SIX

EMPIRE

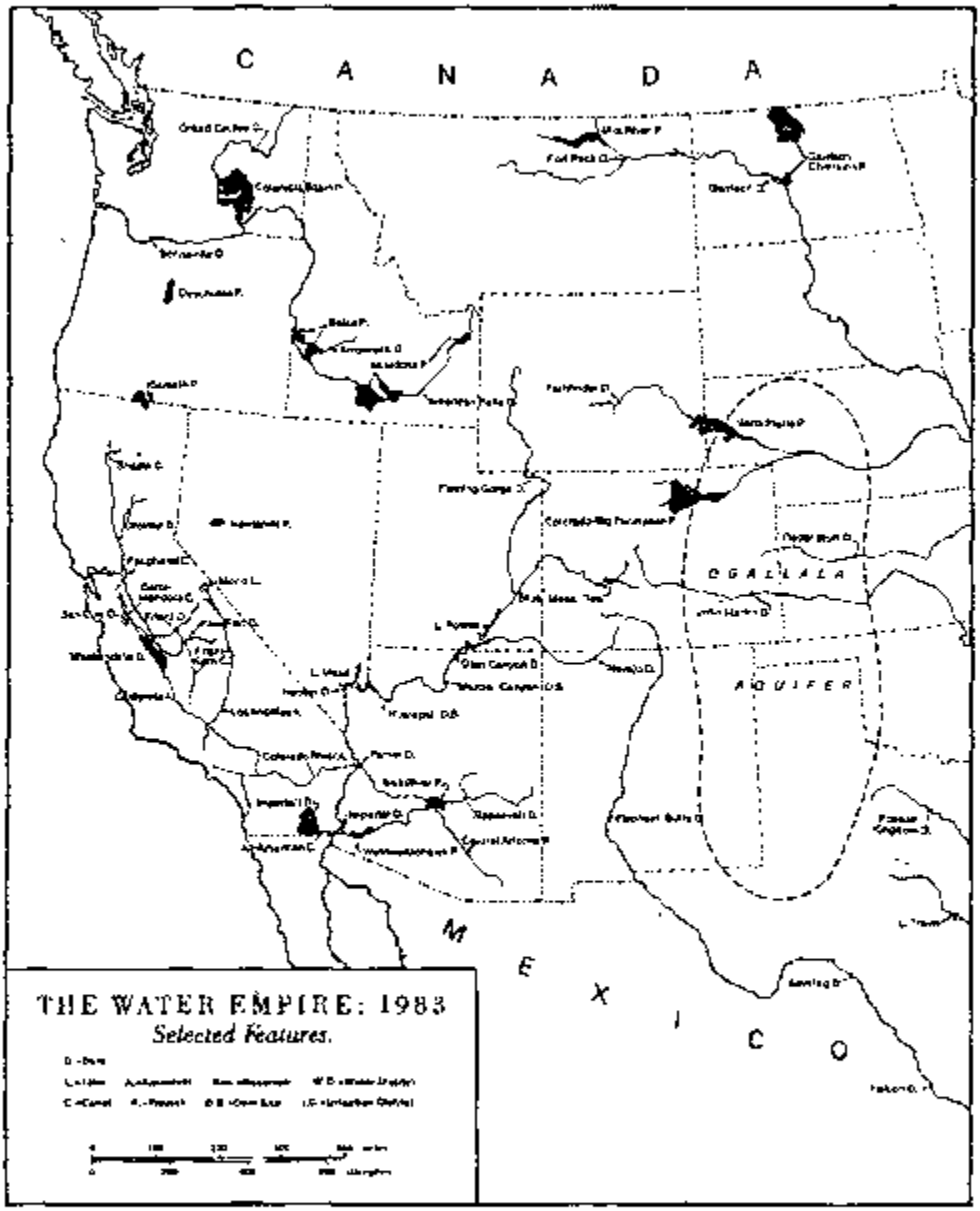
Water and the Modern West

Touch water [in the West], and you touch everything.

—*John Gunther,* Inside U.S.A. *(1947)*

There is no lack of water here, unless you try to establish a city where no city should be.

—*Edward Abbey,* Desert Solitaire *(1968)*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Standing on a green Appalachian ridge and scanning west, with their backs to the crowded, constrained world of the past, early Americans found it easy to dream extravagantly of power and glory. Below them, thrown down at their feet as it were, lay an endless stretch of hardwood and pine forests, immense open parklands with deep black soils inviting a plow, a rich lacing of brooks, seeps, springs, creeks, lakes as large as seas, and in the hazy blue distance the mighty Father of Waters. They took it as self-evident that personal wealth and national power must follow such natural abundance. What they were completely oblivious of was a precisely contradictory and more plausible proposition: that power is more likely to be strenuously sought and won under the pressure of continuing environmental scarcity than of ready-to-hand abundance. The pursuit of power may go on in any setting, of course, but it generally loses impetus without the constant goad of deprivation, whether real or imagined: The experience of overwhelming bounty can blunt the drive for technological conquest, can diminish the urgency of survival, of acquisitiveness, and say to people: relax, take it easy, why worry, the future will look out for itself, already you are in paradise.

Beyond the hundredth meridian the necessary goad was more starkly, emphatically present—a dry throat, a daily uncertainty, always the danger, the anxiety, of life in a desert or near-desert. Travelers found themselves in an even more awesome space, grander by far than any Appalachian vista, one big enough for dreaming, all right, but a land too empty, barren, dusty, and austere to invite the soul to loaf and take its ease. This landscape, in its elemental scarcity of life-supporting resources, was more clearly suited to driving people on and on to power than any part of the humid, vegetative East. Though it took a while to discover the fact, the West was the natural home of the American Empire.

How could deprivation be translated into wealth and power and influence? That was the problem posed to the arid region from the beginning. The answer, as tracked in the preceding pages, was that its people had to

bend themselves to the discipline of conquest, had to accept the rule of hierarchy and concentrated force. That acceptance they seldom acknowledged, at least publicly. Again and again they told themselves and others that they were the earth's last free, wild, untrammeled people. Wearing no man's yoke, they were eternal cowboys on an open range. But that was myth and rhetoric. In reality, they ran along in straight, fixed lines: organized, regimented, incorporated men and women, the true denizens of the emergent West. It might have been otherwise, but then they would not have made an empire.

After World War Two, the western empire came at last into its own. It reigned from the 1940s on as the undisputed agricultural leader, supplying food and fiber for the nation, for the world. It took on the outlines of a new industrial behemoth, with steel mills, coal and uranium mines, assembly plants for aircraft and armaments, a scattering of scientific research institutes. Mass entertainment radiated from its cities, from Hollywood, Disneyland, the streets of San Francisco, Las Vegas, Aspen, and Dallas, radiated out over most of the globe, shaping the mass urban mind in Minneapolis and Louisville, in Manila and Rio. Out of the region came too a new generation of influential national political leaders, from Richard Nixon and Lyndon Johnson to Henry Jackson, Barry Goldwater, and Ronald Reagan, leaders whose prime instinct in many cases was to assume that America's good was the good of the American West. Accompanying that shift of economic, cultural, and political weight came a steady current of moving Americans, going West to live in unprecedented numbers. In 1965, California replaced New York as the most heavily populated state in the union—as the new empire state—counting 18.6 million inhabitants, a state richer as well as more populous than any of its eastern counterparts. And as California filled and filled, it spilled over into Oregon, Washington, Nevada, Arizona, and Colorado, buttressing its preeminence with a ring of satellites and clones. All that is not to say the West came to dominate the country in every respect. The eastern seaboard still had its Wall Street and Pennsylvania Avenue, its universities and publishing firms, and the Midwest its automobile manufacturers and Corn Belt. But the flow of power westward was unmistakable. And not to put too fine a point on it, the command over water in the region was, more than any other single factor, what made that flow possible.

The traditional notion of empire, as characterized, say, in the Old World regimes of Charlemagne or Kublai Khan or King George the Third, was of an extensive dominion ruled by a single, despotic head of state. In the hands of the Americans, empire has always been a more impersonal and indefinite notion. Emperors have not been wanted, empire has been: a condition of

absolute sway, supreme command, undisputed control over nature that would give front rank, not to any one individual, but to an entire people, their values, and their institutions. They professed to seek a technological empire, a money empire, one built on and devoted to the principles of liberal democracy, one opposed to despotism and coercion. From the beginning, however, it was a notion shot through with illusion. Imperial ambitions, whatever shape they take, must at last create imperial societies, bearing a family resemblance one to another. The empire of liberal democracy, for all its contrary promises, made that fact irresistibly clear in the postwar American West. As it came to maturity there, its structure was revealed to be one of a small power elite reigning over a large, anonymous, dependent population. That elite had both a public and a private face, the double-sided face of the modern capitalist state. It ruled in the West, as it did elsewhere, through an oligopolistic hold on capital and on expertise, but here it had the special advantage of water scarcity to justify its rule, to enhance its authority, to give it the imprimatur of necessity.

If history teaches us anything unequivocally about empires, it is that sooner or later they begin to falter. The illusions on which they are constructed eventually begin to lose their hold over the minds of people. The promises they have made are simply too grand to be delivered. Contradictions begin to mount, legitimacy to crack and flake away. The unanticipated social and ecological consequences of empire become increasingly unmanageable, just as they always have, and Leviathan starts to wobble, clutching more and more frantically at panaceas. All of those patterns began to appear in the western water empire at the very moment it neared its final triumph over a recalcitrant nature.

For all its seeming motion toward some grander destiny, nature is mainly a set of cycles, a tireless repetition of old ideas. A trickle in the highlands becomes a broad watery highway coursing through lower alluvial valleys, past dense ambitious cities, and then the river disappears, at least for a while, though beginning somewhere else as a trickle once again. History is a kind of river too, returning over and over to beginnings, completing cycles, if one stands and watches long enough. How long is hard to be precise about; the time required to complete the cycle of empire cannot be predicted with any confidence. But nothing is more certain in the modern West than that the next stage after empire will be decline.

"TOTAL USE FOR GREATER WEALTH"

Whatever its geography, its ethnic complexion, its degree of affluence or impoverishment, the colony's complaint is poignantly the same everywhere: that its fate is not in its own hands, that its wealth is being drained away to a distant metropolis, that it is made poorer so that others can be rich. The familiar remedy for the complaint among colonies of every sort is economic liberation, securing the freedom to make their own decisions and control their own destinies. For every colony which genuinely attains that liberation, several others fail. Hard as that freedom has been to achieve, however, it has not been so hard as another kind of liberation —freeing the colonists' minds to imagine fundamental alternatives to the old power relationship. The colony, in its pursuit of freedom, dreams of empire. It will throw off its chains by forging new ones, fastening them either on its own people or on its neighbors or, it may be, on the metropolis. So the eighteenth-century American colonies successfully struggled to be emancipated from the mother country and then proceeded to replicate the very institutions and drives they had despised as corrupt and exploitative. The ways of power are more easily learned and aped and improved upon than they are transcended or put aside.

No colony ever exhibited that fact more forcefully than the American West in its long, fierce quest to get out from under and on top. The expatriate Bernard DeVoto, looking again at his old home region on a visit in the summer of 1946, reassessing the region he had once called "the plundered province," saw that in pain and outrage, saw the West beginning to be caught in the coils of its own liberation. By that year the region was emerging at last from its long colonial status, he believed, thanks mainly to the New Deal and the water investments (like the Central Valley Project) it had made in the region. Those efforts at redistribution of national wealth had not been received by westerners with much grace, demanding as they did more and more of them, "demanding," wrote DeVoto, "further government help in taking advantage of them, furiously denouncing the government for paternalism, and trying to avoid all regulation." But for all the churlishness with which they were gathered in, the federal investments had "begun to make possible what had not been possible before"—an expanded resource base for the region that could raise it from its colonial dependency. All of that went down in Benny DeVoto's column as success, a thumping,

rousing, emphatic success, for he wanted to see the region realize its dream of "adult economic development and local ownership and control." What he did not like to see, what had driven him away from the West originally, was the region's slavish adherence to the imperial mentality, to what he had once termed the "desire of growth and domination." The West, he understood even in his enthusiasm for dam building, "does not want to be liberated from the system of exploitation that it has always violently resented. It only wants to buy into it, cumulative preference stock if possible."[1]

DeVoto went back to Massachusetts disillusioned and contentious, worried mainly about what western stockmen, lumber companies, and other public-land raiders were fixing to do to the West. What he did not mention was what the water-hustlers out there were lining up to do. In the next two decades or so they would lay their hands on virtually every river and tributary in the region, obliterating entire watersheds in a rage for "comprehensive, multipurpose water development." They would insist, with a sincere, breathless urgency, a frantic, intense will to believe in which was mixed the crassest self-interest and patriotic promotion, that without more and more water, death itself was stalking the land. Their anxious need to get more water, to expand their manipulation of nature, was so intense it became a kind of totalitarian impulse—a drive to capture and hold on to every single drop that fell on the West, allowing nothing to elude their tight control or stand as a challenge to their supremacy. And in their anxiety, most of it self-induced and contrived, in their unquenchable thirst for control, they would make their final push to empire.

Nowhere was the postwar mania for water engineering more pronounced than on the southern plains. Here a generation of leaders that had gone through the double trauma of depression and dust storms in the thirties, that had been looking poverty in the face for a long time, came into office advocating a program of dams, canals, and wells as their states' salvation. Perhaps no part of the West was more insecure than this one, and none more ready to place public faith in technological formulas to overcome that insecurity. They were quick also to generalize their formulas to the rest of the globe, especially the underdeveloped countries of Asia, Latin America, and Africa, where water control, they believed, would be needed, as it was at home, to save the world for democracy. Not only were droughts and dust bowls and hunger threatening humanity abroad as they were on the American plains, but there were also communists infiltrating all those places, undermining the foundations of prosperity and progress. Massive dams on the Mekong and Indus, counterparts to those on the Brazos and Platte, would drown all the enemies at once. Senator Lyndon Johnson, clawing his

way out of the obscurity of backcountry Texas, expressed that enlarging, generalizing anxiety when he wrote that "water management is . . . a decisive tool in our mighty struggle for national security and world peace." So did his colleague Robert Kerr, oilman and former governor of Oklahoma who, as the head of the Senate's Select Committee on National Water Resources, argued that river development was part of "a greater conflict," the international struggle of free peoples against godless Marxists. Whoever controlled water controlled the world's destiny.

> Can a pagan Communist nation [he asked], by enslaving and regimenting its people, make more efficient use of soil and water resources than the most advanced and enlightened nation in the world? Can ruthless atheists mobilize and harness their treasures of God-given wealth to defeat and stifle freedom-loving peoples everywhere?[2]

The answer, of course, was no—that is, it would be if Congress appropriated the money for the Kerr Plan, which would bring the Red, the White, and the Arkansas rivers under strict management, providing irrigation for the plains farmer and making Tulsa an international seaport. Thus did local ambition and global ideological conflict, a fear of deprivation and of the loss of control, all fuse and run together toward the single potent symbol of a dam.

As an exemplar of the southern plains water craze, the Texas professor Walter Prescott Webb was one of the more ironic figures. Two decades earlier he had been the man who had awakened the West to its colonial subservience and who had urged it to seek its own unique destiny in its arid condition. But by the 1950s it was clear that what he had in mind was not acceptance of and adaptation to but technological mastery over that ecology. A bigger and better industrial order than the one in the East should be created, this one to be founded on water control, making the West supreme and unassailable. In the midst of the 1953 drought, recalling earlier days when he had watched cattle dying of thirst and when his family had had to dip their water from a single scum-covered pond, he urged Texans to support Lyndon Johnson's grandiose program of federal river development. A canal, he explained, could be dug two hundred feet wide and hundreds of miles long, diverting surplus flow from the state's eastern rivers to the drier west, all the way from the Sabine to the upper Rio Grande. Such a scheme would bring "a complete revolution" to the state, he promised. It would ensure the "future growth of population, industry, and agriculture," would avert "a social and economic stagnation if not disaster," and by the

end of the century would bring as much as $8.5 billion to the Gulf Coast. There was nothing uniquely western in Webb's dream of the future. Essentially it amounted to a vision of replication of the East, where Texans would earnestly make the fullest use of their limited water in the pursuit of money and industrial giantism. In that process, he hoped, they would be able to drain power away from the old imperial centers to the rising new one.[3]

Few Westerners were as candid about their sectional rivalry as Webb, nor could they risk being so if they wanted the East's cooperation. Throughout the region, from its plains and mountains to its far coast, from the 1940s onward was heard the more politic claim that completing the West's hydraulic regime was important because it would secure for the entire country an enhanced international power. Give us more water, the promise went out year after year, help us build up the region, and we will put America in command of the earth, will keep it in that position against all threats. From the western slope of Colorado came a warning from Congressman Wayne Aspinall that without a stepped-up reclamation effort the nation would not be able to meet "increasingly severe challenges from abroad," either the Soviet bloc or capitalist competitors. A University of Arizona economist pointed out that the "creation of additional wealth-producing properties" by watering arid places had created "a new empire" in the West, and that without that empire "America would not be the world-dominating America we know at the midpoint of this twentieth century." And from the halls of the Bureau of Reclamation came a supporting chorus, insisting that the size of its budget, all lavished on the West, was a measure of national resolve. Bureau Commissioner Michael Straus threw down the challenge, "Why not survive," implying that anyone who questioned the reclamation program was in favor of American cultural suicide. The Bureau's director of project planning, J. W. Dixon, lauded the water engineer in the West as "a tool for world peace." And the burly, squareheaded, cigar-chomping Floyd Dominy, son of Nebraska homesteaders, commissioner of reclamation and perhaps the most influential agency head in the postwar era, tirelessly asserted that "achieving national goals for a stronger and more prosperous America" was what was at stake in the western plains and deserts. In all these minds, the dream of domination was powerfully compelling despite its loose and rigorless logic: the West is America, money is peace, control is freedom, survival is domination.[4]

Westerners could count not only on the Bureau for support in their grand designs. There were also such influential eastern opinion-makers as Henry Luce, a strident, unblushing ideologue through the fifties for the American Empire and Pax Americana. His *Time* magazine trumpeted the West as "the endless frontier" made possible by advanced water technology. "Irrigation

experts," the Luce establishment announced, "are now convinced that the rapidly growing U.S. can expand almost indefinitely within its present boundaries." Across the Rockies lay 50 million undeveloped acres waiting to be "watered into life," holding the promise of an agricultural productivity equal to that of France or Germany. *Time* noted they were capable of feeding 75 million people. Then there was the still untapped Mississippi, which could be pumped uphill to the high dry country, and the Columbia, which could be sent down south to the hot deserts—feats capable, the magazine promised, of inspiring "engineering ecstasy." And poised, eager, itching to lay hold on those possibilities, were the professional water managers, men who readily confessed with a grin to an awestruck reporter, "We enjoy pushing rivers around." Apparently enough Americans in every region took such brassy journalism to heart, enjoyed watching the river-pushers go to work, and were willing to pay something for the privilege. Federal money for western water development rose from $33 million in 1939 to $230 million in 1949 and stayed on that higher plateau thereafter.[5]

With popular enthusiasm stirred up by men like Henry Luce, with generous postwar appropriations from Congress, and with a dithery, ecstatic army of river improvers at its service, the West set itself the target of achieving nothing less than total control, total management, total power, or as the Bureau's own slogan, emblazoned on the covers of reports and project summaries and public relations material, put it, "total use for greater wealth." The war against European fascism and Asian militarism was over, a war waged for "unconditional surrender." Another war, the Cold War, pitting two superpowers armed with nuclear weapons against each other, had begun. And still a third war was now under way in earnest, this one to be waged against the western American landscape of scarcity, and it too would not stop short of total victory.

It drips endlessly from the roof of North America, from the cordillera of the Rockies, down from its eaves and gables and ridges, its mossy slates and piney shingles, running this way and that, running whichever way offers the least resistance. Put a barrel where it drips, and a second next to that one, and so on until the yard is full of barrels. Call part of that dripping the Rio Grande and give the barrels names too: Road Canyon, Sanchez, La Jara, Abiquiu, El Vado, Jemez, Elephant Butte, Caballo, Two Rivers, McMillan, Red Bluff, Amistad, and Falcon. Skip north across the plains with more barrels, putting them down right and left: Conchas, Possum Kingdom, Texhoma, Stillhouse Hollow, Fort Gibson, Cheny, John Martin, Kanopolis, Waconda, McConaughty, Pathfinder, Seminoe, Buffalo Bill, Glendo, Oahe, Sakakawea, Fort Peck, Yellowtail, Canyon Ferry,

Tiber. Barrel after barrel, each with a colorful name but all looking alike, quickly becoming an industry in their manufacture, with industrial sameness in their idea and use. The big ones must all be made to federal specifications and paid for by federal funding, but a thousand little private kegs and rusty pots can be deployed too. Run to the other side of the roof and put down more of them. Jackson, Blackfoot, American Falls, Dworshak, Cascade, Deadwood, Franklin Roosevelt, Potholes, McNary, Flaming Gorge, Blue Mesa, Navajo, San Carlos, Lake Powell, Lake Mead, Havasu, Laguna. Everywhere barrels filling in the spring, barrels emptying out again in the dry season. Plink, plink, save, save. It would have been a crime simply to stand by and watch it drip and run away. Waste not, want not. So the rooftop of the Rockies, in a matter of thirty or so frantic years, was ringed about with the means to capture and hoard all the falling, dripping mountain waters.

In the northern latitudes of the western United States, the two great challenges of the postwar period were the Missouri and the Columbia, along with their major branches. Neither river had been truly harnessed before World War Two, mainly because they were too much of a handful for the available money and technology and because the returns were too marginal to justify the effort anyway. So 150 years after Lewis and Clark had poled their way up its banks, the Missouri, longest river in the West, remained a treacherous, unpredictable force. Wide and shallow and filled with sandbars in the low season, a dark brown boiling of energy in spring floods, year after year it took lives and property and gave little back in profit. In its lower reaches were vulnerable floodplain settlements like Kansas City and Omaha that would have been happy simply to be protected from the river, though they would take wealth too. Upstream in Nebraska, the Dakotas, and eastern Montana were thousands of farmers who, like the southern plainsmen, had tasted a lot of blowing dust in the dirty thirties and now demanded some help in the form of irrigation from the river to stay in business. Both groups were prepared to accept some new, outside, central authority if it could tame the Missouri and deliver them from tribulation.[6]

The first agency to take on the Missouri was the Army Corps of Engineers as part of its mission to defend America against floods and improve inland navigation. For a long time that work had meant pulling snags out of the lower river, throwing up levees, and dredging deeper channels so that steamboats and barges could be safe. In 1933 Congress directed a somewhat reluctant Corps to undertake a new venture, the construction of a massive earthen dam, four miles wide, at Fort Peck in the Montana shortgrass country. This dam was to stabilize downstream navigation and store meltwater, but in 1942 and 1943 devastating floods gave more ambitious

heads in the Corps an opportunity to enlarge that role. To the forefront came Colonel Lewis Pick, a shrewd, ambitious bureaucrat-soldier, who in a terse, brief report proposed the complete dismantling of the natural river. Twenty-two dams were projected, the largest of them, Garrison in North Dakota, to be constructed on a site earlier rejected by the Corps as unsafe. Together they would cost the nation $661 million, would require the evacuation of 20,000 people (including a large Indian population from their reservations), and would cover a considerable amount of farmland with reservoirs. All this to realize what the colonel casually assumed to be self-evident benefits, not worth specifying in detail. "I mean," said Pick, "to control the water of the Missouri River."[7]

Meanwhile the Bureau of Reclamation was moving with matching fervor from an opposite direction, from headwaters and upstream reclamation possibilities toward the Corps's downriver domain. Out of their Billings office in 1944 came a proposal, drawn up by a lower functionary, W. Glenn Sloan, to construct ninety new reservoirs on the river system which would furnish irrigation water for 4.7 million acres of dry land, doubling the basin's existing reclaimed total and extending the Bureau's reach into the Dakota dust bowl. The cost was estimated at $1.3 billion, only a small part of it to be paid by farmers. If adopted independently, the plan might seriously interfere with the Corps's work, for one agency wanted to spread the river over fields while the other insisted on letting it flow in deep, steady currents in order to float commercial traffic. For two days at the Stevens Hotel in Omaha the rivals Pick and Sloan met to thrash out a compromise and save a role for both their bureaucracies. Their solution was a "Pick-Sloan" scheme in which "all the engineering features of both plans were agreed upon." Though nothing more than a paste-together job, their new, combined blueprint was a happy *modus vivendi* for each group. Together, in a cooperative spirit of river-pushing, they promised to construct an ornate hydraulic regime on the Missouri with a combined storage capacity of 83 million acre-feet, enough to give the shippers all the water they wanted and still allow irrigation diversions from Garrison and Oahe dams to open farm production east of the hundredth meridian to compensate for lands elsewhere lost in the scheme. If at points their program seemed somewhat self-defeating and irrational, a vicious circle of cost chasing cost, well, compromises can be like that. The river and the public treasury could wash over all the problems. Despite a lack of specifics on how the benefits compared with the costs involved, despite the Hoover Commission's conclusion in 1949 that Pick-Sloan was "in no sense an integrated development plan," Congress bought it. The basin subsequently fell under complex,

multiheaded federal regulation, and the grand Missouri became a series of deadwater lakes.[8]

Over on the other side of the Rocky Mountain rooftop, in the Pacific Northwest, the Army Corps of Engineers and Bureau of Reclamation were again competing, this time for the chance to manage the Columbia. Here, however, they had to deal with a river that was more a wild, cold gush than a dripping. But otherwise there were marked similarities. As in the Great Plains, water development in the Northwest subsection had lagged behind the more southerly parts of the region. The state of Washington, for example, had in 1939 only one-fifth as much irrigated acreage as California, and most of it was confined to the narrow Yakima valley—yet the mightiest river in the West looped through its territory.[9] By the forties, that retarded condition began to change quickly, as one in every four federal water dollars came to be spent in the state. And where there was an influx of money there was also the occasion for bureaucratic squabbling, for a new alignment of authority, for unbounded expectations.

The Columbia was for a long while exclusively the Army's river. Getting ocean vessels as far upstream as possible, over its many rapids, was the chief idea, and that was Army work. The Rivers and Harbors Act of 1927 gave the agency an expanded mandate to survey and build a chain of dams on the river, which it was hoped would provide smooth sailing deep into the interior. The first of those dams was Bonneville, begun in 1933 and topped off in 1938, a multipurpose structure designed to generate electricity as well as navigation. The American people heard about its virtues mainly through Woody Guthrie, who was hired to write and sing songs in praise of Bonneville. They were nasal and folksy and full of downhome spunk. "Your power is turning our darkness to dawn," one of the more familiar of them went, "roll on, Columbia, roll on." The songs were, in their way, rather more impressive than the dam itself, and the Army soon looked farther upstream to the Grand Coulee site, where there was more reason for excitement.

The main stem of the Columbia charges down from the Canadian Rockies into the United States, now running north, now south, then west, then south again, struggling to find its way through the Cascades, finally turning westward to the sea. In the Pleistocene a massive block of ice forced the river up and out of its twisty canyons, compelling it to carve a new path for itself—the Grand Coulee, a detour fifty miles long and as much as a thousand feet deep—until it could regain its established course. When the ice melted, the river reverted to the old way, leaving the Coulee a dry, abandoned trench. Falling away from that ancient, disused gash in the earth

was an immense stretch of eminently arable land, sagebrushy and cloudless, a land standing in a rain shadow, but a land that might, so local boosters believed, be transformed into an "inland empire" of agriculture, the Great Columbia Plain.[10]

A local newspaper editor, Rufus Woods of the Wenatchee *Daily World*, publicized in 1918 the notion of building a dam where the ice block had been in order to force the Columbia once more into the Coulee and, this time, to make it pay. He got nowhere with the idea. More prosaic minds had decided that the most practical strategy was to divert the Pend Oreille River somewhere east in Idaho and bring its water via a gravity canal downhill to the plain. The state hired General George Goethals, commander of the Panama Canal excavation, to advise it on the matter, and he too recommended the Pend Oreille alternative. That more than likely would have been the choice, had it not been for Idaho's determination to keep its water at home. In 1931 the Army engineers, impatient with interstate quarreling between Washington and Idaho, with the lack of resolution, threw their considerable prestige behind the Woods notion. So too did the Bureau of Reclamation, now rushing into the scene with New Deal backing. So also did President Franklin Roosevelt, who came out in 1934 to see the prospects for himself and, in the spirit of the old reclamation movement, pledged this to the gathered throngs:

> You have acreage capable of supporting a much larger population than you now have. And we believe that by proceeding with these great projects it will not only develop the well-being of the far West and the Coast, but will also give an opportunity to many individuals and many families back in the older, settled parts of the nation to come out here and distribute some of the burdens which fall on them more heavily than fall on the West. . . . You shall have the opportunity of still going West.

Senator Richard Neuberger of Oregon echoed that assurance when he predicted that a dam at Grand Coulee would make rural homes for "people in the slums and tenements of the East and the dust-bowl of the Middle-West," homes where they might "settle and cultivate a great chunk of fertile soil almost a continent removed" from their poverty. Now with humanitarianism and welfare-state largesse on its side, joined to the demands from local button-busting merchants and agriculturists, the dam soon materialized, reaching completion in 1941.[11]

Neuberger touted Grand Coulee Dam as "the biggest thing on earth," a

boast that took in a lot of territory—the Pacific Ocean, Mount Everest, Antarctica, and the like. As human contrivances go, it was indeed elephantine, a concrete plug standing in the midst of nowhere, 550 feet high and 4,200 feet long, with fully three times the mass of Hoover Dam. An artificial lake backed up behind it for 150 miles, all the way to Canada. And inside, down in the cool depths of the structure, a pack of dynamos hummed endlessly, capable of adding 50 percent to the nation's existing hydroelectric capacity, dynamos that would soon be furnishing enough energy to lift a portion of the river into the Coulee for irrigation and still have enough left over to make the Northwest the major postwar producer of military and commercial jet airplanes, a new center for the atomic bomb industry (at nearby Hanford, Washington), and the most important supplier of aluminum. Finally, there was water to provide 1,029,000 acres with irrigation, enough water to make 17,150 new farms. And that would be only the beginning, for already both the Bureau and the Army were drawing up their separate lists of future dams along the river, 142 of them from the Bureau alone, strung out along tributaries all the way to Wyoming, supplying water to 238 projects, benefitting over 5 million acres, and so the numbers went on and on. To bring all of the glittering statistics to reality, the two agencies would once more have to put their rivalries aside and share a river system with each other, share the credit for virtuosity in domination.[12]

The Columbia Basin Project, authorized in 1944 to become the main recipient of Grand Coulee water, was one of the Bureau of Reclamation's own enterprises, and the largest and most carefully planned agricultural settlement it had ever attempted. In contrast to the Great Central Valley of California, this one was explicitly to be a program in the redistribution of wealth. Virtually all of the project area was in private hands, as was also the case in California, but on the Columbia, the federal authorities were dealing with scattered, disorganized, often marginal and hardluck wheat growers and ranchers, not the likes of Joseph DiGiorgio and the Associated Farmers. Thus the Bureau could announce, without much fear of resistance, that in exchange for the cheap water it would furnish—electricity consumers would pick up 90 percent of the dam and project costs—existing owners would have to follow the Bureau's rules. They would be allowed to keep a maximum of 160 acres per farm. They must sell excess land to the government at prewater prices, eschewing speculation and windfall profits. The government, in turn, would find new buyers for it, usually in 40-, 60-, and 80-acre farm sizes. Teams of federal planners would come into the country and, in the spirit of Elwood Mead, lay out new town settlements in the project, new farm-management models, and new transportation facilities. "We were planning *for* a group about whom we knew very little," one

of them, Marion Clawson, admitted at the time, "and were not planning *with* them." It was a serious flaw in his view, but because the majority of the settlers had not yet arrived, because the Bureau's experts had to prepare the ground for them to occupy, what else, he wondered, could be done? The great advantage for the planners in that situation, of course, was that they were free to make the project, in the words of Bureau official William Warne, "not Utopian, but as near the ideal American farming community as can be."[13]

Dust-bowlers and tenement dwellers were, it must said, only a small fraction of the intended beneficiaries of the remade Columbia River, not important enough in themselves to justify the effort and expense, particularly in light of the parallel development going on to the east of the Rockies, which aimed at keeping many of them at home. No, the principal goal in the Northwest was something else, something not so very different from what it was in the southern latitudes, in California, Arizona, and Texas: to repeat from the Bureau's own mouth, total use for greater wealth. According to that agency, "we have not yet produced enough . . . to sustain a desirable and reasonable standard of living, even if goods were equitably distributed; and . . . there is no limit to the human appetite for the products of industry."[14] By that thinking the overriding goal of western water development was simple and unambiguous—the goal of making more—and yet it was an elusive goal, impossible to define or achieve, for what was "desirable" and "reasonable" was confessed at the outset to be an idea without shape or limit or the means of satisfaction.

The third of the great streams running from the roof of the Rockies was the Colorado, and in the postwar era it too came in for "total use." So total, in fact, that by the early 1960s it no longer reached the sea. Much of its annual flow had come to be lost in reservoirs, soaking away into porous sandstone or evaporating into the air. Some of it passed by a tunnel under Rocky Mountain National Park into the Platte River basin for irrigation. The largest portion was diverted into California, into its agriculture and urban settlements, through the All-American Canal and through the California Aqueduct, which sucked up water from behind Parker Dam and carried it to the Metropolitan Water District on the coast. More commitments would follow, but those were sufficient to reduce the lowest reaches of the river to a mere drainage ditch, lined and edged, carrying only runoff and local floods now and then. Down in the delta the Colorado completely dried up and disappeared.

The death of the Colorado River began with Hoover Dam but was completed by a new round of demands coming from parties that had gotten nothing out of the Boulder Canyon Project Act and were now, by the 1940s,

ready to be dealt into the game. The first claimant was Mexico, and that country threatened to make a great deal of noise in international circles unless the Americans guaranteed it a large, steady supply. Granted, Mexico contributed little precipitation to the river—virtually none, in fact—but then neither did California. Furthermore, the Mexican farmers had been drawing from the river for a long time too, and they were often poor, struggling folk meriting some help. The problem was to decide how much was Mexico's fair share and who should be obliged to give it. In 1944 a treaty between the two nations was signed, granting a minimum of 1.5 million acre-feet a year to the Mexicans, secured and delivered by the American reclamation investment. Californians, the most vociferous critics of the treaty, condemned it as "a first mortgage" on the river, as unfair competition in dry years for their heavy users, as an imposed modification of the western water-law principle of prior appropriation—and they were right. But the neighboring states, eager to get their own claims satisfied and some development under way, supported the State Department's treaty, and for a while the matter was settled.[15]

After Mexico got its share secured, the upper-basin states began lining up with buckets and barrels. By the Compact of 1922, those states (Wyoming, Colorado, Utah, and New Mexico) were reserved the rights to 7.5 million acre-feet, *after* they had made sure the lower-basin states (Arizona, Nevada, and California) got an equal amount. In truth, there would not be that much left over; more like 6.6 million acre-feet was all they could realistically expect in normal years. In a 1948 compact the upper-basin states agreed to divide whatever there was by the following formula, based on each state's contribution to the river: Colorado, 51.75 percent; Utah, 23 percent; Wyoming, 14 percent; and New Mexico, 11.25 percent; with 50,000 acre-feet set aside each year for northern Arizona. And then they went to work on Congress and the Bureau of Reclamation to build them a few dams and canals. First they would get a giant reservoir at Echo Park on the Green River, flooding Dinosaur National Monument, in order to be ensure enough water for the south. That would open irrigation development galore, up and down the western slope.[16]

For the men who wanted to flood Dinosaur, men like Senator Arthur Watkins of Utah, Bureau Commissioners Michael Straus and, later, Wilbur Dexheimer, and Secretary of the Interior Douglas McKay, an artificial lake would brighten up the dull, drab (and unvisited) canyons, would make good use of a wilderness containing nothing more valuable than a few old reptilian bones and scraggly piñons. Another group, however, with different values, suddenly appeared to battle the reclamationists, vowing to stop the Echo Park dam. They included Bernard DeVoto, who in a letter to Senator

John F. Kennedy declared, "The entire concept of reclamation needs a thorough overhauling."[17] There was also the writer Wallace Stegner, who depicted the virtues of an unflooded wild monument in *This Is Dinosaur,* along with David Brower of the Sierra Club, perhaps the most effective leader of the opposition, Howard Zahniser of the Wilderness Society, Arthur Carhart, a Denver conservationist, the New York publisher Alfred Knopf, and thousands of others in the West and East, all of them remembering with some bitterness that not three decades earlier they had lost a similar battle when San Francisco took over Hetch Hetchy Valley in Yosemite National Park for its water supply. This time they were determined to win, and win they did. The Echo Park dam proposal was scratched in March 1956, and Secretary McKay, stung by the defeat, resigned from the Eisenhower cabinet. Some other way would have to be found to get the upper Colorado harnessed.[18]

In the place of Echo Park, the Colorado River Storage Project Act of 1956 authorized a tremendous structure at Glen Canyon, just south of the Arizona-Utah border. To save Echo, Brower and the others supported a dam at this new site, much to their later regret, for it would drown some of the most spectacular canyons in the West. In its Lake Powell, named after explorer John Wesley Powell, Glen Canyon Dam would hold back two years' flow of Colorado water—as much as Hoover, its downstream mate. More than that, it would be what the Bureau called a "cash register," a generator of electrical power that would pay for all the other upper-basin features. There was to be Navajo Dam, dedicated in 1962, followed by Flaming Gorge in 1964, Blue Mesa and Curecanti on the Gunnison, the Central Utah Project, Seedskadee, San Juan–Chama, Paonia, and others. Glen Canyon Dam itself was completed in 1963. It was a plain chalk-white arch 710 feet high, wedged tightly between dark red stone walls, imposing in its clean, pure utilitarianism, impressive for its bulk if not grace; and running nonstop down in its turbine chamber was a cash register, counting up for tourists the dollars constantly being earned by the sale of electricity.[19]

And finally among the claimants seeking the death of the Colorado there was Arizona, a poor stepchild, left to the last and unhappy with its plight. What could be done for Arizona? Not much until it gave in to the federalization of the Colorado and ratified the 1922 compact, which, under pressure from the Mexican treaty, it got around to doing in 1944. Having done that, Arizona, rallying around the leadership of its aging but persistent United States Senator Carl Hayden, immediately began agitating for a federal program to bring the river into its dry interior. The water, it was said, was desperately needed, for Phoenix and Tucson were beginning a population

explosion that in the postwar decades would take them to metropolitan status. Competing against them for local supplies were the irrigators of the Salt and Gila valleys, using 95 percent of the water and still coming up short. In 1940, the state pumped 1.5 million acre-feet from its ancient underground deposits dating from as far back as the Ice Age. In 1953, it pumped 4.8 million acre-feet. Unable to agree on state legislation to control that unrestrained pumping, Arizonans looked off to the Colorado for their salvation. Repeatedly, from 1947 on, Hayden got the Senate to approve a billion-dollar Central Arizona Project under the auspices of the Bureau of Reclamation, only to have the California delegation in the House of Representatives stop it, claiming as they did that there was not enough river left for any large new diversions. Indeed there was not, for California was by then using 5.2 million acre-feet, not the 4.4 suggested as a fair share by Congress in the Boulder Canyon Project Act. Arizona, more angered and impatient with its big thirsty neighbor than ever, filed suit in 1952 to settle once and for all its rights and those of California. "The subsequent trial," writes Norris Hundley, "proved to be among the most complicated and hotly debated in Supreme Court history."[20] When it was settled in 1964, after fifty lawyers and a court-appointed special master had worked on it, Arizona emerged smiling and triumphant. It could lay claim, the court agreed, to a full 2.8 million acre-feet of the Colorado, plus the full flow of its own tributaries—though Arizona had to give a million of its allotment to several Indian tribes, which had suffered even more than white Arizonans had as mere stepchildren of the river.

With the competing claims settled, Congress was now ready to pass the last major water-development legislation for the Southwest, the Colorado River Basin Project Act of 1968, featuring the Central Arizona Project and a handful of little gifts tacked on for its friends and supporters. The CAP would begin on the eastern shore of Lake Havasu, created by Parker Dam, where a pump would slurp 1.2 million acre-feet a year up through a pipe and tunnel, through the Buckskin Mountains, into the Granite Reef Aqueduct. That great concrete channel would transport the water eastward across the state, 307 miles in all, first to Orme Dam northeast of Phoenix, then on south in the Tucson Aqueduct, through and over and past more pumps, mountains, deserts, Indian lands, suburban sprawl, until there was nothing left in the ditch. The first water began running in 1985. Total cost of the CAP, mounting higher and higher as the years went on, was in the billions of dollars, a sum that exceeded, so a couple of the state university economists admitted, the direct benefits from the project. Thankfully all of it was federal money or it would not have been there to spend. The energy bill was staggering too. Originally the plan had been to run the pumps on

hydroelectricity generated by two more Colorado River dams, one at Marble and the other at Bridge Canyon, the latter creating a reservoir that would bury a portion of the Grand Canyon National Park.[21] Once more the environmentalists buckled down to battle to save a last piece of the natural river, and once more—for the second time in the century—they were victorious. Once more, however, they lost something as well, for the energy to make the CAP go would be derived instead from coal strip-mined on Hopi sacred lands at Black Mesa in northern Arizona and burned in the Navajo Generating Station near Page, polluting the crystalline desert air with ash and poison gas.[22]

The Central Arizona Project was authorized exactly one hundred years after Powell led his small party down the unknown Colorado and exactly fifty years after the Boulder Canyon Project was passed. In the span of that century, even more so of that second half-century, the southwestern desert had been replaced over much of its extent by an astonishing urban and agribusiness complex, while the Colorado itself had been transmogrified into an industrial artifact, an almost perfectly realized expression of the new imperial West. What those northern rivers, the Missouri and Columbia, were still struggling toward, the Colorado had become—a part of nature that had died and been reborn as money.

For scale of engineering, for wealth produced, the American West had become by the 1980s the greatest hydraulic society ever built in history. It had far eclipsed not only its modern rivals but also its ancient ones, Mesopotamia, Egypt, Mohenjo-Daro, China, and the rest. It had made rivers run uphill, made them push themselves up by their own energy, and celebrated the achievement in brilliant neon colors playing over casinos, corporate offices, shopping malls, over all its new-age oases. It had turned an austere wilderness into sparkling serpentine seas where fleets of motorized houseboats circled under hot cloudless skies, where water skiers turned playfully in and out of once desolate, forbidding chasms. Then it had taken that same water and raised cotton with it, filled city pools with it, thrown it in the air with fountains and let it blow away. It had made its rivers over to produce art, learning, medicine, war, vulgarity, laughter, stinginess, and generosity. All this it had done with unmatched zeal, and most of it with the aid of the East.

To appreciate the awesome magnitude of this new hydraulic civilization, one had to start with its improbable farms, the foundations of its urban, industrial life, and they were legion and lush. The Census of Agriculture reported in 1978 that there were 45,433,535 irrigated acres in the seventeen western states: one-tenth of the world's total. California was still the

leader, with 8.6 million acres; but Texas had surged into second place, with 7 million, followed by Nebraska with 5.7 million and by Idaho and Colorado with 3.5 million each. The market sales from those lands amounted to one-fourth of the nation's annual total, or $26 billion (Florida, the only eastern state with substantial irrigation, contributed a small part of that figure), roughly the value of the sum of American farm exports. Taken by counties, all but one of the top ten agricultural producers were in the irrigated West, and eight were in California alone. Of the leading 100 counties in farm-product sales, California counted 21, Texas 13. Such figures, revealing as they were of the geographical shift in agricultural preeminence, only hinted at the political brawn of these western farmers, who were in most cases gathered around their ditches and water-management needs into muscular organizations.[23]

The irrigated West, it must be added, was not yet a single coordinated monolith, for it included thousands of farmers who remained on their own, as independent entrepreneurs, continuing to pump their water from aquifers with private equipment, as well as remnant small-scale, local water cooperatives. But far and away the major force in agricultural water supply, preempting the field with its capital and expertise, drawing western ranchers and growers into a regionwide network unapproached for cohesion elsewhere, was the Bureau of Reclamation. In its seventy-fifth anniversary report, the Bureau proudly listed its accomplishments: 9.1 million acres irrigated on 146,000 farms; 322 storage reservoirs constructed, 345 diversion dams, 14,490 miles of canals, 34,990 miles of laterals, 930 miles of pipelines, 218 miles of tunnels, 15,530 miles of drains, 174 pumping plants; 49 power plants marketing more than 50 billion kilowatt-hours a year over 16,240 miles of transmission lines. It had invested nearly $7 billion for irrigation purposes alone. Most of the electricity went to the cities, and the Bureau also furnished water for 16 million municipal and industrial consumers. "Builder of the West" was the way the agency was described by one of its longtime employees, and what he might have added, but did not, was that in no other major American region had a single federal agency devoted itself so single-mindedly to so narrowly regional a mission as this one, to the responsibility, as the same writer put it, of "marshalling resources to sustain the growth of the West."[24]

In rationalizing this work, from the time of Francis Newlands on, the claim had been drummed in repeatedly that western agricultural investment benefitted every American, wherever he or she lived. For example, Congressman Aspinall, the consummate water politician to whom was due the greatest credit for the size of postwar water budgets, argued that federal reclamation made children "bigger, stronger, more alert, and healthier than

their parents were" by filling them up with irrigated oranges and vegetables. What's more, the farmers out there pumped money back into the national economy. By his figures, the North Platte Valley Project, to take a single case, had cost the government $22.5 million, but each year of late it had paid back $16 million in taxes and ordered as many as 20,000 boxcars of merchandise from all over the country, thereby stimulating "American business and prosperity." The Bureau too was an old hand at trotting out the justificatory data, pointing out in 1977 that eleven of its projects had, during their existence, surpassed $1 billion each in gross crop value (led by the Central Valley, Imperial Valley, Minidoka-Palisades in Idaho, Yakima, Colorado–Big Thompson, Salt River, and the relatively new Columbia Basin)—over $4 billion worth of crops grown that year from federal water, enough to feed 32 million people.[25] The figures were all true, and the economic benefits indeed substantial, as these sincere, devoted zealots believed. What was missing from their accounting, however, was any acknowledgment that the success of the West was, to a sizable extent, the failure of the East. Those boxcars of tractors and radios would, in the absence of the reclamation program, largely have gone to places like Tennessee and Ohio, especially if the government had put that $7 billion of reclamation money into helping poorer farmers there improve their skills and productivity.

Few of the crops in the West had to be grown there exclusively. Most could have been more cheaply raised in humid environments, and they would have been, had been, are raised there yet. The most common crop on federally watered farms, the Bureau itself reported, was forage to feed cows—not people—constituting 37 percent of all acres in production. Another 25 percent of reclaimed lands grew the staple cereals, mainly corn, wheat, and barley, none of them unique to the West. The southerner's traditional crop of cotton appeared on one in ten Bureau acres. Only 17 percent of Bureau-aided lands were devoted to vegetables, fruits, and nuts, and the percentage in winter-season lettuce or in citrus fruit, filling out and diversifying the American diet, was a minuscule portion of that. Clearly the West was in extensive, direct, subsidized competition with the East. The consequence of that fact, a pair of resource economists commented, was that "increased production on reclamation-served land has increased USDA payments [paid out since the New Deal, paradoxically, to reduce surpluses], stimulated regional production shifts, and reduced the incomes of nonreclamation farmers." Bureau projects, they calculated, had forced out of use at least 5 to 18 million farm acres in the East. Though there had been a net gain in national production, it had been achieved by sending thousands of rural men and women into bankruptcy, forcing them to drift to the cities

looking for work, for few of them were able or willing to take up a new farm in the West.[26]

Here, then, were the outstanding achievements of the western hydraulic society—its triumphs over nature, its bright green wealth sprouting out of what had once been a dry, cracked landscape—and some of its costs entailed elsewhere. And at home, in the West, what was the structure of power associated with those triumphs? Had the region in fact become a model democracy, as forecast by a succession of promoters? Was it a society in which power and profit were broadly diffused—was it, after all, a people's Eden? Or was it instead, more or less as the earlier hydraulic societies had been, a hierarchical system of power, of unequal life-chances, of some humans dominating others? Were there concentrated, centralized forms of authority there, and did the individual and the small community stand before them in futility and impotence?

A number of observers have examined the question of power in the postwar West and its relationship to water, and virtually all of them have agreed that there has been an immense ballooning of the state, which is to say, the federal government and its bureaucratic apparatus, in the region. It would be hard to maintain otherwise—like trying to refute the setting of the sun. However, the observers have disagreed over the effects of that state apparatus on private power, over its implications for community freedom and autonomy, over its relation to festering social inequities. And, disagreeing over those matters, they have been at odds when it comes to suggesting how and by whom water should be apportioned in the future or how a genuinely democratic West would deal with its rivers.

One set of observers, and they are among the most listened-to critics of the modern hydraulic society, are the free-market advocates. What they have perceived emerging in the West is a big bruiser of a state that has shouldered private enterprise out of the water-development business, poured capital into projects that cannot meet the tests of market rationality, and played favorites when it comes to doling out the resource. The West by their account begins to look like a throwback to mercantilist England in the days before Adam Smith and laissez-faire enlightenment. Representative of this group of critics is the disillusioned New Dealer and *Newsweek* columnist Raymond Moley, who in the mid-1950s delivered a scathing attack on western reclamation, calling it a "paternalistic rainbow" and the Bureau behind it a "Napoleonic" institution in its overweening ambition. Money was being taken from the American public in the form of taxes, he charged, and redistributed according to the social values of powerful bureaucrats, and those bureaucrats favored western farmers over eastern farmers, over

urban dwellers, and over industrialists who wanted water too. Three economists—Jack Hirschleifer, James DeHaven, and Jerome Milliman—made the same case a few years later when they accused the Bureau of suffering from a "monument syndrome," of building immense, costly works that were simply not good business investments. Supplying water, they complained, seems persistently to evolve into a "natural monopoly" in which prices and benefits bear little relation to costs and both freedom and reason are sacrificed. They proposed "a decentralization of authority" in making decisions about water and stated: "The cause of human liberty is best served by a minimum of government compulsion and, if compulsion is necessary, local and decentralized authority is more acceptable than dictation from a remote centralized source of power."[27] The same argument would appear in one form or another over the succeeding decades. The West, it goes, is excessively dominated, insofar as water is concerned, by the federal government, and that government is surrounded by a pack of sycophants. In the eyes of the more extreme market theorists, the region is saddled with a bureaucratic despotism not so very different from that Karl Wittfogel found in the ancient world. Only the restoration of a free, private market in water supply, investment, and pricing would bring this monster tumbling down.

A contrary critique, so dissimilar that one might well wonder whether it can possibly have been provoked by the same West, has come from another group, who might be called the "public-interest liberals." They have found the region to be a fragmented, chaotic structure of power that is incapable of working for, incapable even of perceiving, the common good: a shabby little house of private desires. In one of its rooms, the Bureau of Reclamation squabbles endlessly with the Army Corps of Engineers over who will dam what, while in an adjacent room a knot of congressmen in Stetsons and string ties are elbowing one another aside at the federal trough, diving for pieces of pork; roaming about the floor everywhere are local farmers with their hands out, their pockets open, their voices demanding and lustful. The great failing of the region from this view is that there has been too little effective central power and too weak a sense of collective purpose in the conquest of water. Rivers can never be exploited for total yield, for maximum efficiency, this critique goes, until some new superior source of authority is located that can take a broad view and do the job in a coordinated fashion. As Charles McKinley wrote in his critical study of the Columbia River schemes, "these waters are a part of a great single force which demands unified human manipulation if it is to be used to best advantage." He would have set up a National River Development and Management Administration in the Department of the Interior and under its aegis nurtured a series of river-basin commissions resembling the Tennessee Valley

Authority, beholden to no local oligarchies or old, entrenched bureaucracies.[28] Similar proposals for one or more TVA-like superagencies have been made repeatedly and for every major western stream, always with the confidence that centralization of power is not the road to serfdom, as the market ideologues fear, but a way to achieve the national welfare.

In this same vein, the writings of political scientists Theodore Lowi and Grant McConnell have been especially influential. For them, the West, particularly in its irrigated agricultural development, exemplifies a pervasive problem in American life: the capture of government power by narrow interest groups and, consequently, the subversion of democracy. Lowi, in a complex argument that cannot be done justice to here, refers to an "iron triangle" in water development that has as its three corners a handful of well-placed western congressmen, the Bureau, and organized agribusiness, together forming a closed network of power that eludes scrutiny and check. "Power goes up," he argues, "but in the form of personal plunder rather than public choice."[29] Similarly, McConnell holds that real clout in the West rests with small, cohesive private groups that have made the federal bureaucracy their servant, reduced it to an amiable, docile giant stumbling after its little master. Americans are readily fooled by this arrangement, McConnell warns. Fearing some great despotic central state that could hold life-and-death sway over their lives, they have naively trusted in the notion of "local control," all unaware that power in such a decentralized society has not been done away with but has become more firmly seated than ever, with no possibilities for challenge at the grassroots. Failing to realize the genuine threat to democracy that exists in that situation—the opportunities it opens, for instance, for rich California farmers to grab cheap water for themselves at taxpayers' expense—they have no defense. Only a strong, transcendent federal government, McConnell believes, in which a full diversity of interests are represented, can look out for the public interest.[30]

In the face of two such contradictory sets of analyses of the West, of the market men who see decisive power gathering ominously in the hands of the state and of the public-interest liberals who think it is still in the tight grasp of private elites, the cry naturally goes out: Who is right? To some extent, the answer must be that both are. The problems of the American West resemble one of those funny little pictures that, held one way, show a face with a scraggly tuft of hair on top and a bushy beard underneath, and held another way, show a very different face with a wild bush on top and a goatee. The power that has accumulated with the domination of western rivers has two faces also, one private and the other public, depending on which way one turns the picture. The most nearly adequate term for describing the composite is "capitalist state." As indicated in an earlier

chapter, this will not do finally as a full or adequate description of the West, will not capture all its peculiarities of history and ecology, but it comes closer than either of the accounts above to suggesting the complex but unified structure of power there.

The theory of the capitalist state, it will be remembered, denies that power in modern societies is democratically diffused, competitive, or pluralistic. It also denies that the immense bureaucratic apparatus of today is a benign force, or even a neutral one standing ready to do the bidding of whatever organized group can get into office, the good as well as the bad folks. Instead, the state has become a Leviathan in whose shadow ordinary men and women live. This large, hovering creature is not all-powerful, for the contemporary world is too complex, too diverse, too full of struggling, contending parties for any entity to rule unchallenged. Moreover, it is restrained by the purpose on which it has fattened. Depart from that purpose and Leviathan will sicken and die. In the main, that purpose is to promote the economic culture of capitalism, the core ethos of which is the rational, calculating, unlimited accumulation of private wealth. The state has come to be the single most important agency for the preservation of that culture. In the work of preserving, it finds at once the end of its being and the means to enhance its own prospects. As conservator, the state exercises military power abroad, facilitates commerce at home, educates the young, encourages investment, safeguards profit, absorbs the social and environmental costs of capitalism, and regulates the chaos of the marketplace. Above all, the state has the responsibility, not alone but finally, whenever lesser agencies fail, of dominating nature. Only through such mastery can resources be made available in infinite quantities and can the process of private accumulation continue.

The Moleys, Lowis, and McConnells see only a limited aspect of this picture, and that is where they go wrong. All of them, however, are right to a point. As the market purists accurately complain, freedom of enterprise tends to shrivel in the shadow of the modern state, but not because that shadow is thrown by a hostile form of power. Capitalism is, after all, aimed primarily at the acquiring of individual wealth; free markets are only one of its strategies for doing that, and one that has historically been quickly discarded when others, the contrived market of the state in particular, have become available. The public-interest liberals are likewise perspicacious about several details. In the capitalist state, private good does in fact become identified with the general welfare. However, removing power from local elites to some national center does not change that identification but only enlarges it, making power more concentrated than ever, more difficult to escape or overturn.

But it is not only those observers discussed above who have been unable to turn the picture around and around to get all its faces in view. The Marxists, too, have had their lapses of perception. Though they have written almost nothing on the American West specifically, they have been among the most clear-minded generally about the capitalist state and its mission. They have seen its coherence, its logic, its connections, better than almost any one else around. Too quickly, however, they have assumed that the state is merely a tool of a single elite group who own the means of production—that it is, in other words, first and last a coercive instrument of a well-defined ruling class. That kind of mechanical analysis reduces the endless conundrum of historical cause and effect to a pat formula. Is the entire culture of capitalism along with its protective, conserving state the invention of a particular economic class, the bourgeoisie? Or rather has the rise and hegemony of the bourgeoisie been an inevitable outcome of that culture? Has the class been called into existence, thrust into a position of leadership, by the culture's values and beliefs, shared more or less spontaneously by a wide spectrum of the population, as well as by its evolving relationship with nature through technology? The latter way of thinking, though admittedly messier, seems finally to be the more satisfactory, for it rightly emphasizes that a culture is not simply the invention of a handful of people at the top, something that they alone create and impose on everyone else, but that a culture, including that of capitalism, grows amorphously, anonymously, out of particular historical circumstances, out of particular environments, and in that process of growing sets up its own distinguishing structure of power.

The American West is an ecological variant on the modern world-circling culture of capitalism: a pattern of culture and society that has branched off, diversified somewhat from the parent that sent it out to find a new home for itself. It was created by the movement of that capitalist culture into an arid environment, into a land where scarcity of the vital resource of water was the prevailing environmental reality. Where there was an abundance of natural wealth lying about, waiting to be easily gathered up and made use of, capitalism as a culture and as a social order got along without much centralization of its energies. But when it encountered the raw edge of scarcity (it can create scarcity through depletion, of course, as well as come into it) that culture began to shift about. It found itself saying and accepting things it would not have accepted before. It felt the need to fabricate, or invite in, powerful organizations, above all the state, to help carry out its drives. In the West, the single most important function of that state has been, in the words of Roy Huffman, "to provide a constantly expanding resource base upon which private enterprise can build."[31] Making abun-

dant what was scarce, putting an elusive, stingy nature within private reach where before it was unattainable: this has been the fundamental, underlying ecological role of the capitalist state, and in the West, this has been its role to a degree unmatched anywhere else in America.

The naked accumulation of wealth has, for most people, never been a wholly agreeable idea or an adequate explanation of life. Consequently, it has needed dressing up from time to time in more lofty ideals, more noble, transcendent rhetoric, even in actual garb. As Ralph Miliband shows, one of the most appealing wardrobes has been that of nationalism. For a long time now, the capitalist state has resorted to nationalistic appeals to furnish disguises for the self-enriching behavior it seeks to protect. Nationalism or patriotism has also served to muffle internal protest and dissent. "For the good of the nation"—by that appeal men and women are persuaded to go quietly along with their state apparatus and its projects, subordinating themselves, as Miliband puts it, to "a larger, more comprehensive concern which unites in a supreme allegiance rich and poor, the comfortable and the deprived, the givers of orders and their recipients."[32] There are other garments in the wardrobe besides nationalism. The grand cause of the domination of nature is one of them, perhaps the one most often brought out and worn, though it may be called by other names like "progress." Another garment used to cover the embarrassment of unconcealed self-seeking—and a capacious, well-handled one it has been in the United States—is regional pride, regional ambition. Nowhere is this more so than in the American West, where talk of making an empire, of conquering the desert, of overtaking the East, has served to distract attention from the less attractive realities of hierarchy, power elites, and the insatiability of an acquisitive culture. Finally, put the water-controlling men into a costume of oversized belt buckles, narrow-heeled boots, and big white hats, and their disguise is complete. They have fully appropriated the heroic, freedom-loving cowboy past of the West to justify their modern acquisitiveness.

Here then are the mature lineaments of the newfangled hydraulic society which, by the 1980s, had taken form in the trans-Mississippi landscape, up and down the plains, over the Rocky Mountain rooftop, across the desert basins to the coast. Not radically different in its cultural imperatives from the rest of America, or from France or Japan for that matter, it presented nonetheless a few distinctive features. On its environmental base of aridity, it had erected a closely integrated system of power that included both the state and private capitalist enterprise. Neither could survive in the harsh land without the other. Working together, however, the vision of total use could be dreamed and realized: the management of every river, every

obscure remote creek, for the sake of greater wealth, for the sake of America and a greater West, for the sake of domination.

ACCUMULATION AND LEGITIMATION

Holding an empire together is a more difficult task than creating one. With success come new threats from within and without, requiring a level of vigilance that would have been inconceivable at some more primitive stage of development. In the postwar western water regime, those threats took two forms. First, there was a swelling of social criticism that the empire could not answer. Dissension over the grand project of river domination arose as its human results became difficult to reconcile with some of its original promises. That dissension, as it grew more bitter and unresolved, left in its wake a dark deposit of disillusionment, a loss of faith. The entire project began, for many, to seem morally bankrupt. Second, with all the engineering triumphs came a set of adverse ecological consequences, and they began to plague the river-pushers, defying their expertise and endangering their magnificent artifice. The first of those threats to the empire, the decline of its moral legitimacy, was the outcome of a hard-fought, impassioned controversy, lasting more than three decades, over the 160-acre limit in the national reclamation law. The fate of the limit was finally settled by Congress in 1982—but not before a fatal crack had appeared in the traditional, broad-based political alliance for arid-land reclamation.

Ironically, the threat of a lost legitimacy came precisely and inevitably through the very success of the water empire. All along in its rise to power it had been marked by latent contradictions, and those contradictions, deriving chiefly from the capitalist state mode of environmental exploitation, had always carried the potential for self-destruction. Most treacherous of them was the contradiction in purpose: the state had in the West the dual role of promoting the accumulation of private wealth through the increase of available water while maintaining social harmony in its distribution.[1] Promoting accumulation was always the more essential job, for time and instrumental reason had proved it to be the most efficacious strategy for generating economic growth, bringing in revenues, and keeping the bu-

reaucracy employed. It was also what the Bureau of Reclamation did best, and as the years passed, it became more narrowly focused. As some individuals got richer, they clearly came to deserve, by the rules of the Bureau's work, the fullest attention. Which is another way of saying that the accumulative function by its nature tolerated, even produced, economic inequalities. On the other hand, many of those citizens who, for one reason or another, failed to keep pace with the elite were sooner or later likely to resent their situation and feel that the state was not performing its distributive job in good conscience. They could readily accept the idea that the state apparatus ought to help individuals acquire more water, more capital, and more income—but accept only to the extent they themselves were assured that such help was fairly distributed to all. The controlling American definition of justice, as many have observed, has been one of open opportunities and plenty of them. Restrict those opportunities to a privileged handful, smaller and smaller in number, and in many people's eyes the state and its efforts began to appear less legitimate, less supportable.

Everywhere modern capitalist culture faces such a contradiction, and faces, if it cannot resolve the tension, its own death. So at least Jürgen Habermas, the German social philosopher and heir of the Frankfurt School, has argued. What he calls *Steuerungsproblemen*, or unresolved steering problems, abound in this culture and its various societies, engendering from country to country a sense of crisis that so far no state has quite been able to relieve. Apathy, alienation, a decline in mass loyalty toward institutions and traditions, a growing sense of a world gone irrational: these are some of the symptoms of the general legitimacy crisis. Can the state steer away from the rock of elite accumulation and back toward popular support? Can it revive the heroic collective spirit that once animated the drive to conquer nature? If not, a crash is coming, Habermas warns, and some new culture, some new economy, with new social arrangements and modes of production, will emerge from the wreckage.[2]

The American West, running for so long on an ascending curve of optimism, came at last to be drawn into that same general malaise. So abrupt was the reversal in mood that it left a lot of westerners bewildered and angry, determined to insist on the old clichés more stridently than ever. They began to sense but not really understand that former symbols of success like Hoover Dam no longer stirred the same old enthusiasm nationwide. Nor did Henry Luce's ebullient vision of an "endless frontier" for reclamation raise its former fervor. Too many critical questions faced the empire. But western leaders and state apparatchiks proved unable, as we

will see, to respond creatively to the crisis, and so at last undermined their project of river domination.

Steering a successful course for reclamation had always required the wholehearted support of agrarian democrats. More than any other group, it was they who gave the effort its moral legitimacy. They earnestly believed and worked to convince the public that irrigating the West was the way to open up opportunities for millions of poor Americans and to keep faith with the ideals of men like Thomas Jefferson. In the postwar period, that role of legitimation belonged preeminently to the University of California economist Paul Taylor. He would never have described his part that way. On the contrary, he would have said he was a gadfly, an outsider, an outraged man fighting against the power elite, denying them legitimacy. And he was all that too: for forty years he had struggled against them to save the 160-acre limit in the reclamation law. But so long as he was successful in his struggle, and for a while he was that, Taylor added an unintended credibility to the over-all program. For he sincerely felt that the idea of water domination was a noble one, if it could be kept joined to the idea of distributive justice. That was exactly what the cause of reclamation legitimacy needed: someone to fight tirelessly for its tradition. The empire also needed to let a man like Taylor win a little. That did not happen, and that was why it irretrievably weakened its case.

Taylor first learned about the reclamation program, including the provision on acreage limitation, at the feet of Walter Packard in the early forties.[3] He was then a professor at Berkeley, had been since 1922, and would stay there till his retirement and beyond. Born in 1895 in Iowa, he had studied at the University of Wisconsin with John R. Commons before coming West for graduate work. His first scholarly commitment was to labor policy, especially regarding Mexican farm workers in California. In 1939, he and his photographer wife, Dorothea Lange, collaborated on an eloquent essay, *American Exodus,* depicting the plight of the Okie migrants. Once he had heard from Packard about the acreage limit, however, he had the driving motive of his mature years: to bring about the breakup of the large agribusiness interests in California and put land in the hands of as many people as possible. A democratic West, he began to insist in a spate of articles and congressional testimony, would require the prevention of land and water monopoly and the proliferation of the small family farmstead.

Originally the acreage limit on federal water projects, as has been discussed, had been set at 160 acres per family. That was a maximum, a ceiling, not a suggested optimum. Far less land than that, it was generally

acknowledged, would be adequate to support a family wherever irrigation was available. Consequently, farms in the West ought to be smaller than those elsewhere, smaller than the quarter-section norm that had guided earlier, humid-land settlement. Families, the law went on, must reside in the "neighborhood" of their land—must be real farmers, that is, not speculators or landlords living in some distant city. By midcentury, however, the law had been significantly altered by Bureau "interpretation." The residency requirement was completely ignored (under the unconvincing claim that Congress had omitted it in the 1926 Omnibus Adjustment Act).[4] The 160-acre allotment had been extended to every adult member of a farm household, and it could be held in as many separate irrigation districts as one liked. Exemptions had been granted to a lengthening string of projects all over the West, though not, despite the best efforts of Sheridan Downey and Alfred Elliott, to the Central Valley of California. Luckily, Michael Straus's "technical compliance" formula allowed large landowners there to sell their excess land to friends, relatives, employees, anyone who would let them go on using it. And the Bureau everywhere allowed the unlimited leasing of land, so that a single operator could farm five or ten or fifteen thousand acres with ridiculously cheap public water. Still, for all the bureaucratic loosening, there remained a specified limit on the books and enough show of enforcement to rile the bigger accumulators. It was Paul Taylor's intention to hold fast to that limit, or some near facsimile of it, and to toughen the Bureau's adherence to it.[5]

He had his work cut out for him. During the first term of the Eisenhower presidency, Secretary of the Interior Douglas McKay, formerly an Oregon automobile dealer, now a powerfully placed official determined to remove all federal roadblocks to private enterprise, came up with a method to get around the acreage law. He offered to accept a lump-sum payment of $14 million for the Army-built dam at Pine Flat on California's Kings River (it had cost $40 million—the rest would be charged off to flood control), allowing excess owners along the river and in the old Tulare Lake basin to buy their way out of conformity. Fifty-two of the owners held among them 196,466 excess acres, and they were delighted with the McKay bargain; it was exactly what they had sought since prevailing upon the Army (instead of the Bureau) to do the work.[6] Unfortunately for them, McKay's successor, Fred Seaton, felt compelled to take that offer back as a possible violation of the reclamation law, and not until 1982 would they get their way. Meanwhile, Congressman Clair Engle of California introduced a more successful evasive strategy, the so-called Engle formula, which allowed exemption through payment of interest charges, set at very low rates, on federal

water projects. This was enacted in the Small Reclamation Projects Act of 1956.[7] Still another assault on the limit came through the courts, when an excess owner in the Ivanhoe Irrigation District (Tulare County again) sued to stop the district from accepting the limit in its Bureau of Reclamation contracts. The California Supreme Court agreed with him, declaring in *Ivanhoe Irrigation District* v. *All Parties* (1957) that the acreage provision violated state law, which must take precedence in water matters. The limit was "unlawful discrimination" against the well-to-do, the court complained, a piece of "class legislation." The following year, the United States Supreme Court unanimously struck down that decision, thereby asserting not only the validity of the limit itself but the primacy of federal authority as well.[8] In all these skirmishes, Paul Taylor was at the forefront, advising and consulting with liberal senatorial allies Paul Douglas and Wayne Morse, bristling tall and angry at hearings, his keen eyes searching out any bureaucrat who would dare to empty sacred words of their meaning. He was a strong, determined hawk of a man whom little farmers could use around the barnyard for defense.

The case against the acreage limit was what it had always been. Critics contended that in the old days it had been a nice theory of dividing up the public domain, but that it now interfered with the higher principle of accumulation. In the words of the chief counsel for the Imperial Irrigation District, "it completely offsets a man's right to work, to live, and to acquire property." That refrain ran through the 1958 hearings convened by Senator Clinton Anderson of New Mexico, who was among those seeking repeal, or at least relief. The witnesses he called in those hearings included a North Dakota farmer who resented "this business of putting ceilings over him." "America has been known and admired the world over as a land of unlimited opportunity," he went on, but "acreage ceilings set at the turn of the century certainly limit the opportunity of progressive irrigation farmers." Senator Frank Barrett of Wyoming, whose bill would have applied the Engle formula to all federally reclaimed lands, stuck in his view that it was not morally right to deprive a man of his property and give it to another. And Floyd Dominy, then the Bureau's associate commissioner, confessed that he was at heart an accumulator too. He owned 380 acres as a gentleman farmer in Virginia and was "not yet convinced that is sufficient." Dominy went on:

> I think we must cut through the fog in this [hearings] room that has come from many well-intentioned people as to the sacredness of the 160-acre limit. I want to defend it, yes,

> as to its principle and as to its policy. But I think that it needs to be adjusted to the existing circumstances in any given area.[9]

With Chairman Anderson and other western politicians, Dominy lavishly praised the principle of redistributing reclamation benefits widely. Such assertions were the established method of holding on to broad funding support. It was merely the application, the substance, of that principle he and the others found objectionable. For them, the problem was to devise some subtle, unobtrusive way of maintaining the husk of agrarian idealism without preserving its kernel of meaning. For Paul Taylor, the challenge was not letting them get away with it.

Note that though the party of accumulators was scattered over the West, California was still by far the main and loudest source of noncompliers, with recalcitrants in the neighboring states looking on to see which way the federal wind blew out there. In the next round of the limit controversy, after those generally unsuccessful trials in the fifties to get the limit removed completely, the contest would move to California altogether. Once more, its Central Valley would become a violent battleground, though this time words and lawyers—not pick handles and thugs—would be used, for this was to be a battle fought, for the most part, with professors and congressmen, not with poor alien workers. The controversy now focused on the desolate western side of the San Joaquin River, the Westlands district still lying high and dry and vulnerable. With no other water than what they could pump from deep down in the ground, with water tables falling rapidly, there was a fierce local clamoring for government aid. Controversy was also gathering around the latest hydraulic feat in the West, and one of the most impressive: the State Water Project of California, which was sold to legislators by agribusinessmen to rid them of the fearsome federal rule-makers.

The State Water Project began in the early 1940s when powerful valley agricultural interests, backed up by merchant groups and the state engineer, made a pass at buying out the feds. When they discovered there was not enough money, or will, to take over the entire Central Valley Project, they turned instead to rivalry. They would jolly well do their own plumbing from this point on. They would not let the Bureau of Reclamation add the Feather River, plunging off the Sierra into the Sacramento basin, to its cap, but would claim it for the state. A dam on the river at Oroville, built to world-class scale, plus diversion of northern coastal waters southward would yield enough water to fill a new canal, the California Aqueduct, which would push up from the delta along the western wall of the valley and,

reviving an old fancy, leap over the Tehachapi Mountains. That was the main idea, simple and megalomaniacal. But in their master blueprint of 1957, the planners went on to speak airily of 376 new reservoirs in all and of total capital expenditures of $11.8 billion—not bad for a single state going it alone. If carried out, the plan would be larger and more costly than the entire federal reclamation program to date. The need for it, state officials said, was desperate. Los Angeles, suppurating endlessly over the southern desert, must have that kind of investment or it would die. Even more to the point, there were land interests along the aqueduct route who needed it, who were aching with thirst, who had to have an irrigation system they could reliably control. This one, it was understood, would have no acreage limitation attached.[10]

After a lot of disputation and delay, a new governor, Edmund "Pat" Brown, took the plan firmly in hand in 1959 and coaxed it through the legislature. His special aide in the campaign was a former Bureau lawyer, Ralph Brody, a smooth man destined for wealth and notoriety. One year later, the proposition went before the California public in a referendum. Now, however, only the first phase was laid out for scrutiny and the cost presented for approval was a mere $1.75 billion. Even at that, a number of independent economists said the project was a boondoggle, returning, by one estimate, barely fifty cents on the dollar. Other critics wanted water development left to the federal bureaucracy, who had the means to go after the big supplies farther north, the Columbia in particular.[11] The opposition almost prevailed, but four days before the election the Metropolitan Water District of southern California signed a contract with the state for 1.5 million acre-feet, and the southern voters now swung over to support the plan. The project passed by 170,000 votes out of almost 6 million cast. Only sixteen out of forty-four counties, and all but one of them was in the southland, gave it a majority.[12] Late in 1971, the first water crossed the mountains.

City people paid the largest part of the bill for the State Water Project, though in some cases they used none of the water. Land developers and agribusiness, on the other hand, took the largest profit. The Metropolitan Water District directors, who ostensibly represented urban consumers, could hardly have been unaware of that outcome. Perhaps because nearly half of those directors were real-estate developers or big landholders, they were not manifestly bothered. In the Great Valley, the leading beneficiaries were a few horny-handed plowmen toiling in Kern and Kings counties: Chevron USA (owner of 37,793 acres in the SWP service area), Tejon Ranch (part of the Los Angeles *Times* holdings, owner of 35,897 acres), Getty Oil (35,384), Shell Oil (31,995), McCarthy Joint Venture A (a part-

nership including Prudential Insurance, 25,105), Blackwell, Tenneco, and Southern Pacific. They got their water at discount and used it, not to salvage a fading economy as promised, but to put in a quarter of a million new acres of cotton, olives, pistachios, almonds, and wheat.[13]

That the *un*-motive of the State Water Project, however overlaid it became with later justifications, was to circumvent the federal acreage limit was well understood by Paul Taylor and his associates. Their attention, though, was riveted elsewhere, on the Bureau of Reclamation and its latest round of maneuvers in the valley. Not one to be shut out of any field of budding enterprise, the Bureau was now hurrying its own schemes along to fetch more water and find more customers in the California interior. Already it had spent more money on the valley than on any other single project. Yet still there were lands unredeemed. There was, for instance, west of Fresno above the low-lying sloughs, an undeveloped flattish area the size of Rhode Island. In 1952, landowners there formed the Westlands Water District, which eventually would cover more than 600,000 acres, replacing Imperial as the largest district in the nation.[14] Directly thereafter, the Bureau began looking into the prospects of hooking up a faucet for them. The most feasible solution appeared to be a dam on San Luis Creek coming out of the Diablo Range—precisely where the State Water Project engineers also wanted to build. Handsomely, they agreed to share the facility, and San Luis Dam was budgeted by Congress in 1960. Water taken from its reservoir for federal use would carry the acreage-limit proviso; water for state use would not. The trickiness of distinguishing one water molecule from another did not trouble President John F. Kennedy, who was present to preside over the ground-breaking ceremony, quipping to the thousands sitting on folding chairs, "It's a pleasure to me to come and help blow up this valley in the name of progress." When completed in 1968, San Luis Dam was one of the half-dozen largest structures of its kind ever made, worthy enough, exclaimed Interior Secretary Stewart Udall, to bear a sign reading "Man was here!"[15] What kind of man, what kind of progress, had yet to be discovered.

Long before the Bureau and its know-how came to the rescue, Westlands had been the private fiefdom of a few exceptionally big owners. Though by cross-valley standards they earned a skimpy per acre return from the land, they were hardly poor, for they counted among their numbers the likes of Southern Pacific Railroad, Boston Ranch, Southlake Farms, Bangor Punta, and Standard Oil. You needed many acres there, it was said, to eke out a bare, marginal corporate living, many more to be really comfortable. Federal water, however, was supposed to change all that: farms would be broken into much smaller units, it was promised, new settlers would flock

in by the thousands, crop yields would shoot out of sight, the economy would boom, money would blossom along every ditch. In fact, only the last of those promises turned out to be true. After the project was finished, most of the same growers were hiring the same men to ride the same tractors around the same fields. There was no new settlement and little genuine or practical opportunity for the landless—but there was indeed a great gob of money rolling in at last. Why that was the outcome is a revealing study in bureaucratic handling of the reclamation law.

By a strict interpretation of the law, the Bureau was obliged to sign contracts before any construction could begin, and the contracts had to commit landowners to sell their excess lands within ten years of receiving water and at preproject prices to prevent windfall profiteering. Commissioner Dominy saw his duty differently. He would build first, get contracts later. Eventually, under public pressure, they were indeed signed, all under the watchful eye of Ralph Brody, formerly of the governor's office and before that of the Bureau, now counsel for Westlands and the highest paid official in California. By 1976, Brody could boast that 350,000 acres in the district were under contract and of that sum 109,000 excess acres had been disposed of to 928 individuals. All in all, it was "an outstanding record of compliance."[16] Not so, said a group of U.S. senators who came out in 1975 and again in 1976 to see for themselves what had been wrought. The Bureau had no idea, charged the senators, what a family farmer was, how many of them were originally in the district, how many had been added. It had accepted sale prices that were too high, and worse yet, had not made sure that the land really went on the market. Senator Gaylord Nelson reported:

> I have witnessed few hearings in my career that have been more moving than those held in Fresno when literally hundreds of would-be family farmers appeared just to be represented by one California family farmer—a man who told their story of repeated efforts to buy reclamation land sold as excess, only to be told that it was not available in small parcels for family sized farms. These people were experienced family farmers with credit available to them from private sources. All they were asking was what the law promised.[17]

Who, then, was getting the land, if in fact it was being sold as Brody claimed, and how were they doing it?

The would-be farmers who had been excluded from buying formed the

National Land for People organization under the leadership of George Ballis, a sharp, crusty ex–labor journalist. Their investigation uncovered that, despite strenuous denials, project-aided lands were being reorganized into ever more intricate corporate holdings, with the investors typically residing in such farm neighborhoods as San Francisco, the Caribbean, Japan, and Mexico. For instance, Russell Giffen, once described as the largest farmer of irrigated land in the United States, had sold out to a hand-picked circle of cronies and "partnerships," many of them giving the same last name and the same address, which also happened to be the office of one John Bonadelle, a Fresno land speculator. All in the family, as it were. Bonadelle soon after pleaded guilty to a fraud conspiracy charge, but the Westlands shell game went on, confusing the most alert observer with its deft movements, its successive sales and resales, its shuffling of names on the door. Combined with unrestrained leasing, the game was played as a way to prevent any change whatever in the personnel or scale of farm operation. "It is like a club atmosphere," said a representative of the National Farmers Union who had personally tracked down one of the purchasers, the so-called Jubil Farms, to its New York office. "If you are a member of the club, you have access." Under this Bureau-style watchdogging of the reclamation law, there were simply no 160-acre (and precious few 320-acre) farming operations to be found in Westlands.[18]

That men and women would carry on so intricate, so demanding, even at times so flagrantly criminal a shell game as this one may require explanation. The reason, at least the indisputable part of it, had to do with the accumulative urge. Turning on a faucet for Westlands cost the American taxpayer more than $3 billion dollars. (This figure includes construction and interest charges, calculated at 6.75 percent over forty years.) The water came to growers at a measly $7.50 an acre-foot, well below the price charged on the nearby State Water Project lands—a figure so low that they were actually paying off only the yearly operation and maintenance costs. Pumping water uphill from San Luis Dam was done with cheap electricity supplied by the Bureau. The total subsidy, according to economists Philip LeVeen and George Goldman, was a whopping $2,200 per acre. Figure it out: an investor who got one of those interlocking quarter-sections received a gift from the public of $352,000.[19] In exchange, the public got more cotton, sugar beets, and tomatoes—more of them, yes, but not enough to justify their huge capital investment. It was ridiculously expensive food and fiber.

Why the Bureau or Congress would underwrite such extravagant welfare for a rich elite should by now not require any explanation. What none of the parties involved quite expected was the hullabaloo, the demands for

investigation, raised over the Westlands project. People wanting an opportunity to farm, resenting their government's indifference toward them and now more effectively organized than ever, were not going to accept this outcome in silence. In 1976, National Land for People filed suit against the Department of the Interior to prevent any further approval of excess-land sales in the district. One year later, Secretary Cecil Andrus, acting under a court injunction, suspended sales approvals not only there but throughout the West, pending a general review of the reclamation law and the adoption of new rules for its enforcement.[20] And Paul Taylor up in Berkeley thought maybe the tide was turning at last, bringing in a people's program of water control.

"All around him were oaths, moans, bellowed complaints, the brief tableaux of upright wincing men, hoes dangling, their hands on the small of their backs, who were going on under the same torment." That is the world of the washed-up prizefighter Billy Tully in Leonard Gardner's novel *Fat City*.[21] It is the California agricultural worker's world, populated by winos toting along their bottles in paper bags, by street derelicts trying to pick up a little change, by old experienced hands knowing no other life, a few of them white, many more of them black, Filipino, and Mexican, in every case seasonal workers who get ninety cents an hour to thin tomatoes or top onions and who spend much of it evenings in Central Valley bars. In the postwar period, they were still around, as they had been since the nineteenth century, and they were no closer to escaping that hard lot than before, no nearer to owning their own farms or receiving public-funded water for them. The entire federal and state investment in irrigation expansion had not been made for them, did not improve their condition. It had been for the accumulative class, who were overwhelmingly white, Anglo men already owning property.[22] Even the hundreds of aspiring farmers who showed up before Gaylord Nelson wanting to buy a piece of the Westlands were well removed from the ranks of seasonal laborers. Granted, with the right kind of reclamation program it was at least conceivable that some of the Billy Tullys along with the Sanchezes and the Villanuevas of the fields could become small-time owners, bending and sweating for themselves. But that had not been the program pursued, though it had always been the promise held forth. The result was a glaring gap between the claim of wide redistribution and the bleak reality of a permanent underclass who did the brute work in western reclamation. Legitimacy slipped down into the gap and could not be pulled out.

The elaboration of irrigated agriculture, as demonstrated earlier, required a rural proletariat. For a long while Asian immigrants made up that

proletariat, then Mexicans and Okies. When the Okies moved out of farm work during World War Two and into coastal defense industries, the growers fell back once more on Mexican nationals to serve. A presidential executive order in 1942 allowed them to recruit workers across the border (the so-called *braceros*, or strong-armed ones) on temporary work permits. The policy was extended in 1951, as Public Law 78, a further example of the state's promotion of the water empire. Growers claimed, in agitating for the law, that they could not find enough domestic hands to get their crops in. "We tried to bring labor from the Southern states," explained J. Earl Coke, a prominent California agricultural leader, "and the colored people just can't bend over that far."[23] In the peak year of 1959, California imported 136,012 Mexicans, and Texas used 205,959. Put more accurately, it was a tightly organized group of 50,000 growers in five key western states, assembled, for instance, as the Imperial Valley Farmers Association, who employed virtually all the *braceros*. Stories of laborers being herded north (packed like cattle into rickety old trucks by unscrupulous, exploiting contractors), of squalid housing conditions, and of starvation wages led to the termination of the import program in 1964. Still open were the possibilities of applying for permanent alien resident status—becoming a "green card" worker—or of crawling illegally under the fence at the international border.[24]

Then began, with that grudging restriction of the labor pool, a fierce race along the western ditches between the forces of unionization and of mechanization. Americans of Hispanic ancestry, the largest remaining source of workers, undertook to organize themselves, as they had tried to do in the 1920s and 1930s, into agricultural unions. Marching under the flag of the National Farm Workers Union, which bore a black Aztec eagle on a red-and-white field, and led by a cotton picker from Arizona, César Chavez, they tasted real success for the first time. In 1965, they announced a work stoppage against the grape farms of the Delano, California area. In the next year, they went on strike in the vineyards of two of the state's biggest growers, Schenley (who became the first to recognize the union) and DiGiorgio (who fought them bitterly). Those actions were followed in 1968 by a national boycott against the table-grape industry. Despite the open hostility of Governor Ronald Reagan and the entire agribusiness establishment, the NFWU persisted, winning through the seventies a series of victories in contracts, minimum-wage guarantees, and state-supervised elections.[25]

And then they began to lose. With every success, growers had an added incentive to invest in the new farming machines appearing on the scene. The weird, ingenious, and expensive technology was designed, for the most part, at public-funded universities and aided the accumulators by lowering

their labor costs. One harvester clattered along the cotton rows, stripping the bolls and blowing them into wheeled bins that carted them to the gins. Another ripped grapes from their vines. Still others grabbed walnut trees by their trunks and shook the crop down. With increasing frequency it was machines that dug potatoes and beets and carrots and dumped them onto conveyor belts. By 1966, there were 460 machines in California fields alone harvesting tomatoes, and farmers were bringing in millions of tons of a new "square", thick-skinned variety of the fruit, specially created to withstand mechanical handling. "The machine won't strike," noted the chairman of an engineering department at the University of California at Davis, where much of the inventing went on; "it will work when [the growers] want it to work."[26] His words hinted of the vision that had animated the empire from the beginning—of extending its technological control as far as possible, to the total domination of the earth. If one could make water run uphill for hundreds of miles, one could do more, much more. One could turn over the whole job of irrigated cropping to genetics, to electronics, to robotics, doing away with the need for almost all field labor, completing man's triumph over the desert. No more stooping in the hot sun, no more threats to strike, no more workers, no more work.

From its very beginning, the federal reclamation bureaucracy had studiously ignored this rural proletariat toiling on its assisted lands. All of its promises of creating new farms and farmers in the West were proffered, however vaguely, to some set of noble husbandmen or yearning city people elsewhere, usually a good deal farther off. And there was another community in the West who were ignored, closed out, not regarded as the stuff from which accumulators and imperialists are made: the Indians. Outside of a few of its judges, the government did not acknowledge that the Indians might need or want water too. Yet three out of four Indians living on reservations in the United States were located in the West, and because they had for so long been disregarded, the tribes found themselves by the postwar years in a parlous situation. Reservation lands had been taken from them and sold to white irrigators or flooded behind dams. Their groundwater had been pumped away to adjacent interests. The Paiute of Nevada watched their Pyramid Lake, once an abundant fishery for cutthroat trout and cui-ui, recede lower and lower, as farmers upstream on the Newlands Irrigation Project diverted the Truckee River to raise cattle feed. The Bureau of Reclamation consigned other flows, like the Yellowstone River in Montana, to invading coal companies, despite the protests of the Crow, Cheyenne, Arapaho, and Shoshone. Some Indians wanted to secure water for their own industrial schemes, while others had the laying out of large-scale irrigation farms in mind—or merely the retaining of a right to future

development. But everywhere they were standing at the tail end of a long, long ditch.[27]

The Indians pinned their hopes for a fairer distribution on some principles enunciated in a Supreme Court case back in 1908, *Winters* v. *United States*. The case was over who was entitled to the Milk River of Montana: a white settler named Henry Winters and his neighbors, who were drawing off the river to their fields, or, downstream from them, the Gros Ventre on their Fort Belknap reservation. The Court concluded that the Indians had priority of claim, had in fact a special, unique right to water based on their treaty with the American government. When they came to terms with their conquerors, the tribe reserved enough water for all their future needs. Whether that right had ever been claimed or not was immaterial; the water must be there waiting for the Indians whenever they decided to use it. The white man's laws of appropriation, which gave a water right to whoever first put a river to use, could not affect those reserved native rights. Furthermore, the English tradition of riparian rights, granted to any and all streamside dwellers, could not prevail against the Indian priority. The Winters doctrine was potentially a bombshell that could blow the entire structure of western water rights, and the hydraulic society resting on it, to ruins. One Indian sympathizer, William Veeder of the Department of Justice, maintained that the Winters decision gave the tribes an unlimited claim on their watersheds, on all the streams "which rise upon, traverse or border upon Indian reservations," and that white users there, no matter how old their own claims, must now buy the right to divert or must give way. Others hotly denied so sweeping a claim.[28] A fundamental moral issue was at stake, a question of justice. Did the fact that a people had arrived in a country first give them an eternal and superior hold on its natural resources? Or did a higher right belong to the man or woman who first saw the economic promise in a resource, who first put it to use and made a profit from it? Neither the courts nor Congress managed to settle the issue. Indeed, they left it in total confusion. No one could say, would say, where or how far the Winters doctrine applied. And in that state of ambiguity the white appropriators had an uneasy but clear edge: they were already in possession.[29]

The predicament of the farm workers in the western hydraulic order was radically unlike that of the Indians. But there were some similarities. In the first place, neither group had been cut in on the benefits from water development. Now, in their new militancy, both groups could seriously embarrass the region nationally and internationally. They could testify that technological prowess and private accumulative success were not the only outcomes worth noting. There was also poverty, despair, and discrimination

in the West. The instrumental reason by which the empire functioned had long ignored those darker truths, for they were about matters of morality, justice, ultimate intrinsic values, and the instrumentalists, whether public or private men, were not skilled or interested in such matters. Another parallel was that neither the field workers nor the Indians could expect much from the traditional reclamation law, regardless of how vigorously it was enforced. In particular, the acreage limit was not meaningful if one had the land, as the Indians did, but needed water or if one did not have the funds, as workers did not, to buy excess lands that came on the market. The theory of justice embodied in the limit, taken alone, was too narrow to produce a genuinely egalitarian society in the region. Moreover, it could conceivably work against these poorest, excluded groups by adding to the number of white farmers competing against the Indians' reservations or pushing for mechanization of the laborers' jobs. Finally, for both groups the danger in the controversy over the 160-acre law was that it could preempt the broader moral debate over water and its distribution, reducing to a formula, and an old-fashioned Jeffersonian agrarian formula at that, the more complex issues they wanted addressed.

By the decade of the 1970s, then, the water empire was ringed about, more than at any other time in its rise to power, by loud, angry, protesting voices. Among them were the voices of Indians and field workers. There was also a vitriolic newcomer down in Imperial Valley, Dr. Ben Yellen, fighting with broadsides and lawsuits to get the acreage limitation and residency clause enforced.[30] There was George Ballis and National Land for People agitating for the same thing in the Westlands district and across the region. Even the growers, those securely on the side of empire, were not altogether happy. They resented any semblance of federal control, especially over their acquisitive ambitions, and demanded the removal of all acreage limits whatsoever. What all of the voices were wrangling over was the legitimacy of the empire itself and how that legitimacy would be defined—what cultural values, traditions, and standards of judgment would predominate.

In August 1977 the Bureau of Reclamation, obeying the court injunction to review acreage enforcement, issued a new set of rules interpreting and applying the 1902 law. Any single individual (or any corporation) would still be limited to 160 acres, as the law said, though a family could own up to 640 acres. Through additional leasing, the operational limits could be expanded to 480 acres per person, or 960 acres per family. The time allowed for disposal of excess lands would be lowered from ten to five years, and the federal government would set up a lottery to sell lands that owners could not sell among their family, neighbors, or employees. And no owner

or lessee of federally watered lands would be allowed to live more than fifty miles from them—a requirement that would be "phased in so that no undue hardship would occur." Would the enforcement of those rules make much of a difference across the West? In most places, the answer was no. Only 2 percent of all reclamation landowners had more than 320 acres; the average size of ownership units was a piddling 70 acres. A mere 0.8 percent of the units exceeded 640 acres, the family standard (though they owned 16.8 percent of irrigable acres). But there were a few places over which the rules would roll like an earthquake, shaking and knocking about the social order, and those places happened to be precisely where the Bureau had lavished its best efforts, notably the Central Valley of California. Under the proposed methods of calculating, Californians would own almost a million acres of excess lands, or 89.3 percent of the total in the seventeen-state Bureau service area. New Mexico, Texas, Nebraska, and Montana would add enough to account, with California, for 96 percent of acreage excess. In those states, the Bureau was admitting at last that there "was a very high degree of inequality" in the distribution of benefits for which it was partly responsible, and that a new, serious round of enforcement could rectify that inequality. Something like a thousand new farms could be created, the government ventured, most of them to be found in the Westlands district. That was, after all, not many farms, not enough to erase most of the lines of class and hierarchy, but it was enough to seem wildly, dangerously revolutionary to a grower named Standard Oil or J. G. Boswell, Inc., and thus it was enough to doom the new rules.[31]

The Interior Department officials dutifully took their proposed rules into western towns and cities where they hoped to hear the grassroots reaction. What they mainly heard, and it came from a choleric brigade who could not claim to represent the large, unaffected, complacent majority of reclamation farmers, was that enforcement would be catastrophic. An even smaller knot of dissidents appeared at hearings to say that the rules did not go far enough, that far stricter ceilings on family ownership and on leasing—say, a maximum of 320 acres on all operations of every kind—would make many more opportunities for new farms than the Interior scheme, but their voices were shouted down in the general organized clamor set up by the rural elite. Among those taking the elite's side was liberal Governor Jerry Brown of California, who sent his state director of food and agriculture, Richard Rominger, to protest that the 160-acre limit was "unrealistic." He had support from men like the Westlands Water District manager and the spokesman from the Pacific Legal Foundation, who charged that Interior was trying to force "a social change by attempting to create an 'agrarian' form of agriculture." The foundation subsequently got the courts to issue

an injunction against the rules until an environmental-impact statement was prepared.[32] While that was in process, western congressmen and senators rushed off to Washington with a slew of proposals in their attaché cases to bury the proposed rules and amend the 1902 law.

By 1979, it was clear that the only bill that had much chance of passage was the Reclamation Reform Act, Senate Bill 14, proposed by Frank Church of Idaho to give "relief to real family farmers." It would repeal all residency requirements, make 1,280 acres the absolute maximum for operations, leased or owned or a combination thereof, but expand that limit where climate or altitude put farmers at a competitive disadvantage. Church would also free any district from those limits once it had paid out its forty-year contract with the Bureau. Hearings on the bill were held in Washington in March 1979. After drawn-out statements from state secretaries of agriculture, from the well-heeled Farm/Water Alliance, the National Cotton Council, and so forth, after twenty-three witnesses in all testified in favor of liberalizing or abolishing the old law, when the hour was late and the senators were eager to go home, George Ballis of National Land for People was allowed to come forth and speak alone in opposition. Some months later the full Senate considered the Church bill and voted in favor of it, 47 to 23. No action was taken by the House of Representatives, however, leaving the issue moot.[33]

With the new Interior rules still hanging threateningly in the air, with a string of failures to get the law rewritten by Congress, the western elite was frustrated and worried that they would again fail to get reform as they had in the 1940s and 1950s. Then, the inauguration of Ronald Reagan as President in January 1981, a man who as California's governor had sharply condemned the general idea of an acreage limit, along with the seating of a strongly conservative, Republican-controlled Senate, brightened their prospects considerably.[34] Once more a rush of new bills appeared in Capitol Hill committees. Senator James McClure of Idaho, with support from Armstrong of Colorado and DeConcini of Arizona, sponsored S. 1867, which would set the limit at a munificent 2,080 acres owned and leased. For a while it was the Senate's favored child. This time, however, the bill that was destined to succeed where all others had failed was one slipped into the House hopper by Morris Udall of Arizona. H.R. 5539 would abolish residency requirements completely. The western reclamation farmer could live in Taiwan or Palm Springs if he liked, plowing and watering at long distance. Udall's bill would set the combined ceiling for a family at 960 acres, or its equivalent in areas of lesser productivity, but at 320 acres for a corporation. It would let the Secretary of the Interior decide how long (up to a period of five years) an owner had to dispose of his excess lands. No

lottery was required to see that the excluded, the outsider, got a chance at the sale. The bill would allow unlimited leasing above 960 acres, so long as the lessee reimbursed in full the interest paid out by the government on the reclamation funds it borrowed. And it would exempt all Army Corps of Engineers projects from any acreage limit. On 6 May 1982, the House voted in favor of the Udall bill (228 ayes, 117 nays). In July of that year the senators agreed to shelve their own McClure bill and put Udall's in its place. The vote was 49 in favor of that move, with only 13 opposed. Thus, the Reclamation Reform Act of 1982 became law. After eight decades of dispute, loose attention, and the persistent hopes of social reformers the old 160-acre homestead principle was dumped for a new standard, one six times larger than its predecessor. For those growers whom George Ballis called the "biggies," those men who were huge in ambition but mighty few in number, constituting less than 2 percent of the reclamation owners, the way was now open to unlimited aggrandizing. Without embarrassment or danger they could openly set up truly massive operations, if they paid "full cost." What was meant by paying "full cost" turned out to be not so very onerous either: getting an interest rate, through long-term government borrowing, that was about half the going market figure, paying something like 6 or 8 percent above the water rates charged the smaller operators, with all those subsidies from urban water and electricity consumers left pleasantly intact. The power structure of the hydraulic empire was not altogether satisfied with the outcome—it wanted more liberality than it got. But, on balance, it was happy, for it was safe at last from the tattered hordes of wild-eyed agrarians, farm workers, revolutionaries, populists, and redistributionists.[35]

During these years of turmoil from the mid-1970s to 1982, much was said about the principles, the moral values, that should henceforth govern the development and use of water in the West. Little that was said was new or profoundly thought out, but what was said was strongly, passionately, and thanks to the changed political climate of the Reagan era, unabashedly urged. The debates in Congress produced especially revealing articulations of the region's public values on the matter. Judging by the frequency of their iteration, the most compelling of those principles were the following:

1. The proper role of the state should be to promote the private accumulation of wealth, not seek its dispersal into as many hands as possible; it should be to reward the successful, not the failures.
2. The laws of the marketplace are reason exemplified,

and they should be allowed to dictate what size of farm operation is most desirable, what will work best, what will be viewed as efficient.

3. The hydraulic apparatus of the West, an imposing technological triumph, should not be flawed and compromised by an antiquated agrarian ideal that belongs to the horse-and-buggy days.

Although evidence could be rustled together in support of any of the three principles, they were all more in the way of preachments than demonstrable or logical truths. Defenders of the 1902 law flailed away at them with their own statistics and preachments, but finally they could not prevail—could not crack the imperial ideology.

By the first of the principles, the federal government was to be regarded as a welcome partner in developing western water when it confined its mission to the domination of nature and left private enterprise alone. When it acted, that is, in Senator Malcolm Wallop of Wyoming's words, as "a public-investment-making entity," and in the words of his senior colleague, as "an engine of economic growth." Then, so the reasoning went, no matter how large its budget or how far-flung its tentacles, no matter how subtle or powerful its influence, no matter how deeply dependent on it westerners had become, government was not yet become that dreaded monster Bureaucracy. It was not yet an overarching authority repressing and restraining the rights of individuals. When the state took to redistributing land and water, on the other hand, the West would become, in the rumbling phrases of McClure of Idaho, a "centrally controlled, rigidly enforced egalitarian society in which excellence is not virtue and liberty no prize." In the 1979 hearings, Orrin Hatch, a prominent member of the New Right, denounced this "continuing process of bureaucratic domination" that the acreage limit imposed on his constituents in Utah (Bureau figures showed that only 0.1 percent of irrigable acres there were excess). On the same occasion John Puchen, director of California Westside Farmers, demanded to know, "Who is the Government of the United States to say that because you want to be a farmer, your income should be limited to a subsistence level?" And Bernice Wolf of California Women in Agriculture echoed many senatorial sentiments when she said, "We must preserve the sacred right of property owners to do as they wish with their property." Big government, then, was not *ipso facto* incompatible with the western way of thinking, only government, whatever its size, that attempted to mess about with the single sacred right of accumulation. The region's elite were attacking a government that said, as Wallop put it, "You're going to be frozen in place."[86]

The second principle had less visceral appeal than that of defending the raw accumulative passion, but it had the great advantage of seeming to be more scientific, more disinterested, even more humanitarian. A large body of technical literature could be brought to its defense, all of it demonstrating, so it was said, that a mere 160 acres was irrational and inefficient by the standards of contemporary marketplace agriculture. Among such studies frequently cited were those by California farm economists Gerald Dean, Harold Carter, and Warren Johnston. In their view, the economies of scale in irrigated farming all began well above the quarter-section farm unit level: at 600 to 640 acres for most of the crops they studied. Modern machinery, their studies and a few others suggested, had made the old nineteenth-century standard in farm size completely outmoded. Rigidly imposing that standard today would raise the cost of food and, as some went on to claim, threaten the hungry of the world with starvation. However simplistic, that argument provided grist for the empire's mills. Not mentioned were the other implications in the studies. Once achieved, those economies of scale typically did not go on and on upward but reached a plateau where they leveled off, or even declined, as they encountered some inefficiencies associated with overblown size. Yet no one in the agribusiness world or the United States Senate suggested that a *lid* be placed on western farm size right where those diseconomies began to show up. Taking off every lid possible was the great and only desideratum, for it was accumulation, not efficiency, that was their real, leading motive.[37]

The identification of an optimum scale in agriculture mainly reflected, of course, the cost and design of the machinery currently being invented and deployed on farms, as well as the desire of every operator to own his own full panoply of such equipment rather than to share with his neighbors; the growing dependence on a battery of chemicals; and the ability or inability to get a contract with some giant food processor. Any such optimum was best understood, not as a "law," specifying what had to be, but rather as a description of what was, of what had been devised, of what had been sought. In the agricultural engineering schools, efficiency had been persistently defined as whatever was most profitable for big operators. Therefore, the search for a so-called scientific definition of ideal scale was something of a self-fulfilling prophecy. Believe that big is better and you will work to make it so.[38]

Those who wanted to hold on to the old 160-acre acreage limit, or at least on to some lower ceiling than the one pushed by Udall or McClure, had their own studies to cite, casting the entire matter of scale and profitability into some confusion. For example, a study by two agricultural economists at Washington State University demonstrated that a 160-acre farm in the

Columbia basin could earn a family $15,590 in after-tax income, a 320-acre farm, $27,360, sums they described as respectively "quite adequate" and "quite generous" by national standards. Corroboration came from the Bureau of Reclamation's environmental-impact statement on its proposed rules, which determined that in the vast majority of irrigation districts a 160-acre farm could produce as much as or more income than the national farm average of $10,037. Quadrupling that size, as the Bureau proposed to allow for families, would have made it possible for a western farmer with subsidized water to make far more money than his counterpart in the East: as much, it was calculated, as $101,480 in net operator income in the Westlands Water District, $124,600 in Imperial Valley.[39]

The third principle may have been the most subtly persuasive of all, though it was more of an oblique presence than a well-articulated argument. The 160-acre standard, argued senators, congressmen, editorialists, and farm groups, came from another century, when dams were simply piles of brush or stones placed across a stream, when a plow or a mule-drawn fresno was sufficient to scratch out a ditch. In the shadow of a San Luis Dam or the Central Arizona Project, it seemed a hopeless anachronism. Moreover, the standard came from another, fading region. For farmers back East so small a farm and the income it provided might be all right, but not for farmers in the West, where men lived by larger expectations. Enforcing an old, outmoded social ideal of small farming in that big land of big engineering triumphs was a gross incongruity. It would create a region of "serfs" and "peasants," warned western leaders.[40] Never mind for the moment that those serfs, according to the economic studies, were making on average as much as or more than those in any other region of the world. The point was that they were men who had a spectacular hydraulic achievement to live up to and therefore could not be confined to the ambitions of lesser men elsewhere. That general, diffuse feeling of incompatibility between traditional, eastern social ideals and modern, western technological miracles was independent of any personal, self-interested acquisitiveness or any loyalty to the most accumulative class. It was unsentimental, commonsensical thinking, an honest acknowledgment that if the West had ever really wanted to establish in its valleys a more decentralized, agrarian life, where a large portion of its people would live directly on the land and make their own decisions locally, it would never have pursued the water system it got. Now it was time, westerners were insisting, that the society be conformed to its infrastructure.

Whatever the validity of these ways of thinking, they carried the day. A long-standing agrarian tradition and its powerful mystique were abandoned in 1982. For almost a century, it had been attached—granted, as rhetoric

more than reality—to the western reclamation program. Now at last that program was revealed to be unequivocally an imperial one, aimed at the massing of wealth and power, using the concentrated force of the capitalist state to further that work. The next question was whether, without the cover of the agrarian tradition, such a program could still hold on to its legitimacy among Americans, even among westerners. Would they continue to finance it, as they had always done, once they had an unambiguous view of what it was after?

"The great barbecue is over," announced Senator Daniel Moynihan of New York during consideration of the McClure bill. While the taxpayers in his own home city were forced to spend over a billion dollars of their own money to improve their water supply, westerners were still asking for more federal aid. They were asking, he acknowledged, but they were not going to get it. Not a single major water-authorization bill, he pointed out, had been passed by Congress in the decade after 1972. The Corps of Engineers was without work, and the Bureau was merely finishing up old projects. The national majority that had once supported those authorizations had now disintegrated. Moynihan recounted how the governor of Arizona, flying with him in a helicopter over the Colorado River reservoirs, had joked that the water was destined for "the swimming pools of my more affluent constituents." Moynihan was incensed by such profligacy, such flagrant abuse of New York charity. What he was saying should have been taken as a warning to the western bloc in Congress that the legitimacy of their program was hanging in the balance. They did not pay him any attention, however, and ignored similar warning signals from Senators Proxmire of Wisconsin, Metzenbaum of Ohio, and Lugar of Indiana. All indicated that the Midwest, like the East, was not likely to go on financing the water empire in years to come. Nor did they heed one of their own, Congressman Jim Weaver of Oregon, who denounced the Udall bill as "the product of a well-financed campaign of a small but very wealthy group of agribusiness interests, multimillionaires and corporations. It is a bald-faced antifamily farm package of direct subsidies to the richest of America's agribusiness interests." Outside the West, and even here and there within it, the legitimacy of the program was slipping away.[41]

The irony of the situation was that, in making their case for reforming the acreage limit, the western elite had forged a tool that now could be turned against them with devastating effectiveness. They had claimed to want to live and grow by the principles of the marketplace. Very well, let them pay market prices for their water. If the West was not interested in

opening new homestead opportunities for the disadvantaged, then the old justification for furnishing cheap irrigation was gone. Two Colorado State University economists, David Seckler and Robert A. Young, wrote in 1978, "We find there is no compelling rationale for anything like the amount of subsidies now being provided under federal water programs."[42] That was an old conclusion, now spreading rapidly through both professional and lay circles, and the 1982 legislation could only confirm it. In fact, the new law reflected that thinking to some degree when it spoke of "full cost" pricing for larger operations and when it required districts to agree to annual renegotiations of contracts and prices if they wanted to enjoy the new acreage liberality. Since it had been taken over by the state, reclamation had never been asked to meet the familiar market tests: Would this expenditure bring the highest possible return? Would the benefits be greater than the costs? Would private capital have undertaken this or that project? Would the water go to those willing to pay the most for it? Now, suddenly, caught in the backlash of their own reasoning, the western ideologists might have to face those tests at last.

If the empire had now to meet, and meet rigorously, the pure marketplace tests of economic success, then there might be significant shifts ahead in its structure of power. Agriculture might eventually have to give way, might be forced to migrate back eastward where its costs were lower, its western water going to a new set of customers—the industrialists, the mining and energy companies, the desert megalopolises. Moreover, under strict marketplace accounting, no new projects might be undertaken for quite some time. There might be too many other demands on capital, pressing demands from all over the world, competing against the water developers. Their dream of total use, total domination of the western landscape, might then never be fully realized. That was a distinct possibility lurking in the triumph of 1982. In winning its long battle to lift the lid on accumulation, the empire might have lost the means to finance its continuing war on the desert. And lost too its ability to command the moral capital of the nation.

For a man like Paul Taylor, however, a man who had given so much of his life to defending the agrarian tradition in the reclamation law, that sudden, unforeseen vulnerability of an empire overreaching itself was not apparent in the summer of 1982. Now eighty-seven years old, he shuffled down the corridors of Barrows Hall on the Berkeley campus where he had his office, dressed in a plaid shirt and a blue nylon padded jacket, walking slowly and gingerly with a cane in one hand. Once in his office he sat among the scholarly debris of a lifetime, sorting out his papers for the archivists. His eyesight was weakening, his sagging eyelids held in place by tape. On

his desk lay an appeal from Morris Udall for a campaign contribution, and for a moment it brought the fire back into those eyes. "Should I send him money?" he asked—send money to a man who at that moment was gutting the law Taylor had worked so hard, so long, to hold on to? He had before him too the beginnings of an article for a law journal, arguing that the Metropolitan Water District had been violating the Warren Act of 1911 by selling its Colorado supplies to excess-land owners. On that and other matters he answered questions with a slow, thoughtful precision. His mind was alert and tenacious while the body gave way. Yet that alertness was tinged with melancholy, for he knew that he had failed in what he had set out to achieve. He understood and must accept that the West, or at least the elite West, had rejected a future he had wanted to see for it, a future where small farmers of many races could live harmoniously and comfortably in that dry land, with a powerful benevolent state building for them, looking out for their welfare, bringing them water. Now that was a vision that had been put aside, once and for all. It was a quaint notion left to the historians. "Well," was all Taylor could say at the end, glancing at the floor, then out the window toward the Sather Tower, "it was a good fight."

LEVIATHAN AILING

In the winter of 1975, the Bureau of Reclamation began filling the reservoir behind one of its newest dams, Teton in southeastern Idaho, at the base of the glorious mountains of the same name. There had been no end of headaches in its construction. Incredibly, the dirt-and-rock dam had been sited on one of the most active earthquake zones in the country, and the canyon walls around it were cracked and fragile, leaking water like a corroded bathtub. Scientists at the U.S. Geological Survey had questioned the wisdom of putting a structure in so treacherous a place. Economists had worried about the cost overruns. Environmentalists criticized the destruction of seventeen miles of canyon wildlife habitat. The Bureau answered by pouring more grout into the cracks. Within six months after its completion Teton Dam sprang a leak, then another. On the fifth of June 1976, its entire north end collapsed, and 80 billion gallons of water came thundering downstream, taking everything in its path: eleven people, 13,000 head of cattle, many ranchers' homes, a billion tons of topsoil, and no small part of the pride and esteem of the river controllers.[1]

A tragedy like Teton Dam could give no one satisfaction, but it could usefully suggest that the hydraulic society had a misplaced, dangerous confidence in its mastery, through concrete, steel, and earth, over nature. The best designs of the best engineers (though Teton was hardly that) could fail, not only all at once, with thunderous impact as in Idaho, but slowly too, wearing out, falling into disrepair, becoming impossible to salvage. Steel penstocks and headgates must someday rust and collapse. Concrete, so permanent-seeming in its youth, must turn soft and crumble. Heavy banks of earth, thrown up to trap a flood, must eventually, under the most favorable circumstances, erode away. After all, nothing nature could throw in the way of even so small a river as the Teton—whether blocks of lava, andesite, sandstone, granite, or gneiss, no matter how many thousands of feet thick and miles and miles across—could contain it forever; how much less likely was it that the human contrivances of the water empire could permanently withstand the force of flowing water. The message of the Teton disaster was that the days of the empire were numbered, on stream after stream, river after river. It was a signal of impending mortality, of human imperfection, of transient, elusive command. The end might not come soon, might come when it did with a whimper more than a bang, but it would come.

Teton was not the first big American dam to collapse. There was the Johnstown, Pennsylvania, disaster of 1889, which had brought John Wesley Powell to a ringing defense, despite the more than two thousand casualties. There was the St. Francis Dam catastrophe of 1928, some forty miles north of Los Angeles, which drowned more than four hundred persons and destroyed the career of the formidable William Mulholland of the Los Angeles Water and Power Department. There was the Walnut Creek washout in Arizona, Austin Dam in Texas—and how many nameless others? In 1965, Fontenelle Dam in Wyoming began leaking and had to be drained, and Navajo in New Mexico narrowly averted a similar fate; while in 1981, a large section of the Westlands irrigation facility, San Luis Dam, slid off into the water, threatening not drownings but drought from diminished reservoir capacity. And there were a few more potential disasters looming in the future: Auburn and San Fernando dams in California and Wolf Creek in Colorado had all been built in unstable seismic zones like Teton's. One study in the aftermath of the Idaho collapse argued that America's dams were ten thousand times more likely to cause a major disaster than all of the nuclear power plants. Even if the federal government could learn to put safety ahead of pork-barrel politics and guarantee its own structures, there remained the grim fact that twenty-four out of twenty-five dams around

the country were in private hands, and those were often loose, bungling hands.[2]

More serious for the empire's future than any botched design or isolated disaster were the inevitable problems associated with the aging of the hydraulic system. Yet those problems were seldom confronted. In proposing dams and canals the practice had never been to include the costs of decommissioning or replacing them, for the designers had always assumed that their works were made to last, if not forever, then for a very, very long time. In 1985 Hoover Dam would be a half-century old, and no one really knew what its life-span was. Each day sediment backed up behind it, reducing its capacity, foreshadowing its end. Would it last a full century? Two? The answer would depend in part on the durability of its materials, exposed year after year to a hard climate yet expected to withstand the unrelenting pressures of a mammoth lake, and upon the vagaries of land-use management in its basin, for too much grazing or deforestation upstream could accelerate erosion and add to the sediment. Pointed warnings came from the bad experiences of other countries, for example, from Pakistan's much touted Tarbela Dam, whose life expectancy the designers had overestimated by a factor of three or four.[3] One thing was certain over the long term: whatever their span of service, the Hoovers and Grand Coulees of the West must some day hold back not water but a vast sludge drying in the sun. Eventually engineers would be forced to look for new sites, and they were not going to find any, for the good ones had already been taken, used, and rendered useless.

The failures associated with aging and carelessness of design were part of a larger environmental vulnerability that the water lords began to encounter in the postwar period. They had to contend, in ways their predecessors had never contemplated, with the limits imposed by nature, limits to what humans can do in the pursuit of domination. Hydraulic technology held out for a long time the illusion that it could bring natural forces under absolute, tight, efficient control, but in truth it multiplied the ways it could work its own demise. Each new project, grander than the last, demanded increasingly intricate supervision, greater managerial sophistication—greater, it sometimes seemed, than people could summon. There was more to go wrong, and it did go wrong, on a scale commensurate with the technology involved. In addition to the problems with the apparatus itself, three sets of environmental vulnerabilities appeared: a water-quantity problem, a decline in water quality under ever more intensive use, and a potentially irreversible degradation of the pristine ecological communities of the West. These were not mere casual or minor nuisances. They were

deep systemic problems, growing out of the very program of large-scale, intensifying water control, associated with it wherever it had been pursued in history, and quite possibly without remedy. In that case, they might also prove to be fatal.

The old Incas used to say, "The frog does not drink up the pond in which he lives." They did not know the frogs or the ponds of the American West. Into that dry region had migrated the thirstiest frogs on the planet, and by the 1970s they were in fact drinking up their supplies at an alarming rate. Thousands of potholes, sloughs, and entire lakes from North Dakota to southern California had by that date been drained completely dry. Major rivers like the Colorado, the upper Rio Grande, the Arkansas, the Red, and the Platte were totally consumed or nearly so; even the copious Columbia was flowing uncommonly low at times. Despite more than a century of herculean efforts to make more water available, the thirst was still there, and it was a thirst that grew larger and more diverse with time. These frogs needed not only a little water on their tongues, in the way of all flesh, but a lot of water on their lawns, in their coal-slurry pipelines, in their manufacturing plants, and above all on their farms. They simply could not be satisfied. Scarcity for them was not merely an objective condition of nature but the product of, the rationale for, the force behind, their culture. Wherever they perceived scarcity they would drive themselves to create abundance. When and where there was abundance they would make scarcity anew. In that unceasing escalation of want they constantly ran the risk of consuming the very last drop, of becoming frogs with no ponds left.

Here were the dimensions of western thirst in the mature stage of empire. In its 1975 Westwide study of eleven states, omitting the plains tier, the Bureau of Reclamation determined that water withdrawals for all uses amounted to 136,778,000 acre-feet a year, or 45 trillion gallons. Of that sum, irrigation alone accounted for 100,717,000 acre-feet, or 74 percent. Some of that water made its way back into streams, but most of it did not. California's was the worst case in this respect: three out of every four gallons it used were considered "consumed"—that is, made unavailable for further use because of evaporation or seepage into the ground. California also made the largest withdrawals (39 million acre-feet), followed by Idaho (26 million), and Oregon (11 million). These figures must be put, of course, against the total runoff available, some 427 million acre-feet in all. That might seem like a plentitude of water, four times the quantity consumed, leaving no cause for alarm. And then one remembered where that runoff occurred and how difficult it would be to reach what was still untapped. Two

states, Washington and Oregon, and their coastal ranges in particular, contributed 183 million acre-feet alone to the runoff, and that water was a far and expensive way off from most of the thirst.[4]

Americans of all regions had habitually been, as though it were their birthright, big water users, profligate users even, but westerners had become the biggest by far. In 1900, the total amount of water used across the country for all purposes was 40 billion gallons a day; by 1975, the amount was 393 billion gallons, ten times more, though the population had only tripled in size. By that later date Americans were indisputably the thirstiest people on earth, withdrawing three times as much as the world average, a considerably higher rate than in other industrial societies and enough to make an African villager, carrying a water pot home on her head, stagger in unbelief. Beyond the hundredth meridian, per capita rates of withdrawal and consumption much exceeded even those extravagant American levels. The national average withdrawal from all sources was 1,600 gallons per person per day. In Idaho it was, thanks to irrigation, 21,000 gallons. It was equally striking that not only farmers but urban westerners too, in their direct use about the house and yard, drank great draughts of water. The national average for direct personal use was 90 gallons a day, but in Tucson, it was 140 gallons, in Denver, 230, and in Sacramento, 280.[5] This was letting water slop from the cup, run freely down the chin, thoughtlessly spill on the ground, making the world stare in amazement. By 1980, resource experts were predicting a planetwide water crisis that could be a greater threat to human life than the energy shortages of the seventies. If that was to be the future, Americans would be much troubled to adjust and struggle through—and Americans in the West, drinking, bathing, guzzling, swimming, mining, watering with a loose freedom in the face of strict limits, would be the most troubled of all.

Survival, to be sure, is an elastic idea, and a crisis of survival means different things to different people. For a Punjabi farmer the lack of water might mean a nightmare of crop failure and famine, but in the modern West the immediate, foreseeable threat was not so dire. It was a threat to an established standard of living, to a margin of wastefulness, and to a future of unrestrained economic growth. That last may have been the most culturally serious. As Theodore Schad, director of the National Commission on Natural Resources, saw the problem, "Some method must be found to meet the demands in order to prevent stagnation of the economy of the West due to lack of water in the twenty-first century."[6] But even though they were less desperate than some in the world, the prospects for the West could be fearful all the same. Where would the future supplies come from to satisfy those expanding demands? Therein lay the region's challenge, a more

compelling one in the late postwar period than ever before, and the acceptable, practical answers were getting harder and harder to come by.

The ground itself had always held the largest promise of water. Subsurface deposits often require little social organization to exploit, though it was a long while before people realized that and even longer before they could begin to tap them. Even the starkest desert could offer, down in its depths, a reservoir for the thirsty. Through the permeable aquifers, the water crept seaward, sometimes moving no faster than a mile per century, rising to the surface now and then in artesian wells, springs, and oases. Hydrologists calculated that there was thirty-seven times more water underground than there was on the surface, some of it billions of years old, some of it last winter's snow. A serious difficulty was that the larger portion of the underground supply lay more than a half-mile down, too deep to retrieve. Most of the rest became available only with the invention of powerful centrifugal pumps using electricity or fossil fuels. A second difficulty was that underground water was replenished at a far slower rate than the pumps could take it out. Hence, falling water tables, "cones of depression" around active wells, land subsidence; and increasingly intrusive government regulation were everywhere the outcome.[7] That pattern of expansion and overpumping, as discussed earlier, was what led farmers and urbanites alike in central Arizona and California to demand that distant rivers be brought to their doorsteps.

A similar plight came to the Great Plains in the postwar period, stirring up a similar demand. Underlying what had once been unbroken grasslands, so sparsely watered on the surface, was the paradox of the largest freshwater aquifer in the world, the Ogallala, containing 2 to 3 billion acre-feet, more water than the Mississippi had carried to the Gulf in two hundred years. The Ogallala extended from the southernmost parts of Texas northward into Nebraska. In the aftermath of the dust-bowl years, farmers around Lubbock and Plainview discovered it and with its aid raised a series of phenomenal harvests of cotton and corn. A boost to the plains farmers' efforts came in 1949 when Frank Zybach of Strasbourg, Colorado, invented the ingenious center-pivot irrigation system: a row of sprinklers mounted on a wheeled frame that rotated in a great circle around a well. The system could ride over sandy hillocks, requiring no land leveling or ditchdigging, throwing water over a field like light rain falling from the sky. By 1979, there were more than 15,000 of these units in use in Nebraska alone, and they had transformed the plains landscape from a giant checkerboard to rows and rows of bright green checkers. They had also opened up fragile lands to cropping, encouraged farmers to cut down their shelterbelts (rows of trees planted along the edges of fields to diminish the wind), and in-

creased the incidence of wind erosion. And they were rapidly depleting the Ogallala. By the late seventies, farmers were mining the aquifer at ten times its recharge rate, taking out an amount over the rate of replenishment equivalent to the entire Colorado River flow. Consequently, the underground water table quickly began to recede, six inches a year in some places, six feet in others. At those rates of fall, the Ogallala would be altogether depleted within thirty to forty years, by the first or second decade of the next century—and then there would have to be a devastating retrenchment in plains agriculture and the society it supported.[8]

Clearly, the cheapest way to bring supply and demand into balance was by reducing demand. That meant a program of conservation, and in every part of the West much could be done. There were thousands of miles of ditches that could be lined with concrete to prevent seepage, and there were hundreds of thousands of farmers who might be persuaded (and quickly would have been if their water were not so cheap) to pour less on their crops. However, the region was good at going after every possible molecule but exceedingly careless about putting what was captured to use. Conservation had always had about it an air of restraint, self or other, and the expansionary, accumulative culture was in its marrow opposed to restraint. Far more acceptable were the technological panaceas that had substituted for conservation—and there were still a few of them to grow ecstatic about. One group of wizards proposed towing Arctic icebergs or collapsible bladders filled with Columbia water down to the California coast. The Bureau of Reclamation undertook, in its ballyhooed Project Skywater, to make more snow fall on the Rockies by cloud seeding, thereby augmenting the spring runoff. Several other experts suggested that atomic bombs could be set off underground, fracturing rocks and enlarging the carrying capacity of aquifers. Still others wanted nuclear power plants to take the salt out of the ocean and pipe the water inland. None of those panaceas ever quite materialized. All were too costly, it seemed, or presented complicated dangers that could not be escaped.[9]

That left, as always, the traditional remedy of interbasin transfers. Find a river so far left alone and push it out of its course, push it wherever there was thirst. But in the mature days of the empire that once-popular remedy was encountering resistance from the public will and pocketbook. For example, anticipating the depletion of the Ogallala, state and federal water planners looked hopefully toward the Missouri and Mississippi, even the Great Lakes, as replacement sources, but the residents along those waters eastward were not eager to let them go. Even if they could be persuaded, the cost would be sizable: many billions of dollars, money that the western farmers could not scratch together on their own, money that other taxpayers

were not eager to provide. In 1969, the voters of Texas vetoed a state water plan to pump the Mississippi River across the state to the High Plains. That left them, like their northern neighbors, with no foreseeable options but to wait for the decline. Farther west, the Columbia was still the established favorite to be everybody's savior, but here too there was a sudden resistance against any interbasin transfers. Senator Henry Jackson of Washington, working to protect his constituents from their fellow westerners, got included in the Colorado Basin Project Act of 1968, as the price of his consent to it, a moratorium on studies to bring any outside water (the Columbia was what he particularly had in mind) into the Southwest. Whether his death in 1983 would make possible the resumption of such studies and the eventual diversion of Northwest waters to the southern latitudes remained to be seen.[10] Meanwhile, as the Columbia became more closely guarded, an even more spectacular transfer, the North American Water and Power Alliance, was being debated.

NAWAPA: the water scheme to beat all schemes, or end them. If empires are at bottom feats of imagination as much as of strength or greed; then this was the western water empire's finest hour, for never had imagination conceived anything like it in the way of river manipulation. Its audacity was breathtaking. The plan came to the public in 1964 from the Ralph Parsons engineering firm in Pasadena, California, an outfit where several former Bureau of Reclamation engineers had assembled to make money consulting and designing resource projects for countries around the world. These Parsons people thought in terms of entire continents. Far to the north in Alaska, they realized, could be found almost half of the United States' fresh-water supply, stored in lakes and glaciers, flowing down the Tanana, the Susitna, and the Yukon to the Bering Sea. There also were the Canadian rivers—the Churchill, the Blackstone, the Slave, the Coppermine, the Peace, the Mackenzie—spending themselves uselessly in the Arctic Ocean or Hudson Bay. Could they made to serve the new race of pharaohs raising their pyramids in the south? Assuredly yes, if the nerve was there, along with something like $100–200 billion (the estimates varied) to pay for the apparatus. According to the plan, an array of reservoirs, tunnels, and pumping stations would divert the northern surplus into the nine-hundred-mile depression known as the Rocky Mountain Trench that runs the length of British Columbia. From the upper end of this deep trough a canal would angle southeastward across the Prairie Provinces to Lake Superior and the Mississippi, making inland barge navigation possible from the Alaska wilderness to Montreal and New Orleans. At the southern end of the Trench, electricity generated by the project would send water off into the Columbia basin, relaxing jealousies there, and into the high border country of Idaho

and Montana. From that latter point, the plumbing would branch in two directions, toward the east slope of the Rockies, the depleting plains lands, and toward the southwestern deserts, crossing the Snake valley, the Bonneville Flats, on and on to golden prosperity. Even Mexico, at the very end of the system, would get enough water to irrigate eight times more land than the Egyptians were reclaiming from their new Aswan High Dam. Surely men who could dream such dreams and carry them out need never fear privation, stagnation, or the closing in of restraint. They could engorge the very oceans, they could cut up the polar ice pack into cubes for their drinks, could, if they desired, master anything in their view. NAWAPA was, simply put, "feasible," and it had about it the irresistible logic of an imperial history.[11]

In the awed hush that followed the unveiling of the Parsons scheme, western leaders lined up to embrace it, though with dignified caution, as though they feared giving way too easily to their own enthusiasm. Senator Frank Moss, for instance, who had served as chairman of the Subcommittee on Irrigation and Reclamation and on the Senate Select Committee on National Water Resources, gave it his careful endorsement. It was, he wrote with an air of studied understatement, an "encouraging" proposal because it suggested that "if we are wise, and if we apply the technical knowledge we have to the problem, the whole of the North American continent can be assured of an adequate supply of good water for as long as we want to live here."[12] But alas for those seeking encouragement, the scheme proved to be at once too premature—for there were still other, more accessible streams to be mastered—and too late, for gathering across the country was the beginnings of a mood of rejection. Wallace Stegner was a prophet of that mood when he wrote in 1965 that the plan would be "a boondoggle visible from Mars."[13] What would be the ecological consequences of so grandiose a transfer, a new generation began to ask? Would the diversion cause the polar cap to melt, elevating the level of the seas around the planet, submerging coastal cities? Would the gargantuan reservoirs to be constructed trigger a series of devastating earthquakes, releasing massive floods? Could the nation afford so huge an expense? And then there was the matter of agency: who was available to carry out the project, and who could be entrusted with the power it entailed? It would take the combined managerial authority of three sovereign nations, or of some centralized, supernational force, and the American-based Bureau of Reclamation was not likely to be handed that role. Who then? Unresolved, those imponderables generated doubt, then opposition, then apathy. Thus, though the NAWAPA project had started off brightly toward realization, as so many others before it had done, in the twenty years following its publication it

slipped slowly from public consciousness, fading away as dreams do when they have gone too far to be credible.

By the early 1980s, the empire had reached a plateau of water development and did not know how to climb on up from there. Its existing supplies, its prospects for growth, were running out, yet no new possibilities offered themselves convincingly to a scrutinizing, distrusting people. Once before when the water developers had reached a plateau and were milling about in frustration, the federal government had thrown them down a rope. Now there was no superior agency standing ready to pull the West another notch upward, no one in a position to furnish the necessary capital and expertise, no one powerful enough to overcome all the regional and international political differences, no one able to command a continent.

The second set of environmental vulnerabilities had to do with deteriorating water quality. Reclamation, it began to be clear, was capable of taking good water and making it bad. Indeed, at some advanced point in its intensification, it could hardly do otherwise. Water quality, of course, was a problem that concerned more than the West. In fact, for a long time it seemed to be more of an eastern malady, the result of too many people flushing their body wastes and toxic chemicals into waterways and, more seriously yet, into aquifers, polluting them for the indeterminate future. Eventually, as its population and industry swelled, those problems became the West's too. In addition, the region had a few water-spoilers that were all its own: the corruption draining from densely packed, dreary cattle feedlots and their mountains of manure, as well as that from a hundred million tons of radioactive uranium tailings left lying about on the banks of the Colorado River. Then there were those threats to water quality from irrigated agriculture, perhaps the most discouraging of all because they were the bitter fruit of some very proud achievements.

The warm, moist environments created by reclamation, as noted elsewhere, have in land after land offered ideal breeding grounds for a host of pests, some of them pathogens preying on humans, others of them insects, fungi, and nematodes that damage crops. This predicament appeared in the West early on, and farmers there quickly became avid technicians of pest control. In 1872, California citrus groves were besieged by an imported scale insect that fed on the trees' sap. That threat was defeated by biological control methods—the clever introduction of an Australian lady beetle that attacked the scale insects. Later, however, irrigation farmers turned almost exclusively to a series of deadly chemicals. They were among the first and most heavy users of DDT in the post–World War Two years. From 1962 to 1974, pesticide use nationally doubled, then doubled again in the next

eight years. In that escalation, the West set the pace. California was consistently the leading user among the states, spending in 1978 the sum of $1 billion a year on chemical pesticides (insecticides, rodenticides, herbicides, fungicides) and their application, about one-fifth the American total. Some of those poisons were the chlorinated hydrocarbons, such as DDT—until it was banned for use in the United States in 1972—heptachlor, aldrin, dieldrin, chlordane, and endrin. Others were the organic phosphates, including parathion, malathion, DBCP, EDB, benzine, hexachloride, and toxaphene. They were sprayed on codling moths in the apple orchards of the Yakima valley, on pink bollworms infesting cotton in Arizona and Imperial, on aphids crawling on cantaloupes near Rocky Ford, Colorado, on spider mites raging through San Joaquin alfalfa fields. Each application, it soon was apparent, made necessary another and stronger dose, as the pests quickly developed genetic resistance or as the poisons killed off useful, nontarget species that had kept the pests in some kind of check. Western farmers, with sizable and profitable investments in their system of irrigated agriculture to protect, found they could not live without the expensive pesticides. But neither could they live with them.[14]

Rachel Carson, in her book *Silent Spring,* told the story of the Tule and Upper Klamath Lake area of Oregon, where DDT from surrounding reclamation lands drained into wildlife refuges, killing herons, pelicans, grebes, and gulls.[15] That was in 1960. Subsequently, water contamination by pesticides and its lethal effects on the food chains in nature became a familiar tale. Consumers began to worry about dangerous residues on the fruits and vegetables they ate, with good reason, for virtually all Americans were carrying detectable amounts of the poisons in their fatty tissues, and those residues were linked to ailments ranging from liver and blood disease to, possibly, cancer. Western farm workers had to live with some of the most serious consequences: it was they who were hired to do the actual spraying and dusting of cauliflower, peaches, lettuce, strawberries, and other crops. Reentering the sprayed field even as late as a month afterward, they would suffer from blisters, inflamed skin, and reddened eyes. Nor was that the worst of it. Between 1950 and 1961, more than 3,000 farm workers were poisoned in California by pesticides and other farm chemicals, and of that number 22 adults and 63 children died. A biophysicist at the University of California reported that "the severity of pesticide-related illnesses to farmworkers is probably greater than that attributed to all occupational causes in any other type of work in California."[16] This was a consequence of the water empire that no one in earlier stages had had any premonition of, that no one more recently involved in it had intended, yet one that nobody knew quite how to shake off. The unintended costs in lives and

money were high and tragic, but without those pesticides, even when used in a more restrained and integrated program of pest management, the irrigation economy might very well collapse.

The degradation of the precious water on which the West depended had further ominous aspects. A regimen of intensive cropping must soon deplete the soil, necessitating the application of chemical fertilizer. The fertilizer in turn, under continual artificial watering, must leach into the groundwater or streams, contaminating drinking sources. Nitrates in the fertilizer, where sufficiently concentrated in an aquifer, could produce methemoglobinemia, or "blue-baby syndrome," a condition of inadequate oxygenation of the blood, and such concentrations were indeed found and found frequently in places like the irrigated Platte River valley.[17] And then there was the oldest and most endemic form of water decline associated with all hydraulic societies: salinization, the poisoning of water and soil alike by salt buildup.

Salt is a generic term covering not only the familiar sodium chloride in the kitchen shaker but also a range of chemical compounds that are reactions between bases and acids. These include calcium carbonate (chalk), zinc sulfate, barium chloride, sodium bicarbonate, various phosphates, nitrates, and hydrates. Typically they have a whitish or grayish color, and their structures are crystalline. They readily dissolve in water, making it "hard," or alkaline, leaving in teakettles and pipes a scaly deposit. Clustered heavily around the roots of plants, salts interfere with moisture take-up, causing stress, diminished productivity, and even death.[18] Fortunately for living things, the salts, though originally scattered through the earth, have been diminished in the upper soil layers by the steady rainfall of billions of years and have washed into the sea, allowing vegetation to flourish. Everywhere, that is, except in the arid lands. There the salts remain abundant and omnipresent. A desert torrent, violent but soon over, may bring them to the surface, leaving them behind as a glittering crust, or they may collect in stagnant pools. Whichever, the climate there is too dry to greatly diminish them. Desert plants therefore must be highly salt-tolerant to thrive.

What nature has taken geological eons to achieve, the leaching of salts from the root zone of plants, the irrigator undertakes to do in a matter of decades. Covering the arid soil with artificial rain, two or three feet deep over each acre in a year's time, has several effects on the salts. First, the water table may rise, bringing with it dissolved salts, until it intrudes into the root zone, saturating the ground with dangerously saline water just where the farmer's crops are trying to grow. The only remedy then, other than decreasing the irrigation, is to lay down an expensive network of drains, which will remove the salt, but only by pouring it in concentrated

form into streams and rivers. Another effect, and a more obvious one to the casual passer-by, is for the salt to come to the surface and, as the water evaporates in the dry air, to be left behind there—an acceleration of a natural process. Then the irrigator must use more, not less, water to flush away the white crusting, washing it off downstream for someone else to deal with. The use and reuse of that water makes it more and more saline, until the last man on the last ditch might as well be dipping from the ocean. This is a discouraging predicament coming from the attempt to transform, overnight as it were, a desert environment into a humid one. What seems at first to be an easy, and miraculous, achievement turns out to be a Sisyphean labor.

Salinization, the process of concentrating what had been diffused, became in the postwar years a worldwide environmental disaster. Agricultural expansion into dry, marginal lands led to salt buildup, led to man-made wastelands, led to impoverishment and hunger in country after country. Pakistan at one point was losing 60,000 acres of fertile cropland a year to salinization, and Peru had 10 percent of its agricultural area similarly degraded. In the Helmud Valley of Afghanistan, in the Punjab and Indus valleys of the Indian subcontinent, in northern Mexico, in the Euphrates and Tigris basin of Syria and Iraq, salinity was a severe problem dogging the developers' plans.[19] Gradually it became clear that the same problem had damaged early irrigation civilizations, perhaps had even destroyed them. An American traveler to Iraq in the late 1940s, Frank Eaton, saw from his train window miles and miles of salt lying white on the surface, shining in the night like snow. It was the insidious force, he argued, that had brought ancient desert societies to their destruction. "Compared to the magnitude of this slow-moving event," he added, "our dust bowl was but a passing incident." Some years later, two archaeologists, Thorkild Jacobsen and Robert Adams, supported that historical hypothesis, arguing as they did that "growing soil salinity played an important part in the breakup of Sumerian civilization." So long as there had been "a powerful and highly centralized state," they went on, a state that could keep strong vigilance over the side-effects of irrigation, Sumer thrived; but the eventual weakening of that state, its distraction and failure to command obedience, allowed the problems of salt and silt to pile up to the point of hopelessness.[20] The lesson drawn by these observers for modern irrigators was that salinization was a trouble that might be managed, but only by furthering the concentrating, power-accreting tendencies of the hydraulic society.

In the American West, too, salinization became a more and more serious ailment, producing loud cries that the federal government step in and save the irrigators. Especially in the most intensively developed parts of the

water empire, the Colorado basin and the southern half of the Great Central Valley, conditions reminiscent of Pakistan or Sumer could be found. It took, nonetheless, an international confrontation to make the situation there dramatic and compelling. Late in 1961, the government of Mexico made a formal protest to Washington that its agreement with this country over the Colorado River was being violated. In the treaty of 1944 Mexico had been guaranteed, so it claimed, not only 1.5 million acre-feet of water a year, but water of good quality, suitable for irrigation. Instead, it was receiving highly saline water. The protest riveted attention on the mounting environmental crisis along the Colorado, one never mentioned in all the authorizations for more dams and aqueducts. In 1962, the State Department established an advisory Committee of Fourteen (made up of two representatives from each of the seven basin states) to prepare recommendations on how to respond to Mexico. Mainly, they proposed to let Washington handle it, and while it was doing that, to give the western Americans some aid too. Ten years later, President Richard Nixon agreed with President Echeverria of Mexico to work toward a permanent solution, and Herbert Brownell was named to head a task force on the matter. Minute 242, which fixed a limit on the salt content of the water delivered across the border, was signed in 1973.[21]

The cause of Mexico's ire lay, of course, in heavy river use north of the border, but nothing in the Minute directly addressed that. The river itself, as noted earlier, was drying up. During the fifties, the flow at the international boundary averaged 4.24 million acre-feet a year; in the sixties, it fell to 1.52. This drop meant that there was less fresh current to dilute the polluted water seeping back from agricultural users. The Bureau of Reclamation made the situation worse in 1952 when it completed a new irrigation project, Wellton-Mohawk, using Colorado water on some 60,000 acres east of Yuma, Arizona. Soon the project was producing cotton and citrus crops valued at over $1,000 an acre. It was also soaking a great deal of water into those crops—more than five times as much, one report claimed, as the Israelis, employing an advanced, economizing system of drip irrigation, were using on similar crops in Israel. An impermeable substratum under the project lands kept the irrigation water from draining downward, so farmers had to find other methods to get rid of it. Their solution was to drain the used water, and now it was very salty water, back into the Colorado—and out of their concern. Immediately thereafter Mexico found its supplies jumping to a salinity level of 1,500 parts per million (ppm), double the norm. Did the Bureau then (or the State Department or basin users) propose to shut down this project and clean up the Colorado? They did not. Instead, the federal government built, at public expense, a bypass channel that

would void the saline excretions farther south, where they would not pollute Mexico's fields. And it undertook to construct, again with public monies, a desalting plant, costing $178 million, to reduce the salt level in the Wellton-Mohawk backflow. That plant was authorized in the Colorado River Basin Salinity Control Act of 1974.[22]

In the case of Wellton-Mohawk, the salinity threat had an easily defined local source, but that was not usually so. The degradation of water and land had in most instances no clear single perpetrator. Scientists speak of "salt loading," the dissolving of salts into the drainage, and "salt concentrating," the loss of diluting water from a solution through evaporation. Both these phenomena are spread widely around, and controlling them is as hard as keeping dust out of the air. American irrigators in the Colorado basin came to that frustrating realization as, in the wake of the Mexican wrangle, they themselves had to contend with the problem. With the onward march of their empire, the river became a bit saltier each year. Before any diverters had appeared, the Colorado at Lees Ferry, its halfway point, was carrying a salt load of 5.1 million tons a year, or about 250 ppm. That was nature's own leachings from shale formations, mineral springs, and salt domes upcountry. By 1972 that natural level had been raised by human activities to 606 ppm. One study showed that Grand Valley farmers in western Colorado were alone adding 8 tons of salt to the river from each acre they farmed, while in Uncompaghre Valley the pickup was 6.7 tons. Those were areas that had been continuously irrigated since the latter decades of the nineteenth century—yet the salt was still there, still washing out, in quantity. Two engineers for the Colorado River Board of California estimated that by the year 2000, the current at Lees Ferry would be 800 ppm saline. Downstream the condition worsened. The water at Imperial Dam near the border read 785 ppm on average from 1941 to 1969, then 850 ppm from 1963 to 1967, and was predicted to reach 1,340 ppm by the end of the century.[23]

The economic implications for the growers of Imperial Valley were grim, for they, with the Mexicans, were the last to drink. Lying low as they did —below sea level, in fact—growers there had been forced from the time of first settlement to spend hugely on a system of drainage. By the early seventies, they had put out more than $66 million on tile drains and canal linings, discharging the runoff into the sump of the Salton Sea. But once the water coming through the headgates began to deteriorate, the growers were in a new and more serious sort of trouble. They must then shift to salt-tolerant crops, and with them they would earn less cash, be able to hire fewer workers, be strapped to maintain their hydraulic apparatus. Or they must consume more water—if they could get it—to rinse away the poison-

ous deposits, and that would mean needing more fertilizers, pesticides, and pump energy too. A single point increase in ppm, said the Bureau of Reclamation, cost those irrigators $108,400, directly and indirectly, and that amount would leap, by the year 2000, to $240,000.[24]

Anticipating these calamities, the Colorado River Board of California, with support from Governor Reagan, called in 1970 for federal assistance to the agribusiness valley. They wanted fresh water brought in from their state's northern coastal rivers. They wanted someone to find a cheap way to take the salt out of the Pacific Ocean, with the resulting brine to be injected safely out of the way in deep geological formations. They wanted weather modification to get more snowfall and runoff. They demanded control of salinization at its sources in the upper Colorado basin. Some of those demands were delivered by the Colorado River Basin Salinity Control Act of 1974. It instructed the Bureau, in addition to building the desalting plant, to spend $125 million on containing the salt dribbling out of the Crystal Geyser in Utah, the Las Vegas Wash, and other natural sources up north. Here once again were structural or engineering solutions, aimed at controlling nature, not man. What was needed, in the opinion of critics, was a forthright facing of the main issue, an overextended reclamation program that was neither economically rational nor ecologically sustainable. Until that was done, salinization would continue to be a stalking danger.[25]

In the San Joaquin Valley, grappling with the salt threat was quite as ineffectual. By 1981, there were 400,000 acres affected there by high (or "perched") brackish water tables, located mainly in Kern, Kings, and Fresno counties. To salvage those farms and their owners, as they had been salvaged so many times before, the government set about to dig a master drain, the cost to be partly repaid by the irrigators. The drain was to draw off the saline water and dump it three hundred miles away near San Francisco. Without the drain, one reporter wrote, "more than 1 million acres in the San Joaquin could undergo desertification during the next 100 years."[26] Saving those lands was not, however, to be the end of the problem. There was also the question who or what would be sacrificed in that salvation. One hint of an answer came late in 1983. Scientists at the Kesterson National Wildlife Refuge, lying below the Westlands, discovered a pathetic cohort of fledglings in their nests: coots, stilts, grebes, and ducks born with stumps for feet, missing eyes and beaks, dying soon after birth, reminiscent of the human thalidomide deformities of a previous decade. The birds were the victims of selenium compounds and other salts leaching from nearby irrigated fields. The drain, when completed, might save the refuge and its waterfowl, along with the growers, but only to pour the same poison into the environment elsewhere. Congressman George Miller, repre-

senting Californians living where the drain would vent, vowed to stop it, calling it "nothing short of a dagger pointed at the heart of San Francisco Bay and the delta."[27]

Could the lowering specter of salinization ever really be exorcised from the western water empire? Some of its engineers and agriculturists had no doubt that it could be, that it was a temporary nuisance which a little time and expense could banish. Others were much less confident. Throughout history, wherever irrigation has been carried on intensively, they pointed out, salinization has come in its wake, like dust following the wind. It is the way of empires to believe they will be forever impregnable, that they will give the law to nature, not vice versa, that their power and expertise will conquer all. But from the vantage of 1983, that confidence was falling apart.

Salinity, sedimentation, pesticide contamination, diminishing hopes of replenishment, the dangers of aging, collapsing dams: all these were the hydraulic society's worsening headaches. But there was another peril, altogether different in kind from these and even less manageable because it had to do with faith, not technique. A sense of irreparable loss began to settle about the water empire by the late twentieth century, a remembrance of things past. Once, men and women recollected, the West had been a land of canyons leading on to canyons where tamarisk and cottonwoods rustled in a slight breeze blowing up at twilight, a region of broad flatlands where sandhill cranes alighted during their migrations to spear at frogs and crayfish. Deer came out in that lost time to browse in the bottomlands, finding shelter there in winter, encountering, it might be, a mountain lion lying hungrily in wait. Then was a time too of wrens singing a bright, bubbling melody that echoed from the canyon walls, of swallows wheeling and dipping over a stream for mayflies. In the spring run, salmon came fighting their way upstream from the ocean, seeking their birthing place. Beaver chewed down aspen logs, dragging them into midstream for a dam, a lodge, a home for their kits. And everywhere the water purled on, free and uninhibited, racing and slackening, curling back on itself, rippling over hidden rocks, meandering under empty skies, a thing always alive, voracious, unpredictable and full of mystery. Not all of that older time had been lost, but most of it had, and there were many who were not pleased to see it go. Good riddance, had always been the response of the water manipulators; let nature give way to a greater, man-made West. Only the sentimental, the misguided, would mourn that loss or criticize the gain. Leave the elegies to poets, therefore, and get on with constructing the future. What the proponents of empire did not anticipate was that there would come a day

when such advice would be rejected. Nor did they appreciate that the nostalgia they scorned might turn out to be more than a silliness. It might transform itself into a profoundly subversive force, one that could bring an empire low. Nostalgia for what has been lost might lead people to the discovery of new, radically disturbing moral principles, in this case the idea that pristine nature in the West has its own intrinsic value, one that humans ought to understand and learn to respect. In that event, to save what remained of that lost natural world from the imperialists, the instrumentalists, the accumulators, could appear to be a struggle worth making. Conceivably, too, nostalgia might serve as a basis for imagining an alternative future society quite different from the reigning imperial order.

By the 1970s, impassioned friends of the western river past could be found, to the consternation of the empire, in all parts of the region and across the country, sorting out their loyalties, moving from private elegies to the politics of preservation. In one dramatic instance, a young man named Mark Dubois chained himself to a rock in the middle of California's Stanislaus River, protesting the flooding of its wildness behind New Melones Dam.[28] Others challenged the reclamation men armed with chainsaws who were cutting out along thousands of streamside acres the so-called phreatophytes—the trees and other plants that grew along the waterways, pumping moisture through transpiration into the air, wasting what should have gone to a farmer.[29] Other nay-sayers canvassed to save estuaries like San Francisco Bay from poisoning and from eutrophication through diminished inflow.[30] Or to rescue Mono Lake and its rookeries, even its brine shrimp, from Los Angeles's increasing megalopolitan thirst.[31] Still others, in the tradition of Mary Austin and John Van Dyke, went out to fight for a remnant of desert, a place that might have been unredeemed and gaunt but was made more precious than ever by its rarity. The instances of such conflict multiplied in the newspapers, engendering after a while a kind of glazed boredom in readers. So many court appeals, so much repetitious testimony, so familiar the main story, so unending the details. But it would be a mistake to let that feeling of familiarity obscure the historical novelty of what was happening. Never before had a great water-dominating civilization encountered so informed, relentless, determined, and successful an internal opposition. Not Egypt, not the China of the Han dynasty, not the Aztecs or the Sumerians. It was as though the American water empire had created, against its will, a dissidence precisely commensurate with its unparalleled technological success. And now it found itself embattled, losing, unable to hold on to its credibility. It was caught in a dialectic that Karl Marx had never predicted, one pitting not merely rival classes pursuing their competing self-interest but rival ways of valuing nature.[32]

The most sensational success of the emergent party of protest came in 1977 when they managed to persuade a new President, Jimmy Carter of Georgia, to veto a slew of environmentally damaging and economically questionable water projects, nine of them in the West, up for reauthorization. Those projects included Fruitland Mesa in Colorado, which would spend $70 million to benefit fifty-six farmers; the Garrison Diversion in North and South Dakota, which would destroy prairie wetlands wholesale and send salty irrigation return flows into Canada; and the Central Arizona and Central Utah projects. Nothing like that presidential veto had ever happened before to the region, not in seventy-five years of extracting money from the public treasury, and its leaders and elite reacted with shocked, spluttering wrath. Shortly, they succeeded in getting the veto overridden. But in their triumph over a clumsy, uncertain President Carter, the empire leaders might have seen that their success was written on the water, dissolving before their eyes. Those would be the last projects authorized by Congress—for how long no one could yet say, perhaps a short while, perhaps forever. As Senator Moynihan pointed out, not one new project had made it through Congress after 1972. Even when westerner Ronald Reagan, a darling of the empire, defeated Carter in 1980 and moved into the White House, that situation would not change. Much would be proposed in the way of new schemes—$10 billion worth, in fact—but as late as 1985 none of them had managed to run the gauntlet.[33]

The party of preservation and protest, however, had more success in stopping the expansion of the hydraulic society than it had in dismantling it. In 1983 the apparatus was still in place, still pumping the rivers dry, as was the capitalist state that oversaw its operation. Millions of acres of farmland remained in subsidized, profitable production, though besieged by difficulties, and millions of city dwellers had moved into the region to keep the empire busy and in control. Nonetheless, something important had changed, to what effect it remained to be seen. Now, as at no other point in its history, the water-control apparatus (including its managers and its chief profiteers) was coming to be seen, not as a crowning, self-justifying achievement of a world-beating people, but as a necessary evil. The domination of nature had been achieved, and it would not be easy to undo, perhaps could not be. But at the same time domination was no longer a language that westerners or other Americans spoke with much enthusiasm. Somewhere an old river god might be listening to such talk and might exact a retribution.