

The story of "the great thirst" is brought up to date in this revised edition of Norris Hundley's outstanding history, with additional photographs and vivid descriptions of the major water-policy issues facing California now: accelerating urbanization of farmland and open spaces, persisting despoliation of water supplies, and demands for equity in water allocation for an exploding population. People the world over confront these problems, and Hundley examines them with clarity and eloquence in the unruly laboratory of California.

The obsession with water has shaped California to a remarkable extent, literally as well as politically and culturally. Hundley tells how aboriginal Americans and then early Spanish and Mexican immigrants contrived to use and share the available water and how American settlers, arriving in ever-increasing numbers after the Gold Rush, transformed California into the home of the nation's preeminent water-seekers. The desire to use, profit from, manipulate, and control water drives the people and events in this fascinating narrative until, at the beginning of the twenty-first century, a large, colorful cast of characters and communities has wheeled and dealed, built, diverted, and connived its way to an entirely different statewide waterscape. What the *New York Times* called "the fractious history of water development in California that Mr. Hundley so ably chronicles" is based on a very real need, and that need is propelling the state into a future guaranteed to be turbulent.



NORRIS HUNDLEY, JR., is Professor Emeritus of American History at the University of California, Los Angeles. *The Great Thirst*, a best-seller in its first edition, was preceded by other books including *California: History of a Remarkable State*

"Few books will rival *The Great Thirst* for the sanity and balance of its treatment, for its massive and detailed research, for the smoothness of its style and breadth of its insightful interpretation. Norris Hundley has written a tour de force."

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"[Hundley] has given the reader a rich history buttressed with admirable objectivity. Above all, he has taken a subject of complexity and given it clarity."

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NORRIS HUNDLEY, JR.

THE GREAT THIRST

CALIFORNIANS AND WATER: A HIST

Bernard Maybeck in the north filling once treeless neighborhoods with sculpted wooden bungalows. Others opted for the stark, obviously nonarboreal Mediterranean and Mission Revival styles, though they quickly sited them among stands of eucalyptus, conifers, and palms while relying on the bougainvillea's bright red, purple, and orange flowers and green leaves to soften the glare of stucco. Next came the modernists, Rudolph Schindler, Richard Neutra, Cliff May, and their imitators, whose emphasis on "bringing the outdoors inside" made gardens and greenery as indispensable to architecture as blueprints. "Landscape was so important to Neutra," observes architectural historian Thomas Hines, "that when photographers came to take pictures of a new house, Neutra would hold up branches to ensure that the house was seen through a bower of foliage."⁹⁷ The resulting "urban forests" that spilled across the city landscapes of California offered dramatic testimony to the magic wrought by the state's modern-day water wizards.

Los Angeles and San Francisco demonstrated what could be accomplished locally with well-organized and no-nonsense drives for water. Those early achievements found admirers, and nowhere was the enthusiasm greater than among federal and state planners who sought to emulate their urban counterparts on an even grander scale.

5 Hydraulic Society

Triumphant:

The Great Projects

The spectacular success of Los Angeles and San Francisco excited admiration and much envy among federal and state engineers whose own

water schemes by the 1920s had produced meager results if not outright failure. The Reclamation Service (Bureau of Reclamation after 1923) had set out following its creation in 1902 with high hopes of making the desert bloom, fostering homesteads, and reforming society. During the next two decades, morale plummeted, disappointment suffused the agency, and congressmen openly called for its reorganization or elimination. In California, state water planners escaped the opprobrium heaped on Washington's efforts, but that was largely because the public expected less of them, though they chafed at their inability to get their own projects off the drawing board.

Within four decades there was a complete turnabout as the California Department of Water Resources and the U.S. Reclamation Bureau boasted power and influence almost unimaginable to earlier generations. By the 1960s the state had embarked on the largest and most expensive water project ever devised, while the Reclamation Bureau had achieved international fame for its massive dams and hydroelectric plants in California and elsewhere in the West. This transformation accompanied California's emergence as the nation's number one agricultural state (first achieved in cash income in 1929 and then maintained consistently after 1949), as a world leader in urban and industrial development, and as the most populous state in the union after 1963.

At the heart of these changes in California and Washington was an aggressive policy of seeking water on an even grander scale than before. Its proponents included private citizens, businesses, and government on all levels—local, regional, state, federal—sometimes working at cross-purposes but cooperating often enough to transform first southern and then central California into powerful engines for marshaling and transporting water with profound repercussions not only for the entire state but the American Southwest and Mexico as well. The transformation found graphic expression in three massive hydraulic ventures—the Boulder Canyon, Central Valley, and State Water projects—whose evolution mirrored and reinforced shifting patterns in the political culture of the state and the nation.

The Boulder Canyon Project

THE TERM *Boulder Canyon Project* masks a multidimensional undertaking that had a deep impact on the state, the West, the entire country, and northwestern Mexico. Its origin can be traced to the turn of the century and to the merging of two forceful ideas. The first belonged to Arthur Powell Davis, nephew of John Wesley Powell, the prominent nineteenth-century geologist who had unsuccessfully urged the federal government to reform land and water laws and who had gained wide public fame as the one-armed explorer who in 1869 had led the first expedition down the Colorado River and through the Grand Canyon.¹ Arthur Davis had grown to manhood inspired by his uncle's exploits and the West's rugged beauty. He followed Powell into the U.S. Geological Survey and later was among the first to sign on with the newly created U.S. Reclamation Service. His attention immediately focused on the Colorado River, the site of his uncle's greatest feats and now, he believed, the means for achievements of his own.

Arthur Davis brought more to his job than ambition. Like other Progressive Republicans, he had deep faith in the role of experts (he himself held a degree in civil engineering), worshipped efficiency, and viewed the federal government as a major instrument for social and political reform. He also shared the irrigation crusaders' belief in the nobility of the small farmer, abhorrence of monopoly, conviction that restoration of the nation's moral fiber lay in reclaiming desert wastes so that more farmers could be put on the soil, and a commitment (albeit a flexible one, as events would reveal) to local control. Though he romanticized the small farmer, Davis was convinced that the West's water supply problems were so enormous and complex that their solution required central planning and federal funding on an unprecedented scale. Intelligent planning, he believed, had to take into account the hydrology of entire river basins. He set for himself an extraordinary goal: harnessing the 1,400-mile-long Colorado River, the sole dependable water supply for a vast

area of 248,000 square miles (roughly the size of Texas) that embraced parts of seven American states and two in Mexico.²

"I . . . considered problems in all the Western States," Davis later explained, "but there [was] . . . none which . . . excited my interest and imagination and ambition so much as the development of the Colorado River basin." Such an undertaking, he recognized, could not be achieved with the small local projects anticipated in the Reclamation Act and being designed by his fellow engineers. Instead, he concluded as early as 1902, it required "large storage reservoirs" with the keystone structure being a massive dam on the lower river "built as high as appears practicable."³ Davis was ahead of his time, however, for his ambitions were not shared by his more cautious colleagues in the Reclamation Service. Still, he took heart in the agency's early engineering triumphs, most notably the Salt River Project in southern Arizona where the Reclamation Service designed its first multipurpose undertaking—for flood control, storage for irrigation, and generation of hydroelectricity—and built Roosevelt Dam, completed in 1911, which at 280 feet from bedrock remains the world's highest rock masonry dam. That success and the building of other impressive masonry or concrete storage facilities at such western sites as Shoshone (Wyoming 1910), Arrowrock (Idaho 1915), and Elephant Butte (New Mexico 1916) demonstrated the Reclamation Service's engineering competence at a time when dam failures were common, and prepared it for the more grandiose tasks envisioned by Davis.⁴ His opportunity finally came when campaigners for a different scheme of Colorado River development inadvertently gave him a chance to resurrect his plans.

The Imperial Valley Impulse

Those advocates were settlers in a scrubby southeastern pocket of California whose foremost desire was for a canal, not a dam. Location largely explained their attitude. Their homes were in the Imperial Valley, an arid but large and immensely fertile area of 600,000 acres just across the Colorado River from Arizona and immediately

north of the Mexican border. The settlers' existence depended on water that entered the valley, where summer temperatures could approach 120 degrees, by way of an overflow channel from the Colorado River, the Alamo Canal, that dipped below the border into Mexico before turning northward and entering the United States. To free themselves from dependence on that waterway and the host of problems that it had created with Mexico, the settlers wanted a canal completely within the United States—an All-American Canal, they called it.

In 1901 when water had first reached the valley through the Alamo, there had been jubilation. Responsible for the engineering was George Chaffey, the developer famed for his accomplishments at Etiwanda and Ontario and now returned from his Australian ventures and looking for new opportunities. His reputation and his genius in renaming the area (formerly known as the Colorado Desert) immediately attracted settlers—2,000 within eight months and continued steady increases thereafter.⁵

Disaster struck in 1905. During the previous year the private company delivering the water, without consulting Chaffey who had by then severed his connection with the firm, opened a new intake on the Colorado River. This one, unlike Chaffey's original cut, was below the border in Mexico because the U.S. federal government had threatened to use its control over the river—based on the stream's alleged navigability—to shut down the firm's operations and enable the new Reclamation Service to take over Imperial Valley development. The company had also felt pressured into making the cut because its diversion facilities north of the border had become clogged with silt, causing settlers to complain bitterly about lack of water. The new intake restored water flow and freed the company from the possibility of a Reclamation Service takeover, but faulty maintenance left the opening vulnerable to floods. In the spring of 1905 a surge of high water tore out the flimsy diversion works and soon the entire Colorado River was pouring through a break a mile wide and sweeping back northwestward into the valley, destroying buildings, drowning crops, and transforming the

nearby Salton Sink into the Salton Sea. It took two years and millions of dollars to return the river to its old course, reestablish a secure intake in Mexico, and restore a regulated flow through the Alamo Canal.⁶

The flood was not the only price paid by the Imperial Valley for its new intake below the border. In exchange for allowing the diversion, Mexico demanded up to half the water taken from the river. At first the concession posed no problem but this changed as population and agriculture expanded on both sides of the border, frequently requiring diversion of the entire stream during periods of low flow and, after Mexico had taken its share, necessitating the rationing of water in the more intensely developed Imperial Valley. Fear about economic survival turned to anger when Mexico refused to share in maintenance costs of the canal and charged duties on equipment taken below the border to shore up the levee system. The appearance of refuse, dead horses, and even human bodies in the canal, which carried water for domestic uses as well as agriculture, intensified concern. Especially galling was the news that the bulk of the land being developed in Mexico—some 840,000 acres—belonged to a Los Angeles syndicate whose most notable member was Harry Chandler, son-in-law of Harrison Gray Otis and soon to become publisher of the *Los Angeles Times*, who was even then anticipating great profits from the Owens Valley project as a member of the San Fernando Valley land syndicate. Imperial Valley residents feared that Chandler and his partners would find a way to keep all the Colorado River water for themselves. "These Mexican . . . lands," they protested, "menace us like a great sponge, which threatens to absorb more and more water, until such time as they will take all of the natural flow of the river."⁷

The valley's concerns coalesced into a vigorous demand for an All-American Canal. Because the cost of such an aqueduct exceeded the settlers' resources, they turned to Congress for help, rallying behind the Imperial Irrigation District, a public agency created in 1911 to take over the local water system and to lead the fight. In 1919 they finally found a sympathetic member of the House who introduced a bill authorizing construction of the canal.

The proposed legislation immediately caught the eye of Arthur Powell Davis, now director and chief engineer of the Reclamation Service, who saw it as a perfect opportunity to raise anew his dream of harnessing the Colorado River. By this time the agency's early engineering successes at Salt River and elsewhere were well known. The canal made sense, concluded Davis, but only if it were part of a larger design. To build such an aqueduct without also constructing dams to control "the flood menace" would doom the canal to a short life. Moreover, only with storage to catch the heavy flows of flood times could substantially more water be made available for the Imperial Valley and the entire Southwest. "The Imperial Valley problem . . .," Davis told all who would listen, "is inseparably linked with the problem of water storage in the Colorado Basin as a whole."⁸

Davis argued with more than the conviction of a longtime advocate of Colorado River development. He was also a man under fire and anxiously looking for a major triumph to redeem his reputation and that of the Reclamation Service. The agency's engineering successes had not automatically produced reclamation successes. Congress had passed the Reclamation Act nearly two decades earlier amid high expectations but those hopes had turned to disillusionment. Few of the Reclamation Service's projects were paying their way, most farmers were abandoning the ventures, and only a paltry 7 percent of the West's irrigated acreage could be attributed to the government. The fault lay not entirely with the Reclamation Service, since political interference in site selections, general agricultural depression following the end of World War I, intense economic and legal struggles among westerners over water, and eastern opposition to competition from western agriculture hampered progress. Other reasons for the dismal showing—selection of settlers who lacked irrigation skills and faulty cost estimates—seemed to most critics, however, a reflection of poor planning by the Service.⁹

How better to counteract such impressions than with a massive project whose success would overshadow previous failures? Like others in earlier times, Davis sought vindication not in defending

past actions but in future achievement. And his vision of achievement broadened to the most gargantuan multipurpose project yet contemplated, one that dwarfed the pioneer effort on the Salt River in its ambitious plans for flood control, irrigation expansion, generation of hydroelectricity, and—as a special concession to that group of potential allies from the Imperial Valley—an All-American Canal.

Not everyone greeted the idea of a multipurpose project with enthusiasm. Among those decidedly unsympathetic was the U.S. Army Corps of Engineers, long an antagonist and rival of the Reclamation Service for large construction projects in the West and still unhappy over Congress's passage of the Reclamation Act in 1902. The Corps, a century older than the Reclamation Service, had both military and civil engineering functions. Military responsibilities included constructing forts and supply lines and maintaining engineering instructional programs, while civil functions dealt with navigation improvement and flood control. It was in the civil realm that friction developed with the Reclamation Service, for the Corps viewed dams and hydroelectric generation as impediments to navigation. And flood control, it believed, could be best achieved through massive levee systems alone (that is, no dams), a strategy at odds with the Reclamation Service's desire for reservoirs that could hold water for agricultural and many other purposes. Eventually, as dam building became almost a national fad, the Corps softened its opposition to reservoirs and even began building dams and launching multipurpose projects (sometimes in uneasy cooperation with Reclamation's engineers).¹⁰ For the present and into the future, however, the Corps was more nemesis than friend of the Reclamation Service, a relationship worsened by competition between the two agencies for congressional appropriations.

More outspoken in their opposition to Davis's grand plan were lobbyists from the Imperial Valley. Davis considered their support essential, but at first they resisted tying their canal scheme to his more complex, expensive, and, inevitably, controversial undertaking. Nonetheless, they found it difficult to counter his logic about the relationship between flood control and security for a canal—and the Imperial Valley. Without dams on the river, the valley would

always remain vulnerable to a repetition of the 1905 disaster, a reality that residents could not push from their minds. "Each year . . . when the river rose with the snow-melt in June," recalled William Warne, who as a youngster lived on a valley farm and would later rise to prominence in federal and California water agencies, "there was anxiety that it would break into the valley again." Nor could valley residents ignore the support for Davis's ideas coming increasingly from elsewhere in California as booster organizations, chambers of commerce, and city governments discerned benefits for themselves in a major Colorado River project. Valley residents bowed to what seemed inevitable. In April 1922, following extensive engineering field studies under the direction of Davis, two Republicans fully in accord with their party's commitment to centralized planning—Congressman Phil Swing, whose constituency included the Imperial Valley, and Senator Hiram Johnson of California, the former Progressive governor—introduced the Boulder Canyon, or Swing-Johnson, Bill. It called for a large dam on the lower river "at or near Boulder Canyon," a hydroelectric plant to generate sufficient revenue to repay the cost of the dam, and an All-American Canal.¹¹

It had taken two decades for Davis's ambition to merge with the Imperial Valley's wishes and create a powerful political engine for water development. But the struggle for the project had only begun, and Davis would not be around to oversee or take credit for its completion. Unable to fend off the Reclamation Service's critics, he was ousted from his job a year later, but his successor, Californian Elwood Mead, was equally committed to the undertaking and more adept at addressing the problems that had brought down Davis. Mead's tenure as head of the newly renamed Bureau of Reclamation (1924–1936) witnessed the bureau's emergence as the world's preeminent builder of massive water projects.¹²

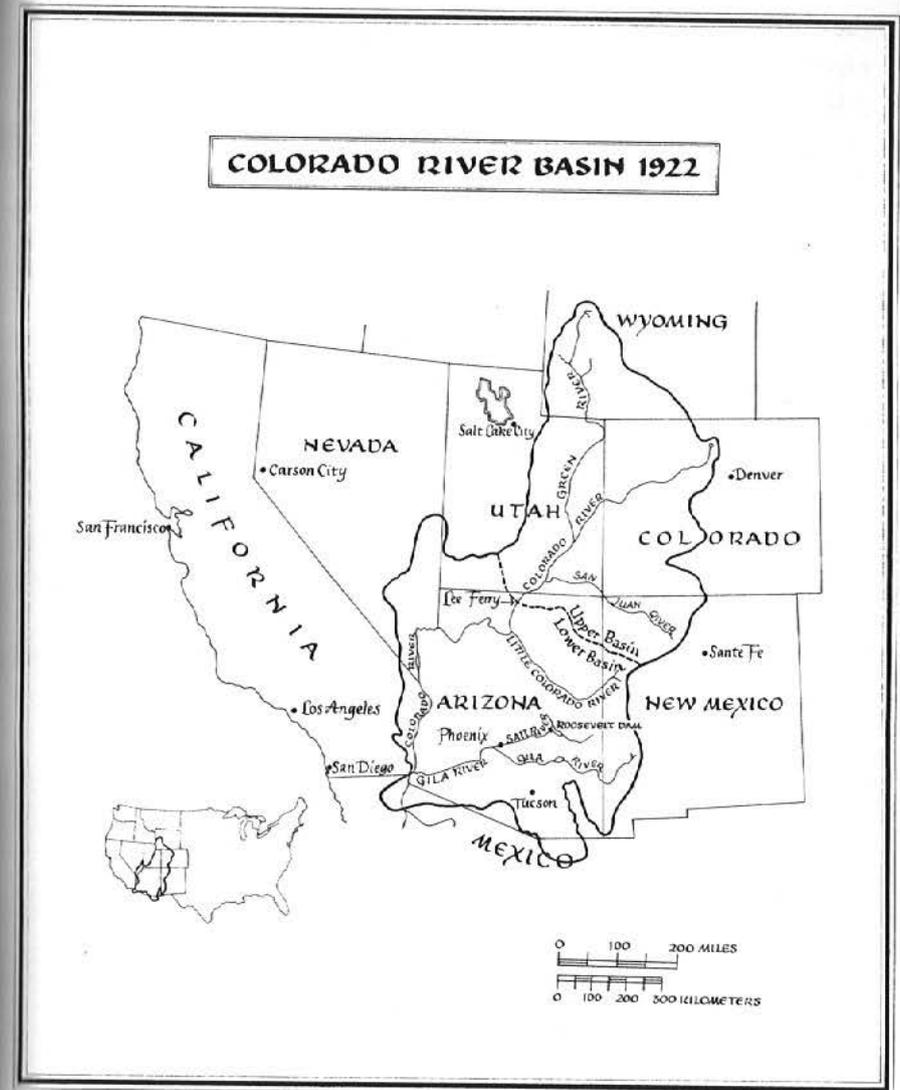
The Colorado River Compact

News of the Boulder Canyon Bill elated Californians but sent shock waves elsewhere throughout the American Southwest, es-

pecially alarming the residents of the other six states in the Colorado River Basin—Wyoming, Utah, Colorado, New Mexico, Arizona, and Nevada. They greeted Congress’s action with the same foreboding with which Owens Valley settlers had received news of Los Angeles’s plans to acquire and take away their water. Deep regional fears of and dislike for California, current then and still alive and well in the West, were stirred. To many westerners California was not only a lurid and morally corrupt society—with its Hollywood flappers and strange ethnic mixture of Asians and midwesterners and Italians, of Catholics, Jews, and Protestants—it was also a behemoth, the largest and fastest-growing state in the basin, and one supremely arrogant. It contributed less water to the river (almost nothing) than any other state and yet had introduced legislation authorizing projects that essentially benefited only California—the All-American Canal and a large dam regulating the flow so that California could take even more water.

