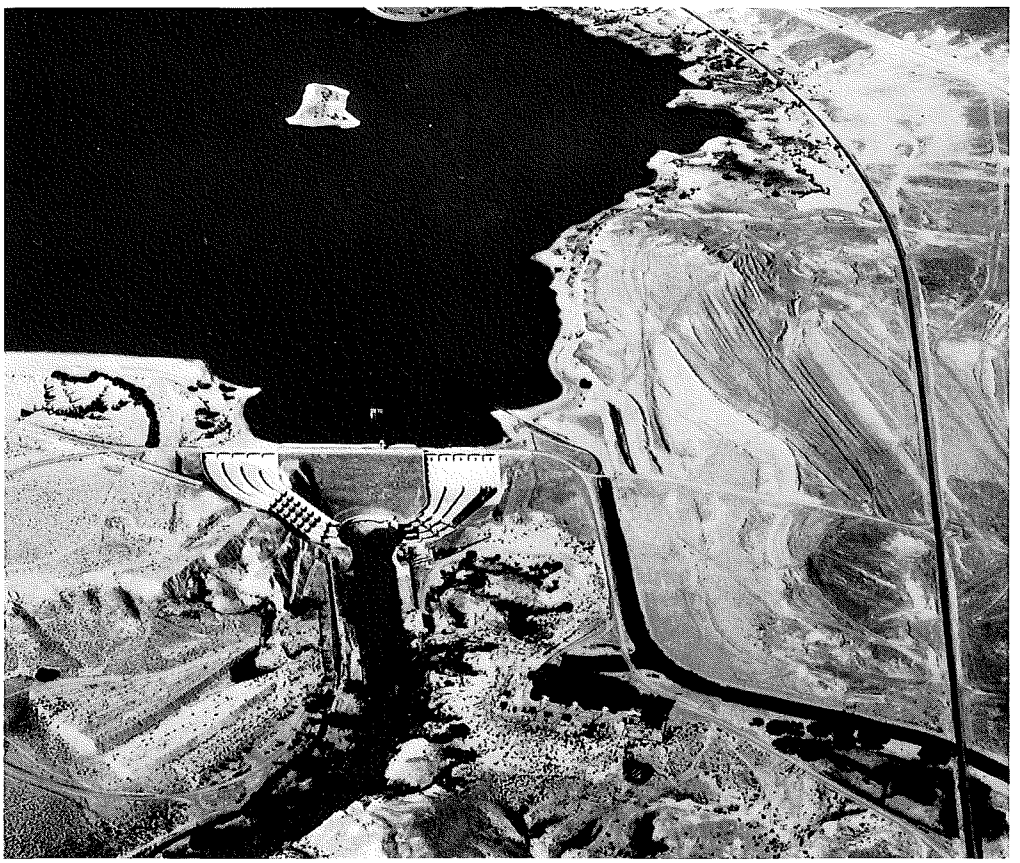
Nevada

Historical Society Quarterly



FALL 1994

NEVADA HISTORICAL SOCIETY QUARTERLY

The *Nevada Historical Society Quarterly* solicits contributions of scholarly or popular interest dealing with the following subjects: the general (e.g., the political, social, economic, constitutional) or the natural history of Nevada and the Great Basin; the literature, languages, anthropology, and archaeology of these areas; reprints of historic documents; reviews and essays concerning the historical literature of Nevada, the Great Basin, and the West.

Prospective authors should send their work to The Editor, *Nevada Historical Society Quarterly*, 1650 N. Virginia St., Reno, