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Deep and Troubled Waters: A New Field of Western History?

DONALD J. PISANI

For decades students of land, forests, parks, and precious metals dominated the study of natural resources in the United States.[1] The great

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1. A very small sample of this literature would include Jenks Cameron, *The Development of Governmental Forest Control in the United States* (Baltimore: Johns Hopkins University Press, 1928); Samuel T. Dana, *Forest and Range Policy: Its Development in the United States* (New York: McGraw-Hill, 1956); Paul W. Gates, *History of Public Land Law Development* (Washington, D.C.: Government Printing Office, 1968); William B. Greeley, *Forests and Men* (Garden City: Doubleday & Co., 1951); John Ise, *Our National Park Policy: A Critical History* (Baltimore: Johns Hopkins University Press, 1961); John Ise, *The United States Forest Policy* (New Haven: Yale University Press, 1920); James C. Malin, *Grassland of North America* (Lawrence: University Press of Kansas, 1947); Gerald D. Nash, *United States Oil Policy, 1890–1964: Business and Government in Twentieth Century America* (Pittsburgh: University of Pittsburgh Press, 1968); E. Louise Peffer, *The Closing of the Public Domain: Disposal and Reservation Policies, 1900–1950* (Stanford: Stanford University Press, 1951); Benjamin Hibbard, *A History of Public Land Policies* (New York: Macmillan, 1924); Roy Robbins, *Our Landed Heritage: The Public Domain, 1776–1970* (Lincoln: University of Nebraska Press, 1976); Rodman Paul, *California Gold: The Beginning of Mining in the Far West* (Cambridge: Harvard University Press, 1947); Rodman Paul, *Mining Frontiers of the Far West: 1848–1880* (New York: Holt, Rinehart & Winston, 1963); and John W. Caughey, *Gold Is the Cornerstone* (Berkeley: University of California Press, 1948).

exception was Walter Prescott Webb, who devoted twenty-one pages in *The Great Plains* to a systematic analysis of western water law and argued that the absence of water had a profound influence on the development of institutions in the arid half of the nation. But few followed Webb's lead; until the 1960s and 1970s, journalists, scientists, engineers, lawyers, and public officials wrote most of the histories of water.[2] This historical neglect reflected conditions in the East, where water was abundant and no more perceived as a potential species of property than the atmosphere. It also reflected a particularly limited conception of history. Since water conflicts turned on enormously complicated issues, and since they often played out over decades, few historians felt equipped to discuss them. Fewer still captured the drama and human interest in the stories they had to tell.

To be sure, as Lawrence B. Lee revealed in an excellent bibliography that surveyed the literature into the late 1970s, plenty of good work had been done.[3] But in the last decade, the history of water in the American West has come of age. Increasingly, historians have seen that the web of dams and canals linking farm and city with the region's mountain ranges is less important than the values, aspirations, and economic imperatives that guided the construction of those aqueducts. The West's water systems represent much more than the adaptation of eastern institutions to a new environment. To a large extent, they redefine those institutions and the society itself. This essay will discuss some of the leading books published during the last decade, focusing on the theme of centralization and diffusion of power.

The history of water resource development in the trans-Mississippi West has always been intwined with the most basic themes in American history, including parochialism, sectionalism, and "colonialism." So its importance has long won recognition from historians interested in the winning of the West and emergence of the conservation movement.[4]

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2. Walter Prescott Webb, *The Great Plains* (New York: Gossett & Dunlap, 1931), 431–52. See George Wharton James, *Reclaiming the Arid West* (New York: Dodd, Mead & Co., 1917); William Ellsworth Smythe, *The Conquest of Arid America* (New York: Harper & Bros., 1900); and Charles H. Van Hise, *The Conservation of Natural Resources in the United States* (New York: Macmillan, 1914).

3. Lawrence B. Lee, *Reclaiming the Arid West: An Historiography and Guide* (Santa Barbara: ABC–Clio Press, 1980).

4. For interpretations of the winning of the West, see Webb, *The Great Plains;* James, *Reclaiming the Arid West;* Robert Sterling Yard, *Our Federal Lands: A Romance of American Development* (New York: C. Scribner's Sons, 1928); and Wallace Stegner, *Beyond the Hundredth Meridian* (Boston: Houghton-Mifflin Co., 1954). For works on the conservation movement see Van Hise, *The Conservation of Natural Resources in the United States;* Robbins,

They built on the work of the West's first generation of hydraulic engineers, which included such notable figures as William Hammond Hall, Frederick Haynes Newell, Elwood Mead, Arthur P. Davis, and Ray Palmer Teele, whose writings often emphasized the theme of modern technology pitted against raw, untamed nature.[5] The first works exclusively devoted to the reclamation of arid lands appeared early in this century. Their publication coincided with the closing of the frontier, rapid urbanization, the professionalization of engineering, and the persistent struggle between East and West, as well as the central government and states, over control of natural resources.[6] With the best farm land in the humid half of the nation taken up, the American deserts offered the last free or cheap land, but they could not be conquered without water. Moreover, reclamation fitted the spirit of a new age, which emphasized cooperation over individualism, central planning over haphazard economic growth, and experts over generalists. Nevertheless, until the 1960s and 1970s, few books and articles were devoted exclusively to the history of water.

If any book can be said to mark the emergence of water history as a separate field it was Samuel P. Hays' justly celebrated *Conservation and the Gospel of Efficiency.*[7] Hays challenged the prevailing view of the conservation movement as a struggle between "the people" and "the interests."[8] Heroes and villains, moral outrage and pious proclamations, rapacious greed and unalloyed idealism, all took a back seat to the growth of such scientific fields as hydrology, forestry, agrostology, and geology. The emergence of those fields posed many new political questions. If efficiency could be achieved in the management of natural resources, why could not the political process be rendered more efficient? Hays' book is as much a study of bureaucracy and central planning as conservation. At its heart is the battle for "multiple-purpose"

Our Landed Heritage; Gifford Pinchot, *The Fight for Conservation* (New York: Doubleday, Page & Co., 1910); Stuart Chase, *Rich Land, Poor Land* (New York: McGraw-Hill, 1936).

