CHAPTER ONE Watershed: A Separate Totality

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On February 21, 1977, President Jimmy Carter sent a message to Congress declaring his Administration's intention to review the necessity for nineteen water projects already authorized but awaiting funding for the next fiscal year. So began what was briefly referred to as the "War on the West" and what will long be remembered in that section of the country as the first serious challenge by a president to the West's primal shibboleth—its essential aridity, and the need for dams and ditches to assure a dependable living and some measure of prosperity in a dry land.

In a relatively short time President Carter and his environmentally-minded, cost-conscious aides would leave their policy-making positions; but the nearly one-hundred-year-old western institution they had tinkered with—reverently referred to as Reclamation and written with a capital R—would remain. True, it would never be the same again, but this would be less a function of what Carter had accomplished than of the forces he had unleashed. For the last quarter-century, what had once seemed an unassailable concept—the idea of structural solutions for the region's aridity—had increasingly been challenged on environmental, economic, and social grounds. Dams destroyed beautiful places. Their costs could exceed benefits. Indians were not getting their fair share of water. But the West's water establishment, with strings running from the

smallest water district to those congressional committees that act almost invisibly on natural-resource matters, had successfully circumvented these growing challenges. Dams and aqueducts were necessary for growth. Dams offered protection against floods, had recreational advantages, and, along with the reservoirs they formed, possessed a certain beauty.

Jimmy Carter's contribution was to bruise this water establishment. That this happened in the midst of one of the West's periodic droughts proved it doubly vulnerable. Partly because of the durability of the long-cherished institution and the Carter Administration's heavy-handedness, there was no clearcut victory; but for the first time such an effort, which can be politically costly with few tangible gains, had actually been made by a president. Historically, Congress has ruled on water projects with only an occasional dissent from the Chief Executive's budget watchers. Conceivably, President Carter's example could make it easier for subsequent administrations to act on water matters, and thus they would have a greater hand in directing the future of the West as such national priorities as increasing domestic energy production became more important. The arid West has always feared executive dominance, and the sparsely settled interior states have successfully worked with their sympathizers in Congress to thwart it. Certainly the region, as symbolized by the Colorado River and the lands it succors, was approaching a new era in which the ultimate limits of what had always been considered a limitless frontier were in sight. Within a few more years, perhaps twenty or so, there was not going to be enough water to fulfill everybody's desires. The river was running dry.

The furor that arose in the West and the halls of Congress following the President's announcement had all the angry and fearful characteristics of a disturbed bull, an image that was frequently applied to the Colorado River in its pre-dam state. One early river historian referred to it as "a blooded bull," and a later writer described the river as "a wild bull of destruction." To a Bureau of Reclamation official, it was "an angry bull —slashing its way through canyons and across deserts to the mother sea. . . ." In a similar manner the western states and their elected representatives reacted to what became known as the "hit list," a term with gangster connotations. The Western States Water Council, which represents western governors on water matters, stated with careful restraint, "Officials in the West appeared shocked by the proposed budget announcement and expressed plans to fight the decision." Representative Morris K. Udall of Arizona, chairman of the House committee with jurisdiction over such water projects and contender for the 1976 Democratic

presidential nomination, declared that he was "shocked and angered" at the inclusion of the Central Arizona Project on the list. Udall, along with seventy-three other congressmen, had sent a letter one week earlier to the President stating "our support for your efforts to reform the water resource programs of the Army Corps of Engineers and the Bureau of Reclamation," the two principal federal dam-building agencies. They never imagined such a massive, potentially disruptive response from the Administration. Old animosities were instantly reawakened. Arizonans muttered about a California plot to steal their water, while California agencies attempted to reassure the neighboring state about their continued solidarity on water matters by passing resolutions asking for completion of the Central Arizona Project. A whole interlocking structure of common allegiances, carefully constructed over the last few years, was threatening to unravel.

Later the President would admit he had made a mistake by not discussing the proposed budget deletions with the affected lawmakers. Administration aides looked back at the hastily compiled list, and the manner in which it was released, as a public-relations disaster. Barely a month after taking office, the Carter Administration had precipitated its first major confrontation with Congress over nineteen obscure water projects (four of which were in the Colorado River basin) and put its entire domestic program into jeopardy. Some powerful members had been offended. It was time to compromise.

