secured the Land," *Sacramento Daily Record-Union*, May 4, 1898.
[81] "Public Works Commission," Sacramento Daily Record-Union, May 29, 1899.
[82] "An Office Abolished by the Legislature," *San Francisco Call*, July 22, 1899.

signed a version of a bill restoring the office of public works that contained an amendment which the state senate and assembly had rejected.[83] Finally, during the 1900 extra session of the legislature, the senate, assembly, and governor figured out how to pass and sign the same bill and successfully restored the commissioner of public works.[84]

By the time the legislature restored the commissioner of public works, the Sacramento Valley was suffering a different problem from flooding and loss of navigable waterway. Wheat prices fell in half over the course of the 1890s.[85] Furthermore, production declined. Bushels of wheat sold by farms in the thirteen counties entirely or partially within the Sacramento Valley declined from 18.5 to 15.8 million despite acreage growing from 860,000 to 920,000 acres. This meant average wheat yields per acre shrank from just under 21.5 bushels per acre to 17.1 per acre. Falling wheat yields encouraged growers to consolidate their farms. The average farm size rose from 464 acres to 537 acres, and the percentage of farmers worked by owners (i.e., not tenants and sharecroppers) fell from 82 percent to 68 percent. Farms were, in other words, getting bigger and less productive.[86] The Sacramento Valley's declining soils produced the fewest bushels per acre of any arid or semiarid state.[87] A consequence of consolidation was a

[83] "River Work May Go Ahead," *Sacramento Daily Record-Union*, December 3, 1899.
[84] *The Journal of the Senate During the Extra Session of the Thirty-Third Legislature of the State of California*, 1900 (Sacramento, 1900), 46-47; *California Legislature—Assembly. Thirty-Third (Extra) Session* (Sacramento, 1900), 63-64; *Legislature—Assembly*. *Thirty-Third (Extra) Session*, 63-64; "An Act Creating a Commissioner of Public Works," in *The Statutes and Amendments to the Codes, Passed at the Extra Session of the Thirty-Third Legislature, 1900,* Chapter XII, (Approved February 9, 1900).
[85] Donald J. Pisani, *From the Family Farm to Agribusiness*: *The Irrigation Crusade in California and the West, 1850-1931* (Berkeley: University of California Press, 1984), 286.
[86] *Report on the Statistics of Agriculture in the United States at the Eleventh Census: 1890* (Washington, D.C.: 1895), 124, 358; *Twelfth Census of the United States, Taken in the Year 1900: Agriculture, Part II: Crops and Irrigation* (Washington: Government Printing Office, 1902), 62-63, 155.
[87] Pisani, *From the Family Farm to Agribusiness*, 286.

slowdown in population growth. California's overall growth was poor in the 1890s, yet with a growth of 13 percent the Sacramento Valley lagged the state's growth of 16 percent.[88]

Some reformers and investors viewed the rapid decline of the wheat industry as an opportunity to transform the Sacramento Valley into a laboratory for diversified agriculture. Storage reservoirs would make diversified agriculture possible, and they could also store flood waters.[89] Investors in the Sacramento Valley increasingly sought to link flood control with other issues, most notably irrigation. At the head of this movement was California water law specialist George Maxwell, whom Donald Pisani called the chief voice of the irrigation movement in the 1890s. Maxwell predicted that within a decade or two the population density of the United States would rival western Europe, which made the breakup of large farms more imperative for allowing opportunities of independent landownership. If farms got smaller, per acre production would have to increase. Maxwell believed that was only possible with irrigation.[90] Supporting him were figures such as irrigation booster William Ellsworthe Smythe, Frederick Newell of the United States Geological Survey, and Nevada Representative Francis Newlands. They argued that irrigation could solve national problems by decentralizing urban centers back to land.[91] The director of the United States Geological Survey, Charles Walcott, along with his supervising engineer J.B. Lippincott, touted the Sacramento Valley as a testing ground for "multi-use" conservation. This philosophy envisioned using forest reserves at river headwaters to stabilize stream flow, moderate runoff, prevent soil erosion, and counter river sedimentation. Mountain forest reserves would be augmented by storage reservoirs to sequester flood waters, which would

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[88] *Report on the Statistics of Agriculture in the United States at the Eleventh Census*, 11; *Twelfth Census of the United States, Taken in the Year 1900: Agriculture, Part II: Crops and Irrigation*, 11.
[89] Pisani, *From the Family Farm to Agribusiness*, 325.
[90] Donald J. Pisani, "Reclamation and Social Engineering in the Progressive Era." *Agricultural History* 57, no. 1 (1983): 47-48. http://www.jstor.org/stable/3742658
[91] Samuel Hays, *Conservation and the Gospel of Efficiency* (Pittsburgh, University of Pittsburgh Press, 1999), 5-10.

supply water for irrigation and reduce the frequency and severity of floods. Reservoirs also seemingly precluded bypasses, which conservationists denounced for wastefully allowing floodwaters to run to the sea, as well as the Army Corps levees-only solution to flood control.[92] In 1897 George Maxwell founded the National Irrigation Administration, a consortium of western railway corporations, social reformers, chambers of commerce, and politicians to lobby on behalf of a federal irrigation program.[93] Urban interests also wanted storage reservoirs for cheap hydroelectric power and to meet the needs of their growing populations. They focused on mountain storage because by 1900, virtually all the normal flow of California's largest rivers had been appropriated. Only flood water from the Sierra snowpack which melted in May and June remained to irrigate new land and to fill storage reservoirs.[94]

In 1899, leading figures from San Francisco and Southern California formed the California Water and Forest Association. The California Water and Forest Association was composed mainly of San Francisco banks that held mortgages in the Central Valley.[95] It enlisted six thousand members, mostly in Northern California.[96] They wanted the federal government to construct storage reservoirs for flood protection and to "save for use in aid of navigation and irrigation the flood waters" which ran "to waste" and caused "overflow and destruction."[97] With large numbers of Europeans expected to come after the completion of the Panama Canal, the war cry of the California Water and Forest Association through 1900 was "Make California ready for

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[92] Carlson, "Forging Transcontinental Alliances," 140.
[93] Carlson, 151.
[94] Donald J. Pisani, "Water Law Reform in California: 1900-1913," *Agricultural History* 54, no. 2 (1980): 300, http://www.jstor.org/stable/3743047.
[95] Donald J. Pisani, *Water and American Government: The Reclamation Bureau, National Water Policy, and the West, 1902-1935* (Berkeley: University of California Press, 2002), 132.
[96] Pisani, "Water Law Reform in California," 300.
[97] "Question of Flood Water Storage," *Sacramento Daily Record-Union*, November 16, 1899.

the coming millions."[98] At their second annual meeting, they resolved to request from Congress $250,000 for the Geological Survey and $100,000 for irrigation investigations to be carried out by the Department of Agriculture.[99] California's legislature also passed a bill to appropriate $10,000 for a joint-federal survey of water and forest resources in the state, but the governor pocket vetoed it. After the veto, the California Water and Forest Association raised $12,500 from the leading banks of San Francisco.[100] The federal government matched this amount, and the United States Geological Survey launched an investigation of potential reservoir sites on the Kings, Salinas, and Yuba Rivers.[101] Professor Elwood Mead of the University of California, the expert in charge of the irrigation investigations of the Department of Agriculture, was also tasked with comprehensively reviewing irrigation possibilities in California.[102]

In 1900 Will S. Green and other prominent Sacramento Valley figures formed the Sacramento Valley Development Association. Part of their mission was protecting the Sacramento Valley from floods. Attendees of the Sacramento Valley Development Association's first meeting resolved to form a permanent organization composed of Tehama, Glenn, Sutter, Butte, Yolo, Sacramento, Solano, and Colusa Counties.[103] They also looked favorably on irrigation. Green proclaimed that "wonders could be done with water stored for irrigation and millions of money could be added to the valley's wealth by draining the basins."[104] He described the Sacramento Valley as a "rich inland empire capable of supporting a vast population of happy

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[98] Frank L. Beach, "The Effects of the Westward Movement on California's Growth and Development, 1900-1920," *The International Migration Review* 3, no. 3 (1969): 23, https://doi.org/10.2307/3002587; "The Water and Forest Association," *Stockton Record*, July 23, 1900.
[99] "For Water and Forest," *Stockton Record*, December 5, 1900.
[100] "Moneys for Water Storage," *San Francisco Call*, January 27, 1900.
[101] "Savers of the Winter Floods Ready to Act," *San Francisco Call*, April 25, 1900; Pisani, "Water Law Reform in California," 301.
[102] "Valley Development and Forestry Associations," *Daily Appeal* (Marysville), November 11, 1900.
[103] "Met in Woodland," *Daily Colusa,* January 16, 1900.
[104] "Irrigators and Improvers," *Los Angeles Herald,* January 16, 1900.

and prosperous people." But in the previous years, he lamented, it had "not made the progress that its natural resources" justified. He emphasized the twin problems of aridity and flood. More sections could be productive if properly irrigated, and floods threatened other sections.[105] In subsequent meetings the Sacramento Valley Development Association highlighted that at least one thousand square miles of the Sacramento watershed was tillable, "with water everywhere to waste." This waterpower, they claimed, was "almost without limit." With it, they believed the Sacramento Valley could produce crops grown anywhere in America, and more of them than the counties south of the Tehachapi mountains (Southern California). Their first project was to ask each city, town, and village in the Sacramento Valley to organize either a board of trade or a chamber of commerce. They also formed an executive committee consisting of Raleigh Barcar, W.A. Bear, and Will S. Green.[106]

In 1901 Elwood Mead completed his investigations, which described a state with incredibly wasted potential. Mead found that in the diversity of its products and the value of its farming land, no state could match California. Despite its numerous advantages, immigration stalled and population in some of the farm districts had declined in the previous decade. Key to his vision of realizing California's potential was the Sacramento Valley, which he predicted could become the Egypt of the Western hemisphere. Mead believed that runoff from the Sacramento River could irrigate every acre that canals could reach. In his visit to the Sacramento Valley, he claimed he saw within a five-mile radius "every product of temperate and semitropical zones," including apples, oranges, almonds, olives, cherries, and dates. But this growth of diversified agriculture was precarious without irrigation due to the Sacramento Valley's irregular precipitation pattern. Chico, for instance, only received one inch of rainfall from May to October

[105] "Sacramento Valley Improvement Association," *Daily Colusa Sun*, January 18, 1900.
[106] "The Development Association," *Daily Colusa Sun,* April 30, 1900.

in 1897 and no rain from June to August in 1898. Suburban communities with diversified agriculture also clustered around urban centers. Mead saw attractive homes surrounded by orchards and gardens near Chico and Willows, but only within a five-mile radius. Outside of that radius, he passed just six houses in thirty miles, because practically all the land was being prepared for grain. Despite leaving one-third of the land every year fallow, the fertility of the region was still declining.[107]

Mead connected the Sacramento Valley's large farms to prevailing concerns about loss of American exceptionalism as well widespread populist sentiments about the increasing dominance of financiers and absentee capitalists.[108] He reported that the Sacramento Valley's huge farms were mostly owned by banks and capitalists in San Francisco who had obtained the lands as payments on loans and losses incurred in growing grain. Mead found that public life was underdeveloped in the mostly unirrigated Sacramento Valley. In the thirty-five miles he traversed he encountered only two schoolhouses attended by one child whose parents owned land. The rest of the pupils were children of foreman and tenants, and these two schools educated a total of fifteen children. In other arid states, such as Utah, farms were generally under thirty acres. The average population of a Utah district was three hundred people per square mile, compared to ten people per square mile in California.[109]

Sacramento Valley wheat barons prided themselves on these great undertakings. They likened their large enterprises to the early range cattle business. Essentially, they considered

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[107] *Report of Irrigation Investigations in California Under the Direction of Elwood Mead* (Washington: Government Printing Office, 1901), 17-28.

[108] It should be remembered that 1896 and 1900 were peak years for the Populist movement. Despite losing the 1896 and 1900 elections, populists had captured the Democratic party and greatly increased their influences over the federal government, including a dramatic expansion of the Department of Agriculture. Populism was especially popular in the Southern and Western states. See Elizabeth Sanders, *Roots of Reform: Farmers, Workers, and the American State, 1877-1917* (Chicago: University of Chicago Press, 1999), 13-29, 148-177; Charles Postel, *The Populist Vision* (New York: Oxford University Press, 2007); 275-277.

[109] *Report of Irrigation Investigations in California Under the Direction of Elwood Mead*, 31.

themselves cattlemen. In Mead's estimation, it was in accord with the "spirit which from the first has dominated industries of California." This naturally attracted Sacramento Valley residents towards wheat, which could be grown on a large scale. A man with capacity for organization could look after 10,000 acres just as easily as ten acres.[110]

Most of Mead's recommendations were about making water rights more transparent and easier to obtain for irrigation, but his report also explored creating drainage reservoirs near the Yuba River. As Marsden Manson noted, natural facilities for the storage of storm water were particularly favorable in the upper third of the drainage basin of the Yuba's Rivers South Fork, as already demonstrated by mining companies. Miners obtained water by constructing large and expensive canals and storage reservoirs. Just as favorably, the mountains served as natural reservoirs due to their snowpacks, which did not start melting until after March, potentially providing water that could fill the storage reservoirs throughout the summer.[111]

[110] *Report of Irrigation Investigations in California Under the Direction of Elwood Mead*, 32.
[111] *Report of Irrigation Investigations in California Under the Direction of Elwood Mead*, 115-123.

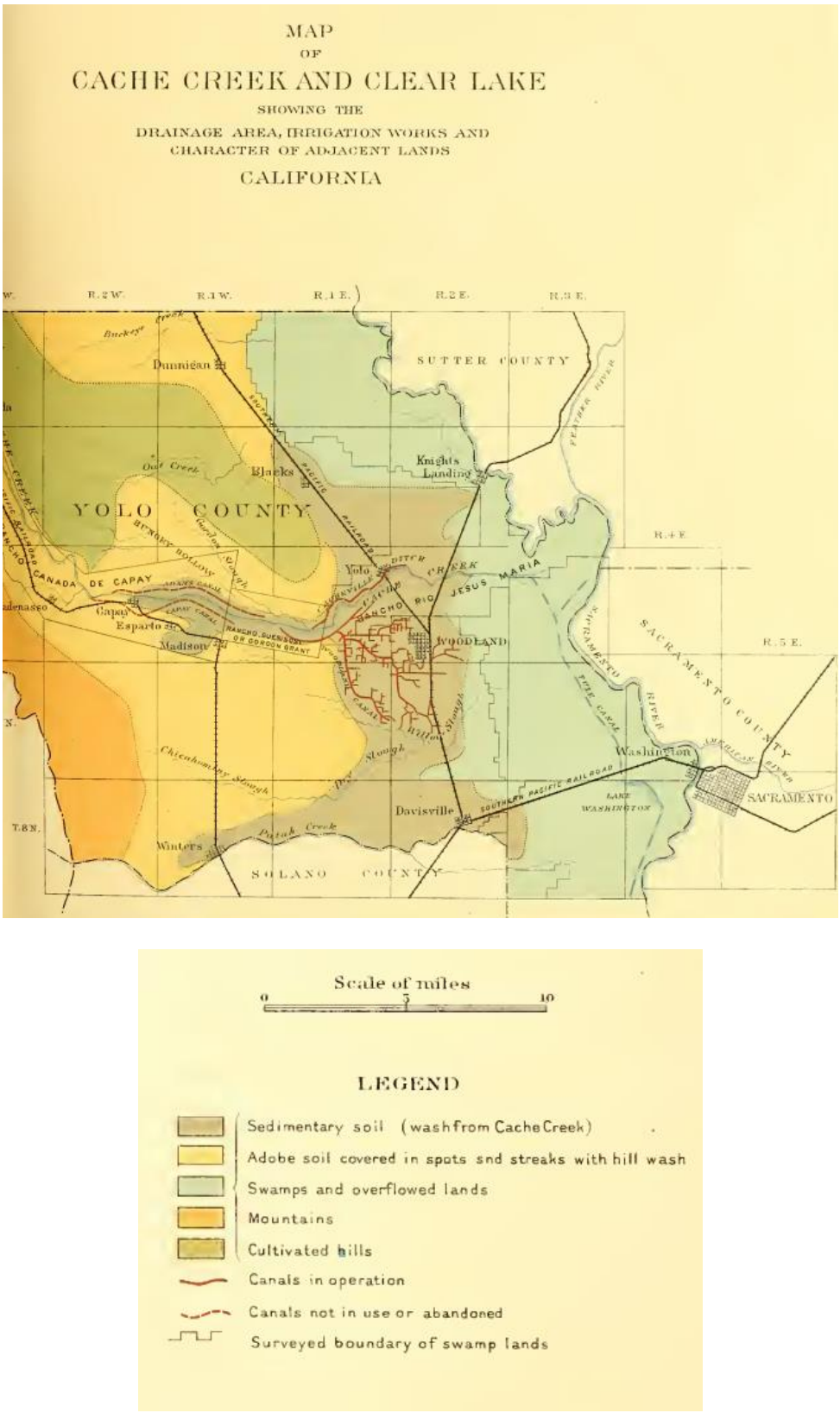

Figure 9. Map of Cache Creek and adjacent lands in Yolo County. Adapted from *Report of Irrigation Investigations in California Under the Direction of Elwood Mead* (Washington, 1901), 158-159.

In addition to Elwood Mead's investigations, the Sacramento Valley Development Association continued promoting irrigation, navigation, and flood control. Between 1900 and 1901 almost every county in the Sacramento Valley organized either a board of trade or a chamber of commerce.[112] The Sacramento Valley Development Association backed the efforts of wheat growers to force rate reductions from the Southern Pacific Railroad, as they were paying the same rate from fifteen years earlier despite declines in the price of wheat. By 1901, transportation charges amounted to 15-20 percent of the value of grain.[113] The Sacramento Valley Development Association also helped organized a general convention of grain growers in September of 1901, which aimed to combine the efforts of growers in both the Sacramento and San Joaquin Valleys for mutual protection and assistance.[114] By the end of 1901, the Sacramento Valley Development Association was lobbying the state government to build dams on the Yuba.[115]

In 1902, the California Water and Forest Association appointed a blue-ribbon commission to write a water-reform bill. Appointees included Elwood Mead, Frederick Newell, the presidents of Stanford and the University of California, the Chief Justice of the California Supreme Court, and the former justice of the California Supreme Court, John D. Works. Works drafted the bill, which set out to create a board of engineers that would determine the volume of water in California's streams, prepare maps of riparian streams, and list appropriative rights, all as a precursor to multiuse storage reservoirs.[116] Initially, the Work's plan received little criticism. By December 1902, strong opposition emerged in Southern California from large water companies,

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[112] "Annual Meeting of the Sacramento Valley Development Association," *Daily Colusa Sun,* April 22, 1901.
[113] "Wheat Growers Given No Help," *San Francisco Call,* July 22, 1901; "Wheat Growing and Transportation,' *Pacific Rural Press,* July 27, 1901.
[114] "Working to Unite the Wheat Growers," *Daily Appeal* (Marysville), September 19, 1901.
[115] "Will Pull for the Yuba Dams," *Daily Appeal* (Marysville), December 22, 1901.
[116] Pisani, "Water Law Reform in California," 301-302.

which organized a convention at the Riverside YMCA. They denounced the bill as "autocratic, dictatorial, and nagging." An Orange County delegate declared that the state had no power to condemn water rights and that setting water rates was a job best left to local boards of supervisors. They also warned that this bill would create a huge new bureaucracy and a sharp increase in state taxes. The riverside convention crystallized Southern California's opposition.[117]

Ironically, the passage of the Newlands Reclamation Act in 1902 may have helped kill the Works bill. Southern California did not have enough representation or population to stop the bill. Northern California's population was three times larger, and San Francisco businessmen initially backed the legislation to develop the farmland that Bay Area banks owned.[118] They were eventually turned out by conservationists who wanted to make sure state policies did not interfere with the 1902 Newlands Reclamation Act. The 1902 act created the Reclamation Service, which Congress tasked with building storage reservoirs and canals that could supply water for irrigated farms of no more than 160 acres.[119] George Maxwell called state water codes "chimerical and impractical." William Ellsworth Smythe accused the Water and Forest Association of being "captured" by advocates of state and private reclamation. They appealed to irrigation districts in both Southern and Northern California, who flooded the legislature with petitions. Due to this public pressure, San Francisco business groups, including the chamber of commerce and the board of trade, withdrew their support.[120]

The Reclamation Service did move forward on planning for storage reservoirs in the Sacramento Valley, but they struggled against land monopoly. Many large landowners opposed

[117] Pisani, "Water Law Reform in California," 304-305.
[118] Pisani, 305.
[119] Pisani, *Water and American Government*, 13.
[120] Pisani, "Water Law Reform in California," 306-308.

federal efforts because of the 160-acre limitation.[121] There were few water sites not already claimed, condemnation suits tied up the Reclamation Service, and when the Reclamation Service selected sites, most notably on the Klamath River, land speculators immediately moved to file on the lands. Because large landowners controlled most Sacramento Valley lands, the Klamath project was too far from most agricultural markets, 451 miles from San Francisco and 440 miles from Portland.[122]

By 1902 California still lacked any law or plan for comprehensive flood control and reclamation, be it from drainage canals, bypasses, levees, or storage reservoirs. The exuberance that surrounded the initial creation of the Bates Dredger seems to have abated in the first few years of the twentieth century. After 1900, the public works department continued to pursue a policy aimed principally at confining waters to the Sacramento River and its tributaries, but they acknowledged that permanent security could be impossible against floods such as of 1852 and 1862.[123]

[121] Pisani, *From the Family Farm to Agribusiness,* 325.
[122] Pisani, 303-325.
[123] "Report of the Commissioner of Public Works and Engineers, to the Governor of California, 1901-1902," in *Appendix to the Journals of the Senate and Assembly of the Thirty-Fifth Session of the Legislature of the State of the California, Volume II* (Sacramento: 1903), 7, 14-15.