5. William Hammond Hall, *Irrigation in Southern California* (Sacramento: State Printing Office, 1888); Arthur Powell Davis, *Irrigation Works Constructed by the United States Government* (New York: John Wiley and Sons, 1917); Frederick H. Newell, *Irrigation in the United States* (New York: T. Y. Crowell & Co., 1902); Ray P. Teele, *Irrigation in the United States* (New York: D. Appleton & Co., 1915); Elwood Mead, *Irrigation Institutions* (New York: Macmillan, 1903).

6. Smythe, *The Conquest of Arid America;* Mead, *Irrigation Institutions.*

7. Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890–1920* (Cambridge: Harvard University Press, 1959).

8. Robbins, *Our Landed Heritage;* J. Leonard Bates, "Fulfilling American Democracy: The Conservation Movement, 1907 to 1921," *Mississippi Valley Historical Review,* 44 (June 1957), 29–57.

water planning in the United States, an objective not achieved until the 1930s, if then. Hays' greatest contribution was to bring the West into a national focus, and to look beyond rhetoric to the day-to-day decisions of conservation leaders. In short, water policy and conservation became a mirror to understand broader political and economic changes.

As often happens, by defining a new field Hays limited as well as expanded our vision. Several historians produced excellent histories of conservation that complemented or built on Hays, but Hays' preoccupation with the "Progressive Era" diverted attention from natural resource policies in the 1920s and after—with the notable exceptions of Donald C. Swain's survey of conservation in the 1920s and Elmo Richardson's work on the 1950s. The New Deal still has not received the attention it deserves, and Swain and Richardson both followed Hays in their emphases on institutions rather than personalities and policies rather than rhetoric.[9] Still, in the 1960s and 1970s, there were some good studies of individual reclamation leaders.[10] A handful of historians also examined the West's major interstate water conflicts, the 160-acre limitation, and the origins of the Reclamation Act of 1902.[11]

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9. Elmo Richardson, *Dams, Parks and Politics* (Lexington: University of Kentucky Press, 1973); Donald C. Swain, *Federal Conservation Policy, 1921–1933* (Berkeley: University of California Press, 1963).

10. Gene M. Gressley, "Arthur Powell Davis, Reclamation, and the West," *Agricultural History,* 42 (July 1968), 241–57; Paul Conkin, "The Vision of Elwood Mead," *Agricultural History,* 34 (April 1960), 88–97; James R. Kluger, "Elwood Mead: Irrigation Engineer and Social Pioneer" (doctoral dissertation, University of Arizona, 1970); Lawrence B. Lee, "William Ellsworth Smythe and the Irrigation Movement: A Reconsideration," *Pacific Historical Review,* 41 (August 1972), 289–311; Andrew Hudanick, Jr., "George Hebard Maxwell: Reclamation's Militant Evangelist," *Journal of the West,* 14 (July 1975), 108–21; Charles P. Korr, "William Hammond Hall: the Failure of Attempts at State Water Planning in California, 1878–1888," *Southern California Quarterly,* 45 (December 1963), 305–22; Harwood P. Hinton, "Richard J. Hinton and the American Southwest," in Donald C. Dickinson, W. David Laird, Margaret F. Maxwell, eds., *Voices from the Southwest: A Gathering in Honor of Lawrence Clark Powell* (Flagstaff: Northland Press, 1976), 82–91.

11. Norris Hundley, jr.'s superb *Water and the West: The Colorado River Compact and the Politics of Water in the American West* (Berkeley: University of California Press, 1975), told the story of the most important interstate conflict. Paul S. Taylor, an agricultural economist at the University of California, Berkeley, was a leader in the fight to enforce the 160-acre provision and the ideal of the family farm. Paul S. Taylor, "Central Valley Project: Water and Land," *Western Political Quarterly,* 2 (June 1949), 228–53; and Paul S. Taylor, "Mexican Migrants and the 160 Acre Water Limitation," *California Law Review,* 43 (May 1975), 732–50, as well as his 1975 oral history transcript at the Bancroft Library. The best overview of the 160-acre controversy is Clayton R. Koppes, "Public Water, Private Land: Origins of the Acreage Limitation Controversy, 1933–1953," *Pacific Historical Review,* 47 (November 1978), 607–36. For a provocative study of the origins of the Reclamation Act see William Lilley II and Lewis L. Gould, "The Western Irrigation Move-

Only since the late 1970s have historians tried to fit reclamation history into a broader framework. A decade of synthesis began with publication of a sophisticated, suggestive, comparative study by political scientist Arthur Maass and economist Raymond Anderson that deserved more attention from historians. Maass and Anderson were the first to address the question posed by George Perkins Marsh in the 1870s, and in this century by Karl Wittfogel: what effect does irrigation have on the structure and processes of government? The two authors examined irrigation institutions and policies in three parts of Spain and compared them to conditions in three parts of western America—the Kings River Basin of California's San Joaquin Valley, the South Platte Basin in northeastern Colorado, and the Utah Valley south of Salt Lake City, served mainly by the Provo, Spanish Fork, and American Fork rivers. They found that institutions and policies devoted to water allocation in each of these areas had comparable goals, including "orderly conflict resolution, popular participation, local control, increased income, justice in income distribution, and equity."[12] Moreover, they directly challenged Wittfogel's contention that irrigation agriculture contributed to centralization of power and, inevitably, despotism. Quite to the contrary, irrigation farmers in different parts of Spain and the United States exercised remarkable influence on irrigation institutions. Maass and Anderson's conclusions are worth quoting at length:

> The most powerful conclusion that emerges from the case studies is the extent to which water users have controlled their own destinies as farmers, the extent to which the farmers of each community, acting collectively, have determined both the procedures for distributing a limited water supply and the resolution of conflicts with other groups over the development of additional supplies. With important variations to be sure, local control has been the dominant characteristic of irrigation in these regions, regardless of the nationality or religion of the farmers, the epoch, whether formal control is vested in an irrigation community or in higher levels of government, the forms of government at the higher levels, and perhaps even the legal nature of water rights. In this realm

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ment, 1878–1902: A Reappraisal," in Gene Gressley, ed., *The American West: A Reorientation* (Laramie: University of Wyoming Press, 1966), 57–74.