“The bill,” complained an Arizona leader, “appears to view the whole situation from a California standpoint.” The other basin states wanted to expand their agriculture and attract more people and industry. They, too, wanted their own versions of California boom and economic opportunity, and they demanded big projects of their own, pointing out that in some areas they faced an impending water crisis that required immediate attention. “The most serious problem that confronts us at this time,” announced a Denver official, “is the future water supply. Unless a construction program is formulated . . . that will bring to Denver and the agricultural communities surrounding it more water . . . any great future growth in Denver’s population must be made at the expense of the agricultural communities surrounding it.”¹³

The opposition to California and the Boulder Canyon Bill hardened to the point of intransigence only two months after the legislation was introduced when the U.S. Supreme Court handed down a long-awaited decision on water disputes between states. In *Wyoming v. Colorado* (1922), the court held that the doctrine of prior appropriation applied to states recognizing that doctrine and shar-



ing a common water source.¹⁴ A principle that had earlier applied to residents *within* a state now applied to the states themselves: first in time, first in right. Since all the Colorado Basin states recognized the appropriation doctrine, the message of the Boulder Canyon Bill was clear. Passage of the measure would enable California to gain the lion’s share of the river’s waters before anyone else, and thus by

the doctrine of prior appropriation severely limit growth elsewhere, especially in the upper Colorado Basin where isolation, longer winters, and shorter growing seasons meant slower development.

Vigorous resistance to the bill led to a prolonged six-year battle that resulted in enactment of legislation only when California agreed to some major concessions that still limit the state's actions. The first was the Colorado River Compact, the earliest interstate compact (or treaty) involving more than two or three states to be negotiated under the Constitution's compact clause (Article I, Section 10), and one that sparked numerous similar agreements on other rivers, though none would involve as many states or deal with as large an area or as complex a set of problems. The Colorado pact was negotiated in November 1922, dividing the river's waters between the upper and lower sections of the basin. This agreement foresaw the delivery of 7.5 million acre-feet to the upper basin states (Wyoming, Colorado, Utah, New Mexico) and a similar amount to the lower basin (California, Arizona, Nevada). In addition to this basic allocation, the lower basin could increase its share by an additional million acre-feet (presumed by the negotiators to come from lower-basin tributaries).¹⁵

The compact effectively suspended the law of prior appropriation between the two basins, thus setting aside a large portion of the river's flow for the upper states until they were ready to use it. In exacting the concession from California, the upper states had a powerful weapon in their control of key congressional reclamation committees where they threatened to keep the Boulder Canyon Bill bottled up unless they got what they wanted. Their control was good for only so much leverage, however. It did not give them sufficient advantage to force projects of their own into the Boulder Canyon Bill, since they lacked engineering studies—studies that would take many years to complete—identifying specific projects. Californians, however, had their engineering reports, thanks to earlier work by Arthur Powell Davis, as well as Davis's congressional testimony that a high dam in the Boulder Canyon area should precede construction anywhere else on the river. Also tempering the

upper basin's influence was the flood threat on the lower river. There was widespread fear that a destructive flood could occur at any time, and if one did, Congress would likely rush through the Boulder Canyon legislation with little heed to upper-basin objections. Thus, both sides found reasons to compromise their differences and agree to the Colorado River Compact.

New Players and New Battles

California's acceptance of the compact led to a second concession. The catalyst lay in Arizona's as-yet unsatisfied needs and desires. The newly elected governor of Arizona and many state leaders almost immediately denounced the compact and repudiated their representative who had signed it. The fundamental problem was that while the compact suspended the law of prior appropriation between the basins, it did nothing about modifying the law as it applied to the states *within* each basin. Of the three lower-basin states, this obviously did not bother California, which had nothing to fear from its slower-growing neighbors. It could get legal claim to the water before they could advance a reasonable need for it. Nor did it alarm Nevada, since at that time those portions of its territory that could benefit from the Colorado River were quite small and the water needed for them was readily conceded by Arizona and California. Arizonans, however, viewed California as suspiciously as did the upper basin. The one person who did not was the Arizona representative at the compact negotiations, W. S. Norviel, who believed that California's "ultimate development" was "definitely well-known" and presented no obstacle to Arizona's future growth.¹⁶ To his chagrin, he soon discovered that neither his fellow Arizonans nor Californians, for that matter, shared his optimism.

Norviel returned home from the compact negotiations to find that the new governor, a Democrat, believed that the political issue of a lifetime had been dropped into his lap. George W. P. Hunt accused Norviel and his fellow Republicans of allowing their fascination with central planning and interstate schemes to overlook local

needs. He denounced them for failing to assess adequately Arizona's future water requirements and urged the state legislature to take no action on the compact until it had secured "accurate and adequate information."¹⁷ When studies confirmed potential water and hydroelectric power uses not anticipated in either Arizona or California, he mounted a campaign against the compact and the Boulder Canyon Bill, now amended to include the Colorado River pact among its provisions.

In early 1924 Governor Hunt's opposition became shrill and uncompromising when he learned of a new and powerful competitor for the Colorado River. William Mulholland showed up in Washington, D.C., and boldly announced to Congress: "I am here in the interest of a domestic water supply for the city of Los Angeles."¹⁸ The city had earlier expressed support for the Boulder Canyon Bill in order to obtain some of the electricity to be generated at the high dam on the river, but now Mulholland announced the city's intention to get water as well. Indeed, he soon made it clear that he was lobbying not only for Los Angeles but also for communities scattered across the vast southern California coastal plain.

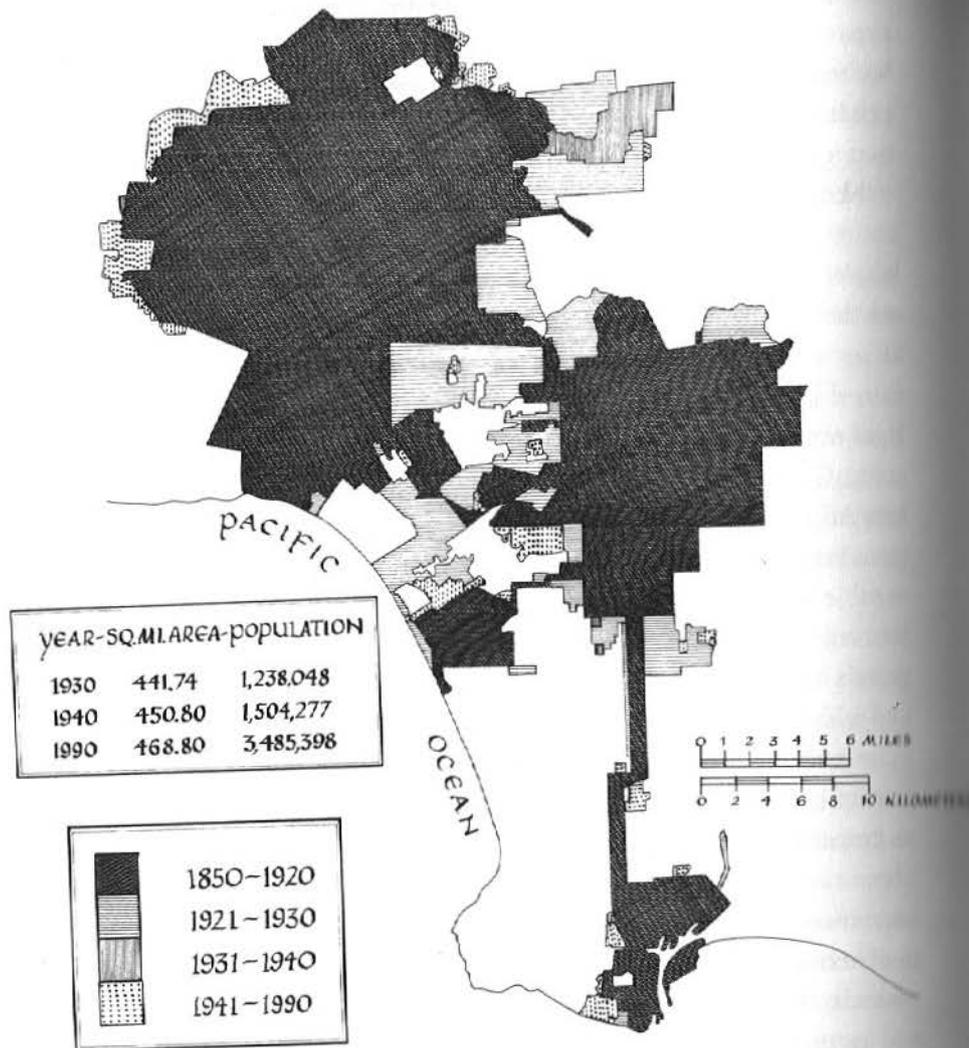
The drought of the early 1920s that, as noted earlier, had sparked Los Angeles's renewed aggressive purchases of land and water rights in the Owens Valley had also prompted interest in the Colorado River. Mulholland realized that tapping the Colorado would require an extraordinarily expensive aqueduct and pumping system to lift the water over the high ridges separating the river from the coastal plain. He decided to persuade nearby communities to help pay the costs, and to assure their receptiveness to the idea he warned of an impending "disastrous water shortage." His predicted arrival for the disaster varied from eight to ten to twelve years by the late 1920s (the earlier drought had ended in 1926), but few noted the discrepancies, and in 1928 numerous communities joined to create the Metropolitan Water District of Southern California (MWD). Creation of the new agency appreciably slowed Los Angeles's geographic expansion, since access to a reliable water supply seldom now required annexation. Earlier planning, noted a city water em-

ployee, "assumed that all the area in Los Angeles County, with the exception of that north of the mountains, would eventually be in the city of Los Angeles."¹⁹ Future planning envisaged a city smaller in size but still requiring enormous volumes of water to meet the expectations of those who believed Los Angeles had an almost unlimited potential for population and industrial growth. Nor did the existence of the new agency mean for decades to come any diminution in the city's influence over southland water policy.

Not surprisingly, Los Angeles emerged as the preeminent, though not absolute, power in the MWD, largely through possession of the largest bloc of votes on the board of directors. The initial bill to create the agency stipulated that a member community's votes, as well as its share of imported water and project costs, would be determined by assessed property valuation. For Los Angeles, this would have meant possession of nearly 80 percent of the votes, water, and costs. Other potential members of MWD did not balk at the size of Los Angeles's financial burden or water share (it was widely believed that there would be enough water for everyone into the foreseeable future) but, fearful of being swallowed by the city, they refused their approval until the enabling legislation capped Los Angeles's votes at 50 percent. That number meant that the city still had a formidable position, since a member community's votes had to be cast as a bloc, thereby requiring Los Angeles to acquire the support of only one other member to pass most measures. Moreover, its command of half the votes allowed it to block actions that it opposed. For those measures requiring a two-thirds vote, the city's barrier to success was higher, occasionally requiring compromise or abandonment of a proposal. Los Angeles, however, still held veto power over measures that it opposed. The city's votes, water share, and portion of the costs would decline as new members joined MWD, but for twenty-five years Los Angeles controlled half the votes.²⁰

Despite the city's imposing presence within MWD, it consciously avoided the role of tyrant, sometimes out of a desire to foster unity on issues of greater importance to it and at other times to

LOS ANGELES CITY ANNEXATIONS 1920-1990



disarm threats. In 1948, for example, when Los Angeles, because of uncertainty over the quantity of water in the Colorado River, opposed the admission of new MWD members, an angry local community had a bill introduced in the state legislature requiring MWD directors to vote as individuals rather than as a bloc. The threat was enough for Los Angeles to drop its proposed ban, and in return, the bill to alter voting practice was quietly shelved. Also checking the city's authority and that of MWD were communities like Beverly Hills, Santa Monica, Burbank, Glendale, and others that had independent groundwater supplies and remained aloof from the agency. Los Angeles's desire, especially during the early years, to persuade these and enough other communities to join MWD in order to assure its success and to spread costs kept the city from trying to eliminate assessments based on property value and to substitute a flat water rate. That action, frequently demanded by city residents, would have reduced Los Angeles's financial burden but at the risk of frightening away current and potential MWD members whose costs would have to be increased to cover what Los Angeles was no longer contributing. Such considerations tempered Los Angeles's authority, encouraging cooperation, compromise, and unanimous votes of the board on most issues, while still leaving the city the single most powerful influence on MWD (and hence on the coastal plain, for which MWD supplied water).²¹

MWD also obtained what Mulholland and other city leaders had provided for the Los Angeles Department of Water and Power commissioners: insulation of the board of directors from politics and popular control. In a continued application of Progressive Era concepts of strong administration by expert-guided independent commissions (southern California, it will be remembered, had been the home base of Progressivism in the state), all members were appointed by the chief executive officer of the community that they represented; none ever had to stand for election.²²

Thus armed with an efficient and powerful new vehicle for acquiring water, Los Angeles reaffirmed its alliance with the Imperial Valley and Bureau of Reclamation, redoubled its efforts on behalf of

the Boulder Canyon Bill, and propelled Arizona's Governor Hunt into frenzied attacks on the bill and compact. This new situation convinced many southwestern leaders that California had to be checked with something more than just the compact. Those in the forefront of such thinking were, as before, in the upper-basin states.

Compromises and Enactment

The emergence of Los Angeles as a major player in Colorado River politics and Arizona's intransigent opposition to the compact sent shudders throughout the upper basin. According to the terms of the compact, that agreement would not take effect until all seven basin states and Congress had ratified it. Arizona's strong opposition made ratification impossible while at the same time intensifying upper-state fears that a devastating flood on the lower river might stampede Congress into passing river-control legislation. With a regulated river and no compact, California could take as much water as it wanted. To guard against such a calamity, the upper basin urged Congress to take two steps: (1) permit the pact to become operative with the approval of only six states; and (2) require California to limit itself to a specific portion of the lower basin's allocation. The first action would assure protection of the upper states against California (six state legislatures, including that of California, had already ratified the compact), while the second would protect them against Arizona.

The upper basin's reasoning was straightforward: so long as Arizona refused to approve the compact, that state was not bound by the document's terms. Hence, if California should establish rights to all (or nearly all) the water allocated to the lower basin by the compact, then Arizona, not subject to the compact's restrictions, could obtain the water it needed by simply establishing prior rights to the water of the slower-developing upper basin. The solution to this problem, concluded the upper states, lay with California. That state had to be restricted so that enough lower-basin water remained for Arizona to develop without threatening the upper basin's sup-

ply. As a leader from Colorado observed: "The States of the upper basin much prefer a 7-State compact, but they desire a compact of some kind, and with a provision under which . . . California . . . steps into the position of guarantor, so that the upper basin [states] would be reasonably assured . . . they then could go ahead safely in developing their irrigation enterprises and taking water for domestic use."²³

Congress, after prolonged and heated debate, finally in 1928 gave the upper states what they wanted. It amended the Boulder Canyon Bill to authorize a six-state compact and to limit California to 4.4 million acre-feet plus no more than half of any surplus water unallocated by the compact. Arizona applauded the idea of a limitation, but felt the actual limitation imposed was inadequate and persisted in its objections to the bill and to the compact. Congress made one last effort to promote peace by adding another amendment to the bill giving its prior approval to a special proposed lower-basin pact that would apportion: 4.4 million acre-feet and half the surplus to California; 2.8 million acre-feet, half the surplus, and all the water in the Gila River to Arizona (the Gila was a Colorado River tributary almost entirely within Arizona, which that state did not want to share with anyone); and 0.3 million acre-feet to Nevada. This suggested settlement would one day take on new meaning in the hands of the U.S. Supreme Court, but at the time neither Arizona nor California found merit in it. Nonetheless, there were enough other inducements in the bill as amended for it to win the support of California and all the other basin states except Arizona: provisions for a six-state compact; the California limitation of 4.4 million acre-feet plus half the surplus; a high dam on the lower river; and the All-American Canal.

The bill contained one other major element that provoked sharp debate and threatened to undo the bipartisan coalition emerging in favor of the legislation. This was a provision stipulating that the dam's construction be paid for primarily from sales of hydroelectricity. While advocates of public power wanted the federal government to build the generating plant and sell the power as a mea-

sure of breaking the near monopoly (and undercutting the high prices) of private power, others denounced such a possibility as socialistic or worse. They insisted that private industry alone be accorded that opportunity. Phil Swing, the bill's chief architect in Congress, finally forged a compromise by persuading combatants to leave the decision on who would install and operate the power plant to the Secretary of the Interior.²⁴

At last Congress approved the bill in December 1928, the Senate by an overwhelming six-to-one margin (54 to 11) and the House by a substantial majority of 167 to 122. In both chambers, Democrats joined with Republicans in almost equal numbers to back a measure that, in promising jobs, water for cities and more farms, elimination of potentially devastating floods, and checks on California's water ambitions, seemed altogether warranted. Two months later, on March 4, 1929, the California legislature agreed to the limitation imposed by Congress and not long after President Herbert Hoover declared the Boulder Canyon Act in effect.²⁵

Californians had finally gotten their much-sought legislation, albeit with some important restrictions attached. When it came to water, they had clearly emerged as a powerful force both feared and courted in the West and even in Washington, where the Reclamation Bureau was ecstatic about the giant hydraulic works that it was charged with building and managing. The Secretary of the Interior added to those responsibilities in 1930 by authorizing the federal government to build the hydroelectrical generating facilities and, in a move to placate the advocates of both public and private power, to lease those facilities to a private firm (Southern California Edison) and a public entity (the city of Los Angeles). The two lessees would then generate electricity that they would sell to other private firms and public agencies (including themselves) for resale.²⁶ The process was complicated, but it essentially put both public agencies and private firms into the electricity business on the lower Colorado River.

The Boulder Canyon Project Act, by authorizing the nation's first great multipurpose project, marked the Reclamation Bureau's emer-

gence as the mightiest federal agency in the American West. In addition, it was a sign, hardly noticed in the enthusiasm, of the Bureau's increasing inattention to its original mandate to promote small family farms.

The Imperial Valley and the Betrayal of Reclamation Law

Evidence of something different in the Bureau's values was reflected in its relationship (through the Interior Department of which it was a part) with the Imperial Valley following passage of the Boulder Canyon legislation. The new law resulted in Hoover Dam (built in nearby and better-suited Black Canyon, rather than Boulder Canyon, and the world's largest at its completion in 1935), which regulated the river and permitted construction of the All-American Canal that began delivering water to the Imperial Valley in 1942. That water, provided at subsidized rates (no interest was levied on the federal funds expended for constructing the delivery system), stabilized the valley's irrigable area at about 440,000 acres and brought a measure of security and prosperity unknown before. It also helped fasten a landed elite onto the area.

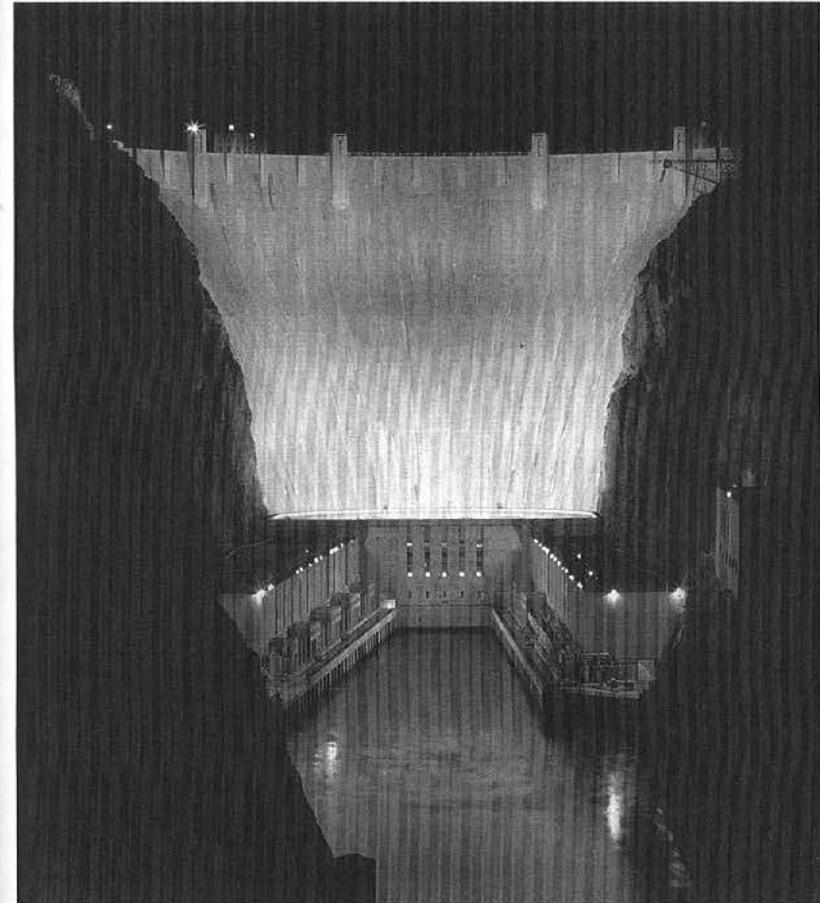
Even as the Boulder Canyon legislation made its lengthy and troubled journey through Congress, the Imperial Valley was undergoing major change with the bulk of the irrigated acreage passing from small dirt farmers to a select group—absentee landlords with holdings averaging between 300 and 700 acres and some as large as 3,000 acres. A combination of good water years and none of the disastrous floods as predicted helped produce millions of dollars in farm revenue. Those profits and the promise of a regulated river and the All-American Canal had attracted great sums of investment capital from Los Angeles, San Francisco, and elsewhere. The financiers and speculators snapped up small plots, transforming them into large-scale factory farms under managers who naturally sought to secure maximum returns on their investments. Most of the few farmers who did not sell out to handsome outside offers used their agricultural profits and expanded bank credit to enlarge their own



Hoover Dam in Black Canyon of the Colorado River was completed in 1935. (Courtesy of U.S. Bureau of Reclamation)

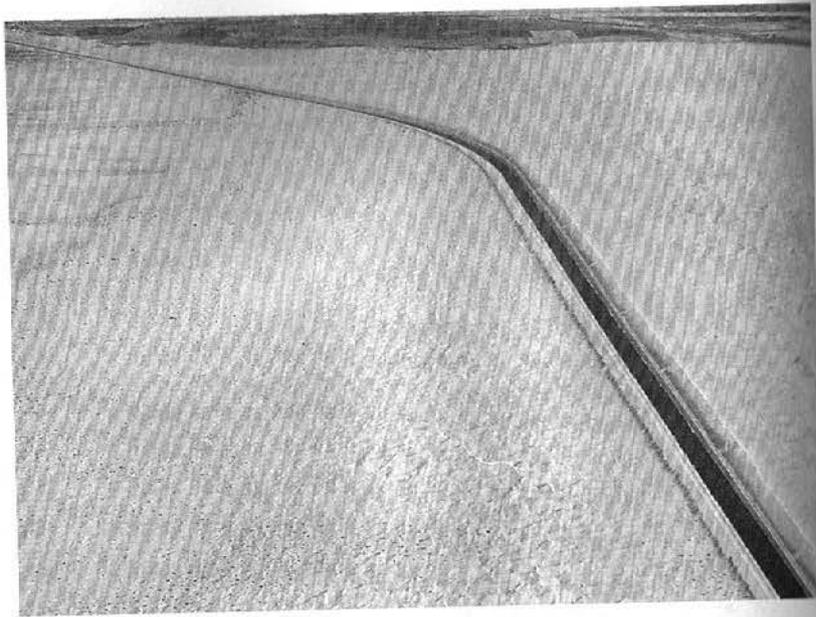
holdings, hire managers, and retire to the cooler temperatures and comforts of the coastal cities. That left the valley populated by a handful of owners and operators at the top of the social pyramid and a large underclass of laborers, most of Mexican origin, who toiled for agribusiness by keeping the irrigation ditches open and bringing in the bountiful crops.²⁷

The Boulder Canyon Act had, however, provided the Reclamation Bureau with the means of breaking up the Imperial Valley's corporate estates. The act's benefits (Hoover Dam regulated the river, and the All-American Canal freed the valley from dependence on Mexico) theoretically subjected the area to the acreage limitation and residency requirements of reclamation law. Owners, in other



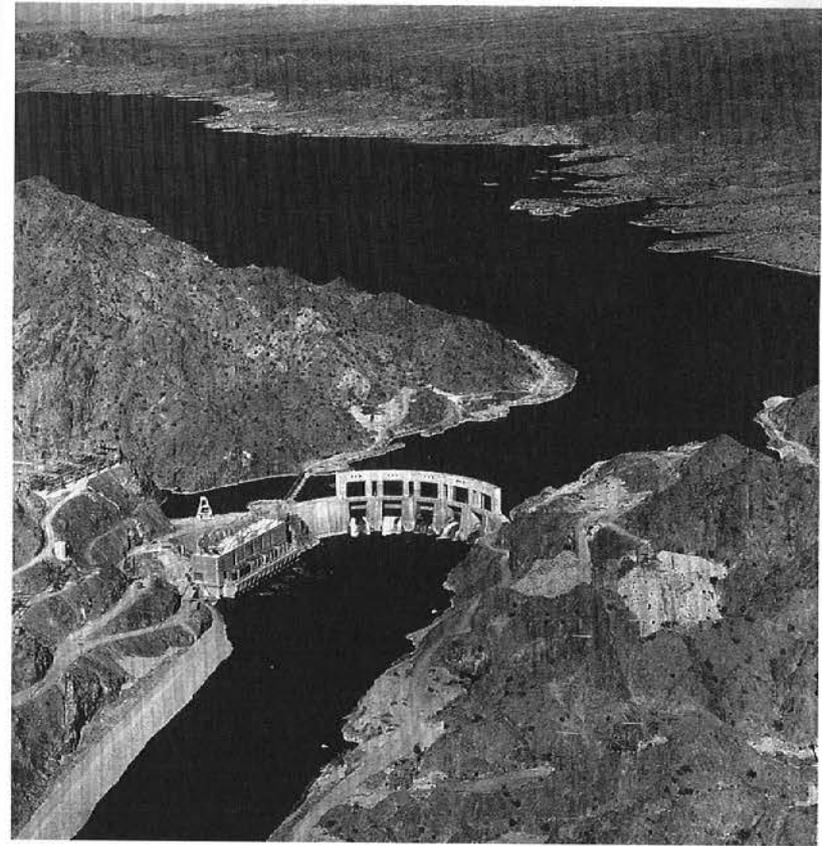
Hoover Dam at night. (Courtesy of U.S. Bureau of Reclamation)

words, were not supposed to receive water for more than 160 acres and had to reside on the land or in the immediate vicinity. In 1930 Northcutt Ely, executive assistant to Secretary of the Interior Ray Lyman Wilbur, stated that he could "see nothing to do but enforce" the law. That announcement immediately made Ely the object of a vigorous lobbying campaign in which valley landowners argued for exemption, principally on the grounds that the area had been substantially developed before passage of the Boulder Canyon legislation. Ely, without benefit of a formal solicitor's ruling, now reversed himself and prepared a letter that Secretary Wilbur signed exempt-



The All-American Canal on its way through the California desert with water for the Imperial and Coachella valleys. (Courtesy of U.S. Bureau of Reclamation)

ing the valley. That Ely's generosity did not go unrewarded became apparent shortly thereafter when he left office with the retiring Herbert Hoover administration and became the Imperial Irrigation District's Washington attorney. His role and Wilbur's letter subsequently became the subject of debate and litigation, but their action had a profound impact by allowing concentrated landholding to continue in the valley. Three decades later the average farm was about 500 acres (some 200 acres more than the average farm holding nationwide by then) with some holdings ranging from 5,000 to 9,000 acres. By then as well, the Imperial Valley was on its way to acquiring one of the highest poverty rates in the nation, with nearly 90 percent of the farm personnel there (most of Mexican birth or parentage) classified as "lower class" in a study of social stratification in agricultural areas of the United States.²⁸ So much for the dream of irrigated small farms and social reform in the Imperial Valley.

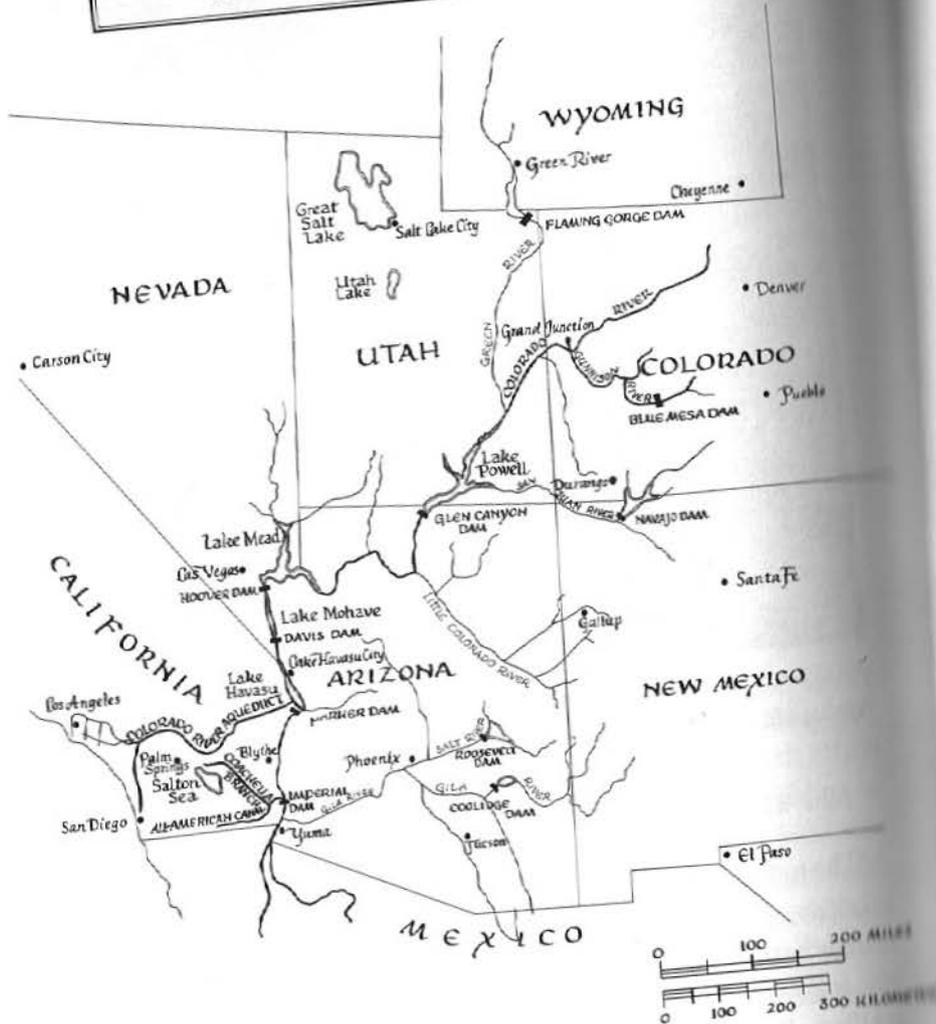


Parker Dam and Lake Havasu on the Colorado River. (Courtesy of Metropolitan Water District of Southern California)

New Water and Accelerated Urbanization

The most profound impact of the Boulder Canyon legislation was on cities, rather than on farmers either large or small, and especially on southern California's cities. Completion of Hoover Dam in 1935 was followed a year later by a hydroelectric power plant that began sending all the power generated to southern California. Eventually Arizona and Nevada contracted for limited amounts of power, but for years the only market was in California. Even before the dam and power plant were constructed, the Metropolitan Water District of Southern California had taken steps to assure itself an aqueduct.

**COLORADO RIVER AQUEDUCT
ALL-AMERICAN CANAL
COACHELLA BRANCH**



The Coachella Branch of the All-American Canal delivers water to more than 50,000 acres in the Coachella Valley. (Courtesy of U.S. Bureau of Reclamation)

In 1931 the district's voters by a margin of five-to-one approved a \$220 million bond issue to finance the project, and two years later work began on a diversion dam near Parker.²⁹

That proved too much for Arizona, still bitter over the Boulder Canyon Act and railing against California in the press and the courts. A new state governor, as uncompromising a foe of California as George Hunt had been, called in the militia to prevent any attempt to anchor the dam to the Arizona side of the river. Only half in jest, the *Los Angeles Times* sent a "war correspondent" to observe the "impending movement of . . . troops into this theater of war to pro-



Contrast of desert and cropland in the Imperial Valley. (Courtesy of U.S. Bureau of Reclamation)

tect the State of Arizona from invasion by all or part of the State of California." An army of five soldiers coordinated movements with an "Arizona Navy" of two ferryboats as the governor announced to the world: "We may get licked in the affair, but we will go down fighting." At this point the Secretary of the Interior ordered construction halted and moved the conflict into the U.S. Supreme Court, which sided with Arizona on the grounds that the Boulder Canyon Act had not specifically authorized a dam at Parker. When Congress speedily remedied that omission in 1935, Arizona was forced to stand aside and construction resumed.³⁰

In June 1941 the first water reached the coastal plain through MWD's 242-mile-long aqueduct. Mulholland's "disastrous water

shortage" had failed to materialize in the intervening years (and he had long since ceased to be a force, having resigned in late 1928 and died seven years later). His fears that Los Angeles and its neighboring communities might lack adequate supplies seemed unwarranted. The new water, like that earlier from the Owens Valley, exceeded current needs and helped underwrite a future of massive growth. But that, of course, had always been the dream of Mulholland and the voters who regularly endorsed his projects—a water supply capable of supporting the sustained growth of a great metropolis through the most severe of future droughts. At least as early as 1940 planners in the Los Angeles Department of Water and Power concluded that the Mono extension essentially freed the city from reliance on the Colorado. Not until the 1960s would the member communities of the MWD begin using all the Colorado River water brought through the massive system and even then Los Angeles took little of the supply. As late as the mid-1980s the city had never taken more than 10 percent of the share to which it was entitled.³¹ Thereafter, however, as will be discussed later, a new combination of circumstances emerged to cast doubt on Mulholland's dream of a water-secure Los Angeles.

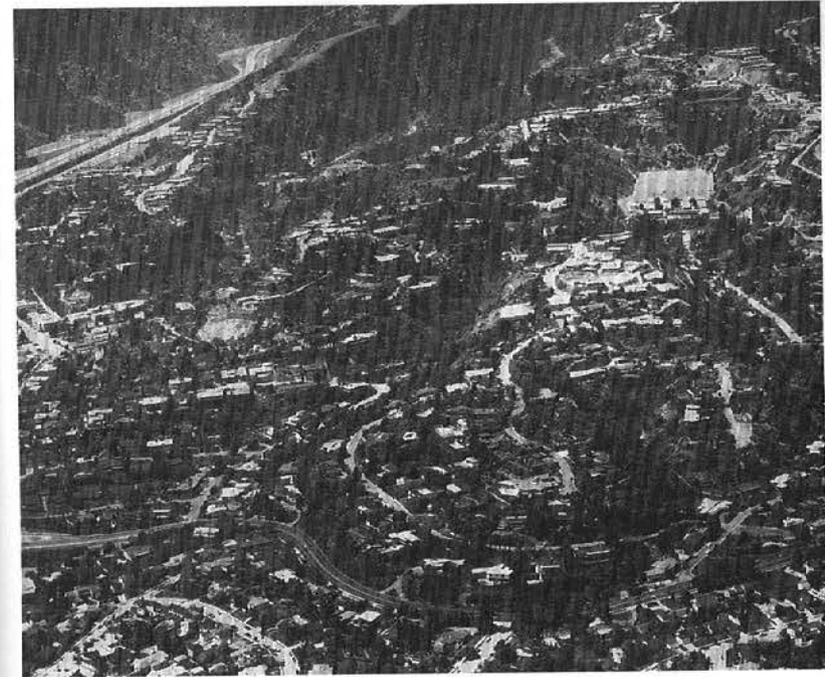
The availability of Colorado River water beginning in the 1940s nonetheless had a profound psychological effect on city leaders and planners. It obliterated any sense of restraint about Los Angeles's capacity to absorb ever more people and industries. For surrounding communities, the abundant new supply, including the vast quantity of water unneeded by Los Angeles and available to them, encouraged growth otherwise not possible. The impact could be seen throughout the southern California coastal plain where the water and electricity arrived just in time to meet—and encourage—the demands of the Second World War and postwar boom.

Los Angeles's population almost doubled to nearly 3 million between 1940 and 1970, while that of the four coastal counties of Los Angeles, Ventura, Orange, and San Diego increased two and a half times to more than 10 million during the same period. The growth in numbers accompanied an equally impressive expansion in man-



Beverly (later Sunset) Boulevard at Sepulveda Canyon (upper left), Los Angeles, 1933. (Courtesy of UCLA Department of Geography Air Photo Archives)

ufacturing (aircraft production, shipbuilding, housing construction), service industries (banking, gasoline stations, grocery stores, restaurants, and, especially after World War II, tourism), and research and development centers (Rand Corporation in Santa Monica, the Jet Propulsion Laboratory in Pasadena)—all further stimulated by an infusion of federal dollars, some \$35 billion for California alone during the war years, 10 percent of the national total and nearly 60 percent of all federal expenditures in the West. In addition, by the late 1980s the people of urban southern California, through water and power charges, had contributed approximately 76 percent of the \$351 million cost, including interest, of constructing and operating Hoover Dam, with the Metropolitan Water District of Southern California alone providing \$96.4 million. Made heady by the phenomenal transformation, the Metropolitan Water District



The same location in 1969, with Sepulveda Canyon almost filled by Interstate Highway 405. The earlier nearly barren hillsides to the right are covered with houses surrounded by trees and other foliage. (Courtesy of UCLA Department of Geography Air Photo Archives)

as early as 1952 officially proclaimed there was no limit to what it could accomplish. In the so-called Laguna Declaration it promised all the water required “to meet expanding and increasing needs in the years ahead.”³²

The larger significance of California’s Colorado River interlude was not lost on even casual observers. A state that contributed hardly a drop to the river had, with the help of the federal government, gained control of an enormous volume of water. Moreover, unlike Los Angeles’s Owens Valley venture (especially as reflected in the roles of Joseph B. Lippincott and Fred Eaton), there was nothing sinister or conspiratorial about the process, for it had been fought out in the light of courtrooms, legislative halls, and public elections. It had resulted in restrictions on California as well as victories,



The intersection of San Vicente and Fairfax in Los Angeles, 1922. (Courtesy of UCLA Department of Geography Air Photo Archives)

though on balance the victories were striking and helped assure California both preeminence in economic hegemony over the American West and a formidable position in the national and world economy. So, too, did another massive hydraulic venture in the Central Valley.

The Central Valley Project

CALIFORNIANS FROM the days of the gold rush had dreamed of transforming the Central Valley into an agricultural paradise. The hydraulic miners had challenged that vision with their environmentally destructive hoses that washed away entire mountainsides, but even before their more abusive practices were outlawed, geologists and other



The same intersection in 1966. (Courtesy of UCLA Department of Geography Air Photo Archives)

experts had concluded that sustained productivity in the valley would require major manipulation of the state's waterscape. To them this judgment seemed reaffirmed by the lessons learned by 1900 from the collapse of the cattle and wheat dry-farming ventures, as well as from the generally poor showing of most mutual water companies and irrigation districts.

The Central Valley appeared to be a geographical paradox. A phenomenally rich and broad alluvial plain, some 450 miles long and 40 to 70 miles wide, it was watered by streams draining the Sierra Nevada on the east and the coastal ranges on the west. As speculators, developers, farmers, and would-be farmers saw it, however, nature had short-changed the area. Precipitation was light and came mostly after the growing season had ended.

Also troubling was the runoff from rivers which ordinarily arrived in great floods and in uneven quantities in the valley's northern and southern portions. The northern section, the Sacramento



Whitsett Pumping Plant, two miles above Parker Dam on Lake Havasu and the starting point of the Metropolitan Water District's Colorado River Aqueduct. (Courtesy of U.S. Bureau of Reclamation)

Valley, contained a third of the land while generating two-thirds of the water. At flood stage the swollen Sacramento River and its tributaries wreaked great havoc at Marysville, Sacramento, and other downstream communities, farms, and ranches. In the southern portion, the San Joaquin Valley held most of the land and contributed a smaller volume of water, but that runoff could still cause severe property damage in the flood season. During the rest of the year, there was enough water to irrigate only a limited amount of land along both the San Joaquin and Sacramento rivers before the two streams met and then meandered through the delta area before

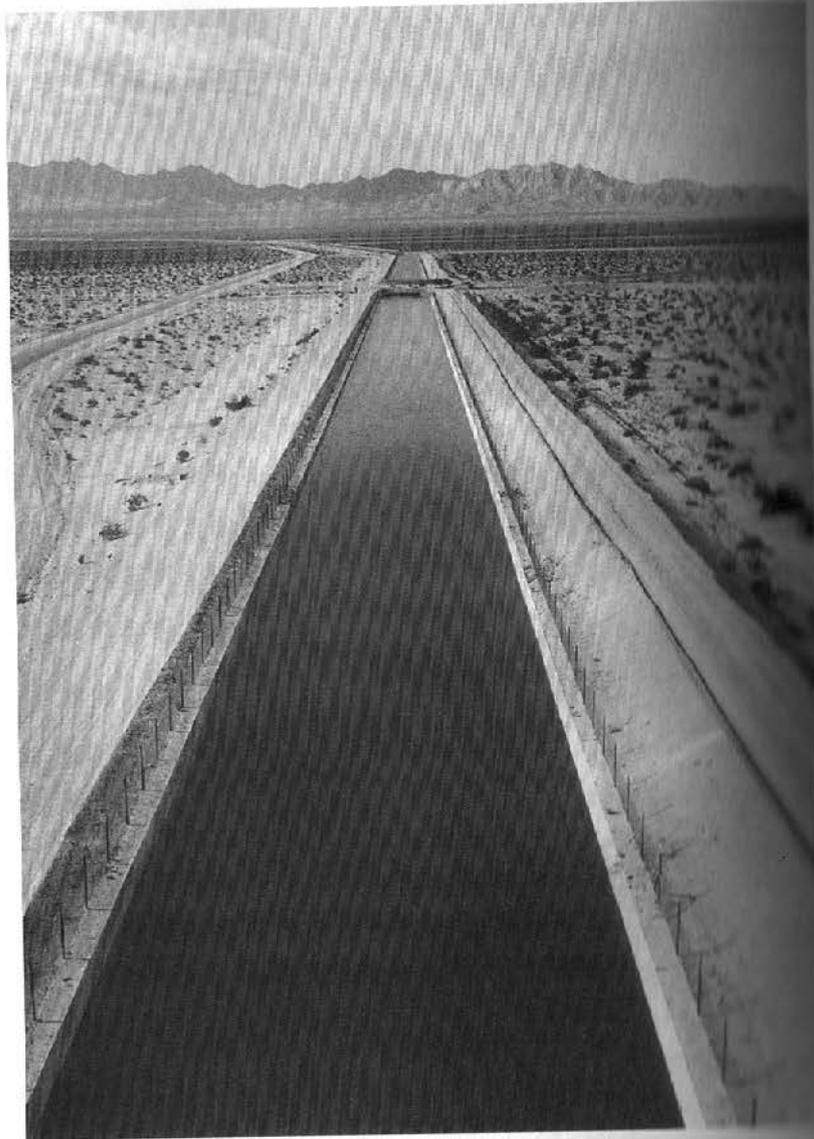
emptying into San Francisco Bay. In unusually dry years, the delta could be adversely affected, since saltwater from the bay moved upstream against the diminished current, crippling farming and threatening the new industrial and municipal ventures along the lower delta.

Progressive Era Promise and Disappointment

The flood threat in the Central Valley as well as other obstacles throughout California to the creation of irrigated family farms and to meeting growing municipal needs seemed at first less formidable as a result of the reforms initiated following the election in 1910 of Progressive Republican Governor Hiram Johnson. Under Johnson's leadership, the legislature in 1911 ordered the gathering of data on a wide range of resources, including "water, the use of water, [and] water power, . . . for the purpose of . . . reforming the laws of this state." Three years later, in a referendum election, the public approved a new code asserting state sovereignty over water, giving municipal water uses priority over agriculture and mining, and establishing a state water commission and charging it with eliminating litigation over water rights. As a first step in reducing the court battles, the commission required all appropriators to secure a state permit for a specific quantity of water.³³ Earlier, individuals could do as little as post a claim on a river for any volume that struck their fancy, file a copy with a local recorder, and then try to resolve disputes with other claimants in court if not with weapons.

Johnson and his Progressive followers also sought to promote irrigation and curb monopolists by breathing new life into the irrigation district concept. In characteristic fashion, they significantly increased state supervision by making it virtually impossible for districts to be created or to issue bonds without state certification as to their economic soundness and promise of success.³⁴

Still another dramatic example of the Progressive emphasis on centralized planning and conservation was renewed efforts at flood control along the Sacramento River. Major engineering structures



The Metropolitan Water District's Colorado River Aqueduct travels 242 miles from Lake Havasu to its terminal point at Lake Mathews near Riverside. (Courtesy of Metropolitan Water District of Southern California)

began appearing in the late 1890s, but the most significant developments occurred after 1911 when the legislature created a state Reclamation Board and vested it with authority over all protective works in the valley. The Board then joined with the U.S. Army Corps of Engineers to implement a valley-wide plan—the Sacramento Flood Control Project—that laid out a carefully designed network of levees and bypasses to prevent floodwaters from moving across the valley floor and creating havoc. Agricultural development boomed as the new levee system was pushed into place, but experts still sought the security that only a comprehensive plan calling for large dams and massive reservoirs could provide.³⁵

Even those fortunate enough to obtain reasonably well-protected land and an assured water supply faced formidable obstacles. Such lands commanded premium prices that steadily increased as their availability declined and demand went up in response to population growth. Costs of production also climbed as a reflection of equipment purchases and land preparation—leveling, ditching, planting. For those who settled in areas, especially in the San Joaquin Valley, where the only water in significant volume was underground, an added expense was the gasoline- or electricity-powered pump that became available by the late nineteenth century. This innovation proved a boon to agriculture, but its long-term blessings were mixed. From less than a million irrigated acres in 1900, such lands in the Central Valley expanded to about three times that area during the next four decades, though the advances produced unwanted side effects.³⁶ The cost of pumping increased as the water table fell and farms faced the possibility of exhausting the underground aquifers. In some areas, the higher costs forced the abandonment of fields, while in others the declining water table had led by the 1920s to the death of native flora and great numbers of ancient oak trees. The U.S. Reclamation Service hardly made a difference when it first entered the valley. As Donald Pisani has shown, its projects were few, small-scale, and hampered by inadequate resources, opposition from large landowners fearful of the 160-acre limitation, and confrontations with the Army Corps of

Engineers whose primary interest was maintaining the navigability of the Sacramento River, not providing for irrigation.³⁷

By the 1920s the dismal record of the Reclamation Service in the Central Valley and in California and the West generally had produced tens of thousands of bitterly disappointed farmers and would-be farmers. The Reclamation Act, viewed by many as the most promising Progressive Era reform for combatting monopoly and promoting the family farm, had failed on both counts. Nor had the Progressive reforms on the state level fared much better. Hiram Johnson's water commission, touted as the means for eliminating litigation over water rights, had been unable to do so because of court challenges, inadequate funding, and insufficient power to enforce its decisions. More promising at first were the improvements to the irrigation district and the changes that followed. Greater state control over district organization and financing, together with increased demands for specialty crops (intensified by booming agricultural prices during World War I), improvements to the refrigerator car, and revenues from district hydroelectricity sales that reduced farming costs, led to rapid growth in new districts and irrigated acreage. The number of districts statewide increased from a handful in 1913 to nearly ninety by the late 1920s, while the land watered by these agencies mushroomed more than eightfold to 1.6 million acres by 1930, increasing the state's total irrigated area to 4.5 million acres, the highest in the nation. "It seemed to me," noted Frank Adams, head of the California Division of Irrigation, "everyone wanted to form an irrigation district then."³⁸ The number of farms also increased (from about 73,000 in 1900 to more than 150,000 by 1935), while the average farm size dropped appreciably from just under 400 to slightly more than 200 acres during the same period.

Yet such figures, impressive as they were, did not mean significant advances for the family farm or setbacks for monopoly. While the number of farms increased, the percentage of land in larger holdings not only remained high but rose dramatically. In 1920, for example, 60 percent of the land was in farms of a thousand acres or more, and within fifteen years, the percentage had increased to 70.³⁹

Not only was more land being held by fewer owners, those owners were increasingly dictating water policy at the local level. This followed the revitalization of a practice first introduced in the late-nineteenth-century swampland district: property-weighted voting. When deciding important issues, those district members with more land had more votes. In 1921 this principle reemerged in a new kind of organization, the *water storage district*, a novel response to those large landowners desiring to construct and control local reservoirs. Unlike the one-man, one-vote requirement of the irrigation district, the water storage district allocated votes on the basis of the value of an owner's holdings—in this instance, one vote for each \$100 of assessed valuation. Within a year the Kern County Land Company and two other conglomerates had petitioned to create such districts in the San Joaquin Valley. The Kern County company, as an example, unsurprisingly brought off an election creating a 250,000-acre district in which it held almost half the votes.⁴⁰

Most large landowners were not interested, however, in spending their own money for reservoirs of any appreciable size so long as there remained the possibility that the state and federal governments would do it for them. The power of that belief resulted in only nine water storage districts being created in the next half century. The concept of property-weighted voting, however, was another matter altogether. It readily appealed to the increasing numbers of big growers, resulting in the creation of a host of new water districts serving a variety of purposes. Many of them were established by special acts of the legislature, and all of them incorporated some form of property-weighted voting for important measures. At the same time, agriculture continued to concentrate in ever fewer hands. The number of farms over a thousand acres increased their combined property from 17.6 million acres in 1920 to nearly 25 million acres in 1945. That trend as well as the number of special districts accelerated even more dramatically in the decades that followed.⁴¹ Thus did the family farm and local democracy fade from the California countryside.

The agricultural depression following World War I, the cycle of floods and droughts, the mounting costs of operation, and the de-

clining water table took their toll, especially on the smaller farmers, who with increasing frequency lost their lands and fell into tenantry or migrated to the rapidly growing cities with their myriad job opportunities. The larger farms and great landowners who had subdivided few, if any, of their holdings found it easier to survive—and profit—by taking advantage of economies of scale and the availability of an inexpensive, mobile labor force to harvest their crops. They relied primarily on the Chinese in the late nineteenth century and then, after federal legislation forbade their immigration, the Japanese until the Gentlemen's Agreement of 1907–1908 and the Immigration Act of 1924 barred their entry. In the 1920s they turned to Asian Indians, Filipinos, Mexicans, and Mexican Americans, with the latter two groups supplying 70 to 80 percent of the agricultural workforce by 1930.⁴²

Farming advanced in California during the early decades of the twentieth century, but there was always a tenuous quality about it, especially for those in the Central Valley and including even the large landowners. The big growers, as well as those with less acreage and those who only dreamed of securing a farm, sought the security of a comprehensive water program—a program that captured floodwaters otherwise going to waste at sea (later generations would question this concept of “waste”) and that only government could afford to undertake. Some at first worried that help from government, whether based in Sacramento or Washington, would restrict their freedom of action, but they worried less about this in the face of the mounting seriousness of the problems they confronted.

Toward a State Plan

The search for a comprehensive water plan for the Central Valley went back at least to 1856 when the California surveyor general called for a “system of reclamation . . . for the whole State where required.”⁴³ Thereafter, others echoed that theme and both the state and federal governments launched investigations, with the massive studies of state engineer William Hammond Hall graphically de-

tailoring the problems. No one advanced a substantive proposal until 1919 when increased population and heightened difficulties in the valley and delta prompted Robert B. Marshall to publicize a dramatic plan. A highly respected former member of the U.S. Geological Survey, he had spent years surveying the topography of California. He drew on that knowledge to design a bold project that promised something for every major part of the state. His “Marshall Plan” called for a large dam on the upper Sacramento River and two aqueducts for varying distances on either side of the Central Valley to reclaim vast sections of the Sacramento and especially San Joaquin valleys from their current waterless or low-water conditions, to provide water to San Francisco Bay cities, to improve the navigability of the Sacramento River, and to prevent saltwater intrusion into the delta. For southern California, the project would divert the Kern River to Los Angeles and the south coast by way of a tunnel through the Tehachapi Mountains. Some 12 million acres would be reclaimed in the Central Valley as well as in neighboring Santa Clara, Livermore, and Concord valleys, while Los Angeles would receive four times the volume of water then arriving through the Owens aqueduct. Revenue for the vast scheme would come from the sale of water and electricity generated at state power plants erected along the system.⁴⁴

Despite its promise of something for nearly everyone, Marshall's plan failed to gain approval either in the legislature (where in 1921 it passed the senate but failed in the assembly) or in three modified versions that went on the ballot as initiatives and were rejected by voters in 1922, 1924, and 1926. Nor did Marshall, who harbored ambitions for a state senate seat, help matters by flip-flopping on his own plan, opposing the 1922 initiative, favoring an identical initiative two years later, and then returning to the opposition in 1926. To a great extent, Marshall's plan became a victim of its huge price tag (estimated by Marshall himself to be as much as \$800 million) and of nationwide agricultural surpluses in the 1920s that made any increase in farmland seem senseless. The depressed crop prices also aroused opposition among the more successful irrigation districts,

which feared a decline in their land values if more acreage became available. The most intransigent critics were private power firms angry over the provision for state power plants which they denounced as "sovietization." While strong support for the idea came from Progressive Republicans (including significant financial contributions from such Progressive stalwarts as Rudolph Spreckels, William Kent, and John R. Haynes), the influence of Progressives waned on some issues in the mid-1920s and then after 1930 as they came to constitute a minority among the increasingly more conservative Republicans who dominated the legislature. Even with the aid of moderate Republican governor William Stephens, they found it exceedingly difficult to counter the vigorous opposition from Pacific Gas and Electric and Southern California Edison as well as those criticizing Marshall's plan on other grounds.⁴⁵

Also joining the naysayers were professional engineering groups, which believed that Marshall had failed to collect adequate data on storage sites. Another concern was the north's fear that it might someday need the water sent south. Los Angeles's pummeling of the Owens Valley and retaliatory dynamite attacks on the aqueduct during the 1920s had raised a specter that no northerner wanted repeated on a statewide scale. To many, the most serious drawback was riparian law. The holders of riparian rights along Central Valley streams, it was feared, could delay, if not prevent altogether, the large-scale water transfer envisaged in the plan.

During the next decade, several developments combined to overcome the major obstacles to a comprehensive water plan. The most troublesome involved riparian law. California courts, it will be recalled, had broadened the doctrine to permit riparians (those who owned property adjacent to a river) to engage in irrigation so long as they recognized that all riparians on the same stream possessed a similar right. As a practical matter, this meant that riparians had reciprocal rights and an obligation to use water reasonably with respect to one another. The problem was that riparians insisted they had no obligation to be reasonable—that is, avoid wasteful practices—in their dealings with appropriators on the same stream.

(Appropriators, it will be remembered, ordinarily lived some distance from the rivers whose waters they used under the law of appropriation.) In 1926 the state supreme court in *Herminghaus v. Southern California Edison* agreed with them. Riparians, announced the court, could not be deprived of their rights to a river's flow, including floodwater, even if they used the water wastefully. The decision effectively prevented appropriators from building dams on rivers claimed by riparians and trapping the floodwaters absolutely necessary for new development at some distance from the streams, or for recharging distant and declining underground aquifers.⁴⁶

The ruling shocked the public into howls of protest which culminated in 1928 with a popularly voted initiative amending the state constitution and prohibiting any "waste or unreasonable use" of water. The "rocking chair" theory of riparian rights was gone; riparian owners could no longer just sit by an adjoining water course and, even though not using it, claim a right to its undiminished flow. To survive a challenge from an appropriator, a riparian had to put water to "*reasonable beneficial use*." Debate would continue on the meaning of "reasonable" and "beneficial," but the amendment removed a significant hurdle to statewide water planning and established a principle that legal experts agree remains "the central theme of modern California water rights law."⁴⁷

Anticipating approval of the amendment, the legislature during the previous year authorized the state to establish water rights in its own name—to the floodwaters that it intended to trap—and absolved the state of the requirement to diligently use the water in order to maintain its rights. In this way, the state could acquire and hold on to rights until its projects were constructed. As for northern California's fear of a repetition of the Owens Valley incident on a statewide scale and its wish for assurance that it could someday get back water sent south, the legislature responded in 1931 with the county-of-origin law, a statute applying only to appropriations for the state project and stipulating that counties could retain water rising within their boundaries if needed at any time in the future.⁴⁸ Not everyone—north or south—felt comfortable with the law, and

many questioned its constitutionality, but it helped win the support of some who otherwise would have resisted a statewide plan.

Two remaining major obstacles to a comprehensive program for the Central Valley were engineering data and cost. These difficulties were partly overcome in 1931 when State Engineer Edward Hyatt unveiled a plan that, while still impressive, was considerably scaled back in comparison to Marshall's proposal. The Hyatt price tag was estimated at \$500 to \$600 million (\$200 to \$300 million less than Marshall's) and the engineering requirements were fewer and better detailed. During the decade following the legislature's rejection of Marshall's plan in 1921, both the state and federal governments had collected and analyzed great quantities of data on state water resources and needs. The proposal that Hyatt released in 1931, christened the "State Water Plan" (not to be confused with the State Water Project launched nearly three decades later), required Californians to shoulder the bulk of the cost, but there would also be contributions from Washington for those aspects which involved federal responsibility: flood control and navigation improvement.⁴⁹

Stripped to its essentials, the Hyatt proposal, like Marshall's, called for: (1) a major reservoir on the Sacramento River (at the present-day site of Shasta Dam) to store floodwaters; (2) regulated releases to improve navigability along the lower Sacramento and to prevent saltwater intrusion in the delta, while also providing additional fresh water for the growing cities, industries, and farms along the southern delta; (3) an interconnected canal and reservoir system for taking the Sacramento River water, which had been stored behind Shasta Dam and slowly released, out of the delta and down into the much drier San Joaquin Valley; and (4) an aqueduct from the Colorado River to the southern California coastal plain. The entire undertaking, as in the Marshall Plan, was to be paid for by water and power sales.

Almost immediately, however, the proposal was modified in one important particular. Since southern Californians had already taken steps to secure Colorado River water on their own and feared that involvement with the state would unnecessarily delay and compli-

cate their plans, they asked not to be included in any future undertaking. With the absence of southern California, Hyatt's so-called State Water Plan automatically became essentially a Central Valley project, transferring water from the northern Sacramento Valley to the San Joaquin Valley.

American Political Culture and the Central Valley Project

The release of Hyatt's plan coincided with the most severe economic catastrophe in American history, the Great Depression of the 1930s. That crisis had profound consequences for American political culture generally as well as water policy and projects both nationally and throughout the West. Measured by the number of people thrown out of work, businesses destroyed, banks made insolvent, farms and homes lost through foreclosure, tenants evicted from the land, city dwellers thrown onto the streets, and overall social misery, the depression of the 1930s was unprecedented, far surpassing the panic of the 1890s, until then the greatest financial debacle experienced by the country. On that earlier occasion, Democratic President Grover Cleveland's failure to respond with effective countermeasures to the crisis or to address boldly other social problems long building in the rapidly urbanizing and industrializing nation had led to strong popular rejection of him and his party. The repudiation was so overwhelming that it shifted the country's political balance of power over to the Republicans until the 1930s, as voters rallied around that party's traditional commitment to strong and active government, centralized planning, and Progressive Era reforms. The party secured such a tight lock on the White House that it surrendered only to Democrat Woodrow Wilson (also a reformer and believer in an activist central government) during the next four decades.⁵⁰

The eruption of the Great Depression found a Republican as President, Herbert Hoover, who was soon reaping the same public scorn for inaction earlier heaped on Democrat Cleveland. Hoover actually did much more to combat the economic emergency facing him

than Cleveland had done years before, but in the public's view he failed to do nearly enough. Voters summarily rejected him, as they had Cleveland, and in the election of 1932 placed their confidence in Franklin D. Roosevelt's promise of a New Deal for all Americans. Though a Democrat, Roosevelt, like the Progressive Republicans of an earlier era, pledged to bring the full authority of the national government to fighting the depression. Once in office, he orchestrated the passage of a panoply of laws and the creation of a multitude of agencies aimed at providing relief, recovery, and reform. The staggering volume of activity made earlier Republican efforts seem minuscule by comparison and prompted widespread public perception that Democrats had replaced Republicans as champions of centralized planning and a strong, activist government. There was much truth in the popular perception, for profound readjustments had been taking place in American political culture that were producing reverberations throughout the nation.

To a great extent, the readjustments reflected changes in emphasis rather than a complete repudiation of earlier values. Whig/Republican ideology had always been sensitive to the needs of business, viewing the creation of a national environment favorable to investment and industrial development as a major responsibility of the central government. Thus, Republicans of the early twentieth century, like their nineteenth-century predecessors, advocated protective tariffs and internal improvements like highways, canals, and water projects as legitimate activities of government. During the Progressive Era, though their record on suffrage and their policies toward ethnic minorities were badly flawed, they also had an especially sensitive social conscience. It emerged forcefully in reforms like those providing for workers' compensation, publicly owned hydroelectric plants to assure fair rates and serve as a check on the so-called power trust, and pure food legislation, just as their moral values had earlier found expression in demands that blacks be freed and given civil rights.

During the 1920s, however, as business flourished and as the nation's cities filled with hundreds of thousands of immigrants from

southern and eastern Europe, Republicans increasingly came to believe that the promotion of business and restriction of immigration (Whigs/Republicans had always frowned on the cultural baggage of newcomers) were the only really important functions of an activist government, with business far and away the more important of the two. In practice, such thinking led to the elimination or nonenforcement of numerous regulations hampering business in its search for profits; repudiation of the earlier Progressive support for public power (as had already begun in the struggles for the Boulder Canyon and Central Valley projects); and opposition to government at the national level assuming responsibility for social problems like unemployment and welfare. Relief for the unemployed and destitute, according to Republicans, even in times of severe economic dislocation, should be provided through voluntary efforts, charitable organizations, state and local governments, and by the affected individuals themselves who, it was believed, often merely had to work harder to retain and advance in their jobs. Thus, when it came to programs on behalf of the general public, Republicans, on the eve of the Great Depression, had begun taking over and espousing the old Democratic principle of *laissez-faire*—a principle that restricted Herbert Hoover's ability to move effectively against the economic catastrophe that greeted him.⁵¹

The Democrats, meanwhile, had been moving toward the earlier Whig/Republican preference for a strong, activist government, but in the spirit of their traditional mood of distrust of powerful business interests. Cautiously at first in the industrialized states (New York, Illinois) from about 1910 on, and at the national level during the administration of Woodrow Wilson (1913–1921), and then dramatically in response to the upheaval of the 1930s depression, they abandoned their traditional *laissez-faire* stance and transformed the federal government into a vigorous engine for large-scale, centralized planning and reform. They found a powerful constituency in the general American public hard hit by the depression, and especially among the Jews, Italians, Russians, Poles, Greeks, Czechs, Slovaks, and other new immigrants suffering from

mass unemployment and who had also been alienated by the Republicans' anti-immigration legislation of the 1920s. Following FDR's election in 1932, the Democrats solidified their support among voters with a barrage of laws regulating business; providing workers with jobs, the right to bargain collectively, and minimum wages; and assuring relief and Social Security benefits to the unemployed, sick, and elderly.⁵²

The cataclysm of the Great Depression did not cause the Democrats or Republicans to abandon altogether their traditional goals, but, rather, to make a shift in tactics.⁵³ Democrats remained firmly wedded to the Jeffersonian/Jacksonian ideals of individual freedom and protection of civil liberties, but they now saw the safeguarding of those freedoms in a strong, activist central government that could assure citizens a decent standard of living. Similarly, Republicans continued to stress the old Whig emphasis on government support for national economic development (through tariffs, highways, water projects, and the like) and friendliness toward business. Thus they now identified such support with greater *laissez-faire* and less government activity of any sort, especially when it came to the regulation of business, the promotion of public hydroelectric power ventures that competed with private business, and the support of social welfare programs.

Still, whenever broad political shifts occur, there are those whose values and tactics cause them to harmonize uneasily, and frequently not at all, with the new majorities in their political parties. Some Democrats looked suspiciously on novel federal programs that they believed restricted individual freedom, undermined traditional labor relationships, and encouraged minority bloc voting and class warfare. They often hid behind the banner of states' rights and sided with Republican opponents of some New Deal programs. Similarly, many Republicans refused to abandon their Progressive ideals, which they now believed flowered in the New Deal policies of FDR.

This possibility for party labels to mask a range of political beliefs became especially pronounced in California where a system

known as "cross-filing" (enacted in 1913 during the Progressive Hiram Johnson administration) allowed a candidate to become the nominee of more than one political party for the same office. Candidates who won the primaries of both major political parties could count on almost certain victory in the general elections. Such a system downplayed the importance of party labels while enhancing the value of name recognition, a consideration that worked to the advantage of incumbents. Though Democrats established a three-to-two voter registration edge over Republicans during the depression, Republicans, the longtime incumbents in most elective positions, proved more adept at manipulating the cross-filing system and maintaining their control of the nominating process of both parties. They were aided immeasurably by a state press that was overwhelmingly Republican and by unofficial party associations (especially the California Republican Assembly, founded in 1934) that united local groups behind specific candidates.

With the exception of one four-year period (1939–1943), Republicans continued to control the governorship, as they had since the 1890s, and did so for three decades after the depression's onset. A Democratic landslide in 1958 finally led to the elimination of cross-filing the following year. Throughout the same period, Republicans outnumbered Democrats in the state senate and fell behind in the assembly only for six years (1937–1943). Such success tended to produce Republican officeholders who (while generally to the right of their Progressive predecessors) carefully avoided emphasizing their Republicanism before a largely Democratic electorate, who tended to be pragmatic rather than political ideologues, and whose positions on resource development and other issues frequently made party loyalty a matter of secondary importance.⁵⁴

The realignment within American political culture during the depression formed the new context in which water projects and policy generally were worked out during the next half century. It was a culture in which the two major parties could, despite their different positions, unite on the need for massive water projects and sometimes reach a compromise on such issues as public power,

acreage limitation, and ultimate ownership of the projects. Within California, it was also a culture shaped by the peculiarities of cross-filing (so long as that system remained in place) and by sharp regional differences over water policy that frequently cut across party lines and pitted the more humid north against the arid south. Signs of these changes had already emerged before the depression, but with that economic catastrophe and during the decades that followed, the new alignment of values and strategies moved forcefully to the forefront, nowhere more graphically than in the struggle over the Central Valley Project.

From State to Federal Project

In 1933, two years after State Engineer Edward Hyatt had released his Central Valley plan and with California and the nation in the depths of the depression, the state legislature endorsed the Central Valley Project (and \$170 million in bonds for construction of initial units). Though the margin of victory in the senate was narrow (two votes more than the majority needed), the assembly overwhelmingly approved the measure by a tally greater than five to one.⁵⁵ The affirmation reflected the project's relatively low estimated cost; compelling engineering studies; a severe drought that had gripped California since 1929 and would continue until 1935; the need for hydroelectricity for the state's farms, cities, and manufacturers; the promise of fresh water to combat saltwater intrusion and to meet the urban, industrial, and agricultural needs in the delta area; and the assurance of jobs that the project would create for the unemployed (20 percent of the state's population was on relief), a consideration that caused the earlier concern about a glutted agricultural market to pale by comparison.⁵⁶

Nonetheless, approval had not come easily. Though voters nationally were evicting Republicans from office in wholesale numbers, the party in California, primarily through cross-filing and avoidance of extremes, would maintain control of the governor's mansion and both houses of the legislature for most of the 1930s,

1940s, and 1950s. In 1933, the Republicans overwhelmingly outnumbered the Democrats in the legislature—nine to one in the senate and more than two to one in the assembly. With few exceptions the Republican majority, and some Democrats as well, resisted attempts (coming primarily from a handful of Progressive Republicans) to incorporate meaningful public power provisions into the Central Valley Project (CVP) Bill. Many objected to public power in principle, while others favored it, but not at the risk of getting the water project bogged down in a controversy with private power. Both groups did an about-face only when confronted with disturbing news from Washington. Depressed economic conditions made it abundantly clear to all that only the federal government could afford to purchase the construction bonds or otherwise provide funding for the CVP. When New Deal administrators learned that the California legislature planned to enact a bill without adequate provision for public power, their message was clear: no public power, no federal help. The result, in the words of one state senator, was “a complete capitulation to . . . public ownership.”⁵⁷

For the legislators, including the Republican majority, the shift came quickly because of their conviction that the project was far too important for California agriculture and business recovery generally to sacrifice on behalf of any single interest. Besides, so far as public power was concerned, the Republican Herbert Hoover administration had earlier (in 1930) made an important concession by allowing public agencies as well as private firms to sell electricity generated at Hoover Dam. In July 1933 Republican state legislators joined with Democrats to approve a CVP bill containing strong public power provisions by a vote of twenty-three to fifteen in the senate and fifty-eight to eleven in the assembly. Though a majority in both parties supported the legislation, a sizable portion of Republicans in the senate (about 40 percent of those voting) and a smaller number in the assembly (16 percent) registered dissent. The Democrats, as well, had some naysayers, but only one in the senate (out of a total of four who voted) and just three in the assembly (of the twenty who voted), though their percentage of negative votes in

the assembly (15 percent) was similar to that of the Republicans (16 percent). Analyzed by region, the tally revealed that the strongest support came, not surprisingly, from Central Valley delegates in both houses of the legislature. A similarly strong endorsement came in the assembly from northern representatives (above the Tehachapis) as well as those from the south, but in the senate the two regions only barely approved the project.⁵⁸ Thus, the measure had bipartisan and north-south support, but among Republicans and in both regions there were a significant number of dissenters. Still, a Central Valley Project Bill had finally been passed, and the legislature sent the measure to the governor who promptly signed it into law.

The struggle renewed almost at once, this time statewide. Warned that private power planned to strike back with a referendum campaign, Republican Governor James Rolph sought to deflect the threat by announcing publicly his strong support for the Central Valley Project: "If any special interests try to block this measure or delay it in any way, I am prepared to fight them to the last ditch of my executive authority."⁵⁹ He said nothing about the public power provisions in the new legislation, a reflection of his hope that, by not mentioning the matter, private power might back off.

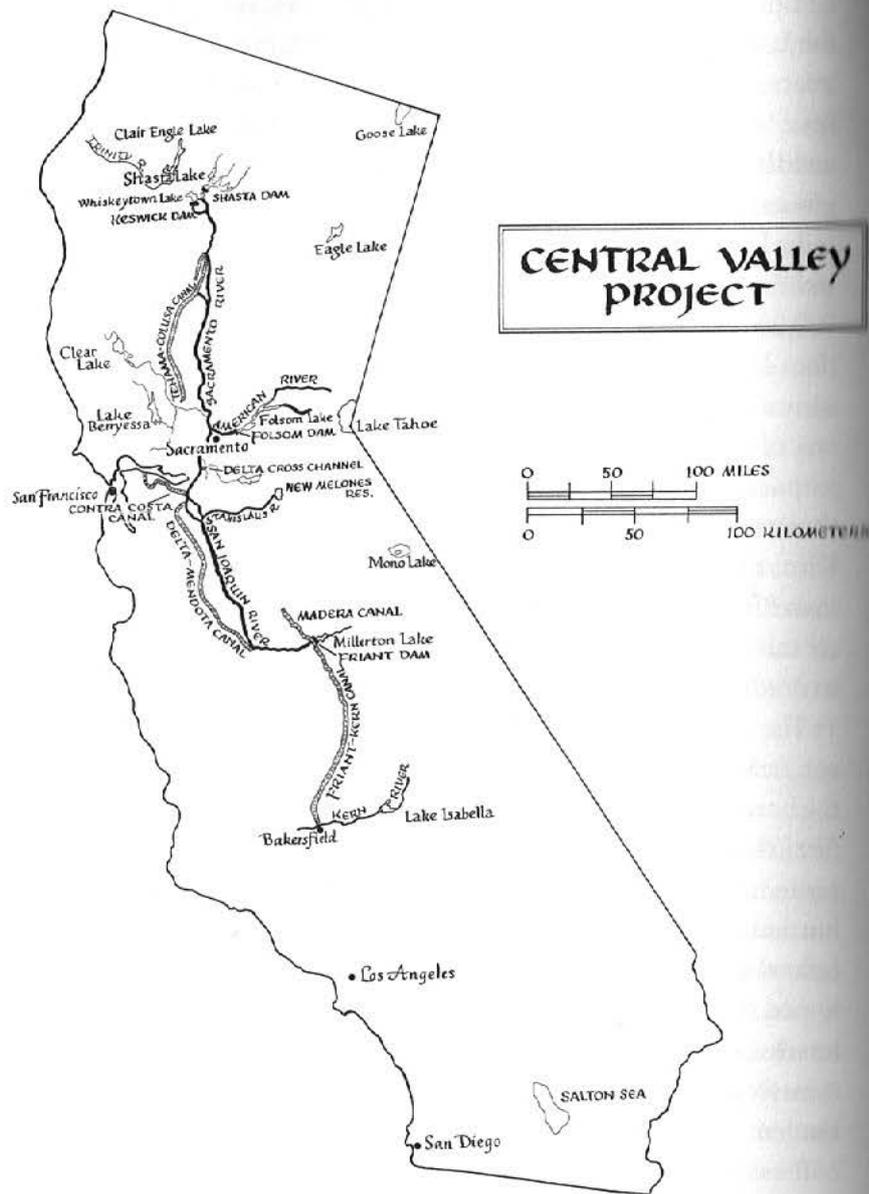
Rolph's strategy failed. Under the vigorous leadership of PG&E, opponents collected 85,000 signatures in less than two months and forced a referendum election. Southern Californians (excluded from the project as they had requested) also joined the opposition on the grounds that they objected to being taxed to help the north. Moreover, no projects for the south meant no jobs for residents there. Southern California's large orange-growing establishment, fearful that additional water would accelerate citrus production in the valley, slammed the proposal because of the competition it threatened to encourage. Rolph and Republican advocates of the CVP continued to emphasize the state's need for the project, with most saying little or nothing about power. Yet those supporters in the Democratic party (as well as the Progressive Republicans committed to public power) underscored the law's hydroelectricity provisions in

addition to its other benefits, a stance taken as well by the Grange, the League of Municipalities, and organized labor. Proponents also stressed that the CVP was a "rescue project," designed not to bring new lands into production but to save acreage already developed and threatened with destruction by drought and the depletion of groundwater supplies.⁶⁰

In December 1933 voters sustained the Central Valley Project, but the margin of victory was slim (33,600 votes out of more than 900,000 cast), owing to Los Angeles County's two-to-one opposition. In the north, nearly 70 percent of the voters in the counties surrounding San Francisco Bay supported the project, while all but one of the twenty-seven Central Valley counties approved it. Not surprisingly, the San Joaquin Valley registered overwhelming enthusiasm, delivering a five-to-one endorsement. Madera, Kings, Kern, and Tulare counties each returned a favorable vote greater than fifteen to one, and in Tulare County, where the declining water table had become especially hazardous, it reached thirty-three to one.⁶¹

The victory at the polls did not guarantee the Central Valley Project. Power and water revenues were supposed to pay for it, but first the bonds had to be sold to build the dams, canals, and power plants. Because of the worsening economy, California leaders did not even try to market the bonds but, as they had already anticipated doing, hurried instead to Washington for help. They had all along expected federal aid for flood control and navigation improvement, and had hoped that Washington would purchase the bonds or even provide interest-free loans or an outright grant for much of the construction. Now they asked the federal government to shoulder the entire burden.