If President Carter had misread the West's tenacious resolve to hold onto its prime legislative interest—the disposal of water as it wished—so had the region and its elected representatives neglected to read the signs of what was obviously going to happen. In regard to water projects, Carter was an unusual chief executive in office at an unusual time. When the list was announced, there was no overwhelming foreign or domestic crisis. The President could afford to spend some time on water projects. Other presidents who served at crucial times in the development of the West and were knowledgeable about water policies were diverted from influencing them—Herbert Hoover, who had helped negotiate the Colorado River Compact of 1922, by the Great Depression, and Lyndon B. Johnson, who had hauled some irrigation pipe in his day, by the Vietnam War. Jimmy Carter, although he was from a state with an average annual rainfall of forty-eight inches (seven times the amount of Arizona), had an interest in water projects and the luxury of having no crisis to impede his doing something about it. He was, to say the least, skeptical of them, as were other key members of his Administration. Interior Secretary Cecil D. Andrus, while governor of Idaho, witnessed the immediate aftermath of the Teton Dam disaster. Charles Warren, who headed the President's Council on Environmental Quality, had strong environmental

credentials, as did Kathy Fletcher, a member of the transition team and later of the White House domestic staff.

Environmental concerns rated high with President Carter, at least at the start of his term, and he possessed the rational, analytical mind of a civil-engineering graduate of the Naval Academy. He had not served in Congress, thus missing the camaraderie involved in passing on public-works projects, more commonly and somewhat mistakenly known as pork-barrel politics. (Some of the projects are definite necessities.) Besides, the President had vivid memories of a dispute with the dam builders while governor of Georgia.

For a long time there had been plans to construct a dam at Spewrell Bluff on the Flint River. Those plans by the Army Corps of Engineers solidified in the early 1970s, as did the opposition to the dam. Since the corps had a policy of not building a dam if the governor of a state did not want it, Governor Carter's decision was crucial. He took two canoe trips and a helicopter ride down the river and personally studied all the reports the project had generated, including a report by the General Accounting Office, the investigatory arm of Congress. This report seriously questioned the methods the corps had used to compute the dam's cost-benefit ratio. On October 1, 1973, Carter issued a fifteen-page handwritten statement opposing the dam. The determination of feasibility, Carter declared, was "based on incorrect data and unwarranted assumptions." He urged that Congress and responsible agencies investigate the bias of the dam builders. "The construction of unwarranted dams and other projects at public expense should be prevented," he stated.

The corps tried an end run around the governor, something no politician likes, and sought approval for the dam from the Georgia legislature. In this way the Engineers sought to pressure Carter into changing his mind. But despite some intense lobbying by the corps and other development interests, the state senate voted 27 to 23 against the dam. One year later Carter, who by then was considering the presidential race and was a hero to antidam interests, spoke at a Los Angeles rally against a California dam project. "Similar distortions exist in the New Melones project," he stated. While campaigning for the presidency during a time of concern about inflation and high taxes, Carter said there was no need to spend "tens of millions of dollars" on such projects. He foresaw the end of the dam-building era, pointing out that "most beneficial projects have been built." On New Year's Day of 1977 the Associated Press carried a story about sixty-one water projects being picked by the incoming Administration for reevaluation. It was these pronouncements that had inspired the letter of support from the congressmen. Clearly, they had had no idea the list would, at least for some, strike so close to home.

So when the two top officers in the Army Corps of Engineers later

testified on the hit list before a House appropriations subcommittee, they simply read a statement prepared by the White House and, smiling, sat back as one congressman after another attacked the President's position.

"Before the President pulled his new economic criteria out of the sky to make these projects look bad, they were all economically justified, weren't they?" asked one congressman sympathetic to the water projects.

"Yes, sir," replied the major general.

During the first few months of 1977 the West experienced the second of two extremely dry years. A map of the eleven western states, issued on March 1 by the Soil Conservation Service, forecast river runoff between 0 and 60 percent of normal for most of the area. The warmer tones of red and pink were used almost solidly over most of the region to depict river flows far below average; there were only a few splotches of cooler purple and light blue indicating 60 to 90 percent of average flows. For a traveler in the West, the land felt the same way: a few oases in the midst of crackling dryness. It is the flow of streams from the annual spring snowmelt that counts in the interior West, not rainfall in the deserts. Thus, southern California and portions of Arizona would have above-normal rainfall; but that would not come near to equalling the much greater amounts of precipitation that normally fell in the mountains along the Continental Divide in the form of snow, to melt in spring and tumble down, to be trapped behind numerous dams for release and use in the dry summer and early fall months. From the snowmelt, the West gets 70 percent of its water supply. Farmers cultivating irrigated fields, who account for between 85 and 90 percent of western water use, do not want rain, particularly in the hot desert areas. It is too unpredictable. Irrigation water can be delivered and applied when needed.

So it was the snowpack that mattered in the first few months of 1977, and as the winter began to end there was precious little of it in the mountains; a high-pressure system off the California coast continued to deflect the "normal" winter storms. What many westerners had forgotten —had perhaps never been aware of, since most were not around during the Dust Bowl years of the mid-1930s—was that dry years were part of the normal weather cycle. For the users of Colorado River water, this would be a crucial factor, since the river's waters had been divided in 1922 on the basis of records kept over a series of relatively wet years. Although some would use the drought as an argument for more dams and ditches and others would use it to claim that the great system of water-works that links the West saved the region from disaster, the prime lesson of the drought was that it clearly demonstrated the region's vulnerability to the lack of water, especially should the dry cycle continue or intensify

and the demands for more water keep escalating. Novelist and essayist Joan Didion, that deft chronicler of life on the West Coast, wrote of its quintessential dryness, "The apparent ease of California life is an illusion, and those who believe the illusion real live here in only the most temporary way." *Time* magazine said of the drought, "It raised once again basic questions of how the nation should use one of its most vital resources, just how much population growth the available water can sustain." In the arid and semiarid West, water is *the* most vital resource. In the early months of 1977, as the drought worsened and the Carter administration attempted to cut back on water projects, people began to realize this basic fact. The sense of a civilization's vulnerability was extremely disquieting at the time.

Most of the attention concerning the drought focused on California. It had the largest population, the greatest amount of agricultural products and industry, the worst dryness, and the reputation for the most profligacy among western water users. It also came up with the most imaginative solutions—water-rationing programs that cut consumption more than 50 percent in some areas, and a massive water trade, whereby critical shortages in northern California were alleviated by increased use of Colorado River water in southern California. The trade allowed northern California water that would normally have flowed south through the State Water Project to be diverted to the north. Thus, Marin County, just north of San Francisco, which came to epitomize the extremes of the urban drought situation, was rescued by the figurative use of Colorado River water—it could not physically flow uphill through a nonexistent aqueduct to northern California, but it could be traded on paper. Southern California then took more than its normal share of Colorado River water. Meanwhile, the runoff in the Colorado River basin hit a new record low, 40 percent of the average flow for the past fifty-six years as measured at Lee's Ferry. But, at least for the first and, as it turned out, the last year of the water trade, this did not mean much, because the river's reservoirs were nearly full in anticipation of years to come, when the demands on the Colorado would dramatically rise.

What the drought proved was that water could be consumed in amounts significantly less than normal; and there would be no great alteration in the western way of life. When the ultimate pinch came, the drought being just a precursor, separate administrative entities could cooperate for their own common welfare. Priorities could be established, although they would involve hard choices and some sacrifices. Acrimony could be expected, along with some selfish use of water, symbolized in that drought year by the filling of an artificial lake in a southern California subdivision. All the vast schemes for the importation of water into the arid West—put away during those cost-conscious and environmentally

sensitive years of the early 1970s—would again surface and increase the level of contention. Towing giant icebergs from the Antarctic, shipping snow west from the inundated cities of the Northeast, and tapping the Yukon River in Alaska were some of the wilder schemes discussed that crucial year.

The mind boggled at the additional waterworks involved in such plans. Above all else, the Year of the Drought showed the West to be one big, complex plumbing system. That is the reason for its continued existence. The power and the glory, not to mention the money, center around water and the means used to convey it. Woe to any president who tries to cut back this system. It consists of ditches, flumes, penstocks, dams, canals, laterals, pipelines, aqueducts, and more ditches laid across nobody knows how many tens of thousands of miles that bisect mountains, deserts, farmlands, and cities. It represents billions of dollars of water projects and a political system to procure them that has yet to be successfully thwarted, although President Carter came closest. These basic facts tend to become lost in a normal year, particularly to urban populations, but 1977 was not a normal year in the West. It was a watershed year, a harbinger of what could come to be regarded as normal.

It was time to compromise. Besides, as the Administration's review teams worked through the early spring months of 1977 to finalize their recommendations on the water projects, there were certain interests at work within the government that were not in sympathy with what the President wanted. They were the bureaucrats in the Corps of Engineers and Bureau of Reclamation whose long careers had been molded by the structural concept of water development. They were not bad men. Disloyal to a president, yes, but not to a system, a cause, a habit named Reclamation that surely was of longer duration than one presidential administration. They were loyal, too—loyal to their constituencies: the states, the irrigation districts, the farmers, energy producers, and land developers. "Uninformed amateurs," Ellis L. Armstrong called the meddlers in the new Administration. Armstrong, who served as commissioner of Reclamation under Nixon, had retired to his home state of Utah. The amateurs had disrupted the harmony of a partnership between the federal government and western states that assured the states all they wanted in terms of water development, which meant everything in the West.

It was the harmony of this partnership that President Carter had upset and the western states wanted to restore. The partnership had been dominated in the past by the states, or, to be more precise, by those persons within the states who took a continued, active interest in water matters. At times the federal government seemed little more than an

errand boy, rather than the regulator and comprehensive planner and builder it should have been. Certain members of the departmental review teams, which out of necessity included bureau personnel knowledgeable about the projects they had designed, fed information on the progress of the teams to congressmen who were sympathetic to the threatened water projects. Thus, an official in the Phoenix office of the Bureau of Reclamation passed information on the Central Arizona Project review team's findings to a state water official, who passed it on to an aide of Congressman Udall, who wrote a memo to his boss, who made sure the project was not scrapped. The review team's unfavorable conclusion on the cost-benefit ratio could not be countered "without exposing the assistance" of the bureau man, stated the memo. It was Udall who led the fight to save the billion-dollar-plus project designed to rescue Arizona from water bankruptcy. He did not rebut the Administration's economic arguments but pleaded eloquently: "Water is life in the desert. We have not always used our water wisely, but we are moving to correct our mistakes. The Central Arizona Project is a very old dream. I first heard of it from my grandfather." Officials in the Department of Interior, the parent agency of the bureau, were not unmindful of such internal espionage. They tried to exclude bureaucrats suspected of being more loyal to past concepts than the position of the present administration from the policy-making level of the review process. It was a time of great mutual distrust.

In mid-April a compromise was reached on the Central Arizona Project. It was the product of an intensive lobbying effort by Udall and others from Arizona and was reminiscent of a similar but much more prolonged lobbying effort that finally resulted in the project's authorization in 1968 —twenty-one years after the first bill for its authorization had been introduced in Congress. Such projects have long histories and deep roots in the West. Backing the continued construction of the project was the entire Arizona congressional delegation, six men who would have been committing political suicide in that water-short state had they not supported it. Senator Barry Goldwater, who traditionally held himself aloof from the nuts-and-bolts of water matters, declared, "It has to be built, and if it's not, this valley is going out of business." State and local officials, university professors, labor leaders, farmers, and miners joined the bandwagon. With the exception of Utah, Arizona has at certain times come the closest of the states in the Colorado River basin to speaking with one voice on water matters. The opponents were only a handful of environmentalists and Indians. The Indians opposed the location of one dam but wanted the benefits of increased water. The state's strategy was to stress the dire need for the project and the overall benefits for the Indians, an argument that was judged to move the sympathies of easterners. Rather than "raising Cain" with the President, it was decided to educate him.

Some also wanted a study on the importation of Columbia River water into the Colorado River basin, since a ten-year moratorium on such a study was due to expire soon. But this move was suppressed, as it had been in 1968, in order to get the support of the Northwest's congressional delegation. History was repeating itself. The compromise that was struck was to modify the project. Three of the four dams would be temporarily taken out and given more study. The state would do something about its diminishing groundwater supplies, but work would continue on the project. Nothing crucial had been tampered with, and a later administration could always turn things back to where they had been. Arizonans saw the outcome of the review process as a victory. Said Udall, "Today a President with strong environmental views has decided that CAP should be completed. I believe this will end the debate and let Arizona move ahead."