5. Creating the Sacramento River Flood Control Project, 1902-1911

In February of 1902, the *San Francisco Chronicle* published an article that blamed the stagnation of Northern California on San Francisco businessmen, because they had neglected the Sacramento Valley. This declaration followed a decade where Southern California accounted for 90 percent of the state's population growth.[1] The writer reasoned that Northern California's lagging growth could not be due to an inferior climate, as Northern California was supposedly sunnier and wetter than Southern California. Instead, the writer attributed Southern California's greater growth to the "tireless public spirit of the businessmen, wealth, and brains of the metropolis of the south, Los Angeles," which turned the deserts of Southern California into a "Mecca." Conclusively, the writer asserted, "the progress of the southern counties and the stagnation" of the "great fertile valley" were not "due to the differences in nature but to the differences in men." To spur businessmen into promoting Northern California, the *Chronicle* announced a new department and weekly section devoted to promoting the Sacramento Valley.[2]

San Francisco businessmen also created booster and development organizations to promote the Sacramento Valley. The San Francisco Chamber of Commerce called together the heads of "the great mercantile bodies" of San Francisco to form a "Great Northern and Central California Development Association." The President of the San Francisco Chamber of Commerce proposed a per acre fee for large valley landowners to build a development fund.[3] San Francisco businessmen also formed the California Promotion Committee. Ostensibly, the California Promotion Committee's mission was to recruit easterners for the agricultural industry throughout California, but they focused on Northern California's growth. Their leadership

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[1] Donald J. Pisani, *From the Family Farm to Agribusiness*: *The Irrigation Crusade in California and the West, 1850-1931* (Berkeley: University of California Press, 1984), 295.
[2] "A Confession of Judgement," *San Francisco Chronicle*, January 29, 1902.
[3] "What the North has Done to Develop its Resources," *San Francisco Chronicle*, March 15, 1902.

embodied this Northern California bias. Every member of its executive committee represented a major San Francisco business organization, and none of the advisory committee's twelve members came from south of Fresno. The executive officer was the treasurer of the San Francisco Chamber of Commerce, Rufus P. Jennings.[4]

Through the California Promotion Committee, Jennings tirelessly touted Northern California's possibilities and equated businessmen with "public spirit" and economic progress. A California Promotion Committee sponsored history of San Francisco correlated population and economic growth to public spirit. This history remarked that "perilously low" public spirit stagnated San Francisco in the 1890s, even as Seattle and Spokane took great strides and Los Angeles grew "from a pueblo to a metropolis." [5] Newspaper and magazine articles more directly connected "public spirit" with business leadership. In a *Pearson's Magazine* article, Jennings asserted that by systematizing and centralizing advertising into one coherent system, the California Promotion Committee accelerated the division of huge wheat ranches into small tracts.[6] Wheat farming, according to a *Chronicle* writer, constituted "the lowest type" of farming with "the least possible number of inhabitants to the acre."[7] As wheat is more conducive to mechanized harvesting than specialty crops, wheat requires fewer workers per acre, thereby enabling the emergence of princely estates. And because wheat grows in many environments, it tends towards overproduction. Boosters believed wheat not only discouraged the dense population settlement necessary for vigorous commercial activity, but it also discouraged the high profit margins that supported larger capitalistic investment. In contrast, specialty crop farms

[4] California Promotion Committee, Pamphlet, January 30, 1903, Box 36, Folder 55, BANC MSS C-B 400, George C. Pardee Papers, Bancroft Library, University of California, Berkeley.
[5] Charles August Keeler, *San Francisco and Thereabout* (San Francisco: California Promotion Committee, 1903), 73.
[6] Rufus P. Jennings, Letter, September 1904, Box 37, Folder 1, BANC MSS C-B 400, George C. Pardee Papers, Bancroft Library, University of California, Berkeley.
[7] "What the North has Done to Develop its Resources," *San Francisco Chronicle*, March 15, 1902.

yielded large profits per acre even as they required lots of labor.[8] Governors George Pardee (1903-1907) and J.N. Gillett (1907-1911), *Chronicle* writers, and representatives of the largest corporation in California, the Southern Pacific Railroad, identified specialty crops as the source of Southern California's prosperity, the future of Northern California's prosperity, and the lack thereof as the cause of Northern California's stagnation.[9] Thus, when Jennings credited the California Promotion Committee for dividing huge estates into smaller specialty crop farms, he was implying that organized businessmen were modernizing Northern California.

Local commercial organizations also fully grasped they would need outside capital to develop the Sacramento Valley. The *Chronicle* told the Sacramento Valley Development Association that the they would have "a strong backing from San Francisco" in their efforts to promote immigration.[10] Sacramento Valley newspapers seemed excited about aid from San Francisco businessmen and capitalists. The *Davisville Enterprise* looked forward to the prospect that swampland reclamation and drainage would "be taken up by men financially able to deal with it." They conceded that with few exceptions, it was impossible for individual landowners to reclaim swampland and protect it from floods. They claimed that "the only hope for the reclamation of this immense body of land and its protection from flood water" lay "in the sale of

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[8] George C. Pardee, "Impressions of the Irrigation Congress," *Transactions of the Commonwealth Club of California: Vol. 1* (San Francisco: 1903), 27; Steven Stoll, *The Fruits of Natural Advantage: Making the Industrial Countryside in California* (Berkeley, University of California Press, 1998), 25-29; Alan L. Olmstead and Paul Webb Rhode, "The Evolution of California Agriculture, 1850-2000" *California Agriculture: Dimensions and Issues,* ed. Jerome Siebert (Berkeley: University of California, Giannini Foundation of Agricultural Economics, Division of Agriculture and Natural Resources, 2003), 2-3; Pisani, *From the Family Farm to Agribusiness,* 10.

[9] George C. Pardee, "Address of Governor Pardee," *Official Report of the Thirty-First Fruit Grower's Convention of the State of California (*Sacramento: 1906), 17-20; J.N. Gillett, "Address by Governor J.N. Gillett," *Official Report of the Thirty-Third Fruit Grower's Convention of the State of California* (Sacramento: 1907), 9-10; "Reclamation of Sacramento Lands," *San Francisco Chronicle*, March 01, 1902; "What the North has Done to Develop its Resources," *San Francisco Chronicle*, March 15, 1902; Richard J. Orsi, *Sunset Limited: The Southern Pacific Railroad and the Development of the American West, 1850-1930* (Berkeley: University of California Press, 2005), 52-54.

[10] "San Francisco will Give Development Association a Strong Backing," *Daily Colusa Sun,* February 26, 1902.

the land to some company with sufficient capital to carry the work as whole."[11] The Sacramento Valley Development Association told the California Promotion Committee that they would "try to interest capitalists and manufacturers, as well as home seekers, to encourage immigration and other enterprises."[12]

Sacramento Valley leaders also continued to promote irrigation. The Sacramento Valley Development Association worked with the California Water and Forest Association to push for preservation of forests at the headwaters of the Yuba and Feather Rivers. They warned that the current rate of deforestation would eliminate the forests in thirty years. At this time irrigation advocates believed that the roots and canopies of trees stored winter rains. The Sacramento Valley Development Association, the State Minerologist, and the governor of California wrote a joint memorial to President Theodore Roosevelt advising that "the western slopes of the great mountains on the east of the valleys must be fully forested." They added that forest preservation would not just benefit irrigation, but also navigation.[13]

The interest in storage reservoirs and irrigation does not appear much connected with flood control. San Francisco businessmen addressed flooding by organizing a River Improvement and Drainage Association in 1902, but they believed that private levee building would check floods, as more powerful dredgers made it possible to build higher levees. As one *Chronicle* writer put it, "the period of danger from bursting levees" was "now about over."[14] Governor George Pardee echoed these sentiments. After praising the Sacramento Valley for its

[11] "The Five Basins," *Davisville Enterprise,* August 21, 1902.
[12] "To Induce Immigration," *Davisville Enterprise*, August 12, 1902.
[13] "Forestry Reserve System Proposed for California Embraces Millions of Acres Upon Sierran Slopes," *San Francisco Call,* October 27, 1902.
[14] "Great Possibilities of Sacramento Valley," *San Francisco Chronicle*, June 14, 1902.

unsurpassed fertility, he declared that the Sacramento Valley suffered no danger from floods nor fire.[15]

The floods of 1904 dispelled illusions of safety. The February 1904 floods destroyed millions of dollars' worth of property along with over ten thousand acres of farmland.[16] This threatened to deter immigration and capital investment. In May of 1904, the California Promotion Committee held a state convention, attended by Governor George Pardee and Senator George Perkins, and put together a new River Improvement and Drainage Association more focused on political advocacy and fundraising.[17] The executive officer of the new River Improvement and Drainage Association was Rufus Jennings, rather than an engineer, as was the case with the old association.[18] Jennings also sat on the board of governors for the Commonwealth Club, a San Francisco organization formed in 1903 that was composed mostly of prominent businessmen devoted to discussing public issues. Charter members included *San Francisco Chronicle* editor Edward Adams, Governor George Pardee, San Francisco's reform mayor James Phelan, and University of California President Benjamin Ide Wheeler.[19] After the 1904 floods the Commonwealth Club held several conferences to discuss flood control and reclamation in the Sacramento Valley. Through 1904 and into 1905 both the River Improvement and Drainage Association and the Commonwealth Club advocated state-planned flood control. This advocacy included exploring the history of flood control in the Sacramento Valley.

In the first complete history of Sacramento Valley reclamation and flood control, Edward Adams argued for the infallibility of engineers while concluding that the reclamation of

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[15] "Pardee's Opinion of the Valley," *Chico Daily Record*, October 23, 1903.
[16] "The Sacramento Overflowing," *San Francisco Chronicle*, February 29, 1904.
[17] *Appendix to the Journals of the Senate and Assembly of the Thirty-Sixth Session of the Legislature of the State of California, Volume II* (Sacramento: Superintendent of State Printing, 1905), 21.
[18] *River Improvement and Drainage Association of California*, *Bulletin Number One* (San Francisco, 1904), 2.
[19] Donald J. Pisani, "Water Law Reform in California: 1900-1913," *Agricultural History* 54, no. 2 (1980): 309, http://www.jstor.org/stable/3743047.

swampland faltered because of local landowners, even though those two points ended up contradicting. He started his history with the Arkansas Act of 1850. California's grant contained areas affected by what Adams called "the problem of the Sacramento." California had distributed grants with 320- and 640-acre restrictions to prevent land monopoly, but lands sold poorly with these restrictions. Adams noted how engineers foresaw that "effective reclamation was not possible, except in the most favorable locations, even by large holders." To emphasize engineering infallibility, Adams added that their foresight was abundantly demonstrated. Just one sentence after asserting that engineers had foreseen the impossibility of "effective reclamation," Adams concluded that it was the purchasers' flawed approach alone which failed. Adams wrote that "many purchasers ruined themselves in the desperate attempt to deal piecemeal with a problem which [could] be solved only by treating it as a whole."[20] It is not that Adams was wrong about the flawed piecemeal approach pursued by many individual purchasers. But Adams wanted to show that engineers were always right without acknowledging that by 1870 engineering technology still could not reclaim most Sacramento Valley lowlands. Acknowledging limits would mean admitting, at least by this point in time, that the Sacramento River exceeded human control and comprehension, regardless of ideology or social organization.

Adams continued to link the Sacramento Valley's flood control and drainage problems to piecemeal reclamation and localist politics with his discussion of the 1881 Drainage Commission. Adams acknowledged the brush dams built by the Drainage Commission "did not retain the debris as expected," but he asserted nonetheless that "some permanent improvement was doubtless made" before the California Supreme Court ruled the 1881 Act unconstitutional.[21]

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[20] Edward F. Adams, "Reprint of No. 4, Vol 1, Transactions (1904); "Paper by Edward F. Adams," in *Transactions of the Commonwealth Club of California: Swamp Land Reclamation, Vol. IV* (San Francisco: Commonwealth Club of California, 1909), 203-219.
[21] Adams*, 217*-220.

Considering that the dams collapsed shortly after construction, it is unclear what those permanent improvements could have been. Adams did not just assert the permanence of improvements, but he also asserted that engineers would have made even more permanent improvements if the state had forbidden local reclamation districts from operating independently. Adams neglected to describe how the state had built brush dams based on engineering recommendations, only for those dams to fail during the subsequent storm. These details would have indicated that engineering science alone could not guarantee permanent flood control and reclamation.

Based on this history, Adams proposed a policy that simultaneously expanded state power and reduced democratic oversight. Adams called for the state to assume entire control of the Sacramento and San Joaquin swamp and overflowed areas. He proposed that reclamation should be "absolutely, and by the most drastic legislation," removed of any public influence, and that the chief engineer should be someone with experience on the Mississippi River.[22] This last recommendation reflected a widespread suspicion that local interests could influence California engineers. The executive committee of the River Improvement and Drainage Association warned that a state official, even if a qualified engineer, might simply be a "place-hunting politician."[23] That suspicion is why most Commonwealth Club members agreed that "Reclamation must be carried out by some authority" that could "not be interfered with."[24] But it also derived from faith in the universalism of flood control science. An engineer experienced on the Mississippi River would have subscribed to the Humphreys Thesis. Many Valley farmers had opposed the

[22] Adams, *Swampland Reclamation*, 230.
[23] "Land Ought to Share Control," *Marysville Appeal*, January 31, 1905.
[24] Fairfax H. Wheelan, "Discussion at the July Meeting, 1904," *Transactions of the Commonwealth Club of California: Swamp Land Reclamation, Vol. IV* (San Francisco: 1909), 235.

Humphreys Thesis for fear that a theory based on the slow rising Mississippi River could never work on the fast-rising Sacramento.[25]

While Edward Adams constructed a history of the Sacramento Valley for the Commonwealth Club, the River Improvement and Drainage Association more directly underscored the universalism of the Humphreys Thesis by publishing a history of the Mississippi Valley. Written by Army Corp Engineer Major T.G. Dabney, the history described the economic flowering of the Yazoo Basin, an alluvial region of the Mississippi covering 6,500 miles. Dabney started by summarizing original efforts to control the flooding of the Mississippi in the 1840s, when individual owners erected levees. These levee systems evolved into county organizations before the Civil War but were still "imperfect" and "unscientific" and therefore offered no security against greater floods. It took devastating floods in three consecutive years during the 1880s to stir the people of the Yazoo Basin into systematic action. In 1884 they organized the Yazoo-Mississippi Delta Levee District. This district was operated by a board of levee commissioners, composed of two members from each of the entire front counties, one member from each of the other counties, and representatives of the Louisville, New Orleans, and Texas Railroad Company. The board wielded peremptory eminent domain, the power to confiscate and begin work on any property it deemed necessary for the building of levees even before compensating the original landowner. After the legislature authorized bond issues for levee building in 1886, "industrial development of the district progressed in accelerated ratio. Forest lands were cleared, railroad building became more active; numerous small towns were built up along the railroads," some of which had "grown into industrial and financial importance," and all became "thriving business places." At the end of the history, Dabney referenced the Humphreys

[25] Kelley, *Battling the Inland Sea,* 129-130.

Thesis by affirming that reclamation on the Mississippi relied "solely on levees."[26] Dabney's history lesson was clear: the Humphreys Thesis was the solution for flooding, and this solution led to modernization and progress. Just as the Humphreys Thesis contained the floods of the Mississippi River, promoting a subsequent boom, so could the same happen in the Sacramento Valley.

Dabney's conclusions relied on excluding other experiences along the Mississippi River that he would have known about and that would have contradicted his theme of universal knowledge and control. Specifically, Dabney neglected to mention the experience of Louisiana, a state where the Army Corps of Engineers also extensively operated. State planned engineering projects began in Louisiana during the 1850s when the Louisiana legislature divided the state into drainage districts according to topography and hydrology, thereby vesting citizens of each district with a common interest in the building and maintaining of levees. The Louisiana legislature also empowered a board of swampland commissioners to oversee funding for levee projects. Even with state-planning, the board failed to safeguard property from flooding. In 1879 the federal government tasked the Army Corps of Engineers with creating a Mississippi River commission to coordinate navigation and flood control work. But the swamps remained, and the river continued to flood regularly.[27] Thus, even with a flood control design adhering to scientific law and coordinated by state and federal agencies, Louisiana's floods resisted control.

Dabney's most important work was as the head of the commission hired by the River Improvement and Drainage Association to explore flood control solutions in the Sacramento Valley. The Dabney Commission viewed the topographical characteristics of the Sacramento

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[26] River Improvement and Drainage Association of California, *Bulletin Number Two* (San Francisco, 1904), 3-10.
[27] Ann Vileisis, *Discovering the Unknown Landscape: A History of America's Wetlands* (Covelo, California: Island Press, 1977), 79-80.

Valley not as features to work with but as flaws to correct. They considered the troughs of the valley as errors created by the limited discharge capacity of the Sacramento River below Butte Slough. Allowing silt-bearing water to escape the main channel diminished energy in the channel, causing sediment to build up or shoal downstream of where the water escaped "by deposit of sediment that the more enfeebled current" was "unable to transport." The Dabney Commission also believed that bypasses could fill up over time with sediment.[28] For these reasons, they rejected bypasses.

They also reviewed various proposals favored by landowners. One proposal involved cutting a channel through the Montezuma ridge to drain Yolo Basin. With an estimated cost of fourteen million dollars, they considered this solution too costly. The Dabney Commission also rejected a proposal to build a canal that could intercept the waters of Cache and Putah Creeks and convey them through a high-grade canal across the Montezuma Ridge. They noted numerous problems with this proposal, including that it failed to address flooding on the west side of the Sacramento Valley and that the low grade of the canal would cause it to fill up with sediment over time.[29]

Correcting natural flaws meant making the rivers deeper and wider so that they could accommodate all water during winter and spring storms. Part of this included using hydraulic dredgers to remove sediment from the channel beds. But the Dabney Commission anticipated that most of the dredging of the river would occur naturally. They wrote that, "the plan adopted for the enlargement of the channel contemplates that a large part of the work" was "to be done by

[28] *Report of the Commissioner of Public Works to the Governor of California, Together with the Report of the Commission of Engineers to the Commission of Public Works Upon the Rectification of the Sacramento and San Joaquin Rivers and their Principal Tributaries, and the Reclamation of the Overflowed Lands Adjacent Thereto* (Sacramento: Superintendent of State Printing, 1905), 16-26.
[29] *Report of the Commissioner of Public Works to the Governor of California,* 20-26.

current erosion" and necessarily involved a "considerable extent of caving of the river banks." In other words, erosion would both deepen and widen the channel over time.[30] Because erosion would take time, the plan allowed for temporary bypasses. The most important feature of the plan was uniformity of levees to the highest standards as set by engineering science. All levees would have a crown (width of the top of the levee) at least ten feet wide, with slopes three times as wide as they were tall. To accelerate flows through the river, they would have to remove roughness or resistance along the levees. This would entail clearing out all trees, bushes, weeds, tall grass, and other growth. All stumps and grubs were to be thoroughly grubbed out and excavations refilled with earth and tamped until firm. The levees would be sodded with grass after completion to mitigate erosion from wave action, but no other kind of growth would be allowed. This meant permanent management of the levees, although they excluded this potential cost from their calculations.[31] In some areas, due to unstable foundations, levees would have to be protected with either brush mats or by planting of willow trees. From Colusa down, the Sacramento River would be cleared of all obstructions, such as trees, within interspace ranges of 1,200 to 1,600 feet.[32] They estimated the total cost at $23,776,022.[33]

The Dabney Commission fostered the illusion of a democratic process by holding daily sessions where anyone could provide feedback at the River Improvement and Drainage Association's San Francisco offices.[34] This illusion of openness belied the foregone conclusions. Even though the Dabney Commission installed water gauges in the Sacramento Valley to measure river flows, they submitted their recommendations before any flood data arrived.[35] Their

[30] *Report of the Commissioner of Public Works to the Governor of California*, 53.
[31] *Report of the Commissioner of Public Works to the Governor of California*, 37.
[32] *Report of the Commissioner of Public Works to the Governor of California*, 51.
[33] *Report of the Commissioner of Public Works to the Governor of California*, 70.
[34] *Report of the Commissioner of Public Works to the Governor of California*, 12.
[35] River Improvement and Drainage Association of California, *Bulletin Number Three (*San Francisco, 1905), 3.

plan called for total state coordination. The state would have to approve even purely local work. Dabney wrote that it was "essential to the comprehensive and efficient management of the work in all its manifold details that it be under complete control one central authority, responsible directly to the state." Dabney wanted the state to only consider "the best interests of the work itself."[36] Dabney also explicitly rejected the research of Grunsky and Manson that estimated the maximum flows of the Sacramento Valley could reach three hundred thousand cubic feet per second, an estimate Dabney called impossibly high. Dabney concluded from topological surveys that flows could never exceed two-hundred fifty thousand cubic feet, even though the Commissioner on Public Works admitted that the run-off from the Sacramento watershed had never been measured in a way that made it possible to accurately determine what it had been in any one year.[37]

[36] *Appendix to the Journals of the Senate and Assembly of the Thirty-Sixth Session of the Legislature of the State of California, Volume II* (Sacramento: Superintendent of State Printing, 1905), 63, 68.
[37] *Report of the Commissioner of Public Works to the Governor of California,* 33-35; *Report of the Commissioner of Public Works, 24*.

Figure 10. Map of the Sacramento Valley from the Dabney Commission

With the engineering settled, the question of funding remained. The Dabney Commission determined that the state, the federal government, and Sacramento Valley landowners should share costs equally. People from the coast and Southern California balked at paying higher taxes to protect Sacramento Valley landowners from floods.[38] Speakers from the River Improvement and Drainage Association as well as the Commonwealth Club promised that reclamation would increase tax revenues by accelerating commercial activity and elevating land values. The River Improvement and Drainage Association calculated that after reclamation, lands would more than triple in value, accruing benefits that would "be perpetual."[39] Absent from these calculations was a potential future decline, even though the wheat industry had already declined.