12. Arthur Maass and Raymond L. Anderson, . . . *and the Desert Shall Rejoice: Conflict, Growth, and Justice in Arid Environments* (Cambridge: Massachusetts Institute of Technology Press, 1978), 1; George Perkins Marsh, *Irrigation: Its Evils, the Remedies, and the Compensations* (Washington, D.C.: Government Printing Office, 1874); Karl Wittfogel, *Oriental Despotism: A Comparative Study of Total Power* (New Haven: Yale University Press, 1957).

> of public activity—and one wonders in how many others—formal centralization of authority, where it has occurred, has not meant substantial loss of local control *de facto*.[13]

In fact, irrigation was an antidote to centralized, despotic political power. "Systems that were in existence before the central government invested money and technical expertise," Maass and Anderson conclude, "have to a remarkable extent protected their autonomy and even defied national policies that are supposed to accompany national money if these policies have been a serious threat to local custom." Our federal system of governance has contributed not just to a diffusion of power, but a preference for solving problems at the local level. No better example can be given than the Reclamation Bureau's deference to state water laws, which have been a powerful foil to federal policies. Long before Congress abandoned the 160-acre limitation in the early 1980s, California growers had rendered the policy impotent in the Central and Imperial valleys.[14]

No historian has responded to the challenge of Maass and Anderson to study irrigation institutions comparatively. But a few have helped to break down the assumption that agriculture has been the only determinant of water policy in the West. As the West's largest city, Los Angeles' search for water has attracted plenty of attention. In 1900, the city's population stood at 100,000. That number doubled by 1905 and reached 576,000 in 1920. In 1899, local voters approved a two million-dollar bond issue which allowed the city to buy out the Los Angeles City Water Company and establish a publicly-owned water system. Subsequently, a persistent drought at the beginning of the twentieth century, and the need for a water supply to encourage future economic growth, prompted city officials to look for water outside the arid Los Angeles Basin.

Abraham Hoffman and William Kahrl have told the story of Los Angeles' scheme to tap the water supply of the Owens Valley in the southern Sierra and carry it to Los Angeles in quite different ways. Hoffman sees it as an odd set of circumstances inspired more by "vision" than "villainy." In his book events often seem to slip from the grasp of policy makers. On the other hand, Kahrl largely accepts the notion that a "conspiracy" robbed the valley of its water. He argues that a handful of civic leaders, led by the aqueduct's chief architect,

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13. Maass and Anderson, . . . *and the Desert Shall Rejoice*, 366. (Wittfogel's work is discussed on pages 4–5 and 366–68.)

14. *Ibid.*, 4.

William Mulholland, repeatedly and consciously exaggerated the city's existing and anticipated water needs. The invention of "paper droughts," along with clever manipulation of population and industrial growth statistics, persuaded the city's gullible voters to approve bond issue after bond issue by overwhelming majorities.[15]

While Hoffman sticks closer to the evidence, Kahrl does more to give his story a broad historical perspective. The Owens Valley Aqueduct marked a sharp break with nineteenth-century traditions of decentralized corporate water development, and the author properly recognizes that the spirit behind the great canal was but one facet of the booster mentality that built San Pedro Harbor and fueled southern California's frequent real estate booms. The book also demonstrates the persistent rivalry between rural and urban water users as well as Los Angeles and San Francisco. Los Angeles clearly "created itself" using cheap water as an enticement for adjoining communities to merge with the city. Unfortunately, Kahrl's evidence does not support his contention that construction of the Los Angeles Aqueduct directly influenced either the planning or construction of California's twentieth-century water transfer systems, such as the Central Valley Project. Without additional study of urban water systems, particularly their influence on western politics and natural resource planning since the 1930s, we are forced to conclude that the region's cities played only a limited role in the formation of water policy. We need comparative studies of the relationship between water policies and urban growth in different parts of the arid West. Nevertheless, those policies unquestionably forced farmers to organize and push for their own programs in Congress and state legislatures, and they also helped shape policies toward the generation of hydroelectric power—the proceeds from which became one of irrigation agriculture's chief subsidies in the high dam era inaugurated by Hoover Dam.

The year after Kahrl's book appeared, Robert Dunbar published the first survey of water law in the West, *Forging New Rights in Western Waters*.[16] No subject in water history has received more attention in the last decade.[17] Dunbar's concise book was the culmination of decades

15. Abraham Hoffman, *Vision or Villainy: Origins of the Owens Valley–Los Angeles Water Controversy* (College Station: Texas A&M University Press, 1981); William Kahrl, *Water and Power: The Conflict Over Los Angeles' Water Supply in the Owens Valley* (Berkeley: University of California Press, 1982).

16. Robert G. Dunbar, *Forging New Rights in Western Waters* (Lincoln: University of Nebraska Press, 1983).

17. Michael C. Meyer's *Water in the Hispanic Southwest: A Social and Legal History, 1550–1850* (Tucson: University of Arizona Press, 1984) provides a thorough analysis of

of careful, thoughtful work in irrigation agriculture and western water law.[18] He went well beyond the existing historical literature by treating twentieth as well as nineteenth-century water law, and groundwater rights—which have become increasingly important in recent decades—as well as surface water. Understandably, a book that tried to do so much had some basic weaknesses. It largely ignored the relationship of water law to the law as a whole, despite the suggestive work of such leading legal historians as Willard Hurst, Harry Scheiber, and Morton Horwitz. Dunbar's water law appears to have been made out of whole cloth, almost by immaculate conception. Yet the doctrine of prior appropriation was not a western innovation; it was a response to the first phase of industrialization in New England. (I have built on Hurst, Scheiber, and Horwitz by arguing that aridity had less influence on the evolution of water law than immediate economic needs.[19] Dunbar also pays too much attention to water rights applied to irrigation and not enough to changes in the laws pertaining to municipal water supplies or to water used to generate hydroelectric power. Nevertheless, Dunbar clearly shows that by deferring to state administrative control over water in the nineteenth century, the federal government allowed the states to compete among themselves to attract new settlers as well as federal irrigation projects. The doctrine of prior appropriation allowed water to be treated as property. All western states embraced that doctrine to some degree, but each state defined the doctrine in different ways. Here again, the provinces ruled the metropolis.