In announcing his decision April 18 on the outcome of the water project review, the President stated: "In the arid West and across the entire nation, we must begin to recognize that water is not free—it is a precious resource. As with our energy problem, the cornerstone of future water policy should be wise management and conservation." Two projects in the Colorado River basin, the Fruitland Mesa Project in Colorado and the Savery–Pot Hook Project straddling the Wyoming-Colorado border, were recommended to Congress for no funding. The Bonneville Unit of the Central Utah Project was modified, as was the Arizona project. Although the President wanted all or portions of the four projects in the basin deauthorized, the worst that would happen would be that some or all of their funds would be diminished for one fiscal year. Next year the budget process would begin all over again. Of the two-step process needed to get a water project completed—authorization and yearly funding—Congress would only go along reluctantly with the latter, dragging its feet all the way.

A few days later Senator Russell B. Long, a Louisiana Democrat who was chairman of the Senate Finance Committee, had lunch with the President. After the meeting, Long threatened: "We can amend some bills he very much wants to sign to encourage the President to do what we think he ought to do. I have suggested to him further than that, but I have no response from him. He ought to work out some compromise of this issue. Otherwise he is going to find himself at war with his own best soldiers in Congress." The stakes were getting higher. Funding was restored for two projects in Long's state and for the Central Utah Project, but was deleted in the bill signed by the President for the smaller Fruitland Mesa and Savery–Pot Hook Projects.

The next year, reacting to the continued tenacity of the West, the President would veto the public-works bill. Of the previous year's com-

promise he said: "There have been some cases where I have erred on the side of not vetoing a bill. I think that last year I should have vetoed the appropriations bill that authorized unnecessary water projects. If I had it to do all over again, I would have vetoed it. But that is one of the rare occasions when I think I have been too lenient in accommodating the desires of Congress. But the Congress is now trying to reimpose those water projects on me as President, and even additional ones, that are worse." Besides the two perennial contenders for the list from the Colorado River basin, Fruitland Mesa and Savery–Pot Hook, two units of the Central Utah Project and the Animas–La Plata Project in Colorado and New Mexico had not measured up to the standards of the Carter Administration. Fruitland Mesa would have benefited sixty-nine ranchers, at an investment of $1.2 million per landowner. For Savery–Pot Hook, it was a $700,000 investment per ranch. The three other projects did not have all the necessary paperwork done, nor had repayment contracts been signed. For the two units of the Central Utah Project, their final environmental-impact statements had not been filed, nor had their feasibility been determined.

Congress failed to override the veto, but in a little-noticed action the same day it passed an amendment to a Department of Interior appropriations bill negating a suit filed in federal district court by three environmental organizations. The suit, citing various well-known precedents, sought a comprehensive environmental-impact statement for the whole Colorado River basin. The Administration agreed that such a statement was necessary, had actually started work on one before Congress refused to fund it, but made no move to block the amendment. Congressmen from other river basins saw the danger in such a precedent—it could result in a further erosion of their control over water projects. As one western congressman put it: "Now, if we do allow a study on the entire river basin, who is going to control the Colorado River? Either the Department of Interior or the President's Domestic Council, one or the other—not the States. And such control will rule regardless of the interstate compacts and regardless of the laws this Congress has passed in the development of this river area." Another consequence of such a comprehensive statement could have been a definitive discussion on when shortages in the Colorado River would occur, what could be done about them, and who would suffer. Since no politician knowingly wants to be the vehicle for bringing bad news, it was decided that such a determination was better left unstated. The Colorado River system would remain fractured, with no one official document stitching it together.

Along with singling out specific projects as being unworthy of funding or in need of modification, the Carter administration set out to establish some standards for development that came to be known as water-policy

reforms. Such an attempt was seen as a reform of the system that produced individual water projects, and vastly more important or dangerous —depending on one's viewpoint—than the narrower issue of what was built where and how. More public hearings were held and more fears were expressed in the western states that watershed year. Meeting in Anchorage, Alaska, in early September, the western governors vented their anger and fears on Interior Secretary Andrus, who had once been one of them—a point that was repeatedly flung in his face as he tried to explain the Administration's position. One after the other, the governors publicly berated Andrus. "When you're talking about water," Governor Scott M. Matheson of Utah lectured, "you're talking about the most important, finite resource we have, other than our human resource." As the prospect of another snowless winter approached, Andrus reflected: "I think what it is, is an underlying fear on the part of the arid West—and you have to designate arid West because it doesn't prevail in western Oregon, Washington, Alaska, or northern California—that some unforeseen hand is going to reach out and turn off the valve."

The next month, in a Denver panel discussion on water policy, President Carter attempted to reassure his audience: "I want to make clear from the very beginning that there absolutely will be no federal preemption of state or private prerogatives in the use or management of water. This is not the purpose of the policy at all." The crux of what the Administration eventually proposed was that the states pay 10 percent of any federal water project. The Administration publicly tried to sell what seemed like a reasonable proposal on the grounds that it would give the states "a more meaningful role," as President Carter put it, in the decision-making process. But privately key aides said it was an attempt to break up the "Iron Triangle"—the Bureau of Reclamation, Congress, and water users—by injecting a fourth element, a vote involving expenditure of money on the state level. Such a proposal would need the approval of Congress, and that did not seem to be immediately forthcoming.

The rains began in September of that crucial year; most areas of the West that had experienced the worst drought conditions received double their normal precipitation for that month. The forecast for October was for much of the same, but a lot of snow would have to fall in the mountains that winter to fill the reservoirs next spring, and nobody could yet be sure the drought was over. By early January of 1978 the Soil Conservation Service, which conducts snow surveys in the western mountains, expressed guarded optimism on the possibility of normal water supplies. By March, with most of the snow season past, it looked very good. There were floods in Arizona, full reservoirs in California, and above-normal

snowpack along the Continental Divide in Wyoming and Colorado. On April 6, 1978, Commissioner of Reclamation R. Keith Higginson announced the two-year drought had ended for most areas in the West. One week later the Bureau of Reclamation forecast 138 percent of normal runoff for the Colorado River system above Lake Powell.

In the waning days of 1977 the Los Angeles City Council began to lift the water-rationing controls it had imposed on the largest city in the West. It had been a reluctant imposition of a 10 percent cut to begin with, since the Colorado River seemingly offered all the water that was needed. Mandatory rationing ended in Marin County in January after residents in those affluent suburbs of San Francisco had achieved a 65 percent reduction in water use. Consumption then began to rise slowly in what had been the water-short areas of the state. A poll conducted for the California Department of Water Resources indicated that 60 percent of the population thought it was "extremely important" or "very important" to continue to conserve water. There was less enthusiasm about saving water in southern California than northern California. And so ended that watershed year.

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Down through the years the image of a river has frequently been used as a metaphor for life. Rivers have been depicted as life-giving forces that renew the fertility of a land and people, and their waters have been considered sacred while their sources were shrouded in mystery. Witness the continued search for the start of the Nile River in the nineteenth century, and the medieval belief that rivers flowed magically from the center of the earth. To float down a river is to experience its purifying aspects, as did Huckleberry Finn on the Mississippi and as do those now seeking controlled adventure on the Colorado through the Grand Canyon. To cross a river is to take a significant step, as Julius Caesar did when he came to the Rubicon and as the first Spanish explorers retreated from doing when they timidly approached the Colorado in 1540, thus delaying the exploration of the interior West for more than two hundred years. The Colorado, which came late into recorded history, was given an aura of antiquity by early references to it as "the Nile of America." E. C. La Rue, the first to make a comprehensive study of the Colorado River system, compared the two rivers in his 1916 report, *Colorado River and Its Utilization.* Both rivers carried substantial amounts of silt that piled up in large, fertile deltas. The crops grown in the two regions were similar, as

were their climates. But the Nile drained a basin of 1,112,000 square miles, while the Colorado River basin was 244,000 square miles. The Nile took 4,000 miles to get to the sea, dropping 6,600 feet along the way, while the Colorado stretched only 1,700 miles but descended 14,000 feet. The average annual flow of the Nile, La Rue recorded, was four times greater than that of the Colorado. Whatever their other differences and similarities, however, the most salient single fact about these two great river systems was the vast potential of their waters for giving life to the arid lands that surrounded each of them. Rainfall was scant and irrigation a definite necessity both along the Nile Valley and in America's West.

The Aswan Dam would be built on the Nile to smooth out and store its flows. By the mid-1960s, when all the principal dams had been completed on the Colorado, it too would have a year-round tranquil flow to match the placidity of the Nile and the classical concept of a river. "Tamed" and "deficient" would be the terms now most frequently applied to the Colorado, as if the river, not the plans and works of those who used its waters, were to blame for its shortcomings. In ancient times, to stop a river or reverse its flow was regarded as the ultimate display of power, or nature gone awry.

There are many things the Colorado River is not. It is not the largest or the mightiest river. The Nile is longest and the Amazon carries the most water and has the largest watershed. The flow of the Colorado is about equal to that of the Delaware River, although the western river drains a much larger area. Another way to put it is that the Columbia River basin, seen by some as the ultimate salvation of life further south, is about the same size as the Colorado watershed, yet its *unused* flow is about twelve times greater than the virgin flow of the Colorado. If the average yearly flow of the Colorado were evenly spread over the upper Colorado River basin—essentially those parts of Utah, Wyoming, Colorado, and New Mexico drained by the river—the water would be 2.22 inches deep. The upper Columbia River basin would be covered by 15.7 inches of its own water, and the Delaware River basin by 20.9 inches. Such are the different statistics of arid and humid regions.

But the Colorado is the most used, the most dramatic, and the most highly litigated and politicized river in this country, if not the world. "The Colorado basin," the National Academy of Sciences cautiously stated in 1968, "is closer than most other basins in the United States to utilizing the last drop of available water for man's needs." This was written shortly before Congress that same year passed the Colorado River Basin Project Act that provided the structures, among them the Central Arizona Project, that would squeeze the last drops of water out of the river. Norris Hundley, Jr., a historian of Colorado River law, wrote: "As a result of the various demands placed upon the river's flow by the seven states and

Mexico, the Colorado has become one of the most litigated, regulated, and argued-about rivers in the world." The Bureau of Reclamation, the federal agency in charge of the river's development and operation, referred to it thus: "The Colorado River is not only one of the most physically developed and controlled rivers in the nation, but it is also one of the most institutionally encompassed rivers in the country. There is no other river in the Western Hemisphere that has been the subject of as many disputes of such wide scope during the last half century as the Colorado River. These controversies have permeated the political, social, economic and legal facets of seven Colorado River Basin states." The most eloquent documentation concerning the river's great use is the fact that, except for occasional local flood flows, no water has reached the Gulf of California, the river's historic outlet to the Pacific Ocean, in the last twenty years.

The Colorado also carries the most silt and has the most damaging salinity problem of any river in this country, but possesses little of those industrial and municipal wastes that are commonly associated with river pollution. It also has the greatest evaporation rate and warmest waters. Navigation has played only a minor role in the river's history and nowadays there are few losses from floods, two characteristics which set the Colorado off from rivers further to the west and to the east. The Colorado is, in short, a different kind of river flowing across a different land that has evolved institutions peculiar to its own needs. As historian Francis P. Farquhar wrote in *The Books of the Colorado River and the Grand Canyon:*

> There is a unity about the Colorado River Country that is established by the River itself—always the River. The topographical features, although on a vast scale, have a simple relationship to the central controlling element. . . . And just as the River has formed the landscape so has it determined the course of human history within its basin.

The river's waters and the land surrounding it in the basin—the heartland of the West—are fused together in a common destiny, as are those areas outside the watershed to which Colorado River water is diverted—southern California, Salt Lake valley, Colorado's Front Range, and the Rio Grande valley in New Mexico. The quantity and quality of the river's flows are a mirror image of what is upon the land—indeed, are the prime reason for there being something built upon or scratched out of the soil in the first place. How easily this is forgotten in the urban areas of this oasis civilization. Not the Rocky Mountains nor the Pacific Ocean, but the Colorado River which flows from one toward the other, is the single most unifying geographical and political factor in the West. The river has been the most significant catalyst in the politics of the West since the turn of

the century. The reason why there was a near-hysterical reaction to President Carter's "War on the West," why the war evolved into the "sagebrush rebellion," an attempt by the western states to gain control over federal lands, was not only because it involved water, but also because it encompassed all those other essential western activities that depend upon it, like livestock grazing, mining, energy production, and recreation. Going back further, it was not the six-gun or barbed wire that won this part of the West (although they helped) but the tools that evolved from the Indian's digging stick to the shovel to the giant earth-moving equipment that could be used to build the structures needed to store and move water.

It was not only in the present century that large amounts of water were diverted onto arid lands, causing problems that seem to be endemic to civilizations in dry lands that depend on storing and transporting water some distance from its source. There are precedents going back to the cradle of civilization, back to the Garden of Eden—which was located in ancient Mesopotamia and had a river running through it that was probably used to irrigate that infamous fruit tree. The Tigris-Euphrates valley is the oldest cultivated area in the world and contains a record, still visible in the ruins of ancient canals, of man diverting water for his own benefit dating back at least six thousand years. The Euphrates River, mentioned along with the Tigris in the biblical Adam and Eve story, has been the prime supplier of water for the region because, like the lower Colorado River, sediment from the uplands, transported down the river and deposited when its flow slowed, raised the riverbed so it was higher than the surrounding land, thus making it easier to divert water and irrigate lands. In such a way has the fertile Imperial Valley in southern California, part of which lies below sea level, been supplied with water from the Colorado.

All civilizations dependent on massive waterworks have needed a cohesive political and social structure to build and operate dams and canals. They are large projects needing the support of cooperative structures, such as the social and religious cohesion of the Mormons of Utah or the tight-knit irrigation districts of California with their ties to key congressmen who can obtain the authorization and funding for the large federal water projects that dot the West. Such a cohesiveness was achieved in ancient Mesopotamia during the flowering of the Sumerian civilization in the lower portion of the valley. It was a civilization dependent on the control of water. Dams were built, some of which are still in use today, and the water was diverted into canals, one being 180 miles long. The population grew with increasing prosperity. The Sumerian city of Ur

contained a quarter of a million inhabitants on a land base of 1,450 acres. The Euphrates Delta was divided into a number of other city-states, each organized around an agricultural unit. Cooperation was a necessity, and gradually a centralized governing group of non-laborers evolved into a regional authority with absolute powers.

After some 1,000 to 1,500 years—it has taken only a little more than a half-century in the American West—the Sumerians began to experience a serious salinity problem. Salinity is the accumulation of dissolved minerals in water—its hardness—and is caused by natural sources, such as hot springs, or by the repeated use of water on irrigated fields. The salts are leached from the fields and deposited further downstream when the water is again used to irrigate. It is extremely harmful to plant growth, among other things. In Sumeria, sometime around 2400 B.C., population growth began to impose unrealistic demands on the ability of the land and the water-supply system to support it, and the overuse of water led to ever-increasing salinity. There were also problems with increasing sedimentation gumming up the waterworks, as well as with a rising underground water table, caused by the repeated application of surface water on fields; as a result, the soil became increasingly water-logged, which also stifles plant growth. (These, too, are problems not unknown in the modern West in recent years.) Over the next few centuries, crop yields lessened; the economic and political structure—the strong centralized authority needed to build and maintain the water system—grew progressively weaker; and around 2000 B.C. the last Sumerian Empire, the Third Dynasty of Ur, fell. Two University of Chicago professors, Thorkild Jacobsen and Robert M. Adams, have written of the decline of Sumerian civilization:

> While never completely abandoned afterwards, cultural and political leadership passed permanently out of the region with the rise of Babylon in the 18th Century B.C., and many of the great Sumerian cities dwindled to villages or were left in ruins. Probably there is no historical event of this magnitude for which a single explanation is adequate, but that growing soil salinity played an important part in the breakup of Sumerian civilization seems beyond question.

But Babylon did not remain dominant for long, and around 1740 B.C. a great silence fell over its cities. There had been a sudden end. Houses were abandoned without any sign of violence, and bowls and grinding stones were left behind. Just before the abandonment there had been a sharp increase in loans to farmers, then farmlands were quickly sold. The water supply had apparently failed.

Closer to home in the Colorado River basin, the Anasazi Indians of