Fruit growers argued that horticulture was more sustainable than wheat, which they considered part of the extractive ranching and mining economies. Ironically, grain farmers from the previous generation had made the same argument about the relationship between wheat and mining.[40] Fruit growers also touted California's unmatched climate. They claimed that as its "most valuable asset," climate gave California preeminence, making California's fruit "the best in the world" and its reclaimed lands capable of producing "two to three times as much...as in anywhere else," destining California to become the "great fruit growing state of the nation."[41]

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[38] "Discussion at the September Meeting, 1904," *Transactions of the Commonwealth Club of California: Swamp Land Reclamation, Vol. IV* (San Francisco: Commonwealth Club of California, 1909), 203-219
[39] River Improvement and Drainage Association, *Bulletin Number Three*, 7-8.
[40] Ian Tyrell, *True Gardens of the Gods: California-Australian Environmental Reform, 1860-1930* (Berkeley: University of California Press, 1999), 47.
[41] Leonard Coates, "The Fruit Growers Aim," in *Biennial Report of the Commissioner of Horticulture of the State of California (* Sacramento: Superintendent of State Printing, 1907), 387; M.P. Chipman, "Essay by General M.P. Chipman," 98; J.A. Flicher, "Marketing California Products, etc," in *Official Report of the Thirty First Fruit Growers' Convention of the State of California, (*Sacramento: Superintendent of State Printing, 1906), 57; A.R. Sprague, "Improvement of Inland Waterways," in *Official Report of the Thirty Third Fruit Growers' Convention of the State of California* (Sacramento: Superintendent of State Printing, 1907), 225; J.W. Nelson, "The Fruit Grower and His Work," in *Official Report of the Twenty Sixth Fruit Growers' Convention of the State of California* (Sacramento: Superintendent of State Printing, 1901), 146.

Just as important as climate was the way they advertised the climate. To them Southern California's growth had more to do with the unparalleled efforts of Los Angeles capitalists than it did with climate. The faith in promotion held some merit. Steven Stoll has shown that there was nothing natural about the triumph of specialty crops. Growers had to overcome "such formidable disadvantages as long-distance trade, perishable products, the ravages of insects, and an insufficient labor supply."[42] They faced all these disadvantages with no guarantee of markets, as nineteenth century diets lacked regular servings of specialty crops. Instead of diversifying their products, growers committed themselves to "eternal advertising."[43] One grower claimed that feeble voices of "warning about overproduction" were always quieted by "a little adjustment of methods" causing demand to grow greater than their orchards could supply.[44]

When it came to specialty crop growing, economic progress and social regeneration were inextricably entwined, for specialty crops seemed to make possible the preservation of small family farms. Many Americans believed that the closing of the frontier, as declared by the Census Bureau in the 1890s, marked the end of an exceptional American society of independent small farmers and the beginning of a stratified class society dominated by large landowners and parasitic capitalists. This crisis of American exceptionalism generated numerous proposals to save the United States from becoming cramped and stagnant like Europe.[45] Of all the solutions, irrigation and specialty crop farms seemed most promising. Irrigation could transform western deserts into an oasis of intensive farms.[46] Specialty crop communities, located near cities such as

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[42] Stoll, *The Fruits of Natural Advantage," 62.*
[43] Stoll*,* 88.
[44] Frank Femmons, "Some Higher Ideals of Horticulture," in *Official Report of the Thirty Fifth Fruit Growers' Convention of the State of California* (Sacramento: Superintendent of State Printing, 1908), 227.
[45] David M. Wrobel, *The End of American Exceptionalism: Frontier Anxiety from the Old West to the New Deal* (Lawrence: University Press of Kansas, 1993), 35-57.
[46] David Vaught, *Cultivating California: Growers, Specialty Crops, and Labor, 1875-1920* (Baltimore: Johns Hopkins University Press, 1999), 46-50.

Sacramento, could offer the amenities of modern urbanism without its decadence.[47] River valleys offered other possibilities for small farming, social regeneration, and profits. As several Commonwealth speakers remarked, there were up to two million "practically unused" acres "ready to pour hundreds of millions of dollars annually into the coffers of San Francisco and of the State when reclaimed and put to use."[48] As one *Chronicle* writer put it, unreclaimed river valleys afforded "a pleasing solution to the increasing scarcity of land."[49] The prospects of social regeneration alone was enough to justify asking the federal government to pay for part of flood control costs.

However, the repudiation of wheat threatened to sever the alliance between San Francisco and Sacramento. In 1904, the Sacramento Valley Development Association was still advocating for wheat growers. One effort was related to improving the quality of California wheat. Due to low gluten content, California wheat had to be mixed with wheat from other states with higher gluten content to make good flour. This required that California import fourteen million bushels of wheat a year. The Sacramento Valley Development Association asked the University of California's Agricultural Department to study how to enhance California's wheat varieties. In an address sponsored by the Sacramento Valley Development Association, Professor G.W. Shaw cautioned that if California were to remain a wheat producing state, it would have to improve the quality of its wheat, as production per acre was steadily decreasing. To the approval of his audience, he predicted that the wheat industry would long remain one of the principal industries of the state.[50]

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[47] Paul Sandul, *California Dreaming: Boosterism, Memory, and Rural Suburbs in the Golden State* (Morgantown: West Virginia University Press, 2014), 2-3.
[48] W.A. Beard, "Mr. W.A. Beard on Private Reclamations," in *Transactions of the Commonwealth Club of California: Swamp Land Reclamation, Vol. IV* (San Francisco: Commonwealth Club of California, 1909), 302.
[49] "Once Under Water, Now Growing Crops," *San Francisco Chronicle*, December 6, 1902.
[50] "More Money for California Farmers," *Placer County Republican*, October 20, 1904.

The Sacramento Valley Development Association also never stopped pursuing a reservoir solution for flooding. The legislature of 1903 appropriated $60,000 to spend in collaboration with the national government, and the legislature in 1905 appropriated $76,000 more. They spent the money on topographic and hydrographic surveys to find land suitable for irrigation.[51] In 1904, Frederick Newell promised California's government that with assistance from the state, the Reclamation Service would reclaim the entire Sacramento Valley, including overflowed lands. In a letter to Newell, the engineer in charge of reconnaissance for the Sacramento Valley, J.B. Lippincott, crowed that "the Sacramento Valley [was] the greatest undeveloped opportunity in arid America."[52] In 1905, the Sacramento Valley Development Association hosted the Senate and House Irrigation Committee to promote the Sacramento Valley Irrigation Project, which contemplated "the ultimate control of all the waters of the Sacramento and San Joaquin Valleys through the construction of a great system of canals completely encircling the greater interior basin of the state."[53]

The Commonwealth Club and the River Improvement and Drainage Association did not push the narrative of breaking up wheat ranches as much as San Francisco boosters did between 1902 and 1904. They focused purely on the economics of flood control and reclamation. Speakers for the Commonwealth Club boasted that the Sacramento Valley's productivity could increase tenfold if protected from floods.[54] The River Improvement and Drainage Association

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[51] *Appendix to the Journals of the Senate and Assembly of the Thirty-Seventh Session of the Legislature of the State of California, Volume 1* (Sacramento: Superintendent of State Printing, 1907), 36-37.
[52] Donald J. Pisani, "A Conservation Myth: The Troubled Childhood of the Multiple-Use Idea," *Agricultural History* 76, no. 2 (2002): 164-166, http://www.jstor.org/stable/3744996."
[53] "Congressmen Will Visit Sacramento Valley," *San Francisco Call*, March 24, 1905.
[54] "Report of the Commercial Sections on the Foregoing Paper," in *Transactions of the Commonwealth Club of California: Swamp Land Reclamation, Vol. IV* (San Francisco: Commonwealth Club of California, 1909), 236.

cited enlarged tax receipts, population, and commerce from new lands that would be "susceptible of intense and varied cultivation."[55] "Intense and varied cultivation" denoted smaller farms.

Smaller farms, however, did not necessarily equate to more distributed land ownership. As Sacramento Valley almond grower Alden Anderson lamented, "unless farmers learned cooperation," tenancy would "replace individual home ownership." He added that an "appalling number of farms" were "under mortgage."[56] His claim about tenancy corresponds with Ellen Liebman's findings about landholding in California during this period. In the Sacramento-San Joaquin delta, for example, lands concentrated in the hands of reclamation companies, who preferred leasing to tenants over selling small tracts. Furthermore, the high capital costs of starting up a specialty crop farm discouraged most migrants to California.[57] There was sound reason to believe that tenancy would prevail on the newly reclaimed lands. If anything, by elevating land values, successful flood control could make them too expensive for newcomers.

The River Improvement and Drainage Association as well as the Commonwealth Club also supported wheat growers by defending reclamation as a "private enterprise" whose purpose was "pre-eminently for the benefit of landowners."[58] They wanted the state to expend resources on behalf of landowners without removing any of their control. The Commonwealth Club and the Drainage Association emphasized that landowners could fully handle reclamation once the state and federal government removed debris from the rivers.[59] This confidence was bolstered by the belief that flood control, once undertaken systematically and scientifically, would be a

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[55] River Improvement and Drainage Association, *Bulletin Number Thre*e, 7-8.
[56] Alden Anderson, "The Almond in California," in *Official Report of the Twenty Sixth Fruit Growers' Convention of the State of California* (Sacramento: Superintendent of State Printing, 1901), 142.
[57] Ellen Liebman, *California Farmland: A History of Large Agricultural Land Holdings* (Totowa, N.J.: Rowman & Allanheld, 1983), 49, 79.
[58] River Improvement and Drainage Association, *Bulletin Number Three*, 4.
[59] "Discussion at the September Meeting, 1904," in *Transactions of the Commonwealth Club of California: Swamp Land Reclamation, Vol. IV* (San Francisco: Commonwealth Club of California, 1909) 257-260.

"simple" affair with easily accounted for costs.[60] Estimates of increased land values further bolstered optimism, even though the River Improvement and Drainage Association's executive committee admitted that the estimates were "somewhat exaggerated."[61]

Yet another way the River Improvement and Drainage Association and the Commonwealth Club supported Sacramento Valley growers was by highlighting the historic debt the federal government owed them. In *Gibbons v Ogden*, the Supreme Court granted the federal government exclusive domain over river navigability. Edward Adams accused the federal government of failing to maintain the navigability of Sacramento Valley rivers by allowing mining debris to build up, exacerbating flooding as well.[62] Other speakers declared that it was the federal government's responsibility to restore the rivers to their original or "pristine" condition.[63] The River Improvement and Drainage Association's executive committee claimed that the poor condition of the rivers in the Sacramento Valley had "arisen from the failure of the State and the federal government to protect and maintain the channel."[64]

Large landowners also made sure that a flood control and reclamation scheme would preserve their power. Many were concerned that a commission with taxation powers would assess landowners without making any progress on flood control and drainage, especially if the federal government remained non-committal to funding and cooperation. To address this concern, an amendment was added to the drainage bill suspending the powers of any commission until the state and federal governments had allocated their portion of the cost. However, a drainage commission would be authorized to levy assessments of $50,000 to pay for preliminary

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[60] Adams, *Swampland Reclamation,* 221.
[61] River Improvement and Drainage Association, *Bulletin Number Three*, 8.
[62] Edward Adams, *Swampland Reclamation,* 227; River Improvement and Drainage Association, *Bulletin Number Three,* 6-7.
[63] "Final Report on the Section of Commercial Interests," *Transactions of the Commonwealth Club of California: Swamp Land Reclamation, Vol. IV* (San Francisco: Commonwealth Club of California, 1909), 28.
[64] River Improvement and Drainage Association, *Bulletin Number Four* (San Francisco, 1905), 6.

proceedings.[65] The bill also had to be amended to create a separate board for reclamation that landowners controlled. This board would be composed of one member each from Yolo, Sutter, Yuba, Colusa, Glenn, Butte, and San Joaquin Counties and two from Sacramento. Votes for these members were based on acreage. The original bill left out landowners altogether, but the *San Francisco Call* reported that if landowners did not control the board, "there would be rebellion throughout the Sacramento Valley."[66]

With these concessions, the drainage bill received overwhelming support from lawmakers. Governor Pardee laid out the plan in his 1905 address to the legislature, where he exhorted the state to line all waterways, including small creeks, with levees, and to cut off bends and straighten the river between the mouth of the Feather and the city of Colusa. He predicted that 750,000 acres with small values would eventually be worth fifty to seventy-five million dollars when "absolutely protected from floods."[67] The bill passed 67-0 in the assembly and 32-1 in the senate.[68]

The 1905 Sacramento Drainage District Act created the Board of River Control, which consisted of the president of the Board of Drainage Commissioners and a civil engineer appointed by the governor. The Board of River Control was to supervise the construction of all levees and canals intended for carrying flood waters. It could acquire from private owners or reclamation districts or corporations by "contract, purchase, condemnation, or other lawful means, such rights of way, easements, property, and material as may be necessary for said

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[65] "The Drainage Bill Row Ended," *Stockton Daily Independent,* February 21, 1905.
[66] "The River Bill," *San Francisco Call*, March 1, 1905.
[67] *The Journal of the Assembly during the Thirty-Sixth Session of the Legislature of the State of California, 1905.* (Sacramento: Superintendent of State Printing, 1905), 32.
[68] *The Journal of the Assembly During the Thirty-Sixth Session of the Legislature of the State of California* (Sacramento: Superintendent of State Printing, 1905), 1370, 1578.

purposes."[69] This law also curtailed discretion. As stated in the drainage act, the project of flood control was bounded "in accordance with the report of the engineers mentioned in section eleven," or the Dabney Report.[70]

The drainage act delegated reclamation to the Board of Drainage Commissioners, which consisted of nine members who were selected by Sacramento Valley landowners. Each landowner could cast one vote for the representative of his county for every one dollar of real estate that he owned. The board would select an engineer to inspect the works of reclamation in all districts, who would report recommendations on different plans. The board made all final reclamation decisions. It could "adopt bylaws, not in conflict with general laws, to supervise and control the formation, consolidation or division of reclamation districts within said drainage district." Thus, the board's powers included making laws for the Sacramento Valley. It could compel any reclamation projects and "acquire by contract, purchase, condemnation, or other lawful means...all rights of way, easements, property, and material necessary…" Just to fully clarify the total scope of the board's powers, the law specified that they could "do all other acts necessary or requisite for the full exercise of their powers or necessary for the promotion of reclamation of lands within said drainage district."[71]

In 1906, landowners from Yolo, Sutter, and Colusa Counties brought a case against the Sacramento Drainage District. The *Colusa Sun* referred to them as men of wealth and high standing. Claiming that reclamation districts under the direction of public bodies had always been unprofitable, they protested the measures of the law which vested commissioners with

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[69] "An Act to Create a Drainage District to be Called 'Sacramento Drainage District,'" in *The Statutes of California and Amendments to the Codes Passed at the Thirty-Sixth Session of the California Legislature, 1905,* Chapter CCCLXVIII, (Approved March 20, 1905), 456.
[70] "An Act to Create a Drainage District to be Called 'Sacramento Drainage District,'" 455.
[71] "An Act to Create a Drainage District to be Called 'Sacramento Drainage District,'" 449-452.

plenary power and deprived landowners of the right to court review. They appointed G.W. Chapman, a swamp landowner from Winters, as their proxy.[72] In December of 1906 Chapman filed suit against the Sacramento Valley Drainage Commission.[73] Altogether, the suit represented about two hundred landowners.[74]

Before the case started, flows measuring 834,000 cubic feet per second, more than twice the estimates that the Dabney Commission dismissed as impossibly high, coursed through the Sacramento River watershed during the spring of 1907. A flood control plan that both accounted for the new flood data and remained consistent with the Humphreys Thesis would have required a half mile wide canal through the heart of the Sacramento Valley. The costs, legal difficulties, and engineering challenges made such a proposition impractical. The costs and impracticalities of a Humphreys plan also refuted the belief that once the state instituted the Humphreys Thesis, flood control would be simple and cheap. Nevertheless, The *Chronicle* mocked Sacramento Valley residents who disagreed with the Dabney Plan and insisted that the Dabney Commission still had "a perfect grasp of the problem."[75] The River Improvement and Drainage Association was silent on the new data. Its last publication was a reprint of their second pamphlet about the history of the Yazoo Valley Basin, with some updates on economic production in the region.[76] Rufus Jennings insisted that "the people were united in approving the plan of the Dabney Commission."[77]

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[72] "Question Constitutionality of Drainage District Legislation," *Colusa Sun*, July 10, 1906; "The Battle for Membership on Drainage Commission," *Sacramento Bee*, August 26, 1905.
[73] "To Fight Drainage Commission Law," *Chico Record*, December 16, 1906
[74] "Important Case to be Tried Here," *Sacramento Bee*, March 28, 1907.
[75] "Levees on the Sacramento," San Francisco Chronicle, March 30, 1907; "Our River Problem," *San Francisco Chronicle*, January 20, 1908.
[76] River Improvement and Drainage Association, *Bulletin Number Six* (San Francisco, 1907).
[77] Rufus P. Jennings, "Object Lessons from the Floods," *Red Bluff News*, January 22, 1909.

By 1907, the California Debris Commission was shifting focus towards improving the navigability of rivers. Prior to 1907, the California Debris Commission focused on reviving and regulating the hydraulic mining industry. They sought to achieve this by erecting barriers that could hold back mining debris and by closing sloughs to restrict the continual flow of debris from entering rivers.[78] Declaring success on this goal, they turned toward their second principal duty, restoring the navigability of rivers in the Sacramento Valley to their levels in 1860. They added that they wanted to provide flood relief and to maintain sufficient scouring force in the summer season. They could not restore valley rivers if mining debris kept washing down from the mountains during storms. The California Debris Commission considered several solutions, including building dams to hold the debris, but they deemed this option too costly. They also considered allowing debris to collect in certain designated areas, or settling basins, but the slope of the rivers was not steep enough to carry larger debris to the places where they were supposed to settle. That left, in their opinion, only one feasible option, dredging the rivers to remove debris. A large suction dredge with a capacity of 150,000 cubic yards per month could be built for about $120,000 and operated at $5,000 per month for seven months a year. The total amount of material to be dredged was fifteen million cubic yards, which would not be enough to build levees for all the rivers. They advised using the material on one bank of the stream. The estimated cost of this project was $800,000.[79] The California Debris Commission recommended

[78] "Report of the Debris Commissioner from December 1, 1902, to November 1, 1904," in *Appendix to the Journals of the Senate and Assembly of the Thirty-Sixth Session of the Legislature of the State of California, Volume II* (Sacramento: Superintendent of State Printing, 1905), 14.

[79] "Report of California Debris Commission with Regard to Future Operations for Control of Mining Debris, Improving Navigability, and Providing for Control of Floods on the Sacramento and Feather Rivers, California," in *Report of the Chief of Engineers in Three Parts, Part II* (Washington: Government Printing Office, 1907), 2262-2269.

that Congress and California each appropriate $400,000 for buying two hydraulic dredgers that the state could use to widen and deepen Sacramento Valley rivers.[80]

The 1907 recommendation of the California Debris Commission motivated the Commonwealth Club and the Sacramento Valley Development Association to increase their advocacy for federal funding and legislation. In May they held a conference to discuss how to obtain federal aid. Three hundred landowners attended the meeting, along with three of California's congressmen, Major Harts of the Army Corps of Engineers, a state senator, and an assemblyman. At the conference attendees discussed the need for appropriating $400,000 each by the state and federal governments and as well as laws that would give official supervision over private reclamation to insure one harmonious system.[81]

The conference revealed significant dissent over the kinds of policies the state should pursue. One of the prominent landowners in attendance, P.J. Von Loben Sels, accused the California Debris Commission of disregarding the Dabney Report and wasting all the money which had been appropriated. Major Harts reiterated that with dredgers, the California Debris Commission could build large levees and reclaim lowlands. Von Loben Sels agreed that dredgers were useful, but he believed federal engineers only made things worse and the state should not have to contribute $400,000. Some landowners also demanded that the state construct reservoirs. They advocated preserving mountain forests as these supposed natural reservoirs prevented excessive run-off that would make flooding too great for any levee system to handle. Most importantly, they wanted only the state of California to carry out these proposals. They asked the

[80] "Annual Report of the Debris Commission for the Fiscal Year Ending June 30, 1909," in *Report of the Chief of Engineers U.S. 1909 in Three Parts: Part III. Appendix B.B.B.* (Washington: Government Printing Office, 1909), 2297-2298; "Annual Report of the California Debris Commission for the Fiscal Year Ending June 30, 1910," *Report of the Chief of Engineers U.S. Army. 1910. Appendix C.C.C.* (Washington: Government Printing Office, 1910).
[81] "Ask State and Federal Aid for Rivers," *Sacramento Union,* May 22, 1907.

Sacramento Valley Development Association to vigorously influence the state government. Some landowners broached the bypass plan. They argued that if the state used dredgers to deepen the rivers for most of the flood waters, the rest could be "easily taken care of in the remnants of the basins and by means of bye-passes."[82]

The same month that the Sacramento Valley Development Association held its meeting on the California Debris Commission's report, Chapman's case against the Sacramento Drainage District began. This case fundamentally became about the nature of reclamation. Within the proposed Sacramento Drainage District, Chapman owned ten thousand acres. He contended that without flooding, alkali would build up and ruin his lands. According to Chapman, not only would flood control destroy his pasturage business, but it would also render the land unusable for any other purpose, including fruit growing.[83] Chapman challenged the notion that the proper application of science and engineering could transform the barren lands of the Sacramento Valley into more profitable fruit lands. He also challenged the notion that the state needed to intervene to regulate and regularize risk in flood-prone areas. Chapman had already figured out how to accommodate flooding into his livelihood, and if reclamation was about "the bringing of that which was before useless into a condition of usefulness," then he had successfully reclaimed the lands.[84]

Chapman also highlighted the disturbingly rushed nature of the Dabney Plan's implementation. Quoting from the state engineers' report, the appellant noted that the plan for the drainage act was "originated and adopted with undue haste and without sufficient time and important data." Even the state engineer lamented that the commission had "labored under some

[82] "Ask State and Federal Aid for Rivers," *Sacramento Union*, May 22, 1907.
[83] Chapman vs Sacramento Drainage District, "Appellant's Reply Brief," 1634 Jos. M Anderson 82-83 (Cal.1908).
[84] Chapman vs Sacramento Drainage District, "Appellant's Reply Brief," 1634 Jos. M Anderson 82-83 (Cal.1908).

sense of oppression of the time available, and the lack of important data…" The appellant also pointed out that the state gave landowners no opportunity to question whether their land benefited at all. The state did not even investigate whether lands embraced by the district were in fact swamp and overflowed, yet the board would tax everyone in the district.[85]

The appellants argued that the board of commissioners was an unconstitutional and anti-democratic body, whose power included the ability to pass laws, whose membership was determined by wealth, and who in turn served the interests of wealthy landowners. The Sacramento Drainage District was not, the appellant insisted, a public entity serving a broader interest. They pointed out that private landowners operating for their own benefit would control the Sacramento Drainage District, and "in all matters pertaining to reclamation, swamp land, levees and protection of the districts" these landowners would be "supreme." They accused the Drainage District of serving the interests of the wealthiest landowners in the Sacramento Valley, a point highlighted by the fact that there was a property requirement in the voting for the board of commissioners. [86]

The respondents rejected these claims. The respondents argued that the board merely carried out a law passed by the legislature, and the carrying out of a law was an executive, rather than a legislative, function. In response to the claim that the board was oligarchic, the respondents fell back on the logic that since the legislature created the board on the advice of engineers, the board was a necessary and democratic institution. If farmers objected to reclamation plans, they should seek redress with the legislature, not from the courts.[87]

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[85] Chapman vs Sacramento Drainage District, "Appellant's Reply Brief," 1634 Jos. M Anderson 82-83 (Cal.1908).
[86] Chapman vs Sacramento Drainage District, "Appellant's Opening Brief," 1634 Jos. M. Anderson 70 (Cal. 1908).
[87] Chapman vs Sacramento Drainage District, "Respondents Points and Authorities," 1634 Jos. M Anderson 6-7 (Cal. 1908). This reasoning represented an ideology that Stephanie Pincetl calls "business associationism," which is the franchise state, "wherein the frontier between the public and the private sectors becomes uncertain," with public authority delegated to quasi-private bodies, such as boards and commissions. University-trained professional progressives believed that environmental reform, both urban and rural, was critical for the development and

The courts upheld the constitutionality of the Sacramento Drainage District Act in 1907 and again in 1908. Superior Judge G.W. Nicol ruled that since the state acquired lands under the Arkansas Act to promote reclamation, land purchasers accepted title in subordination of the state to reclaim, giving the legislature the power to modify systems of reclamation. Nichols further ruled that drainage and reclamation districts were public agencies "which would cease to exist" when the policy of the state no longer required them.[88] Justice Hanshaw of the state supreme court upheld the lower court rulings, affirming that the legislature possessed a fundamental right to tax specific lands in proportion to the estimate benefit those lands would receive.[89]

The Commonwealth Club, meanwhile, continued to insist on the infallibility of the Dabney Plan. At a 1909 meeting, Speaker Robert Devlin recounted how the attempts of the original swampland owners to protect themselves came at their neighbor's expense. He then claimed that a break on Evan's Ranch three miles from Sacramento caused the 1904 floods, a break that "a few bales of hay properly applied at the proper time" would have prevented. But that district was independent. Not only did Devlin neglect to mention how the data on the 1907 floods undermined the Dabney Report, but he also neglected to mention the 1907 floods at all. Instead, he reiterated that for complete reclamation, landowners had to stop operating piecemeal, else they "continue to create the evils" under which they had suffered. [90] He refused to acknowledge that flood control infrastructure based on the Dabney Plan could not have

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continued evolution of modern urban civilization. They allied with businessmen, who created good government leagues, and advised mayors, governors, and congressmen on reform. Both believed those with financial stakes possessed greater knowledge and therefore would serve in an objective way on boards and commissions. Stephanie S. Pincetl, *Transforming California: A Political History of Land Use and Development* (Baltimore: The Johns Hopkins University Press, 1999), xv, 26-35. See also Robert H. Wiebe, *Businessmen and Reform: A Story of the Progressive Movement* (Chicago: Ivan R. Dee, Inc, 1962).

[88] "Drainage Act Constitutional," *Colusa Sun*, July 23, 1907; "Under Fire of Courts," *Sacramento Bee*, November 11, 1908.

[89] "Drainage Act is not Unconstitutional," *Sacramento Bee*, March 25, 1909.

[90] Robert T. Devlin, "Address by Mr. Devlin," in *Transactions of the Commonwealth Club of California: Swamp Land Reclamation, Vol. IV* (San Francisco: Commonwealth Club of California, 1909), 292-297.

contained the flood of 1907 and would have constituted an even greater waste of funds than individual reclamation districts had already spent.

While court challenges delayed implementation of the 1905 act, California's politicians and special interests redoubled efforts to secure federal funding. In November of 1907, U.S. Senator Perkins, six congressmen, representatives of eighty chambers of commerce and boards of trade, and the Sacramento Valley Development Association attended a meeting about the San Joaquin and Sacramento Rivers. They intended to ask Congress for $15 million through the Rivers and Harbors Bill. William Hammond Hall criticized the federal government for only focusing on navigation in relation to existing commerce, which he believed allowed the worsening condition of the rivers.[91] In 1908, Governor J.N. Gillet went before the Rivers and Harbors Committee to request $400,000 from Congress which the California legislature would match.[92] The California Promotion Committee urged commercial organizations to lobby for the passage of a $400,000 appropriation bill. National interest groups also wanted to set precedents for greater federal funding. The National Wholesale Grocers Association passed a resolution calling attention to the danger of shortening food supplies through floods on the Sacramento and San Joaquin Rivers. The Trans-Mississippi Commercial Congress made similar calls. The Swamp, Overflowed, and Drainage Committee unanimously recommended passage of a $400,000, and in March the legislature appropriated the money.[93] In June of 1910 Congress appropriated $400,000 through the River and Harbor Act for dredging the Sacramento River.[94]

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[91] "Late Dispatches from River Improvement and Drainage Association," *Daily Colusa Sun,* November 12, 1907.
[92] "Californians Working Hard in Washington," *San Pedro News*, March 9, 1908.
[93] "Recommends River Bill," *Daily Colusa Sun*, January 28, 1909; "An Act to Provide for the Accomplishment of the Work of the Direct Improvement of the Navigation of the Sacramento, San Joaquin, and Feather Rivers," in *The Statutes of California and Amendments to the Codes Passed at the Thirty Eighth Session of the Legislature, 1909*, Chapter 147, (Approved March 10, 1909).
[94] "An Act Making Appropriations for the Construction, Repair, and Preservation of Certain Public Works on Rivers and Harbors, and for Other Purposes," *Statutes at Large,* 61st Congress, Part I., Chp. 382, June 25, 1910 [H.R. 20686.].

After the state appropriated its share of the money for dredgers, businessmen and bankers from San Francisco and Sacramento came together to raise money for securing rights of way. The largest contribution came from Captain A.E. Anderson of the California Transportation Company, with $5,000. Following the 1909 floods, they repudiated the Dabney Plan and created the San Joaquin and Sacramento River Improvement Association.[95] The Sacramento Valley Development Association, Sacramento Drainage Commission, California Miners' Association, and irrigation interests encouraged property owners to join their efforts in the new association.[96] In 1910 the Association had raised $100,000 and by their April meeting in 1911 they had raised $190,000 out of the $225,000 goal.[97]

As business interests raised money for the dredgers, the Sacramento Valley Development Association lobbied for more federal involvement in the construction of storage reservoirs. The chief hydrographer of the United States Geological Survey, W.O Leighton, told the Sacramento Valley Development Association that were was enough fine reservoir sites on the rivers for all the water necessary to produce an even flow year-round. He also assured them that President Theodore Roosevelt thoroughly believed in storage reservoirs.[98] Roosevelt thought that irrigation would lay down the platform for human progress, and it would have the same effect on internal policies as colonies would have. A preliminary report of the national Inland Waterways Commission in 1908 called for coordination of local, state, and federal governments in the development of canals, rivers, lakes, and ditches.[99] The *San Francisco Call* declared that the

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[95] Edward Insley, "$100,000 Contributed; River Work Assured," *Sacramento Union*, August 29, 1909.
[96] Karen O'Neil, *Rivers by Design: State Power and the Origins of U.S. Flood Control* (Durham: Duke University Press, 2006), 114.
[97] "River Plans in the Final Stage," *Sacramento Union*, April 29, 1911
[98] "Sands of Rivers Give Up Secrets," *Daily Appeal* (Marysville), July 30, 1907.
[99] [99] Ian Tyrell, *Crisis of the Wasteful Nation: Empire and Conservation in Theodore Roosevelt's America* (Chicago: University of Chicago Press, 2015), 109-110.

Sacramento Valley would be "the scene of the first great undertaking under the new policy for the conservation of natural resources." The Sacramento River could serve as an object lesson in the "co-ordinate development of a great region in respect to forestry, irrigation, flood control, and navigation and indirectly through flood control the reclamation of swamp and overflowed lands." W.A. Beard of the Sacramento Valley Development Association asked the Reclamation Service to consider a reservoir at Iron Canyon as its next great project, but Interior Secretary Garfield said they lacked the funds.[100] The Reclamation Service did, however, establish an office in Oakland and promised to survey the Sacramento Valley.[101] The Sacramento Valley Development Association backed a plan to create a commission appointed by the governor that would act in conjunction with a similar commission appointed by the president. These commissions would work on creating a law and legal plan for the conservation of water in the Sacramento Valley. They also advocated a department head that could coordinate the work of the Reclamation Service, the US Geological Survey, and the Army Corps of Engineers.[102] The Secretary of the Sacramento Valley Development Association prepared a resolution calling upon the director of the Reclamation Service to investigate new projects in the Sacramento Valley. The resolution stated that only irrigation could bring about the state's high productive possibility, and it was "beyond reach of individuals and corporations."[103] Marshall Diggs, the President of the Sacramento Valley Development Association (Will S. Green died in 1905), warned swampland owners that they would have to pay for any swampland reclamation. However, he believed that a commission made up of businessmen authorized to employ competent engineers operating along strictly business lines would obviate all contradictions and disputes. He also warned landowners

[100] "Flood Waters of Sacramento to be Stored," *San Francisco Call*, February 28, 1909.
[101] "Start Federal Valley Survey," *Sacramento Union*, July 14, 1909.
[102] "To Better Conditions of the Valley Rivers," *Daily Appeal* (Marysville), January 13, 1909.
[103] "Would Reclaim Land in the State," *Sacramento Union*, January 24, 1909.

that a drainage canal would not be sufficient for drainage and flood control. The state needed storage reservoirs.[104]

In 1910 the act establishing the Sacramento Drainage District expired. The 1905 act had a provision it would sunset if either the federal or state government failed to allocate their share of money for the Dabney Plan. The federal government would only allocate money if landowners agreed to bear the brunt of the cost. Throughout the Sacramento Valley, landowners refused to pay their assessments. Newspapers tried to discredit opposition by characterizing them as a movement of monopolistic landholders.[105] There may be some truth to that claim, but by the *Sacramento Union's* own account, about half of the property owners in Sacramento County withheld their payments. While large landholders (those who own one thousand acres or more) owned most of the acres in Sacramento County, they made up less than 6 percent of the total landholders.[106] Even if all the large landholders were holdouts, most of those withholding payments would still be smaller farmers. Four years of court delays and landowner intransigence deterred the federal government from committing money to the Dabney Plan, so the drainage act expired in 1910.[107]

The same year that the 1905 act expired the California Debris Commission released a comprehensive plan for coordinating drainage, navigation, and flood control in the Sacramento and Northern San Joaquin Valley. Captain Thomas H. Jackson, who left his post in Fort

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[104] "Tells of River Improvements," *Daily Colusa Sun*, February 26, 1909.
[105] "Only Few Days' Grace Remains," *Sacramento Union*, April 1, 1909.
[106] *Thirteenth Census of the United States Taken in the Year 1910, Volume VI, Agriculture 1909 and 1910, Report by States, with Statistics for Counties* (Washington: Government Printing Office, 1913), 151.
[107] *The Journal of the Assembly during the Thirty-Sixth Session of the Legislature of the State of California, 1905* (Sacramento: Superintendent of State Printing, 1905), 1578; *The Journal of the Senate During the Thirty-Sixth Session of the Legislature of the State of California, 1905* (Sacramento: Superintendent of State Printing, 1905), 1370; "An Act to Create a Drainage District to be Called "Sacramento Drainage District," in *The Statutes of California and Amendments to the Codes Passed at the Thirty-Sixth Session of the California Legislature 1905.* Chapter CCCLXVIII. (Approved March 20, 1905), 456.

Leavenworth in 1907 to take over the job from Major Wilson H. Harts as secretary and disbursing officer of the California Debris Commission, authored the report.[108] Jackson carefully reviewed prior proposals for flood control as well as the topography of the Sacramento River. He dismissed the Dabney Plan as impractical and cost prohibitive. Whereas Dabney had assumed that the maximum discharge of the Sacramento River was 250,000 cubic feet per second, the river's flow had reached 834,000 cubic feet per second during March of 1907. As the torrential nature of California storms meant that the peak discharge was very brief, Jackson considered the greatest four-day mean, or 530,000 cubic feet per second, as the target for a flood control system in the Sacramento River watershed. The capacity for the Sacramento River below Cache Slough near Suisun Bay would have to be about six hundred thousand cubic feet per second, and the rest of the water could be absorbed by or stored in channels, bypasses, and basins until the crest passed.[109] Jackson did not discuss the possibility of longer storms which kept flows at above six hundred thousand cubic feet per second for more than a day. The Dabney Plan contemplated widening the channel of the Sacramento River from an average of six hundred feet to a width of 1,200 feet. Modifying the Dabney project for six hundred thousand cubic feet per second would necessitate widening the Sacramento River to up to three thousand feet in some places. Jackson pointed out that this would ruin the lower water channel, as its width would make river flows too low during non-flood season. It would also require moving about 545 million cubic yards of dirt to tidal waters, injuring the Suisun Bay, and raising the flood plain at the mouth of the Sacramento River. Most importantly, it would cost four times as much as the original plan.[110]

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[108] "Captain Jackson to Relieve Major Harts," *Marysville Appeal*, February 3, 1907.
[109] *Reports on the Control of Floods in the River Systems of the Sacramento Valley and the Adjacent San Joaquin Valley,* (Washington: Government Printing Office, 1911), 35-36.
[110] *Reports on the Control of Floods,* 7-12.

Instead of the Dabney Plan, Jackson favored a bypass system like the one designed by Grunsky and Manson. However, the floods of 1907 and 1909 indicated the system would have to accommodate a flood discharge twice as high as contemplated by Grunsky and Manson.[111] The Jackson Plan provided for the drainage of basins by placing weirs at various points. It would straighten rivers to maximize their capacity and use embankments to form bypass channels that could rapidly deliver surplus water to the Suisun Bay. The plan entailed using five major basins, Butte, Sutter, American, Sacramento, and Yolo. These basins could hold over four-million-acre feet of water, equivalent to the amount of water that would cover over three million football fields a foot deep. Two of these basins, Sutter and Yolo, would have levees form channels, or bypasses, through their troughs. The Sutter bypass would run along the east side of the Sacramento River and drain at the confluence of the Sacramento and Feather Rivers. The Yolo bypass, starting at the confluence of the Sacramento and Feather Rivers, would run parallel on the west side of the Sacramento River. It would rejoin the river a few miles north of Rio Vista. The width of the bypasses would vary from 1.5 to 2.5 miles (eight-to-twelve-thousand feet). The most significant weir, at the head of the Yolo bypass and opposite the mouth of the Feather River, would be the Fremont weir, which would be eight thousand feet wide and thirty feet tall. It would be made of concrete and cost about one million dollars, more than all the other weirs combined. To ensure that these waters could be delivered to the Suisun Bay without overflowing again, the Jackson plan contemplated widening the Sacramento River at least two hundred feet, and deepening it to nine feet, starting at its mouth near Suisun Bay and going up the river fifteen miles.[112]

[111] *Reports on the Control of Floods,* 18-19.
[112] *Reports on the Control of Floods,* 102-103.

Though the Jackson Plan favored escapeways, it in principle only supplemented the Humphreys Thesis. As with every other flood control and drainage plan since the 1880 state engineer's report, the Jackson Plan emphasized the importance of a modernized levee system. The levees would still be expected to hold all the river's waters during ordinary high-water marks, allowing for the gradual deepening of the channel over time. Only during periods of extraordinary floods, such as those of 1907 and 1909, would bypasses operate. The plan specified that all levees in the valley should have a minimum ten-foot-wide crown width, with slopes of a three-to-one ratio, that is, three times as wide as they were tall. Levees would be raised to a height of three feet above the floodplain of thirty-five feet at the American River and forty feet at the Feather.[113]

Jackson proposed that landowners, the state, and the federal government evenly split the cost. Landowners would have to sacrifice some land. Jackson acknowledged that the Dabney Plan would allow for sixty thousand more reclaimed acres. However, the period of construction for his plan would be shorter and the cost sixty-five percent less.[114] The Jackson Plan prescribed 503 miles of river levees, 180 miles of bypass levees, and securing rights for bypasses paid by landowners under assessments levied by a reclamation board. Its total estimated cost was over $33 million.[115]

Passing the Jackson Plan was easier by 1910 than passing a comprehensive flood control scheme had been ten years earlier. In the first decade of the twentieth century, the Sacramento Valley had slowly become more diversified. It now contained hop vineyards, orchards, and asparagus as well as alfalfa lands valued as high as three hundred dollars an acre. Growers had

[113] *Reports on the Control of Floods*, 101.
[114] *Reports on the Control of Floods*, 23-25.
[115] *Hearings Before the Committee on Flood Control, House of Representatives, Sixty Fourth Congress, First Session on Floods of the Sacramento River, April 5, 1916* (Washington: Government Printing Office, 1916), 25.

already reclaimed over two hundred thousand acres. Control of floods would reclaim an additional four hundred thousand acres, but the estimated value of the newly reclaimed lands was only 150 dollars an acre. In other words, settlers had already reclaimed the most valuable lands in the Sacramento Valley, but flooding continually threatened these lands. The floods of 1904, 1907, and 1909 had caused at least eleven million dollars in damages, which would only get worse without some general scheme of control.[116]

The rise of progressive Republicans also facilitated passage of a flood control bill. Hiram Johnson's gubernatorial campaign revolved around breaking the monopolistic power of the Southern Pacific Railroad. He appealed to rural counties which transported their products on Southern Pacific Lines but rarely received favorable rate discriminations. A plan improving river navigation could challenge the Southern Pacific Railroads domination of transportation. Anger at the Southern Pacific Railroad allowed progressive Republicans to take over California's government, and in just the first week of the 1911 session, Republican legislators referred 156 senate and 159 assembly bills to committees.[117] The Republican senate and assembly unanimously approved a law creating a state reclamation board to carry out the Jackson Plan.[118] On December 24, 1911, Hiram Johson signed into law "An Act Approving the Report of the California Debris Commission," which created the Sacramento River Flood Control Project.[119]

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[116] *Reports on the Control of Floods*, 7-12.
[117] Spencer C. Olin Jr, *California's Prodigal Sons: Hiram Johnson and the Progressives, 1911-1917* (Berkeley: University of California Press, 1968), 20-35.
[118] *The Journal of the Assembly During the Thirty-Ninth (Extra) Session of the Legislature of the State of California, 1911* (Sacramento: Superintendent of State Printing, 1912), 352; *The Journal of the Senate During the Thirty-Ninth (Extra) Session of the Legislature of the State of California, 1911* (Sacramento: Superintendent of State Printing, 1912), 97.
[119] "An Act Approving the Report of the California Debris Commission," in *The Statutes of California and Amendments to the Constitution Passed at the Extra Session of the Thirty-Ninth Legislature, 1911,* Chapter 25, (Approved December 24, 1911).

6. Battles over Conservation and Reclamation, 1912-1920

Following the passage of the Jackson Plan, corporate speculation and jockeying delayed progress on the Sacramento River Flood Control Project. The West Sacramento Land Company started erecting a levee that ran directly north and south through the middle of the Yolo basin bypass survey.[1] According to the *Sacramento Union*, the West Sacramento Land Company told the government that it should change its survey to conform to the plans of the land survey. The *Union* warned that if all private enterprises assumed the same attitude toward reclamation, they would render the survey useless.[2] The *Colusa Sun* added that if other companies followed the West Sacramento Land Company's example, the cost of the river control project could indefinitely expand. Far-seeing corporations could grab cheap lands most benefited by reclamation, forcing the state to buy them at enhanced values.[3] In 1912, the Netherlands Land Company urged the Reclamation Board to move the Yolo bypass eight thousand feet west, which would have increased the size of the Netherlands District by four thousand acres. The company threatened to abandon the entire twenty-thousand-acre project if the state did not accede to their demands.[4] The Reclamation Board confessed that they had to move the Yolo bypass because "private reclamation had encroached on the lines of the by-pass before creation of power in this Board to prevent it."[5] Corporation speculation threatened to put the state in charge of protecting lands of private capitalists at taxpayer expense. Moreover, the movement of the bypasses to avoid corporate lands endangered the lands of local settlers.

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[1] "Cheney Says State Must Act," *Weekly Colusa Sun*, November 14, 1911.
[2] "Must Control Reclamation," *Sacramento Union*, November 13, 1911.
[3] "Cheney Says State Must Act," *Weekly Colusa Sun*, November 14, 1911.
[4] "Yolo Basin Bypass Project Held Up," *Sacramento Union*, December 21, 1912.
[5] *Report of the Reclamation Board of California, 1914* (Sacramento: Superintendent of State Printing, 1914), 5.

Nevertheless, the Reclamation Board mostly welcomed encroachment of private capital on bypass lands. They viewed their relationship with private capital as symbiotic. With the promise of a permanent flood control plan, there would finally be incentive for private companies to attempt "the more dangerous reclamation in the great basins." At a meeting in November 1912, the Reclamation Board heard presentations about the completion of private reclamation projects in the Sutter and Yolo Basins. For two projects in the Yolo Basin, the Reclamation Board highlighted that they would complete, "without cost to state or nation," the "east levee of Yolo Basin in entire length—thirty miles from its opening at the mouth of the Feather River down to the tide water." But companies operating in the Yolo Basin would only build these levees if the Reclamation Board moved the bypass 1,500 to 3,000 feet to the west so that it would not pass through these reclamation projects. The Reclamation Board reported favorably that by conceding to the demands of corporations, private capital would "find it to its interest to do much of the remaining work of levee and by-pass construction."[6]

In 1913, settlers got reforms for the Reclamation Board. The 1913 act added sixteen sections to the 1911 act, including the provision that the board could "do any and all things necessary or incident" to "carry out the objects specified herein." Under the 1913 act, the Reclamation Board could do more than just approve reclamation plans from private companies. It could compel construction by injunction, and it could impose liens and sell the lands of owners who failed to pay assessments. They based assessments on the estimated benefits that a settler would accrue from reclamation.[7]

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[6] "Private Capital Rushing Flood Control Project," *Sacramento Bee*, November 23, 1912.
[7] "An Act to Amend an Act Entitled 'An Act Approving the Report of the California Debris Commission'," in *The Statutes of California and Amendments to the Codes Passed at the Fortieth Session of the Legislature, 1913*, Chapter 170, (Approved May 26, 1913), 266-271.

Even with reforms and expanded powers, the board's need for funds discouraged it from wielding its new powers against corporations. This was evident in their attitude towards the Chicago meat packing corporation, J. Ogden Armour and Associates, which owned tens of thousands of acres in the Sutter basin. To preserve the maximum acreage of their lands, Armour wanted to move the bypass east. Moving the bypass would also mean fewer levees for Armour to build. Furthermore, if the levees broke, it would not be their lands inundated.[8] In February of 1913, Armour petitioned the Reclamation Board to change the location of the Sutter bypass.[9] Sutter residents of levee district no. 1 protested, but by giving Armour what they wanted, the Reclamation Board could avoid the tedious and often fruitless task of begging the federal and state government for money. It would also allow the board to avoid internecine political strife over appropriations that disproportionately or even exclusively benefited individual counties or sections of the state.[10] Legislators favored this setup. By a vote of 43-1 in the assembly and 34-0 in the senate, the legislature allowed Armour to create its own reclamation district, no. 1500.[11]

The Sacramento Valley Development Association defended this favoring of Armour. They argued that private capital made newly reclaimed lands available for settlers of "limited means." In a letter to the Board of Engineers for Rivers and Harbors, W.A. Beard, the general manager of the Sacramento Valley Development Association, praised Armour Corporation for reclaiming sixty thousand acres in the Sutter Basin on the right bank of the Feather River and the Natomas Consolidated Company for reclaiming seventy thousand acres on the left bank of the

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[8] "Reclamation Difficulties," *Marysville Appeal*, March 5, 1915.
[9] Ask Sutter By-Pass Change," *Sacramento Bee*, February 28, 1913.
[10] "Bypass Scheme Stirs Farmers," *Marysville Appeal*, March 20, 1913.
[11] *Journal of the Assembly During the Fortieth Session of the Legislature of the State of California, 1913* (Sacramento: Superintendent of State Printing, 1913), 1717; *Journal of the Senate During the Fortieth Session of the Legislature of the State of California 1913* (Sacramento: Superintendent of State Printing, 1913), 1178; "An Act Creating a Reclamation District to be Called and Known as 'Reclamation District No. 1500'," in *The Statutes of California and Amendments to the Codes Passed at the Fortieth Session of the Legislature, 1913*, Chapter 100, (Approved April 30, 1913. In Effect August 10, 1913).

river. He boasted that because of these activities, the Sacramento Valley was reaching a point in development "where small farms and intensive culture" were "taking place of the old time extensive and wasteful agriculture."[12]

At the federal level, congressional budgetary conservatives filibustered bills to fund the Sacramento River Flood Control Project. They believed it was not just a navigation project but also a reclamation project. A bill allocating $11 million for control of flood waters and reclamation of the Sacramento was rejected by the House Committee on Rivers and Harbors. This committee consisted of Democrats "pledged to the traditional policy of economy of the Democratic Party."[13] The Chairman of the Rivers and Harbors Committee, Stephen Sparkman of Florida, rejected the idea of river work for purposes other than navigation. He sent the river plan of the California Debris Commission back to the Chief of Engineers with instructions to strip out projects that provided no benefit to navigation, namely, the flood bypasses.[14] A small group of Senate Republicans who wanted to curb excesses associated with the waterways commission also increasingly filibustered and obstructed passage of rivers and harbors bills[15]

The California Debris Commission's 1913 report claimed that because of extensive reclamation, landowners could and should stand a larger share of the total cost of the project than originally proposed. They stated that private capital could "be depended upon to carry out certain elements of the project under a general supervision only as to the location and capacity of the river and overflow channels to be provided." In other words, the role of government agencies was to provide investors with the correct topographic and climatic data needed to construct

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[12] "Beard Writes on Improvement of Feather," *Marysville Appeal*, April 28, 1914.
[13] H.M. Leete, "Hopes for River, not for Colonel," *Sacramento Union*, February 28, 1912.
[14] Karen O'Neil, *Rivers by Design: State Power and the Origins of U.S. Flood Control* (Durham: Duke University Press, 2006), 118.
[15] Matthew T. Pearcy, "A History of the Ransdell-Humphreys Flood Control Act of 1917," *Louisiana History: The Journal of the Louisiana Historical Association* 41, no. 2 (2000): 143, http://www.jstor.org/stable/4233654.

proper levees. They reduced the federal government's proposed share of the cost from $11 million to $5.86 million, or one-sixth of the total.[16]

Another source of opposition came from conservationists. In 1914, Senator Theodore Burton of Ohio attacked the Sacramento River Flood Control Project in a Senate debate on the rivers and harbor bill, and again in Munsey Magazine.[17] He excoriated the project for violating the principle of conservation, since it allowed flood waters to flow to the sea instead of storing them for irrigation and power. Nevada Senator Francis G. Newlands was the most vocal critic of the Sacramento River Flood Control Project. In a statement before Congress, Newlands declared that "the conservation policy requires…the reclamation of arid land and utilization of these waters so that not a drop of wasted water [would] run into the ocean." George Maxwell also opposed the Sacramento River Flood Control Project. He wanted to soak the San Joaquin Valley with flood waters from the Sacramento and Feather Rivers to furnish subterranean supplies for plumping plants. He warned that without infusions of Sacramento flood water, San Joaquin Valley farmers would eventually exhaust their underground supply. Maxwell and Newlands backed a bill, the Newlands-Broussard Bill, which would have provided $50 million for irrigation in California.[18]

Proponents of the Sacramento River Flood Control Project, most notably Reclamation Board President V.S. McClatchy, opposed storage reservoirs. Though McClatchy praised aspects of the Newlands Bill, he believed that "the value of storage reservoirs as a means of flood control" had "been very much over-estimated." He noted that the Sierras could not hold more

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[16] "Exhibit E. Report California Debris Commission, 1913 (Modification of Major Project)," in *Sacramento River Floods, Hearings Before the Committee on Flood Control, House of Representatives, Sixty-Fourth Congress, First Session on Floods of the Sacramento River, April 5, 1916* (Washington: Government Printing Office, 1916), 130-135.
[17] "Attack on River Plan," *Sacramento Union*, July 10, 1914.
[18] "Curry Favors Newlands Bill," *Stockton Daily Independent*, December 12, 1912.

than 20 percent of a flood equivalent in magnitude to the 1907 and 1909 events. More importantly, he feared that the Newlands Bill would replace the California Debris Commission and the Reclamation Board with a national commission. Setting up such a commission, and devising a national plan, could delay work a decade. He called the Sacramento River Project the "only plan that [was] practicable." The California delegation told Senator Newlands that they would not support his bill. As a concession, Newlands amended his bill to leave Sacramento River flood control permanently under the supervision of the California Debris Commission and the State Reclamation Board. Despite these concessions, the Reclamation Board still announced that it opposed the Newlands Bill and urged Congress to exclude the Sacramento River Flood Control Project from it.[19]

Support for storage reservoirs and irrigation canals was popular in the arid San Joaquin Valley. At a waterways convention held in Stockton, delegates lamented that seven million acres of land in the San Joaquin Valley and foothills lacked enough water for intensive agriculture. One speaker suggested making the state of California one water district and replacing the Reclamation Board with a board of engineers consisting of surveyors from each county, as well as city engineers. Under this plan, any county surveyor would be able to demand work from the board.[20] At a meeting of the Sacramento and San Joaquin Drainage Defense Association, attendees claimed reservoirs could reduce the amount of flood water the levee system would have to handle. Former government engineer D.W. Ross argued that by allowing so much water to pass from the Sacramento Basin into the Sacramento San Joaquin delta, the Sacramento River Flood Control Project would damage reclaimed lands in the delta.[21]

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[19] "Reclamation Board Opposes Newlands Bill," *San Francisco Call,* April 23, 1914.
[20] "Co-Ordinating Water Problems," *Pacific Rural Press,* November 28, 1914.
[21] "Flood Control is Discussed at Sacramento," *The Marysville Appeal,* August 1, 1915.

While federal funding and approval stalled, farmers protested the seeming acquiescence of the Reclamation Board towards corporate interests. At a meeting in August of 1914 held by the Sacramento Valley Development Association, District Attorney Lawrence Shilling argued that the eastern location of the bypass in Sutter County menaced ordinary farmers. By moving the bypass east of the basin's trough, the Reclamation Board created a potential for flooding in the eastern half of the basin which hitherto had not existed. If a levee broke on the east side of the bypass, waters from Colusa Basin would flow into the eastern part of Sutter County. The Sacramento Valley Development Association appointed a three-person commission to find a compromise between Armour and landowners in Sutter County.[22]

In 1915, farmers from the counties of Sutter, Yuba, Butte, Colusa, and Yolo joined to formally challenge the Reclamation Board's decision to move the Sutter bypass from the trough of the Sutter Basin, as proposed by the Jackson Plan, to a more eastern location. Before a meeting of 750 people, representatives openly and defiantly denounced the Reclamation Board's plans. Superior Court Judge K.S. Mahon of Sutter Country claimed that the change was at the behest of Armour (this was not officially known at the time). The representatives said they did not want to pay $2 million and endanger their homes and towns for the benefit of an eastern (technically Midwest) corporation and for eastern capital. Members of the Reclamation Board declined to attend. The representatives sought injunctions in the Superior Court of Sutter County before Judge Emmet Seawell.[23]

Proponents of the revised bypass plan caricaturized the opposition. The *Sacramento Union* asserted that the farmers understandably but selfishly just did not want to convert any of their property into a waterway. But, the *Union* lectured, it was not to the interest of the state "to

[22] "Association did not Endorse Project," *Marysville Appeal*, August 19, 1914.
[23] "Counties Unite to Oppose By-Pass," *Sacramento Union*, March 6, 1915.

permit the fears of the people of one section to prevent the completion of a great system of flood control" which aimed "to bring into cultivation great tracts of land now useless."[24] They ignored that Sutter County farmers supported the original bypass location. Moreover, the appeals to state and public interest masked private interest. The *Marysville Appeal* countered that the eastern bypass increased risk for farmers in Sutter County. No matter how much precaution the Reclamation Board took, and no matter how firm they built the levees, there was always a probability that the levees would break.[25]

[24] "Big Reclamation Problem," *Sacramento Union*, March 8, 1915.
[25] "You Can't Blame Sutter County," *Marysville Appeal*, March 10, 1915.

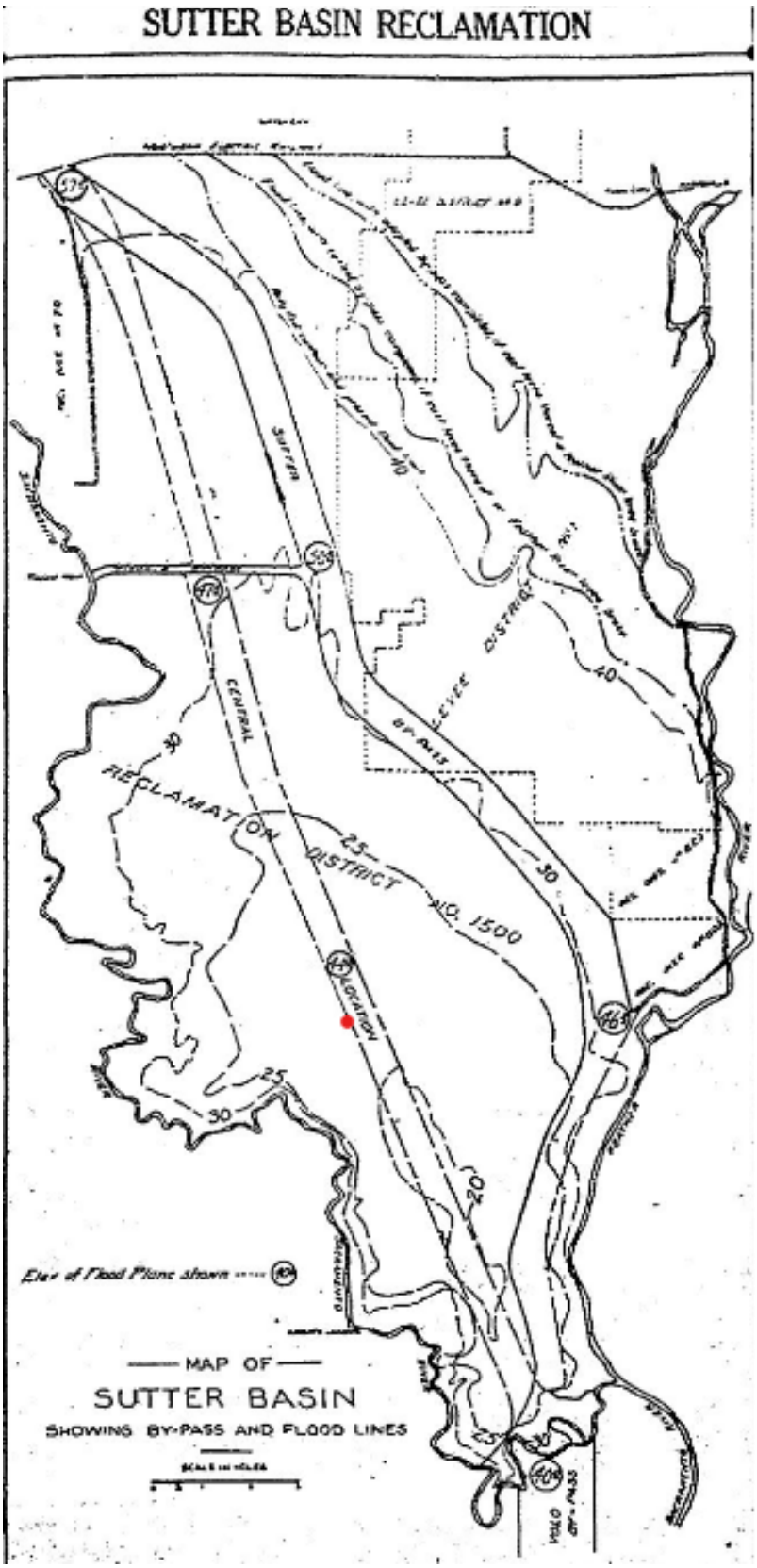

Figure 11. "The Sutter Basin Problem," *Sacramento Bee*, March 31, 1917.

These concerns did not sway the proponents of the eastern bypass. After a meeting in the state senate, which began at eight and lasted until one in the morning, the *Sacramento Union* mocked protesters for wasting "60,000 odd words and five hours in futile oratory." To the fear that a break in the eastern bypass could quickly destroy thousands of acres in the deltas of both the Sacramento and San Joaquin Rivers, the attorney for Reclamation District no. 1500 retorted that this was "purely a question of engineering skill." He added that if they were "not willing to accept the decision of these engineers," they were "seeking to make the state reclamation board a farce and a delusion."[26]

In September of 1915, the Sutter Drainage District, comprising fifteen thousand acres, filed an injunction against Reclamation District no. 1500 to stop them from building a levee across Yuba City Slough.[27] Landowners also challenged the constitutionality of the Reclamation Board. The Reclamation Board insisted that the construction of the Sutter Basin levees would not raise the floodplain, but Judge Emmet Seawell reasoned that the ordering of the construction of the eastern levees of the Sutter bypass to protect district no. 1 was a virtual admission that the levees would raise the floodplain.[28] The state supreme court, however, nullified the injunction. They ruled that the liable property belonged to the state. Nevertheless, the suits and injunction delayed progress on the bypass. In its 1916 report, the Reclamation Board revealed that landowners and engineers had only constructed 9.47 out of 193.7 miles of bypass levee up to standard. Armour had planned to complete levees enclosing 63,735 acres, investing $2 million, but the suits and injunction delayed them.[29]

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[26] "Sutter Basin Protests Fail to Move Solons," *Sacramento Union*, March 30, 1915.
[27] "Third Injunction Complaint Filed," *Sacramento Union*, September 16, 1915.
[28] "Sutter 'By-Pass' Decision Given," *San Jose Mercury Herald*, March 3, 1916.
[29] *Report of the Reclamation Board of California, 1916* (Sacramento: 1916), 13, 26-27.

Congress appointed a consulting engineer, J.H. Dockweiler, to resolve the conflict. Dockweiler reported that a central bypass would require higher levees because of a depression below the level of the Fremont weir. He acknowledged that more land would flood from a break in an eastern bypass levee, but breaks would be less likely due to them being lower and shorter. He also noted that Armour had already spent money building levees, and it would cost them more to change the location.[30] W.T. Ellis, the former Marysville mayor and one of the three members of the Reclamation Board, excoriated the report. He protested that every engineer who had favored the central bypass "had practical experience and years of close observation of floods in the Sutter Basin." He also reminded readers that the policy of the California Debris Commission was for bypasses to follow the natural troughs of the basins.[31]

Settlers were not just upset about the location of the Sutter bypass. Some farmers rejected the board's assessment powers. About two hundred landowners in Glenn County organized a protective league and subscribed twenty cents an acre to fight the Reclamation Board's first assessment. They testified that overflow benefited their farms, and they could take care of their lands better than the Reclamation Board.[32] Attorneys for landowners representing one hundred thousand acres formed the Sacramento and San Joaquin Drainage District Defense Association. They wanted to remove the assessment and taxation powers of the Reclamation Board and prepared to file over three hundred suits. If they could not strip the board of its taxation powers, they at least hoped to replace a tax based on projected benefits with a uniform tax.[33] By July of 1915 the *Colusa Sun* reported that most small landowners had not paid their assessment.[34]

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[30] "East By-Pass is Favored in Report," *Sacramento Union*, July 6, 1916.
[31] "Ellis Criticises Engineer's Report," *Sacramento Union*, July 8, 1916.
[32] "Misunderstanding Cleared in Glenn," *Sacramento Bee*, May 28, 1915.
[33] "Association to Fight Tax," *Daily Colusa Sun*," June 28, 1915.
[34] "Many Property Owners Will be Delinquent," *Daily Colusa Sun*, July 14, 1915.

Some of these farmers turned towards a reservoir solution that would eliminate the Reclamation Board, and they launched an educational campaign to garner support. They were backed by assemblyman E.L. Sisson of Red Bluff, who was chairman of the Assembly Drainage, Swamp, and Overflowed Lands Committee. The Sacramento and San Joaquin Drainage District Defense Association, along with the Sacramento Valley Development Association, declared that a reservoir plan should be a higher priority than bypasses.[35]

Most concerningly for proponents of the Sacramento River Flood Control Project, President Woodrow Wilson, most of the secretaries of his resource agencies, and progressives in Congress supported a national waterways commission. Progressives wanted a more comprehensive system for flood control, and with it, an abandonment of the Army Corps of Engineers' levees only policy.[36] Under the Newlands Bill, the president and his resource cabinet members would sit on a national waterways council.[37] This bill was endorsed by the San Joaquin and Sacramento River Improvement Association, which was formed by owners of delta islands after the floods of 1909 broke levees in nearly half of the delta.[38]

Along with the Newlands Bill, conservationists favored a near decade old plan put out by the Reclamation Service in 1906 for the coordination of water conservation, water uses, and flood control in the Sacramento Valley. The Reclamation Service's 1906 report contained ten potential plans. Eight of those plans proposed a storage and diversion dam across the Sacramento River at Iron Canyon seven miles above Red Bluff. The highest dam proposed would be 134.5 feet above low water, would impound 700,000-acre feet, could irrigate 225,000 acres, and maintain a summer flow of 4,750 cubic feet per second. The report suggested that storage

[35] "Still Striving to Prevent Control of Valley Floods," *Sacramento Union*, August 6, 1915.
[36] Pearcy, "A History of the Ransdell-Humphreys Flood Control Act of 1917," 133.
[37] "National Boards to Put Through Flood Control Policy Suggested," *Sacramento Union*, April 5, 1916.
[38] "Favors Flood Control Bill," *Stockton Daily Independent*, April 18, 1916.

reservoirs would greatly simplify the drainage problems of the lower Sacramento Valley. It would allow, for instance, the control of ordinary flood waves. [39] Conservationists emphasized that nature "has been extremely liberal in providing the Sacramento watershed extensive mountain and foothill valleys with narrow outlets affording favorable dam sites." Reservoirs could also provide hydro-electric power, the "white coal" which could "never be exhausted." By standardizing summer flow, reservoirs would help navigation and reduce erosion. [40]

Conservationists also championed the Iron Canyon Project by appealing to the Sacramento Valley's volatile and unpredictable climate. Conservationists argued that this system could work well with bypasses, which they said were "adequate for the effective control of any flood which we have record," but which could still fail due to the "possibility of an unusual combination of circumstances that would give to us unprecedented flood heights." Thus, even with bypasses, a reservoir plan could still "retain its importance as a final factor of safety to the people of the low-lying areas."[41] In their 1914 report, the Reclamation Service noted that the bypass system was designed to handle the floods of 1907 and 1909. They doubted this was enough. The report stated that "experience since acquired" indicated the possibility that bypass designed for the 1907 and 1919 floods could still be inadequate to "prevent the overtopping of levees during great freshets." They recommended a larger margin of safety for the flood control system, which they believed the Iron Canyon Project could provide. To counter the argument that reservoirs could not handle great floods, they noted that in conjunction with the bypass, the reservoirs would not need to handle the entire flood flow. They would simply have to

[39] *Fifth Annual Report of the Reclamation Service, 1906* (Washington: Government Printing Office, 1907), 97.
[40] "Coordinate Development of Water Conservation, Water Uses, and Flood Control," *The Marysville Appeal*, June 24, 1915.
[41] "Coordinate Development of Water Conservation, Water Uses, and Flood Control," *The Marysville Appeal*, June 24, 1915.