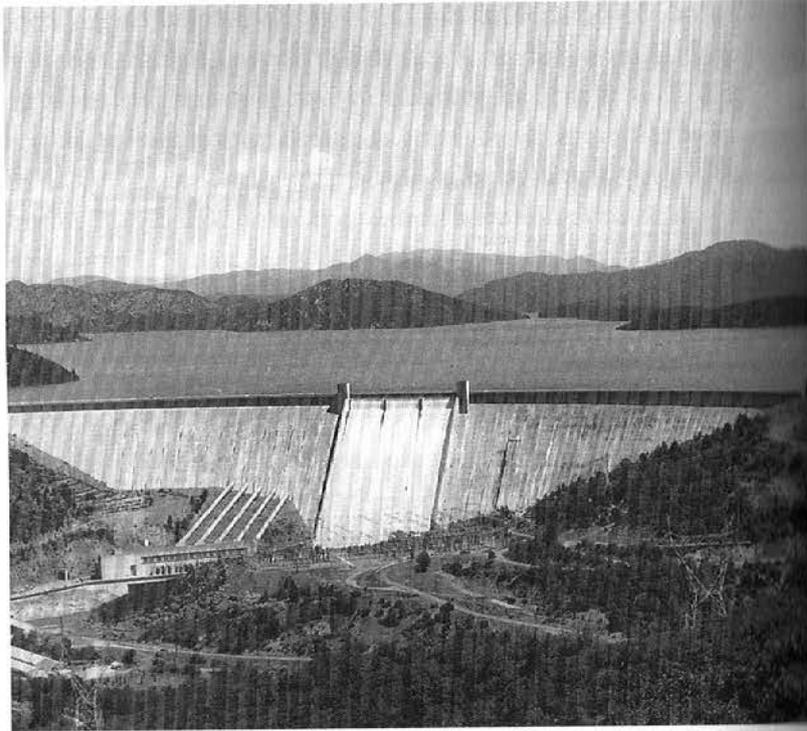
President Franklin D. Roosevelt, open to almost any proposal that would create jobs and soften the depression's harshness, proved sympathetic. In 1935 he released emergency relief funds so that construction could begin, stipulating that the allocation was made "in accordance with the reclamation laws." Two years later, after a brief scrap with the Army Corps of Engineers, which sought



the Central Valley undertaking for itself, he secured formal congressional approval for the Reclamation Bureau to take over the project.⁶² Thus what had started as a state undertaking now became a federal project, delighting the Reclamation Bureau, which was still heady from its gains in the Boulder Canyon Act. The change was to have profound consequences not only for the Central Valley but also far beyond California's borders.

A Project at Last

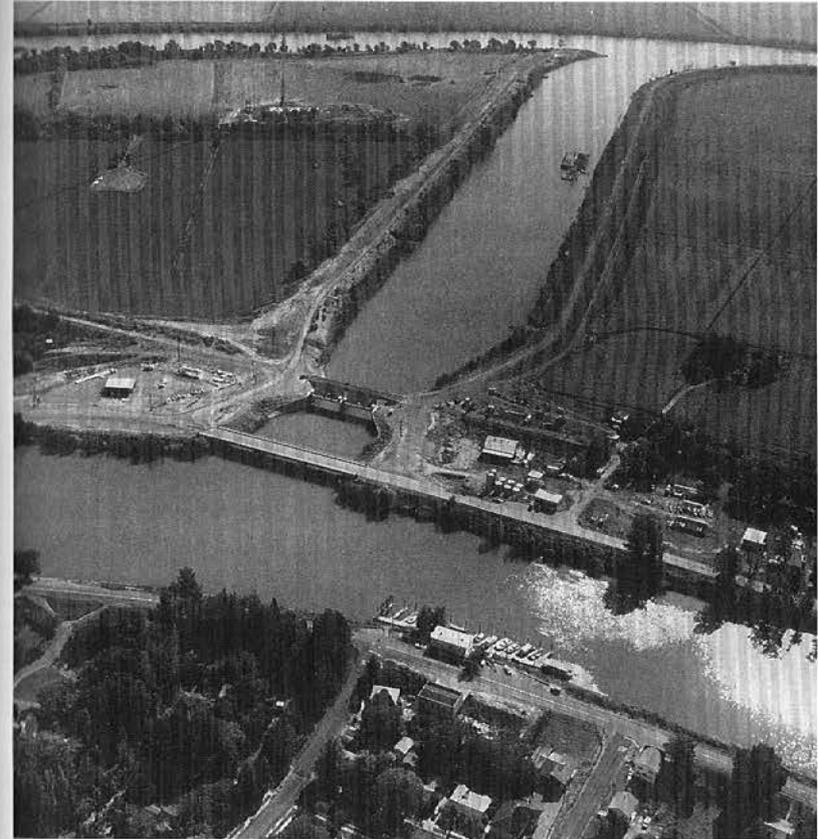
The federal takeover assured realization of the Central Valley Project, but its completion came slowly, piecemeal, and often with bitter clashes over policy that linger into the present. In its essentials, the project by the early 1950s consisted of several major dams to control floods, prevent saltwater intrusion into the delta, improve navigation on the lower Sacramento River, and provide irrigation water: Shasta and Keswick dams on the Sacramento and Folsom Dam on the American River, all of which would capture floodwaters and release them when needed into the Sacramento Valley's streams for irrigation; and New Melones Dam on the Stanislaus River and Friant Dam on the San Joaquin. (Folsom and New Melones were later additions to the original CVP, built by the Army Corps of Engineers in 1955 and 1978, respectively, and operated by the Reclamation Bureau.) In addition, it included four principal canal systems moving water in several directions for different purposes: the Tehama-Colusa Canal bringing water down into a section of the northern Sacramento Valley, on the west side; the Delta Cross Channel and Contra Costa Canal to impede saltwater intrusion into the delta and provide water for the farms, cities, and industries of the delta area; the Delta Cross Channel and Delta-Mendota Canal for moving water into and through the San Joaquin Valley; and the Friant-Kern and Madera canals serving irrigation needs in the San Joaquin Valley with runoff collected at Friant Dam from the Sierra Nevada. When completed, the Central Valley Project consisted of 20 dams and reservoirs and 500 miles of canals for man-



Shasta Dam and Lake Shasta on the Sacramento River near Redding, California, are the major northern components of the Central Valley Project. (Courtesy of U.S. Bureau of Reclamation)

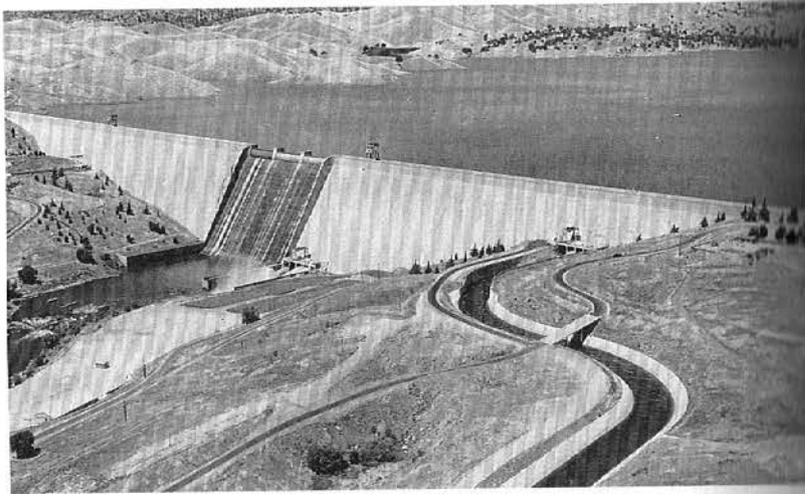
aging 9 million acre-feet of water supporting 2.5 million city dwellers, 3 million acres of farmland, and a vast array of fish and other wildlife. In addition, it generated 5.6 billion kilowatt hours of electricity annually at eleven power plants for some 2 million people, receiving \$34 million in power sales to help pay for the project.⁶³

Work on the Central Valley Project began in 1937 with the first power available for sale in 1944. Delivery of water to the San Joaquin Valley took even longer, not arriving until 1951 through the Delta-Mendota Canal, some fourteen years after the Reclamation Bureau had begun construction and had expended nearly a half billion federal dollars, more than two and a half times the \$170 million authorized by the state in 1933 and a gigantic infusion of federal money into the state economy. In part, the delays and high costs were due



Delta Cross Channel near Walnut Grove, California. Water is diverted from the Sacramento River through the Delta Cross Channel into Snodgrass Slough. It then flows through natural channels to the Tracy Pumping Plant where it is lifted into the Delta-Mendota Canal and sent south. (Courtesy of U.S. Bureau of Reclamation)

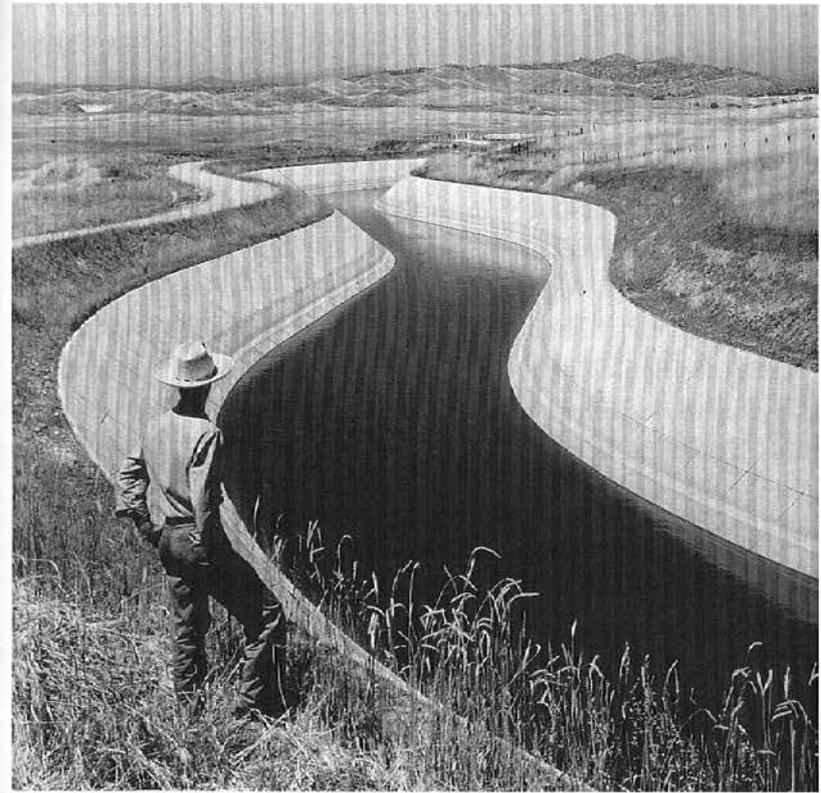
to shortages of material and personnel following America's entry into World War II. Time-consuming and expensive struggles invoking eminent domain to secure rights-of-way and water rights also hindered progress as did inflation and changes to the state plan mandated by discoveries in the field.⁶⁴ The delays were also due to bitter differences over two far-reaching policy issues: public versus private power and the 160-acre limitation provision. Both raised the question as to who should benefit from the cheap power and water that would be made available at taxpayers' expense.



Friant Dam, a key link in the Central Valley Project, is northeast of Fresno, impounds the San Joaquin River (creating here Millerton Lake), and makes possible diversions into Friant-Kern Canal (at right) for delivery as far south as the Bakersfield area. (Courtesy of U.S. Bureau of Reclamation)

Roosevelt's decision in 1935 to make his emergency allocation to the CVP subject to reclamation statutes and Congress's subsequent action putting the Reclamation Bureau in charge of the project automatically subjected the undertaking to reclamation law. That law mandated that project water could be used on only 160 acres. All irrigated acreage in excess of the limit, according to a 1926 amendment to the Reclamation Act, had to be sold within ten years at a price that reflected the value of the land prior to the arrival of project water. These conditions mirrored the purposes of the original 1902 legislation: to reclaim arid land, promote the family farm, and prevent speculators and large landowners from profiting at government expense. Landholders benefited from the government in two principal ways: they were not charged interest on the funds advanced by Washington to build the water delivery systems, and their operating costs were reduced by the revenue obtained from the sale of hydroelectricity generated at government plants.

The problem in the Central Valley was that all the land within the



Friant-Kern Canal about two miles below Friant Dam. (Courtesy of U.S. Bureau of Reclamation)

project area had passed into private hands long before the Reclamation Bureau's arrival. Moreover, the bulk of it was in holdings far greater than 160 acres and much belonged to absentee owners. This is not to say that most farmers held excess lands. About a dozen years before project water arrived, a government study revealed that 89 percent of the owners in three representative San Joaquin Valley counties held 160 acres or less. Most of the irrigable land (66 percent of it), however, was in holdings that exceeded the limit. And the bulk of that excessive land was in only a few hands: fewer than 6 percent of the owners held 53 percent of the excessive lands.⁶⁵

Another provision of reclamation law that came in for sharp de-

bate concerned hydroelectricity. The law (a 1906 amendment to the original legislation) stipulated that power generated at Reclamation Bureau plants be used to construct and maintain the projects, with surplus electricity being leased at the lowest possible cost and "preference" given to "municipal purposes."⁶⁶ Private power companies had all along vigorously opposed government distribution of power as "socialistic and un-American." When the California legislature had originally approved the CVP as a state project in 1933, it had authorized only public power production with sales preference to public agencies, a decision reaffirmed by voters in the referendum election on the issue later that year. Private power firms refused to admit defeat, however, and now that the CVP was a federal undertaking, they waged a protracted struggle to undermine the public power provisions of reclamation law.

The Battle over Acreage Limitation

For nearly a decade following Washington's decision to put the Reclamation Bureau in charge of the Central Valley Project, federal officials soft-pedaled the controversial aspects of reclamation law. As with the Boulder Canyon Project, the Reclamation Bureau did not want to jeopardize an opportunity to get beyond past failures and become identified with enterprises of national and international distinction. This problem did not exist everywhere. On the lands irrigated with water from Grand Coulee Dam in the state of Washington, the Bureau could enforce restrictions on landholding without arousing vested interests and jeopardizing an enormous project. Grand Coulee, when completed in 1942, was a mile long, three times larger than Hoover Dam, and would serve the largest irrigation development ever underwritten by the federal government. Moreover, Congress had passed special legislation on that project in 1937 limiting holdings to small parcels of 40 acres and then six years later allowed the size to increase, but only to a maximum of 160 acres and only if the Secretary of the Interior agreed that the additional land was necessary to maintain a viable farm.⁶⁷

The sharp contrast with the many estate-size farms in California stemmed primarily from the lack of irrigation in the Grand Coulee area prior to the project's completion and from the absence of groundwater as an alternative source and a way of skirting federal acreage limitation. Furthermore, in California during the depression years, unlike at the as-yet uncompleted Grand Coulee, Reclamation Bureau officials were reluctant to do anything that might jeopardize the economic recovery of the vast farmland already developed. Then, too, there was always the chance that the rival Army Corps of Engineers, not subject to reclamation law and already engaged in flood-control efforts in the Central Valley, might mount a takeover bid. In 1943, however, Washington's policy of ignoring reclamation law in the Central Valley abruptly ended, unnerving California's growers and sending them hurrying for ways to protect themselves.

Precipitating the turnaround was a decision reached by Secretary of the Interior Harold Ickes, who for several years had contemplated taking such action. He shared Roosevelt's concern about the depression's downtrodden and found special cause for alarm in the contrast between the miserable plight of migratory farmworkers and the success of agribusiness so vividly described in 1939 in John Steinbeck's *Grapes of Wrath* and Carey McWilliams's *Factories in the Field*. So long as the field-workers had been primarily ethnic minorities, they had largely escaped the attention of even the most ardent New Deal reformers. That neglect, together with pressure coming especially from western and southern growers to exempt farm labor from New Deal reforms, had deprived field hands of the improved wages and working conditions and the right to organize given to industrial workers in federal and state legislation. The cheap labor costs made possible by the employment of these unfortunates had constituted a special subsidy provided growers by an America unaware of or uninterested in this agricultural underclass. By the 1930s nearly two-thirds of California's farmers were relying on hired workers, but most employed only a handful of people to work several days. Those primarily benefiting from serf-

like workers were a minority: 10 percent of the farmers, who by 1935 were producing more than half the crops with 75 percent of the harvest workforce.⁶⁸

By the 1930s, however, the farm workforce had undergone a major transformation, with the majority for the first time consisting of whites, many with their families, who had flooded into California from the Dust Bowl area. These were people with whom the majority of white Americans found it easier to identify, especially when their sufferings were graphically described by Steinbeck, McWilliams, and other critics. While Steinbeck aroused national public sympathy for them with his best-selling novel, McWilliams documented the brutal tactics of grower organizations like the Associated Farmers and set forth a bold solution to the problem: transform the large agricultural estates into farms collectively owned by the people working them. Ickes and Roosevelt seemed unwilling to go that far, but they did believe reform was mandatory. Reclamation projects should "give first chance to the 'Grapes of Wrath' families of the nation," asserted the President. To which Ickes added: "It is the age-old battle over who is to cash in on the unearned increment in land values created by a public investment."⁶⁹

Anticipating the uproar that a policy reversal would create in the Central Valley, the Reclamation Bureau dragged its heels on reform and further angered Ickes by supporting congressional measures exempting two projects from the 160-acre limitation: the Colorado-Big Thompson Project in Colorado in 1939 and the Truckee Project in Nevada a year later. Preoccupied with other matters, Ickes did not learn of the exemptions and the approval given them by his subordinates until Congress had acted (though Congress stipulated that the exemptions were not precedents for other projects). To circumvent the Bureau's conservative bureaucracy, Ickes, his resolve strengthened by the cheap power of the Tennessee Valley Authority and the prospect of more public power from the huge Bonneville Dam nearing completion on the Columbia River, created a Water and Power Division in his office. When even that proved un-

satisfactory, he named a new commissioner of reclamation sympathetic to his views. Then, in October 1943, Ickes, his new commissioner, and President Roosevelt publicly announced their intention to enforce reclamation law. That law's "provisions against water and land monopoly and against speculation in improved lands," declared Ickes, "not only protect the farmers today, but will protect all of the returning soldiers as well as all of the farmers who move into the . . . other great land openings of the future."⁷⁰

Growers reacted instantly and bitterly. The California Farm Bureau Federation, the Irrigation Districts Association of California, and other agribusiness interests pressed for investigations to determine the feasibility of the state's purchasing the Central Valley Project (CVP), and thus evicting the federal government. The anger proved no respecter of party lines. In early 1944, a Tulare farmer serving as a Democrat in the House of Representatives introduced a rider to an appropriations bill exempting the Central Valley Project from the acreage limitation. The Interior Department, he announced, had to be stopped from "trying to socialize agriculture and force Communism upon the people of the San Joaquin Valley." Besides, he cautioned, the department's policy could put land into the wrong hands: "Remember the Japanese and the trouble we had with them."⁷¹ The rider passed in the House but ran into stiff opposition in the Senate where Robert M. La Follette, Jr., of Wisconsin, a Progressive champion of the New Deal who had earlier held public hearings into corporate agriculture's violations of farmworkers' rights, rallied enough support to kill the measure.