While Dunbar sketched the broad contours of water law in the West, I looked at California, the state that did most to influence the

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the nature of Spanish water law. Also see Gordon R. Miller, "Shaping California Water Law, 1781–1928," *Southern California Quarterly,* 55 (Spring 1973), 9–42; Douglas R. Littlefield, "Water Rights during the California Gold Rush: Conflicts over Economic Points of View," *Western Historical Quarterly,* 14 (October 1983), 415–34; M. Catherine Miller, "Riparian Rights and the Control of Water in California, 1879–1928: The Relationship Between an Agricultural Enterprise and Legal Change," *Agricultural History,* 59 (January 1985), 1–24; Norris Hundley, jr., "The Dark and Bloody Ground of Indian Water Rights: Confusion Elevated to Principle," *Western Historical Quarterly,* 9 (October 1978), 455–82; and *ibid.*, "The 'Winters' Decision and Indian Water Rights: A Mystery Reexamined," *Western Historical Quarterly,* 13 (January 1982), 17–42; and Donald J. Pisani, "Irrigation, Water Rights, and the Betrayal of Indian Allotment," *Environmental Review,* 10 (Fall 1986), 157–76; *ibid,* "Water Law Reform in California, 1900–1913," *Agricultural History,* 54 (April 1980), 295–317; and *ibid.*; "Federal Reclamation and Water Rights in Nevada," *Agricultural History,* 51 (July 1977), 540–58.

18. For a summary of his major ideas see Robert Dunbar, "The Adaptability of Water Law to the Aridity of the West," *Journal of the West,* 24 (January 1985), 57–65.

19. Donald J. Pisani, "Enterprise and Equity: A Critique of Western Water Law in the 19th Century," *Western Historical Quarterly,* 18 (January 1987), 15–37.

evolution of western water law. Published in 1984, *From the Family Farm to Agribusiness* was a case study in the development of water law—statutory, administrative, and court-made—in the leading irrigation state.[20] I was interested in the relationship of law to basic American values, particularly the family farm ideal. California told a poignant story of how innovative institutions such as the irrigation district—designed in the 1870s and 1880s to promote small-scale, diversified agriculture and democratic values—were, by the 1920s and 1930s, perverted to serve as the foundation for agribusiness. Along the way, I tried to show how ineffective water resource planning had been in California, whether it was undertaken by the federal government, the state, local water districts, or private enterprise. Attempts to provide central direction always failed, while irrigation districts succeeded because they allowed fundamental water policies to be made at the community level. Because California was a model for the rest of the arid West, much of what I found had significance far beyond that state.

My book reflected a disillusionment with western water policies that reached full flood in the 1970s and 1980s. No longer is the Bureau of Reclamation celebrated as the liberator of the West, and public respect for dams and canals and dam-builders has been seriously tarnished. Donald Worster's *Rivers of Empire*, like all his books, is written with a passionate dedication to saving the land. In many ways it does for the Far West what his *Dust Bowl* did for the Great Plains states.[21] Worster is not one to temporize or equivocate, and he has the great gift of being able to write history whose appeal extends beyond the academy. There is lyric beauty to his prose. His vision is breathtaking, his ability to generalize is deft, and his eye for detail is almost uncanny. All in all, he is a spellbinder. Yet, *Rivers of Empire* is deeply flawed—arrogant, distorted, and moralistic.

The book freely builds on ideas borrowed from the famous sinologist, Karl Wittfogel, who argued in *Oriental Despotism* (1957) that "hydraulic societies" of the ancient world manifested totalitarian and despotic systems of government in which, to use Worster's words, "One or a few supreme individuals wielded absolute control over the common people as they did over the rivers that coursed through their territory." Irrigation demanded coordination, planning, and centralization of power,

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20. Donald J. Pisani, *From the Family Farm to Agribusiness: The Irrigation Crusade in California and the West, 1850–1931* (Berkeley: University of California Press, 1984).

21. Donald Worster, *Rivers of Empire: Water, Aridity, and the Growth of the American West* (New York: Pantheon Books, 1985); and *ibid., Dust Bowl: The Southern Plains in the 1930s* (New York: Oxford University Press, 1979).

and centralization led to the growth of powerful elites. Those elites swept away local control over natural resources and prevented the development of democratic values. Wittfogel later abandoned this blend of Marxism, Weberian sociology, and teachings of the Frankfurt School of social science, but Worster valiantly defends the discarded thesis. He maintains that all hydraulic societies pass through three phases, regardless of time or place. Mormon settlement of Utah in the late 1840s created a localized, autonomous irrigation society which persisted into the 1890s ("incipience," to use his word). Although the Mormon Church served as a centralizing force, irrigation was localized in most parts of the West, and private enterprise went hand in glove with an almost complete absence of government control. Passage of the Reclamation Act of 1902 ushered in a second stage of water development as the "federal government took firm charge of western rivers, furnishing the capital and engineering expertise to lift the region to a higher plateau of development." Finally, after World War II, "the two forces of government and private wealth achieved a powerful alliance, bringing every major western river under their unified control and perfecting a hydraulic society without peer in history."[22] Thus, the development of irrigation—assumed to be a democratizing force by most proponents of irrigation in the nineteenth century—had exactly the opposite effect.

In Worster's dark vision, the West embodies the corruption of the proudest American ideals and values. It is "a land of authority and restraint, of class and exploitation, and ultimately of imperial power," and it exhibits those characteristics more sharply and in greater measure than any other part of the nation. According to Worster, it might have been different. The West is a land of missed opportunities and dreams, a place where American democratic values might have been fulfilled. "Was it," Worster plaintively asks, "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?" This wistful romantic quality to Worster's work, evident also in his *Dust Bowl*, gives his book an intensity rare in historical scholarship. But the idea that westerners might have created or returned to a democratic Eden is hopelessly

22. Worster, *Rivers of Empire*, 23, 64.

naive. Had irrigation never existed in the arid West, cultural and economic imperatives, if not some form of transcendent "original sin," would have created a class system very similar to that which exists today.[23]

Worst of all, Worster's book is profoundly ahistorical. He thinks the characteristics of "hydraulic empire" transcend time and place, and that the lessons Wittfogel drew from the experience of ancient China can be applied to a technological twentieth-century society with a very different culture and values. Ironically, Worster's study focuses largely on California and simply assumes that all the states of the arid West have manifested similar characteristics and stages of development as a result of irrigation. Unquestionably, his book contains many insights, but the thesis is stated rather than argued. There is little evidence to show that hydraulic empires differ from other totalitarian states; that institutions in the arid West resemble those in other hydraulic societies, modern or ancient; that irrigation agriculture encourages or promotes a type or style of agricultural capitalism different from farming elsewhere in the nation; or even that federal involvement in western reclamation has been antidemocratic. Worster promises to "brush away the obscuring mythologies and the old lofty ideals and to concentrate on that achieved reality." But a good deal presented as fresh material was anticipated long ago, particularly by the Ralph Nader Study Group's report on the Bureau of Reclamation published in 1973.[24]

Worster knows full well that the eastern half of the nation, as well as the West, was built by man's exploitation and will to dominate nature. The ruthless values of capitalism—and that is what Worster is really talking about—know no regional boundaries. Forests were stripped away, millions of acres of swamps drained, soils eroded, and species after species of wildlife destroyed as Americans subdued the humid half of the continent. In fact, as Marc Reisner has pointed out, Corps of Engineers flood control structures *in the East* have reclaimed more land for agriculture than the storage reservoirs built by the Bureau of Reclamation in the West. Admittedly, there is a difference, but the assumption that man's impact on the land is substantially greater in a region heavily dependent on irrigation remains unproven.[25] All large states, hydraulic societies or not, have been ruled by elites given to

23. *Ibid.*, 4, 279.

24. *Ibid.*, 4; Richard L. Berkman and W. Kip Viscusi, *Damming the West* (New York: Grossman Publishers, 1973).

25. Marc Reisner, *Cadillac Desert: The American West and Its Disappearing Water* (New York: Viking Penguin, Inc., 1986), 504.

pride and arrogance, often blindly optimistic about the future. Unfortunately, Worster never tells us how politics and institutions in the western United States differ from those in the eastern half of the nation, or how government and the economy in the West differ from other countries that practice irrigation extensively, such as Egypt or India. Finally, by regarding the West as a "hydraulic empire," we miss the fact that there are many variations within the West; it is not a monolithic entity. The charm of Worster's book is the marvelous prose, the Cassandra-like moralizing, and the haunting thought that no society has managed to defy forever those natural forces that helped undermine so many earlier empires—siltation, erosion, soils choked with salt residues, collapsing dams.

Those forces also play an important part in Marc Reisner's *Cadillac Desert: The American West and Its Disappearing Water* (1986), published a year after *Rivers of Empire*. Reisner's book is written with the same passion, the same belief in manipulative, conspiratorial elites, the same brooding sense of the impermanence of the West's "oasis civilization."[26] That Reisner is a journalist, not a professional historian, is obvious throughout. His book lacks footnotes and often overlooks basic historical sources—for example, Norris Hundley, jr.'s excellent books on the Colorado River and Paul Gates' *History of Public Land Law Development* do not appear in the bibliography. Moreover, the author crams his book full of stories (Powell's running of the Colorado, the Owens Valley controversy, and the construction of Boulder Dam, to name a few) which have already been very well told and have little bearing on his major concern, federal water policies in the recent West. Nevertheless, for all its flaws, the book is well-written and much more perceptive than Worster's. No one has done a better job of exploring decision-making within the Bureau of Reclamation, the complicated relations among federal bureaus, and the Congressional appropriations gauntlet.

Until quite recently, Reisner maintains, water projects were "the grease gun that lubricates the nation's legislative machinery." The dam-building binge following World War II resulted in an intense and incredibly wasteful rivalry between the Bureau of Reclamation and Corps of Engineers, each of which saw survival in terms of responding to, or creating, local support for water projects. Reisner, like Worster,

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26. Reisner observes that "Westerners call what they have established out here a civilization, but it would be more accurate to call it a beachhead. And if history is any guide, the odds that we can sustain it would have to be regarded as low." *Ibid.*, 3, 5, 306, 499, and 505.

views twentieth-century water development from a Washington perspective. Nevertheless, unlike Worster, who pays little attention to the Army Corps of Engineers, Reisner thinks recent western history would have been much different had the Corps not decided to extend its operations to the West during and after World War II. "Across the entire West, the Corps, as opportunistic and ruthless an agency as American government has ever seen," according to Reisner, "was trying to seduce away the Bureau's irrigation constituency; it was toadying up to big corporate farmers who wanted to monopolize whole rivers for themselves. . . . As a result, the business of water development was to become a game of chess between two ferociously competitive bureaucracies."[27] Reisner suggests that the centralizing tendencies of large-scale irrigation matter far less than traditional battles for power and spoils.

Reisner brilliantly describes how this rivalry played out in the field. He uses the story of the Bowman-Haley Project on the Grand River in North Dakota as a prime example. In May 1962, the Bureau's regional director in Billings warned Commissioner of Reclamation Floyd Dominy that the Corps of Engineers wanted to dam the stream. The Bureau considered such a structure during the early 1930s and reconsidered it several times thereafter. Always it concluded that a dam could not store sufficient water to provide for either irrigation or flood control. Municipal water use was the only conceivable justification, but the town of Haley was a dot on the map, and Bowman had only about 1,300 people. The project simply was not cost effective, but this did not deter the Corps. It built a gigantic dam more than a mile across and 79 feet high to impound just 19,780 acre-feet of water (the dam was about half the size of the smallest structure on the Missouri River, but held only about 1/90 as much water).