complement the bypasses during the absolute peak of a flood. When waters overtop levees, crevasses often form that cannot be repaired until the waters subside. The temporary holding back of a part of a flood peak by reservoirs could mean the difference between success and failure of the levee system. As the report stated, "at the extreme flood peak even a few inches in water level" could "be of vital import." By reducing the size of the flood peak, reservoirs could also make floods less destructive. During the flood of March 1907, the waters of the Sacramento Valley flowed past Red Bluff at 204,000 cubic feet per second. The Reclamation Service estimated that a reservoir at Iron Canyon could have reduced that flow to one hundred thousand cubic feet per second. By flattening the hydrograph of the stream flow, the river would no longer have peaks which carry brush, uproot trees, and leave snags (tree trunks) in their wake.[42]

The Reclamation Service also countered concerns raised by the Army Corps of Engineers that any multi-use reservoir would be prioritized for irrigation. They asserted that the climate of California precluded that tradeoff. During the winter months, when plants did not grow, the reservoir could be kept empty for flood control. Given that melting snow supplied the Sacramento River through spring and summer, there would be plenty of water to fill up the reservoir even after keeping it empty from December to March. The Reclamation Service acknowledged that in 1898 water flows were too low to fill the reservoir and sustain the navigability of the Sacramento River. They waved off the concern about potential droughts, claiming that a drought every eighteen years was expected in irrigation practice. This was a surprisingly hubristic opinion. While they were fully cognizant of the possibility that future

[42] *Report on Iron Canyon Project by the Office of the Reclamation Service at Portland, Oregon, October, 1914*, 42-50.

floods could exceed the peaks of the 1907 and 1909 events, they assumed that precipitation patterns would always remain predictable within a ten-to-twenty-year period.[43]

Proponents of focused flood control programs in both the Sacramento and Mississippi Valleys united over fears that a grander system would delay action on the exceptional problems of their valleys. Proponents of the Sacramento River Flood Control Project specifically referenced the decades of inaction in the Sacramento Valley. Letter writers reminded the public that the Sacramento River Flood Control Project only came about after forty years of talk and experiment. Going in another direction could delay practical action indefinitely.[44] Supporters of expanding funding for flooding for river commissions in the Mississippi River Basin agreed. At the National Drainage Congress's sixth annual meeting in January 1916, speakers from the Sacramento and Mississippi Valleys argued that both basins had special problems that the federal government had neglected. Summarizing proceedings from the third National Drainage Congress, they declared floods equivalent to a foreign foe, which made controlling them the proper function of the federal government under the welfare clause of the Constitution. They also pointed out that swamps created malarial diseases which spread across state lines, further justifying and necessitating federal interstate programs for drainage and flood control. [45] Frederick Newell, the former director of the United States Reclamation Service, reminded attendees that Congress had spent $100 million building dams to catch and hold water under the premise of promoting the general welfare. For both health and safety reasons, he believed residents in swampland states deserved the same treatment from the federal government, but it

[43] *Report on Iron Canyon Project by the Office of the Reclamation Service*, 33-34.
[44] "Don't Risk Greatest River Improvements," *Pacific Rural Press,* April 1, 1916.
[45] *Official Proceedings of the Sixth Annual Meeting of the National Drainage Congress at Cairo* (1916), 29-38.

would take devoted men in the House and Senate who felt constant pressure from taxpayers and voters.[46]

V.S. McClatchy emphasized that the Sacramento Valley was unique in problems compared to any other river in the United States. In total flood volume, the Sacramento River is the fourth greatest in the United States, but its ratio of drainage to flood area is over five times as great as any other stream in the nation. He called the Sacramento River Flood Control Project "the greatest project in being or in contemplation in the west and one of the greatest in the United States." Another unique problem for the Sacramento River was mining debris, which entitled California to reparations from the federal government. The project was necessary to protect 750,000 acres of river lands whose annual product exceeded $30 million, as well as to reclaim an additional 750,000 acres he considered going to waste.[47]

Proponents of the Newlands Bill, on the other hand, argued that a national waterways council would accelerate progress on flood control by destroying "the pork barrel." Reflective of one strand of progressive thought which argued that the problems of industrial and urban society could be solved by expert control, they insisted that a waterways council would allow experts to handle navigation, reclamation, irrigation, power, and conservation at the same time.[48] The greatest obstacles to improvement of the Sacramento and San Joaquin Rivers, they contended, was the "constant efforts made by representatives of private interests to shape the work as to lead to their personal aggrandizement rather than to the common good."[49]

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[46] "Abstract of Address by F.H. Newell of Urbana, Illinois," in *Official Proceedings of the Sixth Annual Meeting of the National Drainage Congress at Cairo* (1916), 43.
[47] "Reclamation and Flood Control in California: Digest of Address by V.S. McClatchy of Sacramento," *Official Proceedings of the Sixth Annual Meeting of the National Drainage Congress at Cairo* (1916), 69.
[48] Samuel Hays, *Conservation and the Gospel of Efficiency* (Pittsburgh, University of Pittsburgh Press, 1999), 1-3.
[49] "A Shot at Home Rule on the Sacramento," *Pacific Rural Press*, April 15, 1916.

The Newlands Bill was debated in March and April of 1916 before the House Committee on Flood Control. This version of the bill, introduced every session since 1912, would have set aside $60 million annually for ten years. It also would have divided the country into eight districts. The Sacramento Valley would be in the eighth district, which comprised all watersheds draining into the Pacific Ocean from California. This district would have received $5 million a year for ten years. By 1916 both Republican and Democratic Platforms called for a complete and comprehensive treatment of the rivers. The secretaries of agriculture, interior, and commerce supported the bill. The Secretary of War opposed it. Proponents of the bill insisted that the it would not affect the Army Corp of Engineers' control over channel development, bank revetment, and levee building.[50] George Maxwell, who at this time was Executive Director of the National Reclamation Association, told the committee that northern Africa, Asia Minor, Mesopotamia, and immense areas of Arabia, Palestine, and Persia had been destroyed from a failure to conserve.[51]

A key aspect of the debate was the size of the bill. Francis Newlands recalled that Theodore Roosevelt said he would never be able to pass a bill over a million dollars and instead proposed using a single project as a demonstration that would garner support for more projects. Newlands said he did not want to risk the entire program on a single project, as engineers were occasionally wrong. Furthermore, he pointed to the Democratic platform, which explicitly called for a large fund for continuous work, Woodrow Wilson's preference for a big bill, and memorandums from the secretaries of the interior, agriculture, and commerce departments in

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[50] *Newlands-Broussard-Rainey River Regulation Bill, Hearings Before the Committee on Flood Control, House of Representatives, 64th Congress, First Session, on H.R. 13975, A Bill to Provide for Flood Prevention and Mitigation, and for the Storage of Flood Waters, and for their Beneficial Use for Irrigation and Water Power, and for the Control of Flood Waters in the Reclamation of Overflow Lands, and for other Purposes, March 31, April 1, 2, and 4, 1916, Part 1* (Washington: Government Printing Office, 1916), 5-7.
[51] *Newlands-Broussard-Rainey River Regulation Bill*, 9.

favor of the Newlands Bill. Newland warned that without immediate and systematic action, streams throughout the nation would fill with silt and more channels would become less certain and reliable as "nature's primal highways."[52]

Proponents of the Newlands Bill also emphasized that a national waterways commission was essential for preserving civilization itself. The destiny of all nations, they argued, was linked to the land. An ignored part of this development, they contended, was malarial diseases caused by swamp and overflowed lands. It forced population and human development to the middle latitudes and "arrested the development of regions and states for decades and generations." To get rid of the malaria-bearing mosquito, they had to reclaim the swamplands. More than the economic value of reclamation, it would increase the healthfulness of valleys. They could also extend the techniques of swampland reclamation beyond the United States, to the subtropics and tropics themselves, allowing the white race to "multiply manyfold the possibility of population in this old earth."[53]

In addition to arguing with conservationists, proponents of the Sacramento River Flood Control Project had to address confusion from several Congressmen as to why the Army Corps of Engineers proposed spillways as a means of relief for the Sacramento River when they had rejected them for the Mississippi River. California Congressman Charles Curry explained that the Sacramento River had a very different relationship to its watershed than the Mississippi. The Mississippi River Basin receives snow and rain year-round and drains into a massive watershed. The Sacramento River watershed receives almost all of its precipitation in four months, and per

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[52] *Newlands-Broussard-Rainey River Regulation Bill*, 183-189.
[53] *Newlands-Broussard-Rainey River Regulation Bill, Hearings Before the Committee on Flood Control, House of Representatives, 64th Congress, First Session, on H.R. 13975, A Bill to Provide for Flood Prevention and Mitigation, and for the Storage of Flood Waters, and for their Beneficial Use for Irrigation and Water Power, and for the Control of Flood Waters in the Reclamation of Overflow Lands, and for other Purposes, Statement of Lyman E. Cooley, March 31, 1916, Part 2* (Washington: 1916), 205-206.

square mile there is ten times as much water in the Sacramento River watershed as in the Mississippi River watershed. [54] If the Mississippi River had the same mass to discharge volume as the Sacramento River, the Mississippi would discharge twenty five million cubic feet per second instead of 1.77 million during an extreme storm.[55] Colonel H. Taylor confessed that the Army Corps of Engineers would have preferred a single channel system, but bypasses were cheaper. To build a levee only system, they would have to destroy all the currently existing levees and rebuild them. V.S. McClatchy disagreed that a levees-only solution was only less preferable because of cost. He told the committee that a levee-only system would require placing levees farther back, and the natural levees slopes further back lacked solid clay as found along riverbanks, increasing the likelihood of levee collapse.[56]

V.S. McClatchy also argued that the bypass system was necessary not just for flood control, but for navigation. During major storms, the river sometimes broke through its banks. As water velocity slowed downstream from the break, silt accumulated in the bed, causing the formation of bars. McClatchy noted that ocean freighters used to deliver cargoes at Sacramento, 125 miles from the sea. The Sacramento River Flood Control Project would simultaneously address the bars which had already formed in the river, as well as prevent the formation of future ones. By overseeing a systematic system of levees with a uniform crown of twenty feet, and protecting the water slope in many places with concrete or cobble to guard against wave action and winds, the velocity of water would scour the river bottom during ordinary high-water marks,

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[54] *Sacramento River Floods, Hearings Before the Committee on Flood Control, House of Representatives, Sixty-Fourth Congress, First Session on Floods of the Sacramento River, April 5, 1916*, 16-21.
[55] Charles F. Curry, "Flood Control of the Sacramento River," *Sacramento River Floods, Hearings Before the Committee on Flood Control, House of Representatives, Sixty-Fourth Congress, First Session on Floods of the Sacramento River, April 5, 1916*, 33.
[56] *Hearings Before the Committee on Flood Control, House of Representatives, Sixty Fourth Congress, First Session on Floods of the Sacramento River, April 15, 1916*, 9-28.

removing the bars and deepening the channel.[57] During flood events, drainage of excess waters into the bypasses would reduce the likelihood of breaks in the riverbanks. Restoration of the Sacramento River and its tributaries was also vital for the growth of commerce in many parts of the Sacramento Valley. In the swamplands, islands of peaty character could not support the heavy weight for railroad construction, bridges, and embankments.[58] Congressman Curry's report on flood control of the Sacramento River noted that river transportation could be as low as one-third the cost of rail.[59]

McClatchy also assured the committee that most of the levee construction was being paid by private companies such as the "Armour people," who had invested $2 million in the Sutter Basin and were building the portion of the west levee of the by-pass, which was the same as the east levee of their district. They assured the committee that private companies were opening lands for smaller settlers, not only by building levees and selling land, but through what they called a "welfare department" that advanced seed, tools, and farm animals to settlers.[60]

As for reservoirs, Curry and McClatchy argued that they would be expensive and ineffective. They estimated that storage reservoirs would cost two to ten times as much as a bypass system. As to the Reclamation Service's claim that reservoirs could serve as an auxiliary to bypasses, they countered that storage reservoirs were too high up in the mountains to capture much of the flood flow, as there was little rainfall above 4,500 feet in California. These reservoirs would be filled not by flood waters, but by melted snow after the danger of river flood had passed. Furthermore, wherever they located the reservoir sites settlers would have to be

[57] *Sacramento River Floods*, 50.
[58] *Sacramento River Floods*, 33-36.
[59] Curry, "Flood Control of the Sacramento River," 30.
[60] *Sacramento River Floods*, 39-40.

removed from their lands.[61] It is not clear whether they understood that floods are caused by a combination of rainfall and rapidly melting snow from the rainfall.

Supporting McClatchy was a report from retired Army Corps General H.M. Chittenden. Chittenden argued that reservoirs could never work as a flood control solution. Floods often came from multiple tributaries, but not all floods were caused by the same tributaries. Thus, reservoirs would have to be built everywhere and cover almost the entire watershed. Besides the cost of this solution, it would have increased danger, as dam failures were "not infrequent" and had "produced some appalling disasters." They were also a temporary solution, because over time reservoirs fill up with sediment. Beyond the issues of engineering and cost, he believed that private appeals usually prevailed over public sense of duty, and reservoirs would be operated more in the interests of irrigation than for flood control, especially during prolonged periods of low water.[62]

Chittenden endorsed bypasses, which he wrote that in principle were found in nature. His report stated that rivers naturally correct their own streams. Natural levees keep in waters to increase velocities of the channel, thereby deepening the channel. When waters overtopped levees, they left behind sediment that raised the levees so they could accommodate even larger storms in the future. Though he favored a single channel solution, he acknowledged that man-made levees required maintenance that sometimes exceeded the cost and difficulty of building them. Levees also suffered from major vulnerabilities. Overtopping could cause collapse or crevasses. Storm water below the levee could seep through the foundations. Over time waves from river traffic could erode levees. Seepage and sloughing could be prevented by covering the

[61] *Sacramento River Floods*, 22-23.
[62] H.M. Chittenden, "Flood Control—with Particular Reference to Conditions in the United States," in *Sacramento River Floods, Hearings Before the Committee on Flood Control, House of Representatives, Sixty-Fourth Congress, First Session on Floods of the Sacramento River, April 5, 1916*, 15-19.

levee slope with cement, but this was extremely costly.[63] For the Sacramento Valley, Chittenden asserted that the levee system involved "a radical departure from nature: the by-pass plan a close adherence thereto." Chittenden stated that the floods of 1907 and 1909 were not frequent enough to justify the cost of a levee system. He also expressed concern that a levee scheme, by relying on such deepening of the river channel, would lead to the filling up of the Suisun Bay, which eventually would cut the Sacramento Valley off from the Pacific.[64]

Senator Newlands denounced the bypass system at the Sacramento hearing. He claimed that the Sacramento and San Joaquin Valleys should be treated as one valley. The effect of the bypass system, he declared, was to hurry waters along to the San Francisco Bay "without putting them to any beneficial use." He told the committee that proper conservation policy would entail using those flood waters to reclaim the San Joaquin Valley, which was 2.5 times the size of the Sacramento Valley. Because of the San Joaquin Valley's aridity, 2.5 million of its acres were practically worthless. Despite claiming that a bypass system allowed water to wastefully flow to the ocean, he did not advocate for abolishing the Sacramento River Flood Control Project. Instead, he called for putting in place the machinery for immediately expanding into a reservoir system.[65] George Maxwell's statement echoed Newlands points. He acknowledged that it was not possible to impound all the water from the Sacramento Valley in reservoirs, but they could take water out of the Sacramento and Feather Rivers during floods and move it down through canals to the San Joaquin Valley, soaking the lower valley as to furnish underground supplies for pumping plants.[66]

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[63] Chittenden, "Flood Control," 20-25.
[64] Chittenden, 41-42.
[65] *Sacramento River Floods*, 42-46.
[66] *Sacramento River Floods*, 50-51.

As conservationists battled with the Reclamation Board, the state also investigated colonization schemes. These investigations were sponsored by the University of California, Stanford University, the State Commission on Colonization and Rural Credits, and the Commonwealth Club of California. They were carried out by Elwood Mead, who had been concerned that federal reclamation focused too much on dams and canals and not on the farmers themselves.[67] The *Report of the Commission on Land Colonization and Rural Credits* warned that "nonresident ownership and tenant farming" were "politically dangerous and socially undesirable."[68] It also looked askance at "ignorant and nomadic farm labor." The chief cause of growing tenantry, nomadism, and absentee ownership, according to the report, was the failure of the state to implement a land settlement policy, leaving subdivision to "unregulated private enterprise." Non-residents owned great properties cultivated by tenants or by nomadic and unsatisfactory hired labor. Even most settlers needed to supplement farm earnings with wages. The origins of this crisis, according to Mead, was the decline of the wheat industry in the late nineteenth and early twentieth century. As the wheat industry struggled, real estate speculators amassed vast stretches of land for exceptionally low figures. Speculators found California especially appealing because "in rural advantages and attractions" the state stood alone. Speculators could buy a wheat ranch for seven dollars an acre, organize a syndicate and sell to this syndicate for one-hundred dollars an acre. The syndicate would then subdivide the land and sell it to settlers for two-hundred dollars an acre. Speculators bought up most of this land, driving up prices.[69]

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[67] Donald J. Pisani, *From the Family Farm to Agribusiness*: *The Irrigation Crusade in California and the West, 1850-1931* (Berkeley: University of California Press, 1984), 445.
[68] *Report of the Commission on Land Colonization and Rural Credits of the State of California* (Sacramento: Superintendent of State Publishing, 1916), 5.
[69] *Report of the Commission on Land Colonization*, 50-53.

For Mead, the solution was a comprehensive state policy to attract settlers. But it could not attract any kind of settlers. As Mead emphasized, the character and ability of settlers was more important than number. He claimed that the first settlers of California were "a superior body of men and women, enterprising, intelligent, and patriotic." But Mead characterized California tenant communities, made up "almost entirely of Asiatics," as lacking any interest in community needs. According to Mead, they maintained "their racial indifference and aloofness." For American settlers they posed a problem because they supposedly paid high rents willingly. Mean noted that in addition to tenancy and absentee landlordism, large landowners were a problem. In one district a single company owned sixteen ranches and only rented these ranches to Japanese immigrants. The houses were left vacant, and the soil condition was deplorable. Tenants would cultivate the land until it was unprofitable and then move on. Children of tenants were constantly moving, and there was no neighborhood solidarity. Supposedly, large landowners held a "deep-seated prejudice against American and other white farm laborers."[70]

Mead viewed only the state as capable of rescuing California's rural farm sector. He emphasized that state aided settlement had everywhere "been remarkably successful." He advised California to focus less on industrial efficiency and "productive values," and more on "residence values." Farm homes, in other words, would exist not to make money, but as "an opportunity" for those who had money "to get the most out of life." The state would have to establish a system of land credits, and this system would have to allow for small initial payments, organized construction of farm improvements such as levees and ditches, and long-term payments for loans. Mead recommended twenty-to-thirty-year terms for repayment of land loans, a maximum of 5 percent interest, amortized payments, and after the initial payment no further

[70] *Report of the Commission on Land Colonization,* 57-62.

payment on principal for the first two years. He also suggested the state make commercial demonstrations on a scale of ten thousand acres.[71] He noted that in the San Joaquin and Sacramento Valleys, "all agricultural development" would "in time be bound together by a common dependence on streams." In other words, he viewed the construction of storage reservoirs as essential to the rehabilitation of California's rural sector.[72]

The Sacramento Valley Development Association opposed Mead's proposals. They agreed with Mead that tenant farming, landlordism, and absentee ownership were "distinct evils viewed from the standpoint of community welfare." But they disagreed with his recommendation for state supervision over rural colonization. State supervision, they contended, would "be at the expense of competition, in violation of the rule of the survival of the fittest." They claimed that "the best solution of the problem of settlers of limited means" lay in "advance preparation of land." Development of land, they insisted, would lead to independent citizenship, and the best agency through which development should take place was "the same development taken in the past, by colonization companies and land selling companies."

The Sacramento Valley Development Association flipped the usual conflation of monopoly with racial peonism. In their narrative, capitalist development created conditions for citizenship and social opportunity. As for state policy, they recommended a bill that would punish companies which misrepresented the character of their lands, and that would certify the soil, water supply, and other physical conditions submitted to county boards of supervisors for approval of a land subdivision project.[73] Notably, they connected the Reclamation Board and state flood control plan with Mead's proposals. At the same time the Sacramento Valley

[71] *Report of the Commission on Land Colonization,* 80-85.
[72] *Report of the Commission on Land Colonization,* 54.
[73] "Land Colonization Subject to State Supervision is Opposed," *Sacramento Union,* January 21, 1917.

Development Association came out "unequivocally" in support of the Reclamation Board, they denounced Elwood's Mead's proposal for a land settlement board.[74] For the Sacramento Valley Development Association, the goal of promoting small farms operated by white settlers only required the state enforce a uniform flood control scheme, but private enterprise could handle all development and reclamation.