In the same year, proponents of acreage limitation gained another victory by including the restriction in legislation authorizing the Army Corps of Engineers to build dams on rivers flowing into the eastern Central Valley. Growers had lobbied hard for construction by the Corps because the acreage limitation did not apply to that agency's projects. The Corps had enough support in Congress to get the assignment, but neither it nor the growers could derail a stipulation in the law making the projects—which eventually included Pine Flat Dam on the Kings River, Folsom on the American,

and New Melones on the Stanislaus—subject to reclamation law. Subsequent legislation mandated that the irrigation waters of the completed projects be under the specific control of the Reclamation Bureau. As for maneuvers for state ownership of CVP, Ickes dashed them—at least for the time being—by quoting a purchase price of \$357 million.⁷²

In the meantime, the resolve of acreage-limitation advocates stiffened in 1944 when they reviewed the findings of Walter Goldschmidt, a young anthropologist from the University of California in the employ of the Bureau of Agricultural Economics. Goldschmidt had studied social patterns in two sharply different Central Valley towns. Dinuba, surrounded by farms averaging about sixty acres, had residents with more evenly distributed incomes, a higher standard of living, a richer community life, more schools and parks, access to more local businesses, and fewer farm laborers than Arvin, situated among farms averaging some 500 acres in size. Dinuba had not only smaller farms but more of them—nearly five and a half times more. All of which led Goldschmidt to conclude that the “differences in the communities may properly be assigned confidently and overwhelmingly to the scale-of-farming factor.”⁷³

“Technical Compliance”: A Bipartisan Legacy

The growers’ defeats in Congress and studies like Goldschmidt’s signaled a high point in the government’s efforts to enforce acreage limitation that now began a turnaround. Even earlier, the related issue of working conditions of farm laborers had ceased to be a matter of public concern. World War II had siphoned white field hands into the military and urban defense industries, leaving agricultural work, as before, to politically weak ethnic minorities (mainly of Mexican descent by this time) who remained underpaid, outside of politics, and unable to organize, now primarily because of the government’s “bracero program.” That program, which was initiated in 1942 and would last more than two decades, brought in workers from Mexico whose wages were set sufficiently low to undermine

attempts of domestic laborers to improve their own incomes and conditions. As earlier, a minority of large farmers employed the vast majority of farmworkers and thus reaped the largest benefit, in increased profits, from this subsidy. A measure of the new climate of opinion was the Bureau of Agricultural Economics’s decision to withhold publication of Goldschmidt’s study. When after two years it finally appeared in print in 1946, it did so as an obscure U.S. Senate committee publication. The findings, however, were too explosive to remain overlooked, especially by an agribusiness that had anticipated Goldschmidt’s results and had begun attacking him as an unpatriotic and “silly professor” while he was still gathering data in the field.⁷⁴

Of more immediate importance in undercutting efforts at acreage limitation was Roosevelt’s death in 1945 and the resignation of Ickes and his commissioner of reclamation not long after in 1946. There followed a reversal of policy in practice, if not in theory. The new commissioner, Michael Straus, although sporting “a set of formidable eyebrows that ought to have intimidated any valley grower,” had different priorities than his predecessor as well as sympathetic superiors who left him alone. Straus was less interested in reform than in continuing the Bureau of Reclamation’s growth into becoming one of the biggest and busiest bureaucracies in the nation. He succeeded, and in large part because of the climate of support provided by the new Harry S. Truman administration. It shared the widespread fear in America at large of an inevitable post-Second World War depression like that of the 1930s. Thus, the Truman administration believed that economic expansion was, in the words of one of the President’s key advisors, “the very essence of our development as a nation.”⁷⁵

Indeed, so important did economic growth become in the thinking of the Truman administration that it submerged the earlier New Deal emphasis on enforcing reclamation law and redistributing the excess lands into family holdings. Instead, as Clayton Koppes has noted, administration officials had become convinced that “the wartime partnership between government and business had proved

capitalism capable of an almost unlimited expansion that would obviate the need for redistributive policies."⁷⁶ Veterans who might take up farming for the first time or return to that life were seen as having innumerable and more attractive job opportunities in the nation's booming industries and cities. This change of circumstances, concluded the members of an Interior Department seminar as early as 1945, called for recognizing the role of "farms operated as business enterprises" as well as small-scale family units.⁷⁷ In other words, the traditional dream of government-fostered small farming, to aid social health, was dying. There was strong resistance to revising reclamation law, but nonetheless a willingness to consider compromises and overwhelming enthusiasm for the Reclamation Bureau expanding its activities to keep pace with the demands of the metropolitan areas for food and the irrigation needs of the farms supplying them. Under Truman, what was good for the Bureau of Reclamation was seen as good for the nation. Congress became more generous to the Bureau than at any time before or since, awarding it sums never contemplated earlier, including a record appropriation for a single year of \$359 million in 1950.

Such success rested on a Bureau policy of trying to accommodate all major interest groups. Reclamation Commissioner Straus worked ceaselessly to curry Congress's favor and to disarm potential critics inside and outside of Washington. During his first year in office he ran into continued stiff opposition over the Bureau's still official policy of enforcing the acreage limitation requirement. Especially outspoken was California's Democratic Senator Sheridan Downey, a former left-winger (he had been Upton Sinclair's running mate for lieutenant governor of California in the End Poverty in California, or EPIC, campaign of 1934) who, at least on the question of acreage limitation, had moved to the right with all the fervor of the converted. In 1947 he introduced a bill to exempt from the restriction not only the Central Valley Project but also, in an obvious bid for wider support, two projects outside California as well.

Downey claimed he acted out of a desire to help both large and small farmers, but his tangled explanations found support only

from agribusiness and its allies. The National Grange (representing mostly small farmers), organized labor, the Disabled American Veterans, National Catholic Rural Life Conference, and numerous other groups found him unconvincing if not incomprehensible. In still another move in 1947 to influence public opinion, Downey published *They Would Rule the Valley*, the "they" being allegedly misguided Reclamation Bureau officials who were determined to "bring ruin to thousands of our California farmers and return to the desert hundreds of thousands of now rich and productive acres."⁷⁸

Straus wanted to appease, not confront, Downey and others like him, the more so because they had persuaded California officials to explore once more the possibility of buying the Central Valley Project from the federal government and thus eliminating the 160-acre limit. Taking a major project from the Bureau at a time when Straus wanted to preside over unprecedented expansion, not shrinkage, was anathema to the new commissioner. The happy solution to the threat—for him at least—was "technical compliance."

Straus believed that he could not openly abandon the excess land law, because to do so would deprive the Bureau of needed votes of easterners in Congress who generally looked unfavorably on federal support for western reclamation projects. So long as reclamation could be viewed as "a settlement and homesteading program"—and the 160-acre limitation was essential to such a view—their support could be counted on. Straus's policy, as revealed during the debate on Downey's bill to suspend the acreage limitation requirement, was to defend the law while at the same time telling growers how to get around it through "technical compliance." Such compliance took several forms. If a corporate farm was owned by stockholders, each could obtain water for 160 acres. Another possibility would be for a grower to deed land to his relatives and children. An owner could also deed land to employees and then lease it back. Perhaps the most imaginative device was the "accelerated payment" in which wealthy landowners could avoid disposing of excess lands by paying off all construction charges for their irrigation systems in a lump sum before the ten years had passed, at

which point reclamation law mandated that they must sell their excess land. The theory was that once the federal government had been paid back, it could not force owners to dispose of excess lands—a theory that ignored the continuing enormous subsidies in the form of cheap taxpayer-provided water going to those landowners.⁷⁹ Such loopholes did not seem unreasonable to agribusiness leaders, since earlier the Reclamation Service had successfully done something just as imaginative. In 1916 it had construed the law to allow a husband and wife water for 320 acres.

Straus's willingness to go along with technical compliance had the desired effect: Downey's bill died in committee and the Reclamation Bureau secured enough support in Congress to expand its operations to a grand scale, which by the late 1960s included supplying water to 8.5 million acres of western farmland, generating over 33 billion kilowatt-hours of electricity, and providing 2 million acre-feet of water to municipalities. In addition, the Bureau achieved on paper virtually perfect compliance by Central Valley Project lands with the acreage limitation restriction. Without legally changing the law, the Bureau, as Clayton Koppes has observed, had administratively changed it "to reinforce the most skewed land-tenure pattern in the nation."⁸⁰

The Bureau's action had implications for the entire West, since the technical compliance strategies devised for California were adopted by many water districts elsewhere. Persistence of large landholdings in the valley also received added strength from the Bureau's nonenforcement there (as in the Imperial Valley) of the reclamation law's residency requirement as well as the prohibition against selling land at a price inflated because of the availability of federal water. Failure to enforce the latter provision not only enabled sellers to reap great profits but also made it increasingly difficult for all but the wealthy to purchase farmland.⁸¹

The policies introduced by Straus continued into the Republican administration of Dwight Eisenhower, though with this difference: Republicans (at first, anyway) chafed at the duplicity, denounced the restrictions as threats to the free enterprise system, and com-

plained generally about the size and cost of government. In a stance reflective of their post-Progressive Era/New Deal emphasis on *laissez-faire*, they criticized reclamation law's restraints as futile, discriminatory, and federal interference in matters better left to state and local governments and private business. Washington's participation in water-resource development was necessary, acknowledged Eisenhower in his first message to Congress in 1953, but that participation had to be more cost-effective and within the framework of "a partnership of the States and local communities, private citizens, and the Federal Government."⁸²

As the new administration tried to determine the practical meaning of "partnership," to define the precise roles of the various players, and to identify where costs could be cut, it slowed construction on some projects and stopped work altogether on others. The result was a graphic illustration of how the Republicans' pre-New Deal emphasis on an efficient overall program had given way to localism, for each reclamation project was now subjected to an individual, time-consuming analysis. The delays and reduced expenditures soon produced enormous resentment in the West that spilled over into the congressional elections of 1954. Western Democratic victories helped that party regain control of Congress, lost two years earlier in Eisenhower's landslide capture of the White House.⁸³ Stung, the administration immediately saw the wisdom of forming a "partnership" with Congress that brought water-resource development nearly back to the level of the Straus years.

Similarly, the restrictions in reclamation law became the target of attacks calculated to produce political gains rather than actual changes in a law that, essentially ignored, was not otherwise worth the bother. Criticisms reflected the Cold War hysteria and McCarthyism of the 1950s. When California Democratic Congresswoman Helen Gahagan Douglas announced support of acreage limitation, Republicans cited her position as evidence of communist leanings. The Interior Department, like other agencies in the new administration, began the wholesale firing of "rabid New Dealers," "security risks," and those capable of being "intimidated

or blackmailed by communists."⁸⁴ Some seven thousand Interior personnel, including Straus, left its employment during a two-year period, but the old Straus policy of technical compliance remained firmly in place. The Eisenhower administration, with technical compliance alive and well, had no reason to fight for changing a law that went unenforced, while Congress, under Democratic control after 1954, believed it had nothing to gain and much to risk politically by changing a policy introduced during the Democratic Truman administration.

The Truman-Eisenhower consensus on resource policy persisted long into the future, perhaps nowhere more clearly than in the person of Floyd Dominy. Eisenhower's last commissioner of reclamation, Dominy remained in office through the Democratic John Kennedy and Lyndon Johnson administrations. Indeed, though the political balance of power would shift in the coming decades and reclamation law would undergo change, the policy of technical, rather than actual, compliance with the law would persist to the present.

Public versus Private Power

The dispute over hydroelectricity generated by the Central Valley Project was nearly as intense as the battle over acreage limitation. The private firm of Pacific Gas and Electric, with a virtual monopoly over power distribution in northern and central California, adopted a strategy similar to the one it followed in the conflict over Hetch Hetchy power and waged an aggressive campaign to prevent the Reclamation Bureau from competing with it. At first PG&E concentrated on securing the right to distribute all the power generated in public facilities, even that destined for the Bureau's own water-pumping plants. This was a struggle that the utility waged in both Sacramento and Washington, D.C. In California it drew upon strong Republican and grower support in the late 1930s and early 1940s to defeat bills that would have enabled public agencies to build local government-owned facilities to receive power from a federal distribution network. In Washington, PG&E lobbied with

uneven success against appropriations allowing the Reclamation Bureau to construct its distribution system, but the private utility received a major boost with the outbreak of World War II, which deprived the Bureau of materials and priorities for transmission lines. To meet the wartime demand for electricity, PG&E obtained short-term arrangements to deliver power (at a profit) to its own customers and to public agencies.⁸⁵

In this struggle, PG&E found a powerful ally in big agriculture. Though the company and the growers had battled one another over initial approval of the Central Valley Project, with PG&E opposed because of the public power provisions, the growers now joined the utility in fighting the government's attempt to market power. The reason, paradoxically, lay in the Reclamation Bureau's low-cost power policy. On the one hand, the Bureau's intention to sell the electricity cheaply would result in little revenue for reducing the cost of—and hence the farmers' payments for—their government-constructed irrigation systems. PG&E, on the other hand, would charge higher rates, thereby producing not only profits for the company but also more revenue for reducing the costs of the farmers' systems. The possibility of higher rates did not bother the large farmers, since their lands were mostly in the San Joaquin Valley, where there were currently no plans to transmit project power. Most power sales were planned for the farms, cities, and industries of the Sacramento Valley and along the delta. Thus, the fight over hydroelectricity was not only a struggle between public and private power, but also among valley residents, with the large growers of the south speaking primarily through the California Farm Bureau Federation, and the small landowners rallying around the Grange, an organization especially strong in the north. Boasting a membership of 25,000 "dirt farmers," the Grange declared itself at war with monopoly in general and the "huge octopus-like power companies in particular."⁸⁶

The battle raged throughout the 1940s. Republican Governor Earl Warren (1943–1953)—a man years earlier inspired by California's great Progressive Republican governor, Hiram Johnson, who had preached using government to achieve social justice—angered

the conservative members of his party by siding with the advocates of public power. Warren, perhaps the most popular governor in California history, epitomized those Republicans who, in a state where Democratic voters outnumbered Republicans by three to two, benefited from the state's cross-filing system by downplaying their party affiliation, taking advantage of name recognition (he had earlier been state attorney general), and emphasizing programs of broad public appeal—in the case of Warren, programs emphasizing expanded governmental services like those sought by New Deal Democrats. Warren was unusually successful at getting what he wanted, but in the public power struggle his intervention did little more than help to prolong the fight until 1948 when a severe power shortage forced a congressional review of the issue and a compromise settlement.⁶⁷

The settlement benefited PG&E and agribusiness more than the Bureau and the public. Equally telling, it was an agreement in harmony with the “technical compliance” mentality that had suffused the Truman administration and the Democrat-controlled Congress. The settlement took the form of the so-called wheeling agreement of 1951. In this arrangement, the Bureau obtained power lines to operate its pumping stations and then transmitted the excess power to PG&E. The utility then “wheeled,” or delivered, electricity at Bureau-approved rates to those public agencies that had contracted with the government for power—but with the important proviso that the existing number of public agencies, which at the time was small, could not be increased. The remaining power, amounting to more than 80 percent of the electricity then being supplied by the Bureau, was sold by PG&E to its own customers.⁶⁸ These customers paid considerably more for electricity than what the public power advocates had expected them to pay if the government had provided it.

Privately, Reclamation Bureau officials expressed disappointment, hoping that the agreement would prove temporary (it would have to be renewed in 1961) and that the Bureau would eventually be able to provide direct service. Publicly, however, Commissioner Michael Straus hinted at no reservations: “the wheeling contracts

are . . . accepted by both sides. It is accepted by us.”⁶⁹ Just as Straus’s desire to accommodate, rather than confront, opposition had led him to adopt his “technical compliance” policy for acreage limitation, so, too, did it encourage his blessing of this arrangement. The Grange voiced regret at the cap placed on the number of public agencies that could receive “wheeled” power, but agribusiness found nothing to criticize. Two years later, the Republican Eisenhower administration, after encouraging and then ignoring PG&E’s efforts to gain control of even the transmission lines to the Bureau’s own pumping stations, left the arrangement in place, renewing it in 1959, three years earlier than necessary. In 1967 the Democratic Lyndon Johnson administration, in further evidence of bipartisan agreement on the issue, renewed it once more, this time to the year 2005.⁹⁰

PG&E had succeeded in limiting sales to public agencies and profiting handsomely. Since most of the purchasers of power lived in the state’s urbanizing areas, California’s city dwellers subsidized (and continue to subsidize) PG&E while also heavily subsidizing rural agribusiness with the revenues that reduce the costs (and hence the farmers’ payments) for the government-constructed irrigation systems. Two decades following the 1951 wheeling agreement, the comptroller general of the United States estimated that electricity users were contributing approximately 20 percent of the \$1.5 billion in subsidies going to Central Valley Project farm operators.⁹¹

By nearly all measures, California agribusiness and its allies seemed by the late 1940s and early 1950s to have transformed the Central Valley Project into a vehicle of great corporate aggrandizement. The subsidies obtained from power customers and taxpayers as well as the technical compliance loopholes in reclamation law represented impressive achievements. However, the large growers were, first of all, shrewd businessmen who recognized that their success depended on much that was ephemeral. The concept of technical compliance rested simply on administrative manipulation of the law, not on an actual change in legislation. What had been manipulated once could be manipulated again—and perhaps not in their favor. State purchase of the Central Valley Project, as a way

out of their dilemma, was again dismissed in 1954 as too costly in view of the Reclamation Bureau's latest price tag—twice the value of all the physical structures.⁹² Even if the price had been right, a sale would have been politically difficult given the Bureau's commitment to expanding, not dismantling, its empire. Many agribusiness leaders had already concluded that their best interests lay in broadening their base of support—in persuading the people of California to underwrite a water plan that would benefit the entire state while also serving corporate agriculture in the Central Valley. They therefore emerged as the strongest force in a movement that eventually culminated in California's most gigantic of hydraulic undertakings: the State Water Project.

The State Water Project

A STATE PROJECT encompassing the Central Valley promised two immediate benefits to the large growers. First, those taking water from a state enterprise would not be subject to federal reclamation law. Second, a state project, by serving as an alternative to federal water for many valley farmers, would cause the Reclamation Bureau to think twice before invoking reclamation law against those now benefiting from the technical compliance loopholes. Yet a successful campaign for a state venture required an argument with broad appeal to voters throughout California. This seemed ready-made in the state's explosive growth during World War II and the immediate postwar period when industrial capacity mushroomed and population increased at a phenomenal rate. Some 3,600,000 newcomers arrived in the 1940s and an even greater flood entered in the 1950s, averaging a half million new Californians each year.