The significance of the story is obvious. Since the Corps moved into California during World War II, it "kept a full-court press on the Bureau." In their unending competition for appropriations, the two agencies built many financially infeasible projects, and, as the most stable sites for dams were taken, they built more and more reservoirs which posed safety risks. The Teton Dam disaster of 1976—which occurred despite warnings from the U.S. Geological Survey concerning safety hazards—symbolized the destructive effects of this crazed bureaucratic competition. On one occasion, according to Reisner, commissioner Michael Straus lectured the Billings division of the Bureau of Reclamation: "I don't give a damn whether a project is feasible or

27. *Ibid.*, 178, 319.

not. I'm getting the money out of Congress and you'd damn well better spend it."[28]

Reisner differs from Worster in several important respects. While both agree that the federal government's water resource policies have been enormously wasteful and destructive, Reisner emphasizes that the weaknesses of policy derived as much from federal agencies trying to cater to local interests as to dictatorial policies handed down by a remote, aloof bureaucracy. In this sense, his analysis is closer to Maass and Anderson than Worster. No doubt this is at least partly because Reisner thinks that individuals make a difference in history. He uses the knowledge of "insiders," a knowledge derived from hundreds of interviews, many lengthy, including such prominent figures as James Watt, Stewart Udall, David Brower, Floyd Dominy, George Ballis, and Ben Yellen. For example, in explaining the "innate self-destructiveness" of Commissioner of Reclamation Dominy, Reisner suggests that the will to dominate nature—or the "rape of nature" as so many critics of reclamation in the 1960s and 1970s called it—derived in part from an undisguised will to power:

> It wasn't his blindness, his stubborness, his manipulation of Congress, his talent for insubordination, his contempt for wild nature, his tolerance of big growers muscling into the Reclamation program—in the end, it wasn't any of this that did Dominy in. It was his innate self-destructiveness, which manifested itself most blatantly in an undisguished preoccupation with lust. His sexual exploits were legendary. They were also true. Whenever and wherever he traveled, he wanted a woman for the night. He had no shame about propositioning anyone. He would tell a Bureau employee with a bad marriage that his wife was a hell of a good lay, and the employee wouldn't know whether he was joking or not. He preferred someone available, but his associates say he wasn't above paying cash. . . . As he bullied weak men, Dominy preyed on women whom he considered easy marks.[29]

Unfortunately, for all his attempts to probe to the roots of the motivation of policy makers, Reisner too often reduces federal bureaucrats

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28. *Ibid.*, 154. One other casualty of this interagency rivalry was the 160-acre limitation. It had been difficult to enforce in the first place, but the fact that the Corps, under the guise of flood control and navigation, could provide "free" water with no strings attached made the Bureau even more reluctant to enforce the provisions of the Reclamation Act of 1902. In 1982, Congress expanded the acreage limitation from 160 to 960 acres.

29. *Ibid.*, 259.

and politicians to comic-book caricatures driven by elemental instincts and impulses. Plenty of interesting people appear in *Cadillac Desert*, but not many believable human beings.

Readers in New Mexico will be interested in how recent histories of water in their state reflect broader trends in scholarship. Fortunately, two ambitious studies published last year, Michael Welsh's *U.S. Army Corps of Engineers: Albuquerque District, 1935–1985* (1987) and Ira Clark's *Water in New Mexico* (1987), fit well into this discussion. Both look at history "from the ground up," rather than from the top down, and both describe the evolution of water policies as a complex interplay of local, regional, and national forces rather than a centralized policy dictated from Washington. In these ways, they are much closer to the assumptions shared by Maass, Anderson, Dunbar, and myself than to the policy making from the center that prevails in Worster, and to a lesser extent in Hays and Reisner. Yet while Ira Clark's volume is an extraordinary contribution to scholarship, Michael Welsh's study does not live up to its potential.

In the preface to *U.S. Army Corps of Engineers: Albuquerque District, 1935–1985*, Welsh notes that the "Army Corps of Engineers . . . must be studied in the context of western water historiography," though he faults historians of water for focusing "too narrowly on irrigation and agriculture in the region" and not on "the far more significant questions posed by the urbanization of the West."[30] The reader is led to expect a revisionist history, but this monograph turns out to be a relatively narrow institutional survey written largely from the perspective of the Corps, if not subsidized directly by the Corps. Local history can be an extremely productive tool to examine national themes and issues, but it can also bog down in detail, particularly when the author writes from within the institution.

Welsh is not blind to the criticism levelled against the Corps, but his vantage point lacks perspective. Too many phrases have the glossy texture of a public relations brochure. Between 1945 and the late 1960s, the district "fulfilled every mission asked of it" and in 1985, appeared "as an institution still prepared to contribute to the growth and expansion of the region it has served since the 1930s." Although "the Albuquerque District played a major role in shaping the destiny of New Mexico, West Texas, and Southern Colorado," the Corps seems to have no imperatives of its own. Instead, it largely responds to the decisions made by politicians in Washington and various pressure groups

30. Michael Welsh, *U.S. Army Corps of Engineers: Albuquerque District, 1935–1985* (Albuquerque: University of New Mexico Press, 1987), ix.

in New Mexico. Hence, the Corps "applied state-of-the-art technology to western water questions at the behest of political, economic, and civic leaders eager to promote the comfort expected by migrants to the Sunbelt. Their excesses incurred the wrath of environmental and ecological forces in the 1960s that were distraught over the compromises modern life demanded of nature." Recent critics of the Corps and the Bureau of Reclamation become "neoromantic" devotees of the idea that "nature conquers all." Their arguments, which concern the nature of American politics and the nature of our economic system as well—not just man's crimes against nature—receive scant attention.[31]

In fairness to the author, we live in an age when detachment, let along "objectivity," is no longer much prized in historians. As more and more traditional American values have come under fire since the 1960s—for example, the notion that bigger is better, that a healthy economy depends on an ever increasing population, and that the primary goal of water resource management should be to insure not just a decent standard of living, but an ever-increasing standard—complicated issues have been oversimplified, the motives of policymakers have been flattened, the nature of politics distorted, and the day-to-day problems of administration all but ignored. Certainly, many critics of the Corps and Bureau have been more concerned with assigning blame than understanding the politics of natural resource management. Studies such as Welsh's, written with some empathy for the political and economic constraints that bind government agencies, are important correctives to the biases that liberal and conservative historians alike increasingly share toward bureaucracy and central planning.