San Francisco businessmen and reformers, however, supported the colonization plan, and the legislature passed a bill written by the Commonwealth Club that incorporated most of Mead's recommendations. The legislature allocated $250,000 to launch the program. The first site chosen was a 6,239 acres tract at Durham in the middle of the Sacramento Valley. Unlike the uniform size of farms found on federal projects, the 110 units at Durham varied from eight to three hundred acres, depending on whether the land was best suited for forage or fruit. When the first settlers arrived, they found roads, irrigation ditches, barns, houses, and fences. As important as the infrastructure, Durham was supposed to contain the "right" kinds of people. The land settlement board sifted through one thousand applications, accepting only those with some agricultural experience and a minimum of $1,500 of capital. They preferred married men with families. It was to be the first experiment in state-led colonization for the purpose of promoting small farms of white settlers.[75]

The state also held a Water Problems Conference in 1916 to resolve various conflicts over reclamation and conservation. The act calling for the conference declared that the water

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[74] "Flood Control Plan Endorsed by Valley Development Association," *Sacramento Union*, March 18, 1917.
[75] Pisani, *From the Family Farm to Agribusiness*, 444-445. For general works on the state colonization schemes, see F.L. Tomlinson, "Land Reclamation and Settlement in the United States," *International Review of Agricultural Economics* 4 (1926): 255-272; Roy J. Smith, "The California Land Settlement Board at Durham and Delhi," *Hilgardia* 4 (1943): 399-492; Gerald D. Nash, *State Government and Economic Development: A History of Administrative Policies in California, 1849-1933* (Berkeley: Institute of Governmental Studies, 1964), 344-347; James R. Kluger, "Elwood Mead: Irrigation Engineer and Social Planner" (Ph.D. diss., University of Arizona, 1970), 105-134.

problems of California were "greater in number and greater in magnitude" than were "found in any other state in the union." Legislators believed that an absence of state policy and growth in consequence of "independent rights and antagonistic interests" exacerbated California's water problems. Of particular importance was reconciling the principle of conservation, which stared "aghast at the economic waste involved in permitting floods to run unused to the sea," and more limited visions of reclamation, which found itself "facing steadily rising floods." Conference delegates aimed to craft a long-term plan. They acknowledged that it would take at least fifty years to build a perfect organization.[76] Though the State Water Problems Conference recommended a more limited flood-control scheme over conservationist reservoirs, it sought to limit private property rights. While acknowledging the need to secure "use of the water resources of the state by private interests," they averred the principle that the state should at any time be able "to assume complete control and ownership." This would take the form of "enforcement by state authority" over the plans of individuals and districts.[77]

The conference recommended expanding the powers of the Reclamation Board over the entire state and giving it "sole and very full powers in all matters of flood control, reclamation as connected with flood control, and drainage, with supervision of dams." They noted that of the four big flood control problems of California (Colorado River floods, Los Angeles River floods, and San Joaquin River floods), only that of the Sacramento had an exhaustive engineering investigation, detailed planning, and continued progress under cooperation of national and state commissions. They also emphasized that the Sacramento Project was a flood control project, "but in providing for flood control and thereby preserving navigation it incidentally directly" reclaimed "a great deal of rich lands." They warned that dams or flood control would conflict

[76] *State Water Problems Conference: Report, November 25, 1916* (Sacramento, 1916), 8-14.
[77] *State Water Problems Conference*, 15-18.

with dams for irrigation and energy, and that for the present time, other means had to achieve flood control.[78]

Settler discontent intensified after assemblyman Lee Gebhard introduced a group of bills intended to carry out the recommendations of the Water Problems Conference, including extending the power of the Reclamation Board over the entire state.[79] Landowners from thirteen counties organized themselves into the Reclamation Protective Association. They sought to give landowners power over taxation.[80] The secretary of the Reclamation District Protective Association, Edgar F. Hunter, expected 80 percent of all landowners in thirteen counties to sign petitions against a state board.[81] Ninety percent of Glenn County owners signed, and by March of 1917 owners of nine hundred thousand acres signed on to fight the Reclamation Board. They championed a bill allowing each county to vote on abolishing the Sacramento and San Joaquin Drainage District.[82] Commercial organizations such as the San Francisco, Oakland, and Stockton Chambers of Commerce backed the Reclamation Board. They warned that abolishing the board could imperil federal appropriations.[83] After the state supreme court ruled that the construction of levees under general state policy came within the scope of the police powers of the state and nation, thereby making the existence of a reclamation board constitutional, membership in the Reclamation Protective Association swelled to represent one million acres.[84]

At the 42nd session of the California legislature, debates revolved around who exactly was the side of capital and who was on the side of settlers. Opponents of the eastern Sutter

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[78] *State Water Problems Conference*, 26, 47, 69-71, 86-87.
[79] "State Flood Board Urged in Measure," *Sacramento Bee*, January 23, 1917.
[80] "Landowners Organize for Big Fight," *Sacramento Union*, February 9, 1917.
[81] "Farmers Unite in Their Opposition," *Sacramento Union*, February 26, 1917.
[82] "Owners of 900,000 Acres of Land Sign to Fight Reclamation Board," *Sacramento Union*, March 6, 1917.
[83] "Stockton Commerce Chamber Fights Proposed Abolition of State Reclamation Board," *Sacramento Bee*, March 6, 1917.
[84] "Control of Flood Wins in Courts," *Chico Record*, March 15, 1917; "Owners Line Up Against Drainage," *Merced County Sun*, March 16, 1917.

bypass location claimed they protected the homes, churches, schools, and fruit orchards of small settlers in Butte and Sutter County against eastern capital.[85] Reclamation board supporters countered that the reforms championed by the Reclamation District Protective Association, most notably an acreage vote on the retention of the Reclamation Board, would allow one hundred large property owners to override 55,000 holders of smaller properties. The Sacramento Retail Merchants Association, Yolo County Board of Supervisors, the Sacramento River West Side Levee District, the Sacramento Chamber of Commerce, and seventeen organizations total from Sacramento and Yolo County favored the continuation of the Reclamation Board. Four reclamation districts signed their petition, as well as the Oakland and Stockton chambers of commerce.[86]

The legislature compromised by passing a bill terminating the employment of the existing members of the board and making two of the three positions on the board members of existing commissioners or departments. Some felt changing the board and hiring people independent of it for salary and employment might mollify ill feelings. Senator Duncant of Butte, who represented Sutter County farmers, declared that peace would never prevail until they wiped out the present board. He deemed it a contest between small farmers and land speculators. A few senators denounced Duncant's incendiary rhetoric, complaining that it was "not right to invite capital into California and then treat it" as he was treating the owners of District 1500. Others defended him, explaining that it was a matter of safety, as an eastern bypass threatened to inundate homes, churches, and schools.[87]

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[85] "Opponents of Reclamation Board Win," *Sacramento Bee*, April 24, 1917.
[86] *Journal of the Assembly During the Forty-Second Session of the Legislature of the State of California, 1917*, (Sacramento: Superintendent of State Printing, 1917), 756-757, 828.
[87] "Opponents of Reclamation Board Win," *Sacramento Bee*, April 24, 1917.

To further appease opponents, an amendment was added to the Gebhardt bill which mandated that the Sutter Basin bypass would not be flooded until it had been completed in its entire length.[88] The Reclamation District Protective Association also wanted to move the Sutter bypass back to the central location. This effort failed in the assembly by a vote of 42-28.[89] However, reclamation board proponents reduced opposition by allowing Glenn County and three townships in Butte County to leave the Sacramento and San Joaquin Drainage District.[90] Ultimately, Governor Stephens pocket vetoed the bill. He explained that he did not want to set a precedent for excluding lands from the drainage district.[91]

California finally secured federal funding for the Sacramento River Flood Control Project in 1917. Mostly, this was not a triumph of California's lobbying, but of advocacy from national flood control and drainage organizations, as well as the circumstances of increasingly devastating floods and increasingly interventionist government during World War I. After floods in 1916 along the Mississippi River, the National Drainage Congress held their second convention, which attracted one thousand delegates from thirty states.[92] The Mississippi River Levee Association initiated a massive letter-writing campaign, delivered lectures across the country, and spent $50,000 to distribute photos, movies, maps, and charts. The devastating 1916 flood secured congressional support. Even Francis Newlands agreed not to filibuster a flood-control bill if the Senate voted on an amendment to add an inland waterways commission. This amendment fell two votes short of passing. Wilson nearly vetoed the bill because of its omission of a waterways commission. It is not clear why Wilson changed his mind, but historians speculate that Wilson

[88] "Hot Scrap Over Gebhart Bill," *Stockton Independent*, April 27, 1917.
[89] "Tarke Bill is Defeated in Assembly," *Sacramento Bee*, April 19, 1917.
[90] "Land Taken Out of Drainage District," *Sacramento Union*, April 20, 1917.
[91] "Governor Tells Why Pocket Veto Killed Many Measures," *Sacramento Union*, June 2, 1917.
[92] Pearcy, "A History of the Ransdell-Humphreys Flood Control Act of 1917," 153-154.

wanted more discretionary military power after the public disclosure of the Zimmerman Telegram. Wilson may have sought to shore up support from Southern Democrats, who supported the Randsell-Humphreys bill.[93] In 1917 Woodrow Wilson signed the National Flood Control Act into law. This act directed the Army Corps of Engineers to build facilities along the Sacramento River for $5,600,000.[94] It was the first federal law that explicitly appropriated money for rivers improvements other than navigation.[95]

With the passage of the 1917 Flood Control Act, progress resumed on the Sacramento River Flood Control Project, including the Sutter Basin levees, with disastrous consequences for the east side residents. [96] The Sutter Basin suffered a flood in February of 1919. The *San Francisco Call* reported on February 15 that eight-foot-high flood waters became stationary after inundating about thirteen thousand acres.[97] The *Sacramento Daily Union* reported that waters covered fifty thousand acres and eight hundred homes. Superior Judge K.S. Mahon of Sutter County ordered a grand jury in Yuba City to investigate the Reclamation Board for negligence in allowing the east levee of the Sutter bypass to remain open while completing the Armour project. He intended to pressure Governor Stephens into dissolving the Reclamation Board.[98] Along with the Grand Jury, five hundred farmers of the Sutter County Protective Association implored the California Debris Commission to come out against the Reclamation Board.[99] Legislators who

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[93] Pearcy, 154-155.
[94] O'Neil, *Rivers by Design*, 119-125.
[95] Donald J. Pisani, *Water and American Government: The Reclamation Bureau, National Water Policy, and the West, 1902-1935* (Berkeley: University of California Press, 2002), 253. "An Act to Provide for the control of the floods of the Mississippi and of the Sacramento River, California, and for other purposes." *Statutes at Large,* 64th Congress, 2nd sess., Chp. 144, March 1, 1917 [H.R. 14777].
[96] *Fourth Biennial Report of the Reclamation Board of California, 1918* (Sacramento: Superintendent of State Printing, 1918), 29.
[97] "Sutter Basin Flood Sweeps Twenty Homes," *San Francisco Call*, February 15, 1919.
[98] "Fifty Thousand Acres Flooded; 800 Homes are Inundated, Says Mahon," *Sacramento Daily Union*, February 16, 1919.
[99] "Flood Water is Still Coming Up," *Riverside Daily Press*, February 17, 1919.

visited Sutter County expressed indignation, and one assemblyman declared he had never seen flood conditions so bad and so many devastated farms.[100]

The *San Francisco Call* spun the flood into a story of innocent settler victims and blood-soaked capital. C.E. Kunze compared the flooding at Sutter to the tragic story of Mussel Slough, an incident immortalized in Frank Norris's novel, *The Octopus*. In that event, corporate gunmen working for the Southern Pacific Railroad violently removed squatters in the San Joaquin Valley. Instead of gunmen, Kunze explained, the Armour company employed the river itself. Kunze wrote that the river had "done its work well." Two thousand people were homeless. Their crops had "been destroyed, their young orchards ruined, their stock drowned." The life savings and hard work of three hundred families had "been washed away in a night." He rejected the "Acts of God" defense. He insisted this tragedy resulted from the "deliberate actions by other men greedy for gold." Kunze spotlighted specific small farms, such as the Gledhill colonists, thirty-five in number with holdings averaging less than twenty acres. They possessed all they owned in little ranches, in four hundred acres of peaches. The flood "ruined every one of them." To accentuate the poignancy of his condemnation, Kunze connected the massive profits of Armour with the plights of named individuals. He claimed Armour expected their Sutter project to earn them $5 million, even if they had to drown out "Mrs. Dean, Mrs. Seuert with her two little children." The poor innocent farms "asked only for justice and safety" and instead "they received a flood and ruin."[101] Lamenting that Sutter County was now "a land of ruin and despair," Kunze warned that the state or settlers must cut Armour's levee or else the water would remain until it evaporated or seeped away. He reminded readers that it was not storms but normal rainfall that caused the

[100] "Suffering and Losses Great in Sutter Flood; Legislators Indignant," *Sacramento Daily Union*, February 17, 1919.
[101] C.E. Kunze, "Flood Ruins Many Ranchers' Homes in Sacramento Valley," *San Francisco Call*, February 17, 1919.

flood. Storm flows of two hundred thousand cubic feet per second would have inundated all of Sutter County.


FINE FARMS FOR DUCKS

Here are scenes from the flooded district of Sutter County. Upper (left) is the home of C. D. Dean, a former U. S. man, with Mrs. Dean sweeping off the front steps. Center general view of Dean home, one of the 300 acres in the flood area. Below is J. Paul Spencer, an old Sutter County rancher, standing in his vineyard. The depth of the water may be seen from the length of Spencer's gum boots.—Photos by International Film Service.

ALICE POWER ON SCHOOL BOARD

Slapped Wife When She Hit Mother, Says Thomas

I FEAR NO LAW, IS THE JUDGE, HELD BY POLICE

POLICE HUNT GIRL, 15, EX-SOLDIER

Figure 12. Pictures of flooded homes in Sutter County, with the headline, “Fine Farm for Ducks.” *San Francisco Call*, February 17, 1919.

His reporting also revealed lurid details about the history of Sutter County Basin development. Sutter County has roughly the shape of a V with the point resting in the crotch made by the confluence of the Sacramento and Feather Rivers. It contained fifty thousand acres of low marsh lands that flooded every year, rendering them useless. In 1909, a man named Weinman bought a large amount of these marshlands for four dollars an acre. He transferred his

options and holdings to the Snooks Brothers of Sacramento. After all their promotional schemes failed, the Snooks brothers enlisted the help of W.E. Gerber, the owner of the Sacramento National Bank. Along with George Randall and attorney Robert Devlin, Gerber visited J Ogden Armour in 1912. After reviewing the Jackson Plan, Armour commented that the bypass would ruin the land for colonization. He refused to sell bonds to float a deal unless the state moved the bypass. At the time, V.S. McClatchy was invested in the Alta Farms Company, which held the marshlands. Armour bought fifty thousand acres from the Alta Farms Company for twenty dollars an acre. Shortly after Armour's investment, McClatchy ordered the bypass moved to the eastern location.[102] McClatchy claimed that the Reclamation Board made the change solely for engineering reasons, but Yuba County Surveyor Les Crook questioned why engineers who advocated the eastern bypass had chosen ground where it was "intended to force the water to flow over a higher level at its mouth than at its source." [103] Kunze expressed astonishment at "the amazing spectacle of having lands forty feet above sea level flooded," while "the adjoining lands only eighteen feet above sea level" were dry.[104]

Kunze also reported that Hiram Johnson Jr., the son of then California Senator Hiram Johnson, found a large block of state warrants that the state sold to Armour at a discount. Taxpayers could pay assessments with warrants, which effectively meant that the state gave Armour an undisclosed tax break. To further inflame resentment, Kunze added that the state never gave farmers a chance to buy warrants at a discount.[105]

The Reclamation Board and Armour diverted attention from these revelations by blaming farmers for the flood. They decried injunctions for preventing them from finishing the levee and

[102] C.E. Kunze, "Million Damage by Sutter County Floods," *San Francisco Call,* February 18, 1919.
[103] C.E. Kunze, "Farm Floods Charged to Cal. Board Blunder," *San Francisco Call*, February 19, 1919.
[104] C.E. Kunze, "Million Damage by Sutter County Floods," *San Francisco Call,* February 18, 1919.
[105] C.E. Kunze, "Huge Land Plot is Bared by Floods," *San Francisco Call*, February 20, 1919.

continued opposition for making construction work harder.[106] The attorney for District 1500, Arthur Huston, reminded critics that the Sutter Basin had flooded to an equal degree before the existence of District 1500.[107] Armour Vice President Robert Dunham was blunter. He said the farmers brought the flood on themselves by their own stubbornness. To the question of why District 1500 closed the east levee, Dunhman chastised farmers for fighting them in legislature, the courts, and the courts of public opinion. "Despite having beaten farmers twice in the supreme court and in the legislature," the farmers had "not stopped fighting" Armour. "In the meantime," he continued, they had "done nothing, absolutely nothing, to help themselves." With the delicacy of an evangelical preacher attributing a catastrophe to sin, Dunham declared that "the flood was necessary to bring them to a realization that they must stop their opposition."[108] After Kunze's investigations, farmers throughout the Sacramento and Northern San Joaquin Valley formed the Fourteen Counties Protective Association with the goal of allowing landowners elect the members of the Reclamation Board.[109]

In March of 1919, the grand jury convened by Judge Mahon released their findings. They accused the Reclamation Board of aligning with Armour and recommended the board's dismissal. They had four pieces of evidence. One, the board allowed District 1500 to close levees before the east levee of the by-pass commenced. Two, no landowners had ever instigated any litigation against building the east bypass. Three, the board neglected to install pumping plants necessary for draining lands east of the bypass. Four, the board employed attorneys to defend Reclamation District 1500 and employed that district's consulting engineer.[110]

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[106] "Explanation is Issued by Reclamation Board on Sutter County Floods," *Sacramento Daily Union*, February 20, 1919.
[107] "Reclamation Member Favors Compensation," *Sacramento Daily Union*, February 20, 1919.
[108] C.E. Kunze, "Sutter Men Blamed for Wreck of Homes," *San Francisco Call*, February 24, 1919.
[109] "Farmers Favor Removal of Flood Board," *San Francisco Call*, March 12, 1919.
[110] "Grand Jury Slams Reclamation Board," *Riverside Daily Press*, March 11, 1919; "Sutter Grand Jury Charges Partiality by Reclamation Board," *Sacramento Daily Union*, March 11, 1919.

With the immense amount of negative publicity, Armour swiftly made a deal with the Fourteen Counties Protective Association. Under the terms of the deal, both factions united to rush completion of the bypass.[111] The legislature agreed to pay $300,000 for the bypass, $3 million for the flood control portion of the Sutter bypass levee, and to replace the pumping plants.[112] Landowners would no longer pay tax assessments. Instead, they would issue $3 million in bonds, secured by five hundred thousand acres of land in the district.[113] The state would appropriate $300,000 per year for ten years to reclaim lands in the Sacramento and San Joaquin Valley Drainage District.[114] The farmers agreed to expand the power of the Reclamation Board to definitely and specifically include the power to acquire lands, water rights, and material for drainage works.[115] This deal effectively ended opposition to the Sacramento River Flood Control Project.

The deal between Armour and Sacramento Valley settlers defused that conflict, but prospective reclamation intensified racist strife. According to Van Bernard, who was a Glenn County landowner and the president of the Fourteen Counties Protective Association, the interests of all fourteen counties, between big and little owners, corporations, and individuals, aligned.[116] They excluded Japanese settlers from that alignment. White settlers wanted to ensure that the anticipated three hundred thousand acres made reclaimable by the Sacramento River Flood Control Project would become a "strictly White Man's Land."[117] With the construction of reclamation levees, the Fourteen Counties Protective Association hoped to "forever abolish the

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[111] "Sutter Basin Fight is Finally Settled," *Riverside Daily Press*, March 19, 1919.
[112] "Opposing Interests Now Agreed on Reclamation," *Sacramento Daily Union*, March 19, 1919.
[113] "Sutter Basin Flood Compromise Saddles Cost on Whole State," *San Francisco Call*, March 24, 1919.
[114] "Floods Now Belong to Past Era," *Sacramento Daily Union*, May 28, 1919.
[115] *Fifth Biennial Report of the Reclamation Board of California, 1919 and 1920* (Sacramento: Superintendent of State Printing, 1921), 8.
[116] Chester L. Lyan, "1,750,000 Cal. Acres Need Settlers Soon," *San Francisco Call*, May 13, 1919.
[117] "Association to make This White Man's Land," *Tri-Weekly Colusa Sun*, May 15, 1919.

flood menace." But they feared that the technological solution would be for nought if they could not guarantee "the settlement of lands only by persons of caucasian descent," and to discourage the "system of leasing lands to Japanese, Hindus, and other Oriental peoples."[118]

Their proposed solutions were totalizing. They secured blueprints of the entire acreage of the Sacramento Valley showing each owner and the amount of land he controlled. With this map they planned to exhort every owner to contribute a nickel an acre towards the organization so they could make the valley "American to the core."[119] They also planned a convention for all commercial organizations in California to discuss "colonizing of the state by Caucasians only."[120] Finally, they planned to terminate all lease holds to nonwhite tenants and to put the Fourteen Counties Protective Association in charge of approving all leases in the Sacramento Valley.[121]

They felt such draconian measures were necessary because of the failure of the 1913 Alien Land Act to discourage Japanese settlement in the Sacramento Valley. The 1913 Alien Land Act forbade landownership by "aliens ineligible for citizenship" and limited land leases to three years. The lease limitation pushed Japanese farmers into share contracts (sharecropping). Ironically, Japanese migrants realized their greatest success settling in California after the passage of the 1913 law. Japanese settlers continued to buy and lease land in the names of their American born children, who were American citizens because the 14th Amendment established birthright citizenship, and by forming corporations.[122] In the seven years after the 1913 Act, Japanese immigrants almost tripled their land ownership.[123]

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[118] "Patridge Quoted on Plan to Put Asiatics New Association Land," *Colusa Herald,* May 13, 1919.
[119] "Patridge Quoted on Plan to Put Asiatics New Association Land," *Colusa Herald,* May 13, 1919.
[120] "Must Eradicate Japanese Blight," *Sacramento Union*, July 2, 1919.
[121] "Move to Oust Alien Land Tenants," *Sacramento Union*, May 13, 1919.
[122] Roger Daniels, *The Politics of Prejudice* (Berkeley: University of California Press, 1962), 89-90.
[123] Ronald Takaki, *Strangers from a Different Shore: A History of Asian Americans* (New York: Penguin Books, 1989), 205.