The shock troops in the new struggle for water were San Joaquin Valley landowners, especially those in Kings and Kern counties along the southwestern side and at the southern end. Besides wish-

ing to escape the dreaded acreage restriction, they sought water for an area as vast as it was dry. Among the largest property owners was the Kern County Land Company, a direct descendant of the giant corporation created by James Ben Ali Haggin of *Lux v. Haggin* fame and still controlled by his heirs and those of a partner, Lloyd Tevis. Neither he nor they had delivered on his promise to subdivide the land into small homesteads. Of the more than 400,000 acres owned by the company in California, most was in Kern County, and the greater portion of that, nearly 224,000 acres, was along the valley's west side and could not be developed without a major infusion of new water, since it was outside the CVP area and because wells there yielded only brackish supplies incapable of growing crops. This area, which stood to benefit directly from state water, contained some of the largest corporate landholdings in the United States: Standard Oil with 89,810 acres (94 percent of them irrigable); Kern County Land Company, 223,534 (99 percent irrigable); Buena Vista Associates, 25,254 (100 percent); Belridge Oil, 24,627 (100 percent); Tidewater Oil, 23,009 (99 percent); General Petroleum, 16,619 (99 percent); Shell Oil, 15,353 (99 percent); Occidental Land and Development Company, 14,462 (98 percent); E. M. and E. C. Still, 13,039 (98 percent); Richfield Oil, 12,395 (98 percent); Southern Pacific Company, 11,605 (100 percent); Southern Pacific Land Company, 15,060 (100 percent); Allison Honer Company, 10,240 (100 percent); and Tejon Ranch (whose principal stockholder was the Times Mirror Company, publisher of the *Los Angeles Times*), 38,689 acres (96 percent irrigable).⁹³

Vigorous support for the state project, as for the Central Valley Project earlier, also came from those who relied upon groundwater to irrigate many thousands of acres. By the late 1940s in the San Joaquin Valley, just prior to CVP water being introduced into the area, there were some 35,000 wells mining 6 million acre-feet of groundwater annually, 60 percent of all the water pumped in the state. The arrival of the CVP supply in 1951, described by proponents of the project in the 1930s as being intended to "rescue" acreage already developed and threatened by water shortage, and

bankers, and industrialists had gone into action, transforming ever vaster tracts of countryside into city. By the time the aqueduct crossed the Tehachapis in 1972, pushed by four mighty pumps, each capable of powering a battleship, water in the southland was too expensive, even for temporary use, for all but the most highly specialized crops. The great profits came from responding to public demand and planting houses and shopping centers on what had been the oak-studded hills and flatlands of the western San Fernando Valley, Conejo, Thousand Oaks, and Orange and San Diego counties. Eventually, the combination of jobs (even if reachable only by sitting for hours in an automobile), desire for cheap housing, and availability of water that made all the rest possible pushed the megalopolis into areas once considered wastelands—Antelope Valley and the Mojave Desert—as well as the far inland sections of the coastal counties and adjacent Riverside and San Bernardino counties.

Such growth prompted planners to dream even grander schemes designed, as one former employee of the Department of Water Resources noted even before the state aqueduct was completed, to transform California into “a system of water channels . . . knit . . . so intricate as to make every rivulet give account of itself.”¹³² That goal had been brought dramatically close by the gargantuan Boulder Canyon, Central Valley, and State Water projects—projects that private interests and governmental bureaucracies (federal, state, regional, local) had struggled to shape for reasons of their own and projects desired by the public, as reflected in ballot returns and votes of elected representatives. Even those opposed to the undertakings ordinarily objected because of the manner in which the benefits would be distributed, not because of philosophical opposition to the way in which water was to be harnessed and used.

Yet, as state water planners designed bold new projects, their world began to change rapidly. Competitors challenged Californians for water they thought was securely in their control, and critics sought to undermine the traditionally popular desire to put nature in a straitjacket.

6 Hydraulic Society

on the Defensive

The years immediately following inauguration of the State Water Project brought unprecedented challenges to California's numerous hydraulic planners. Court

decrees eliminated major water supplies and threatened others, while the public, reflecting national concern over environmental abuse and increasing skepticism about the old, unquestioned belief in growth for its own sake, rejected new projects and forced urban, state, and federal strategists to emphasize better management of available sources—the increasingly central theme and thrust of water policy in California from the mid-1960s onward. Those who traditionally looked upon cheap and abundant water as a birthright reacted with alarm but not resignation as they grappled with environmental militants and devised strategies to slow, if not undermine altogether, threats to the old order.

Arizona v. California

THE FIRST major setback to California's water seekers came only three years after voters had approved the bonds launching the State Water Project. In 1963 the U.S. Supreme Court issued a monumental decision affecting the Colorado River, the source of more than half the water used in southern California. Instigator of the suit was Arizona, which, as noted earlier, had been battling with California over the Colorado since the days of the Boulder Canyon legislation. That fight had grown more intense as Arizona boomed during the war and post-war years, attracting people, industry, and capital (both federal and private), with much of the new money financing urban and agricultural expansion in the state's heartland, embracing Phoenix and Tucson. Since the rivers of central Arizona were now fully developed, irrigators had turned increasingly to groundwater supplies, which they pumped with such intensity that by the late 1940s and early 1950s they were encountering problems even more severe than those of California's Central Valley—rapidly falling water tables with exhaustion of some aquifers, abandonment of once productive fields, and land subsidence.¹

Arizonans in 1947 turned to Congress for help, asking for equity and a major project like that accorded California in the Boulder Canyon Act. They quickly coalesced around a so-called Central Arizona Project that would bring Colorado River water through a 241-mile-long aqueduct to replace shrinking groundwater supplies and breathe new life into the urban and rural economies. In the early 1950s Congress repeatedly refused on the grounds that Arizona's unresolved dispute with California left it unclear whether Arizona had rights to enough water to make the project feasible.²

Bitterly disappointed and unwilling to continue futile negotiations with California, Arizonans in 1952 asked the U.S. Supreme Court to impose a settlement favorable to them. If the Central Arizona Project were to become a reality, such a settlement would have to award Arizona about a million acre-feet (enough for nearly 8 million people) that California was then using. Raising the stakes further was a treaty that the United States had negotiated with Mexico in 1944 guaranteeing that country 1.5 million acre-feet from the Colorado River. The treaty water was to come from surplus unallocated by the Colorado River Compact with any shortfall being supplied by the upper and lower basins. Among the California interests, in light of the treaty, most vulnerable to a Supreme Court decision favorable to Arizona would be the Metropolitan Water District of Southern California whose water contracts had a lower priority than the agricultural lands of the Imperial, Coachella, and Palo Verde valleys and the Yuma Project (California Division)—all of which drew from the Colorado River.³

With stakes so high it is little wonder that the trial in *Arizona v. California* became one of the longest, most expensive, and most hotly contested in U.S. Supreme Court history. After eleven years of testimony by some 340 witnesses and arguments by nearly fifty lawyers (California alone had sixty people working full-time on the case behind the scenes), the court in 1963 delivered an opinion that took virtually everyone by surprise. It did not endorse the legal position of either state, but the practical result of its action was a tremendous victory for Arizona. The court grounded its decision

on the Boulder Canyon Act of 1928. Congress in that legislation had given its prior approval to a lower-basin compact that it hoped Arizona and California would find acceptable. Congress's actions, according to those who introduced the amendment adding the proposed pact to the legislation, was "not [to] be construed hereafter . . . as being the expression of the will or the demand . . . of the Congress," but, rather, a timesaving and conciliatory gesture on the part of that body. It would save California and Arizona from having to come back to Congress later since no compact between states could take effect without congressional approval. California and Arizona rejected the suggested pact, but thirty-five years later the Supreme Court in *Arizona v. California* startled everyone by holding that Congress had indeed expressed its "will" and "demand" in 1928. It was a decision, as close subsequent analysis has revealed, based on a faulty reading of the historical record, and it took aback not only the adversaries but also constitutional lawyers who knew of no precedent for such a congressional allocation of water between states. This bothered the court not at all. It held that Congress in the Boulder Canyon legislation had created "its own comprehensive scheme for . . . apportionment," giving Arizona all the water in its tributaries—differences over the tributaries had been at the heart of the dispute between Arizona and California—plus 2.8 million acre-feet from the main stream of the Colorado. Since this allocation was considered large enough to make practical a Central Arizona Project, Congress authorized it five years later, in 1968.⁴

Now it was California's turn to be bitterly disappointed as water planners pondered the impact of the decision on the state. Under the ruling, California received 4.4 million acre-feet plus half of any surplus. This was the same formula to which the state had limited itself back in the late 1920s in order to get congressional approval of the Boulder Canyon legislation, but with this difference: state leaders had then believed there would be a substantial surplus and they had also hoped they would be victors in their struggle with Arizona. On the basis of these expectations, they had contracted with the Secretary of the Interior for a total of 5,362,000 acre-feet

of Colorado River water and built expensive aqueducts with sufficient capacity to carry that volume—which they were using by the 1960s. They had gambled and lost. Later, and more accurate, stream-flow studies indicated that there was considerably less water in the river than earlier believed. Those studies, when adjusted to reflect the obligation to Mexico and the court's award to Arizona, indicated little likelihood of any surplus. Thus, as Arizona began taking its share of water and as the upper states and Mexico used increasingly more of what was already legally theirs, Californians would be forced to cut back their uses by 962,000 acre-feet. Of that amount, about 70 percent (662,000 acre-feet) would have to be surrendered by MWD.

This realization frightened MWD board members in 1964 into increasing their contracts with the California Department of Water Resources for state water by half a million acre-feet with the balance of the shortfall to be offset by Los Angeles importing more water from the Owens Valley and Mono Basin. Other southern California agencies sought to protect themselves by increasing their demands for state water by an amount nearly similar to MWD's. These increases resulted in an equivalent volume of water not being available to the San Joaquin Valley, thus shrinking the valley's share from the 2.25 million acre-feet envisaged in the 1950s to 1.35 million acre-feet.⁵ The impact on agriculture would not be felt immediately since farmers could still use the water (and at heavily discounted rates) until it was needed by the southland, and that would occur gradually. Nonetheless, Department of Water Resources officials, by reallocating water rights in the wake of the *Arizona v. California* decision, made it clear that in a contest between cities and farmers for state water, *cities held the advantage*.

That reality prompted corporate farmers to begin agitating for the building of water-development projects anticipated for subsequent phases of the State Water Project. They formed alliances with southern California municipalities worried that many of their contracts for state water would go unfulfilled as northern California grew, eventually causing residents there to invoke the county-of-

origin protection and keep more of the supply at home. As plans were readied for a new water-development offensive calling for large projects that would further transform California's waterscape, forceful new opponents to such strategies were also making themselves heard.

The Environmental Movement

CALIFORNIA'S SETBACK in its designs upon the Colorado River coincided with an era of great social and political upheaval. The civil rights struggles of the 1950s, 1960s, and early 1970s and the unpopular Vietnam War caused Americans to reexamine the discrepancies between the ideals of their Declaration of Independence and Bill of Rights and the realities of Jim Crowism, segregated housing and schools, and racial discrimination in all its nuances. Others had long denounced such inequities, but now as the nation awakened more fully to the social injustices being fought through sit-ins, freedom rides, and voter-registration drives and as the carnage of a war that seemed unwinnable touched increasingly more families, Americans demanded change, sometimes taking to the streets in the hundreds of thousands to emphasize their resolve.

The challenge to authority swept across the full spectrum of American life and included the questioning of long-held values about the environment, nature, and wildlife. Such challenges were nothing new. John Muir had waged a holy war in a futile attempt to preserve Hetch Hetchy, and Aldo Leopold not too many years thereafter had insisted that "ethics . . . be extended to land"; that the morality of an action be determined by whether "it tends to preserve the integrity, stability, and beauty of the biotic community."⁶ There were others of similar mind, but all were somewhat out of sync with popular opinion until the years following World War II.

Concern for the environment intensified during the postwar era

as unprecedented national prosperity and modern conveniences not only freed most Americans from worrying about obtaining basic necessities but also provided them with leisure time to address larger social and environmental issues. As Samuel P. Hays has observed, "The search for environmental quality was an integral part of [the postwar] . . . rising standard of living."⁷ For many their search began, as such quests often do, at home as people sought to improve their immediate surroundings by purchasing a house in a more pleasant suburban or countryside setting. Attention then turned to preserving vacation areas and increasingly to other environmental issues beyond the control of single individuals but of concern to all: the impact of modern industrial society on unique natural wonders, on wildlife, and on such fundamentally important elements for life as clean air and water. No single person or issue was responsible for the modern environmental movement and studies indicate significant differences among the states, but Rachel Carson's *Silent Spring*, published in 1962, helped set off a popular outpouring of concern. Her book focused somewhat narrowly on the danger of pesticides, especially DDT, to wildlife, but it had wide appeal and, together with the blowout of the oil platform in the Santa Barbara Channel in 1969 and Earth Day the following year, galvanized popular attitudes that had been evolving throughout the 1960s and earlier.⁸

Quick to capitalize on the new concern were many political leaders, especially those in the Democratic party already predisposed by the wrenching experiences of the Great Depression and the Second World War to favor a strong, activist government working for social welfare. As the party most attractive to blacks and other newly self-conscious ethnic minorities, its commitment to reform had recently taken on renewed vitality as had its instinctive distrust of powerful corporate and industrial interests because of their potential for economic repression and now environmental destruction. Democrats did not monopolize the environmental movement, and their commitment varied regionally (being especially strong on the Pacific Coast and in New England and the upper Midwest). Still,

their presence was preeminent, remaining vigorous through the 1970s and 1980s (analyses of congressional voting patterns reveal their support for environmental reform as being nearly twice that of Republicans), checking, if not eliminating, the attempts of the Republican Ronald Reagan administration (1981–1989) to use Reagan's executive authority to reverse earlier advances.⁹ This pattern persisted into the 1990s. These national struggles reverberated within California, though there, as in earlier contests, debates over water issues were more reflective of regional considerations and the individual self-interests of the state's myriad water seekers and managers than they were of political ideologies.

Congress first responded with a host of environmental laws during the years roughly bracketing the Democratic administrations of John Kennedy and Lyndon Johnson (1961–1969) and extending into the early presidential years of Richard Nixon (1969–1974): Clean Air acts in 1963, 1967, 1970, and 1990 (California pointed the way in 1960 with the first statute requiring smog-control devices in automobiles); Clean Water acts in 1960, 1965, 1966, 1972, 1977, and 1979; the National Environmental Policy Act in 1969, which required federal agencies to prepare an environmental impact statement on any action likely to have a major effect on the environment; the creation of the federal Environmental Protection Agency in 1970; the Wilderness Act of 1964, which initially set aside 9 million acres as permanent wildlands; Endangered Species acts in 1966, 1969, and 1973; the National Wild and Scenic Rivers Act in 1968; the National Trails Act of 1968; and many other examples of reform through statute and ultimately through the courts whenever legislation alone seemed inadequate. California echoed the national concern with its own Clean Water Act in 1969 (the Porter-Cologne Water Quality Control Act); Endangered Species Act (1970 and 1984); San Francisco Bay Conservation and Development Commission (1969); Environmental Quality Act (1970), which mandated state and local agencies to prepare an environmental impact report when their activities might affect the environment; Wild and Scenic Rivers Act (1972); Coastal Act (1976); and similar measures that

tended to elicit greater support in the north than in the south, and to find it equally strong among members of both political parties.¹⁰

Against this background California's water seekers played out their attempts to follow traditional policies. They had fair warning of the public's tougher attitude toward water projects, with a particularly telling incident occurring in the 1950s when the Reclamation Bureau sought congressional approval to build a dam on the Green River at Echo Park near the Colorado-Utah border. Originally endorsed by the Democratic Harry S. Truman administration and then blessed by Republican President Dwight Eisenhower, the project seemed a shoo-in because of such bipartisan support, but the idea also attracted critics, and in 1950 the Sierra Club, Izaak Walton League, Wilderness Society, and others joined forces to block the Bureau and its prodevelopment supporters. Since the resulting reservoir would flood the unique and beautiful canyons of Dinosaur National Monument, it precipitated the biggest fight over wilderness preservation since Hetch Hetchy and was waged with particular ferocity for six years. Like that earlier struggle, it became a civil war in which both sides labeled themselves "conservationists," one group arguing for conservation for use through dams and hydroelectric power and the other campaigning for conservation through preservation of unique wilderness areas. This time the preservationists prevailed, successfully eliminating Echo Park from the bill (enacted in April 1956), though their acquiescence in the same legislation to a dam on the Colorado River at Glen Canyon in northern Arizona was a concession they later came to regret.¹¹

Another dramatic preservationist victory occurred in the 1960s when the Reclamation Bureau again sought congressional approval for a major project, this one to build two dams as part of the Central Arizona Project (CAP). A major purpose of the dams was to generate the hydroelectricity needed to pump water to the Phoenix and Tucson areas. Since one of the dams would be located in Marble Canyon, just east of the main gorge of Grand Canyon, and the other in Bridge Canyon, immediately west of Grand Canyon, environmentalists once more reacted with a great outcry and vowed to kill

the legislation. After a lengthy battle that again captured national attention, the dams were dropped in favor of a coal-fired hydroelectric plant. Even California got something out of this struggle. Having lost to Arizona in the Supreme Court, it now sought to turn that defeat into victory by using its greater influence in the House of Representatives to derail the Central Arizona Project, a decision that made it an unwitting ally (temporarily) of the preservationists. In exchange for dropping its opposition, California wrung a major concession in the bill from Arizona: that state agreed never to deprive California of 4.4 million acre-feet even if it meant shutting down the Central Arizona Project. With such compromises all around, the CAP Bill passed Congress in 1968. Even then, appropriations for actual construction came slowly and in dribs and drabs because of lingering concern about the environment and doubts about the accuracy of river-flow estimates. More than two decades passed before the Central Arizona Project reached completion in 1993 and only in 1997 did the state begin taking its full apportionment of 2.8 million acre-feet.¹²

The preservationist victories were not unqualified triumphs. The dam at Glen Canyon inundated one of North America's most remarkable natural wonders, but this only caused the Sierra Club to issue a public mea culpa—most movingly in Eliot Porter's beautiful *The Place No One Knew* (1963)—and to redouble its resolve against developers. An added embarrassment, and also a spur to greater vigilance on the part of preservationists, was the pollution subsequently generated by the coal-fired plant that still fouls the air over Grand Canyon, Bryce, Zion, and Cedar Breaks. These mixed results notwithstanding, water developers everywhere recognized the public's growing uneasiness with business as usual.

That message was driven home again to Californians a few years later when the U.S. Army Corps of Engineers released plans to construct a dam at Dos Rios on the Middle Fork of the winding and unpredictable Eel River. The opposition, intensified by Indian activists because the dam would flood the Round Valley Reservation, attracted such widespread support that then-Governor Ronald Rea-

gan, with a mixed record on the environment but not yet the notoriously insensitive figure he would become as President, helped kill the proposal in 1971. A year later, the desire to further protect the Eel as well as other untamed rivers along the north coast resulted in a state Wild and Scenic Rivers Act. Modeled on the federal legislation of four years earlier, it prohibited diversions (except for meeting modest local needs) on sections of five rivers, including portions or all of their tributaries: the Smith (the state's only major undammed river), American, Klamath, Trinity, and Eel (with the latter's protected status targeted for reconsideration in 1984). Though not as stringent as the federal law that also protected watersheds (particularly through close management of logging in national forests), it nonetheless removed from development rivers earlier earmarked for the State Water Project. In 1972 the National Water Commission also disappointed developers by urging less emphasis on large projects like those traditionally advocated by the Bureau of Reclamation and more attention to efficient management of available water supplies.¹³

The Peripheral Canal Fight: Round One

THE EVENT that more than any other rudely awakened California's water establishment to its vulnerability was the battle over the so-called Peripheral Canal. At stake was a great deal more than a canal—indeed, the name masked a far more grandiose enterprise that became a symbol of the clashing ideologies that had emerged over traditional state water policy. The issue's importance derived in part from its being the first crystallization of the long-anticipated second phase of the State Water Project, a phase that the earlier enabling legislation had broadly defined as virtually anything that lawmakers wanted to add to the state project to help meet local needs or augment the supply reaching the delta. Many water leaders insisted that the in-