This is a useful, detailed survey of the basic activities of the Corps in the Southwest. The organization is largely chronological, and provides an overview of the full range of Corps responsibilities, from the construction of internment camps for Japanese-Americans, to the construction of "atomic city" in support of the project to develop the first atomic bomb during World War II, to the work on Project Apollo during the 1960s. Nevertheless, most chapters focus on particular projects and problems. The Conchas, John Martin, Rio Chama, Abiquiú, Cochiti, and Galisteo dams all receive extended attention as do large flood control and river-basin planning in the Rio Grande (Albuquerque), Pecos, and Arkansas river basins. Welsh recognizes that many Corps activities had baneful if unintended results. For example, the tension

31. Welsh, *U.S. Army Corps of Engineers*, x, xi, 93, 201.

between the demands of burgeoning white communities and the aspirations and needs of Native Americans, particularly the Cochiti, reveal the pressures Indians faced during the dam-building spree following World War II. (The Cochiti approved a Corps project only to discover that the anticipated benefits from jobs and recreation never materialized.)

Unfortunately, most of this book is simple narrative, with little attention to personalities or motives. It would have profited from a chapter relating the Albuquerque District's record to the entire history of the Corps. The author presents no evidence to demonstrate that the agency's history was affected by its activities in the Southwest. The sheer range of its work during and after World War II begs for an explanation of how the Corps managed to expand beyond flood control and the protection of navigation to play such a large part in western water planning and regional economic development. Welsh's primary research is substantial, including extensive use of oral histories as well as Corps records. But his failure to cite such basic works as Richard Lowitt's study of the New Deal in the West, Arthur Morgan's early history of the Corps, or Abraham Hoffman's history of the Los Angeles water saga, does not demonstrate much understanding of the basic literature.[32] For all the hopes raised in the preface, the significance of the water projects discussed remains unclear. Moreover, there is no central thesis and people do not seem to matter in this history. The best institutional monographs include the spite, in-fighting, inertia of tradition, and bitter compromises. It is this "human interest" that makes bureaus and agencies seem less dusty, solemn, and remote. For all its virtues, Welsh's volume makes the Albuquerque branch into an institutional Flying Dutchman—it is sailing somewhere on purpose, but apparently without a crew.

This could have been a much more significant history. How, for example, can one discuss the Corps in the West without considering the Bureau of Reclamation, with which the Corps competed? Welsh knows little about the latter agency, which he characterizes as the champion of "small yeoman farmers that federal water policies have sustained since the turn of the century" and as the agency that "delivered on a Progressive promise to mitigate the harshness of urban life."[33] Neither statement is accurate. More to the point, although the two

32. Richard Lowitt, *The New Deal in the West* (Bloomington: Indiana University Press, 1985); Arthur E. Morgan, *Dams and Other Disasters: A Century of the Army Corps of Engineers in Civil Works* (Boston: Porter Sargent Publisher, 1971); Hoffman, *Vision or Villainy.*

33. Welsh, *U.S. Army Corps of Engineers,* x, 21.

agencies divided the spoils, and obviously learned to live with each other, we are left to wonder how and why that marriage of accommodation or convenience was made and persisted. We need far more perspective than the author provides. The Inland Waterways Commission of 1907, the Newlands Act of 1917, and the TVA set precedents for future water planning. Why, then, during the 1930s and after was river basin planning resisted and blocked in the West? The Corps that emerges from this study is altogether too passive. Perhaps it had no vision, no leaders with an agenda such as Frederick Haynes Newell, Arthur P. Davis, Elwood Mead, Floyd Dominy, and other powerful commissioners of reclamation. Perhaps it was much more a creature of Congress. But if so, why the dramatic difference? We need a scholarly history of the Corps—the Bureau of Reclamation has received far more attention—and regional studies such as Welsh's provide the basic information needed in any good synthesis. However, his book has limited value as a case study.

Far more useful in that respect is Ira Clark's *Water in New Mexico,* a magnificent book that ranks with Paul Gates' *History of Public Land Law Development* and Willard Hurst's *Law and Economic Growth: The Legal History of the Lumber Industry in Wisconsin, 1836–1915* in depth of scholarship.[34] The book is not without flaws. It is not "exciting" history; no one will read these 839 fat double-column pages through in a couple evenings. In places the detail, however necessary, becomes tedious and oppressive, and readers will search in vain for the over-arching themes that might have unified the story. (For example, the author could have tied his analysis to the broader economic history of New Mexico and the West, or showed readers how the evolution of water law in New Mexico related to the development of American jurisprudence.) While the research is vast and meticulous—definitive within the limits set by the author—it is written almost entirely from published government documents, legal records, and secondary sources; there is little use of manuscript or archival collections outside New Mexico. One consequence is that private water development receives far less attention than public water policies. Yet these criticisms notwithstanding, every page of this vast institutional history reflects the knowledge, wisdom, and sound judgment of a master scholar and teacher. Ira Clark's generation—which includes such noted students of natural

34. Ira Clark, *Water in New Mexico* (Albuquerque: University of New Mexico Press, 1988); Gates, *History of Public Land Law Development;* Willard Hurst, *Law and Economic Growth: The Legal History of the Lumber Industry in Wisconsin, 1836–1915* (Cambridge: Belknap, 1964).

resource policy as Lawrence B. Lee and Robert Dunbar—has made an enormous contribution to the history of the American West. Each is very much in the Gates tradition: careful, thorough, and magisterial, not given to facile or glib generalizations that go beyond the evidence. The University of New Mexico Press described this volume as twenty-five years in the making, and it shows. Professor Clark should be immensely proud.