Drawing from the history of American settler colonialism, California progressives argued that the presence of a racialized other could lead to race war or to white decline.[124] In his first biennial message to the legislature, Governor Hiram Johnson called California the "last station of the westward march of occidental civilization, and the final frontier between the two halves of the world."[125] The founder of the progressive wing of the Californian Republican Party, Chester Rowell, pointed to Jim Crow in the American South and the genocide of Native Americans to argue for exclusion of Japanese immigrants. Rowell wrote that Americans had dealt "unjust with the Indian," and "he died." Likewise, white Americans dealt "unjustly with the Negro," and "he submitted." Rowell worried that if Japanese immigrants ever came in sufficient numbers to "constitute a race problem," white Americans would "deal unjustly with them," but Japanese immigrants would "neither die nor submit."[126]

Rowell did not fear the Japanese because of purported inferiority, but because of reputed prowess. Rowell acknowledged that Japanese migrants brought in more money per capita than any but English and German immigrants and that if white immigrants of equal quality were available, "they would be welcomed enthusiastically in unlimited numbers."[127] V.S. McClatchy told the secretary of state that "the Japanese possess superior advantages in economic competition" and combined with their "extraordinary cooperation and solidary," they could easily "supplant the whites."[128] It is not that whiteness was homogenous. After all, the early

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[124] The progression of New World development, Marilyn Lake has argued, was "understood as both prize and vindication of colonizing conquest." Marilyn Lake, *Progressive New World: How Settler Colonialism and Transpacific Exchange Shaped American Reform* (Cambridge: Harvard University Press, 2019), 22.
[125] *Journal of the Assembly during the Fortieth Session of the Legislature of the State of California, 1913* (Sacramento: Superintendent of State Printing, 1913), 19.
[126] Frank W. Van Nuys, "A Progressive Confronts the Race Question: Chester Rowell, the California Alien Land Act of 1913, and the Contradictions of Early Twentieth-Century Racial Thought," *California History* 73, no. 1 (1994): 13, https://doi.org/10.2307/25177395.
[127] "California's Case Against Japan," *The American Review of Reviews,* Volume 48, July 1913, 105.
[128] Masakazu Iwata, "The Japanese Immigrants in California Agriculture," *Agricultural History* 36, no. 1 (1962): 30-36, http://www.jstor.org/stable/3740395.

twentieth century witnessed intense ethnic disdain that culminated in restriction of immigration from Eastern and Southern Europe.[129] Poor white Americans could be racialized as scourges or trash.[130] But even immigrants of scorned European ethnicities retained the legal privilege and cultural status of "white."[131]Anti-Asiatic animus flattened whiteness in California and the West and provided an antidote to the heterogeneity which allegedly corrupted whiteness. The state government could take lands from Japanese settlers and give them to white immigrants with the expectation that commodity farming would fully Americanize those immigrants.[132]

The key rhetorical device was not to emphasize land-values but character values. The typical justification for settler superiority, that property rights accrued from "admixture of one's labour with the soil," did not and could not ever apply to the Japanese.[133] Character was an immutable component of race. As Van Bernard put it, the time was past when a man was "valued only in dollars and cents." They had supposedly "learned to value citizens in character," and they were willing to take "first pay on the land in character."[134] The *Colusa Sun* touted the plan to

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[129] John Higham, *Strangers in the Land: Patterns of American Nativism, 1860-1925* (New Brunswick: Rutgers University Press, 1955), 158-254; Nell Irvin Painter, *The History of White People* (New York: W.W. Norton and Company, 2010), 245-311.
[130] Neil Foley, *The White Scourge: Mexicans, Blacks, and Poor Whites in Texas Cotton Culture* (Berkeley: University of California Press, 1999); Nancy Isenberg, *White Trash: The 400 Year Untold History of Class in America* (New York: Viking Press, 2016).
[131] Thomas A. Guglielmo, *White on Arrival: Italians, Race, Color, and Power in Chicago, 1890-1945* (Oxford: Oxford University Press, 2003), 6-9.
[132] Conceptually, the racialization of Japanese migrants as an existential threat to white civilization parallels Jodi Byrd's concept of Indianness as a transit through which empire "replicates itself by transforming those to be colonized into 'Indians" through continual reiterations of pioneer logics." It is not exactly that white settlers transformed Japanese settlers into Indians, but the history of Indigenous genociding justified new exclusions and expulsions. The villainy of white settlers and invaders in the past rationalized present and future domination. The "taking of the land" to preserve or expand democracy that animated the visions of the founding fathers and subsequent generations of settlers was reenacted, in the late nineteenth and early twentieth through "yellow peril" logics which require exclusion of Asian and the taking of their lands through land laws. Jodi Byrd, *The Transit of Empire: Indigenous Critiques of Colonialism* (Minneapolis: University of Minnesota Press, 2011), xiii, 189, 198, 206. But they were also reenacting the process that Patrick Wolfe called "preaccumulation," which refers to the myth of the wilderness and the reality that "the land that settlers seize is already value-added." Patrick Wolfe, *Traces of History: Elementary Structures of Race* (New York: Verso, 2016), 19-24.
[133] Wolfe, *Traces of History,* 3.
[134] Chester L. Lyan, "1,750000 Cal. Acres Need Settlers Soon," *San Francisco Call*, May 13, 1919.

settle the newly reclaimed lands with white people as the "largest single land development in the history of California." The Fourteen Counties Protective Association envisioned opening a million acres of rich soil to soldiers, farmers, workers, city, and country folk, to any man who had "the courage to hold a plow" and whose heart hungered "for a home," unless that man was Asian.[135] With the river, "both their friend and enemy" chained, they sought to compel large landowners to make the valleys safe for white men, not to break up large landholdings or to constrain them in any other meaningful way. They just wanted large landholders to lease to white tenants instead of Asian tenants.[136] The Sacramento Valley Development Association agreed with the Fourteen Counties Protective Association's intention and wrote that they wanted "only good Caucasian residents."[137]

Notably, the Fourteen Counties Protective Association did not insist on absolute exclusion. Instead, they allowed for the possibility that the Japanese could remain as laborers.[138] Their concern was not that Japanese labor would drive down white wages, but that Japanese success as landowners would keep wages high. During World War I, California suffered labor shortages, but even in normal years, labor for experienced unskilled men needed for hard, tedious, back-breaking work was tight. White men just would not do those jobs. As researchers for the University of Agricultural Experiment Station reported, white men would only work in the delta lands of the San Joaquin and Sacramento rivers as a last resort. Moreover, most of the floating white population were "unemployables," those who were "mentally defective and wrecked physically."[139] One solution was to attract non-white labor, but Japanese immigrants

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[135] Iwata, "The Japanese Immigrants in California Agriculture," 29.
[136] "Sacramento, The Valley of White Men Settlers," *Tri-Weekly Colusa Sun*, May 24, 1919.
[137] "White Settlers Only Welcomed," *Sacramento Union,* April 23, 1919.
[138] "Asiatic Issue Laid Before Governor," *Sacramento Daily Union*, August 12, 1919.
[139] R.L Adams and T.R. Kelly, *A Study of Farm Labor in California* (Berkeley: University of California College of Agriculture, 1918), 6-8.

proved eager to translate earnings into landownership and tenancy. Growers believe they could corral Japanese workers by closing loopholes allowing them to form corporations.[140]

The Fourteen Counties Protective Associations' efforts attracted the attention of James Phelan, United States Senator and former San Francisco mayor. Phelan sent a letter to Van Bernard urging him to advocate for a special session of the legislature dedicated to alien land legislation.[141] In August of 1919, the Fourteen Counties Protective Association sent telegrams to Congressman Albert Johnson, the chairman of the House Committee on Irrigation, and to Senator Phelan, requesting members of their committee visit California to look into the Japanese and Asiatic alien question.[142] They also urged the governor invoke an extra session of the legislature to considering the Asiatic problem.[143] The governor, however, rejected the calls for a special session.[144] He later explained that he would consider convening a special session on the Japanese question only if the president supported such legislation.[145]

Even after the governor rejected their requests, the Fourteen Counties Protective Association continued to advocate against Japanese immigrants. An Auburn assemblyman claimed that Japanese raised 65 percent of the products of the soil and established colonies in the richest section of the Sacramento Valley. He also accused Japanese settlers of using dummy corporations to control land. He wanted to ban children of non-white immigrants from becoming citizens. State Controller Chambers suggested they could "create a sentiment of resentment against landowners" who leased to Japanese and backed a national education program on the Japanese problem. San Francisco state senator James Nealon called for boycotts against white

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[140] "Governor Stephens Will Stand Pat," *Riverside Daily Press,* November 3, 1919.
[141] "Asks Fourteen Counties Association to Help Secure Alien Land Laws Immediately," *Sacramento Bee*, July 26, 1919.
[142] "Congress Asked to Investigate the Japanese Problem," *Sacramento Bee*, August 2, 1919.
[143] "Asiatic Issue Laid Before Governor," *Sacramento Daily Union*, August 12, 1919.
[144] "Governor Not Figuring on Special Session," *Sacramento Bee*, August 12, 1919.
[145] "Governor Stephens Will Stand Pat," *Riverside Daily Press,* November 3, 1919.

men who leased lands to the Japanese. Former Reclamation Board President V.S. McClatchy warned it would only be a few generations until California became a Japanese province. He pointed to the example of Seattle, where Japanese owned half the lodging houses and hotels.[146]

Part of their effort in passing an amendment to the 1913 law was assuring white growers that the amendment would not cause labor shortages, as it would not deport Japanese already in California.[147] State Controller Chambers asserted that by banning leasing privileges, the alien land measure would increase the number of available Japanese farm workers.[148] Chambers was perhaps the most active campaigner for the amendment. His office published a report which claimed that the Japanese under the current regime offered no appreciable value to American farmers. Instead, the "oriental farm laboring class" allowed land speculators and developers to lease lands on a crop-basis to Asians. The report highlighted that in seventeen counties Japanese settlers gained possession of land by paying more rent per share. The report also found that Japanese migrants owned the best fruit, vineyard, and rice lands. Between 1909 and 1919, the value of crops raised by Japanese farmers increased 976.8 percent, and 302 Japanese farming corporations controlled 47,781 acres.[149] In 1920, California voters by a 4-1 margin supported an amendment to the 1913 Alien Land Act which denied aliens ineligible for citizenship from leasing agricultural land, from holding stocking in corporations, and from acting as guardians of lands or corporate stock belonging to minors.[150]

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[146] "Prominent Speakers Open Anti-Japanese Campaign at Rousing Mass Meeting," *Sacramento Union*, September 6, 1919.
[147] "Assemblyman is Strongly for Anti-Alien Measures," *Merced County Sun*, January 16, 1920.
[148] John S. Chambers, "John S. Chambers Urges Californians to Save State from Alien Grasp," *Stockton Daily Independent*, October 24, 1920.
[149] "Expansion of Japanese Detailed," *Sacramento Union*, June 23, 1920.
[150] "Anti-Jap Bill is Voted in by 4 to 1," *Los Angeles Evening Herald*, November 3, 1920; "Drastic New Anti-Alien Land Law in Effect," *San Francisco Call*," December 9, 1920; Masao Suzuki, "Important or Impotent? Taking Another Look at the 1920 California Alien Land Law," *The Journal of Economic History* 64, no. 1 (2004): 130, http://www.jstor.org/stable/3874944.

Though historians disagree on the effects of the 1920 Amendment, it is likely that it discouraged Japanese settlement in California. Roger Daniels deemed the 1920 Act an empty gesture that "in no wise significantly affected land tenure in the state." This is because the courts ruled that they could not enforce the guardian provision, as to deny the children of Japanese immigrants the ability to choose their own parents as protectors of their property infringed their 14th Amendment rights.[151] The numbers, however, show significant changes in land tenure following the 1920 Act. Within three years, Japanese agricultural landholdings in California, inclusive of sharecropping, leases, and ownership, fell from 458,056 acres to 304,520 acres. By the end of the decade Japanese agricultural holdings fell to less than half of what they were in 1920. Most of this decline was in leased lands, which may have been influenced by the court's protections of Nisei land ownership.[152] Some scholars have argued that the 1920s agricultural depression would explain this decline more so than the 1920 law, but as Masao Suzuki pointed out, the areas where Japanese farmers specialized, fruit and vegetable production, suffered much smaller price declines than other crops and demand for them actually increased. Whereas the total number of farms grew by 15 percent in California during the 1920s, the number of Japanese farms shrank.[153]

The 1920 Alien Land Law preceded and correlated with the growth of smaller (white owned) farms in the Sacramento Valley during the first few years of the 1920s, but the trend was a mirage. From 1920 to 1925, average farm size in the thirteen counties fully or partially within the Sacramento Valley fell from 344 acres to 295 acres.[154] Shrinking farm sizes represented not

[151] Daniels, *The Politics of Prejudice*, 88.
[152] Azuma, *Between Two Empires*, 63, 68.
[153] Suzuki, "Impotent or Important?" 134-137.
[154] "Agriculture: Volume II, Part 3," in *Fifteenth Census of the United States: 1930* (Washington: Government Printing Office, 1932), 517-523.

an expansion of independent farmers but of indebted farmers, who leased and mortgaged land from developers and corporations. Between 1910 and 1930, average mortgage debt more than doubled. Mortgage debt became a poison pill in the 1920s when commodity prices collapsed following the cessation of World War I.[155] Switching to different crops required expensive new harvesting machines, which advantaged large farmers. Bankers also pushed for businesslike, industrial farming.[156] Receiverships like Trans-America Company of the Bank of America coordinated bankrupt farms into systems characteristic of "factories in the fields."[157] After 1925, the trend of shrinking farm sizes reversed, and prices rose above their 1920 level by 1930. Average farm size rose back up to 329 acres in the Sacramento Valley, more than twice the national average and almost 50 percent greater than the statewide average. The proportion of Sacramento Valley acreage in one-thousand-plus acre farms increased from 58.9 percent in 1920 to 63.7 percent by 1930.[158] Southern California and the San Joaquin Valley may have been more infamous for factory farms, but the statistics indicate that the Sacramento Valley was no haven for small farming either.[159]

After initially showing promise the Durham Colony eventually collapsed. By 1925 *Collier* praised it as a "close-knit, pretty township" where 150 families had "been making a prosperous living." Fluctuating prices made it increasingly necessary for farmers to diversify, but smaller farmers struggled to afford the harvesting equipment necessary for different crops. In the Sacramento Valley, the state never expanded beyond Durham, partly because corporate farms

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[155] Anne Effland, "Small Farms/Family Farms: Tracing a History of Definitions and Meaning," *Agricultural History* 95, no. 2 (2021): 318, https://doi.org/10.3098/ah.2021.095.2.313.
[156] Deborah Fitzgerald, *Every Farm A Factory: The Industrial Ideal in American Agriculture* (New Haven: Yale University Press, 2003).
[157] Pisani, *From the Family Farm to Agribusiness*, 449-450.
[158] "Agriculture: Volume IV," in *Fifteenth Census of the United States: 1930* (Washington: 1932), 82.
[159] Douglas Cazaux Sackman, *Orange Empire: California and the Fruits of Eden* (Berkeley: University of California Press, 2005), 81-85; Carey McWilliams, *Factories in the Field: The Story of Migratory Farm Labor in California* (Berkeley: University of California Press, 1935), 81-102.

already owned most of the land and landowners refused to sell at prices that administrators of the land settlement agency could afford to pay. Two problems had given rise to state land settlement projects in the Sacramento Valley: land monopoly and the "Japanese menace." Land monopoly remained, but in the 1920s the Japanese menace dissipated. It turns out land monopoly alone was not enough to incentivize further funding of the state projects, and California gave up its colonization scheme.[160]

By the 1920s, settlers could claim that they had reclaimed the Sacramento Valley. The vast open spaces that once sprouted bunch grasses, wild oats, and valley oaks now grew a variety of grain, fruit, and vegetables. Four hundred fifty thousand acres was devoted to wheat in 1921, and the Sacramento Valley contained thirteen million fruit and nut trees, equivalent to about one hundred trees for every rural resident in the valley. The lowlands grew about 150,000 acres of rice.[161] Suburban farm tracts surrounded Sacramento for miles. Extending from the capitol also were highways going to Lake Tahoe, Yosemite, Mount Lassen, Mount Shasta, and Mount Tamalpais.[162] A person could now drive from Sacramento north through Yolo, cross the Sacramento River, and return through Sutter County.[163] Truckers used these highways to carry the produce of the valley's farms. The Sacramento Transportation Company operated fleets of gasoline-powered trucks going ten miles on each side of the river to pick up crops and deliver goods. Four navigation companies operated on the river. In 1925, Sacramento River commercial transportation moved 1,366,780 tons of freight on the river.[164]

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[160] McWilliams, 207-208; Pisani, *From Family Farm to Agribusiness*, 443-445.
[161] *Part III: Biennial Report of the Division of Water Rights, A Subdivision of the Department of Public Works of the State of California to Accompany the Third Biennial Report of that Department and Being the Sixth Biennial Report of the Division of Water Rights and State Water Commission, November 1, 1926* (Sacramento: Superintendent of State Printing, 1927), 107.
[162] A.S. Dudley, "Sacramento is Center of Agricultural Empire," *Sacramento Union*, March 31, 1921.
[163] "Yolo is Spending Millions on Splendid System of Highways," *Sacramento Union*, July 25, 1920.
[164] Robert Kelley, *Battling the Inland Sea: Floods, Public Policy, and the Sacramento Valley* (Berkeley: University of California Press, 1989), 300-301.

However, the Sacramento Valley in 1920 and after did not resemble what settlers envisioned in 1850. Instead of a land of family farms ranging in size from 160 to 640 acres, the Sacramento Valley was dominated by large, 1,000+ acre farms.[165] Instead of a rural paradise, the Sacramento Valley was increasingly urban. The census defined an urban area as a place with at least 2,500 people. Some counties of the Sacramento Valley still had no settlements of 2,500 people in 1920, but over 59 percent of the populations of Butte, Sacramento, Solano, Yolo, and Yuba Counties lived in urban areas.[166] By 1930 almost 75 percent of the population of those counties plus Colusa, Sutter, and Glenn lived in urban areas.[167] Altogether 339,241 people lived in the Sacramento Valley by 1930, with 93,685 of those people in the city of Sacramento.[168]

The success of reclamation and of flood control created new problems. By 1927, two-thirds of the Sacramento levee system was complete.[169] Massive, sixteen-to-twenty-foot levees suffered from erosion near their bases, and thus needed protection with brush mattress. Waves from increasing river traffic eroded the denuded banks, leading to cave-ins of large chunks. Unanticipated erosion required covering much of the banks with large, broken rocks to prevent caving.[170] There were also proposals to lay down trees in the channel, held down by anchors, to direct flows away from the banks.[171] The *Fifth Biennial Report of the Reclamation Board of California* noted that the irrigation systems throughout the Sacramento Valley had "made quite a

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[165] "Agriculture: Volume IV," in *Fifteenth Census of the United States: 1930* (Washington: 1932), 82.
[166] *Fourteenth Census of the United States Taken in the Year 1920: Population 1920, Number and Distribution of Inhabitants* (Washington: Government Printing Office, 1921), 151.
[167] *Fifteenth Census of the United States: 1930, Population, Volume III, Part I* (Washington: Government Printing Office, 1932), 279-285.
[168] *Partial Report on Sacramento, San Joaquin, and Kern Rivers*, 34-37.
[169] *Bulletin no. 14, The Control of Floods by Reservoirs: An Appendix to the Summary Report to the Legislature of 1927 on the Water Resources of California and a Coordinated Plan for their Development* (Sacramento: Superintendent of State Printing, 1928), 20.
[170] *Report of the Division of Engineering* (1923), 16-17.
[171] *Report of the Division of Engineering and Irrigation a Subdivision of the Department of Public Works of the State of California to Accompany the Second Biennial Report of that Department, November 30, 1924* (Sacramento: 1925), 38.

demand upon the Sacramento River for water."[172] According to Donald Pisani, irrigated acreage in the Sacramento Valley tripled in the 1910s, while the cost of irrigation increased ten-fold between 1900 and 1920.[173] The insatiable thirst of irrigators lowered the water level of the valley's rivers, all but destroying waterborne commerce above Sacramento.[174] Because irrigation caused salt water to encroach upon delta farms, delta farmers threatened litigation against Sacramento Valley irrigationists. To settle these disputes, irrigation districts representing over five hundred thousand acres formed the Northern California Irrigation Districts Association. The intent of this association was to find storage sites for reservoirs. They felt confident that they could resolve their problems through "permanent constructive solutions." Their first meeting concluded with the sentiment, "more water and less litigation."[175] In subsequent decades, there would be more water, but litigation and demand would grow even greater.[176] Battles over irrigation and flood control would continue after the 1920s, with continued consternation over corporate farmers, along with added sensibilities about the environmental and the aesthetic values of wetlands and riparian forests.[177] As politicians tasked engineers with keeping the Sacramento Valley safe for an expanding urban population within an environment that defies

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[172] *Fifth Biennial Report of the Reclamation Board of California, 1919 and 1920* (Sacramento: 1921), 30.
[173] Pisani, *From the Family Farm to Agribusiness*, 383, 389.
[174] Pisani, *Water and American Government*, 267.
[175] "Herald's Plan for Water Storage Adopted at Irrigation Meeting," *Colusa Herald*, June 8, 1920.
[176] Most notably, the Central Valley Project and State Water Project have been contentious. Works on these projects include Robert de Roos, *The Thirsty Land: The Story of the Central Valley Project* (Washington; Beard Books, 1948); Erwin Cooper, *Aqueduct Empire: A Guide to Water in California, Its Turbulent History, Its Management Today* (Glendale: Arthur H. Clark Company, 1968), 139-242; Charles E. Coate, *Water Power and Politics in the Central Valley Project, 1933-1967* (Ph.D. Dissertation, University of California, Berkeley, 1969); Donald Worster, *Rivers of Empire: Water, Aridity, and the Growth of the American West* (New York: Oxford University Press, 1985), 240-256; Lawrence B. Lee, "California Water Politics: Depression Genesis of the Central Valley Project, 1933-1944," *Journal of the West* 24 (October 1985): 63-81; Norris Hundley, Jr, *The Great Thirst: Californians and Water; A History*, Revised Edition (Berkeley: University of California Press, 2001), 234-302; David Carle, *Water and the California Dream: Historic Choices for Shaping the Future* (Berkeley: Counterpoint, 2016), 169-192; Tim Stroshane, *Drought, Water Law, and the Origins of California's Central Valley Project* (Reno: University of Nevada Press, 2016).
[177] Philip Garone, *The Fall and Rise of the Wetlands of California's Great Central Valley* (Berkeley: University of California Press, 2011); *Evaluation Report on the Eligibility of Five California Rivers for Inclusion in the National Wild and Scenic Rivers System* (Heritage Conservation and Recreation Service, 1980).

control, engineers have continually swayed between imperial approaches to nature and the realization that they need to work with nature rather than against it.[178]

Caving Banks on the Sacramento River.

Figure 13. *Report of the Division of Engineering: A Subdivision of the Department of Public Works to the State of California to Accompany the First Biennial Report of that Department, November 1, 1922* (Sacramento, 1923).

[178] Daniel McCool, *River Republic: The Fall and Rise of America's Rivers* (New York: Columbia University Press, 2012), 10-22; Jon Christensen, "California Floods Change Thinking on Need to Tame Rivers," *New York Times*, February 4, 1997; "Army Corps Issues Tree Chopping Orders," *Associated Press*, June 9, 2009.