The sheer range and depth of Clark's book is staggering. No summary can do it justice. It contains chapters on the Spanish and Mexican influence on New Mexico's water laws; on attempts to reform both land and water law in the nineteenth century; on government reclamation in New Mexico; on the relationship between conservation and reclamation; and on new institutions of water use (such as irrigation and conservancy districts) that became popular during the decade from 1917–1927. Another chapter considers the interstate controversies with Colorado and Texas over the streams New Mexico shared—particularly the Rio Grande, Pecos, Canadian, and La Plata—and attempts to solve these disputes using water compacts and other tools. Other chapters concern the conflict between the United States and Mexico over the Rio Grande; the state's groundwater development in the Pecos Valley between Roswell and Artesia and its pioneering groundwater legislation—particularly the statute of 1931. (By 1955 over half the irrigated land in the state was served by subterranean water.) Clark also provides chapters on the New Deal's impact on water planning in New Mexico; on intrastate water problems ranging from conflicts between surface and groundwater users to the rapid growth of metropolitan areas; on pollution control, ranging from the degradation of water sources by man-made pollutants to such natural sources as saline intrusion of aquifers; on the state agencies responsible for proposing and administering water policies, such as the State Park Commission, Game and Fish Department, State Department of Health, and Water Quality Control Commission; on "cooperative federalism" (the joint efforts of state and federal officials to coordinate local and national water policies); and on federal water rights, including a very useful survey of Indian water rights in New Mexico. The book concludes with a "retrospect and prospect."

Professional historians often fail to appreciate the value of policy studies to scholars outside their discipline and to public officials. Lawyers, engineers, hydrologists, political scientists, economists, and a range of other specialists, not just in New Mexico, will welcome this book. Indeed, the work's encyclopedic character and remarkably lucid and succinct prose insure that it will be mined for decades to come.

Since it is the first comprehensive study of water law and public policy in an American state, it may well serve as a model, though few historians will be willing to dedicate twenty-five years to a single project.

If the book did nothing else, it would serve as a powerful counter to historians who, like Donald Worster, emphasize the centralizing tendencies of water policy and see an inexorable flow of power from the provinces to the capital and from hinterland to metropolis. Strictly speaking, this is not a book about "water and power," to use William Kahrl's wonderful phrase, but about water and institutions. Nevertheless, one can clearly see how the multitude of state and local institutions tend to disperse and dilute power, and how the central government has repeatedly deferred to the states. This book is doubly valuable because almost all of it pertains to the twentieth century and more than half to the period since World War II. Those charmed and beguiled by arguments which portray water policy as a struggle between good and evil, as an instrument of oppression, as an inevitable expression of imperatives endemic to capitalism, will find this study tame indeed. It is temperate, judicious, and scrupulously fair, and it conveys the complexity of the past rather than mold it to conform to contemporary needs. Donald Worster deserves great credit for calling the attention of a broad audience to the significance of water in the American West. But careful and patient scholars will find the detail and complexity of Clark's book far more rewarding. This book will long stand as a monument to one historian's dedication to scholarship.

Since this essay has surveyed the most important books published over the last decade, it is appropriate to conclude with a few thoughts on future scholarship. Water has always been a major source of conflict in the West, and that conflict is likely to increase given the dramatic population growth in the Southwest. The peripheral canal and other schemes to move water from northern to southern California, the endless battle between upstream and downstream states on the Colorado River, contests between farmers and municipalities, groundwater pollution, and Indian water rights will be staples of western politics for the forseeable future. So public interest in the politics of water will not abate. Unfortunately, the future of this fledgling field is not entirely rosy.

One cannot understand water policy without some understanding of the law, but the law is by nature technical and abstruse, and negotiations over water tend to turn on very complicated questions, as Norris Hundley has shown so well in his study of the Colorado River

compact negotiations.[35] The field has yet to see the kind of surveys that characterized the history of the public domain. As Paul Gates, Benjamin Hibbard, Allan Bogue, Vernon Carstensen, and others have shown, it is possible to tell a big story without getting too far away from the evidence. We can hope that scholars trained in a variety of historical disciplines—economic, legal, and environmental history, to name the most obvious—will bring fresh ideas to the study of water and save it from bogging down in detail or narratives that lead nowhere. They must also bring an appreciation for thorough and careful research in archival and manuscript sources. As Worster's book demonstrates, just asking good questions is not enough.

Obviously, another problem is where these historians will come from. The current preoccupation with social history has limited and will limit the number of historians who specialize in natural resources, as will lingering prejudices against western history found at many first-rate universities. Virtually all the books discussed here were written by "mature scholars" (read "middle-aged" or older). That may be partly because the study of water requires an understanding of a complicated jurisprudence, which does not come overnight. But it also suggests that those who have written the most about water are either "children" of the environmental movement of the 1960s and 1970s, or at least strongly influenced by that movement. This is not the proper place to probe the conscience of the current crop of undergraduate and graduate students, but it does seem fair to say that concern for the environment does not command the respect that it did ten or twenty years ago. The number of new workers ready to enter the field is very small. As a topic, natural resources in the West attracts far less attention than Native Americans, or any number of social history subjects.

The decade of literature surveyed in this essay may well have been a historiographical aberration. To be sure, books and articles will continue to be published about water in the West, if not by historians, then by engineers, lawyers, economists, and journalists—the same people who wrote most of the water history before the 1960s and 1970s. But they will not ask the same questions, and they may not recognize the enormous potential of water history to provide new insights into the region's politics, economy, and society, as well as its deepest values, ideals, and aspirations.

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35. Norris Hundley, jr., *Water and the West: The Colorado River Compact and the Politics of Water in the American West* (Berkeley: University of California Press, 1975).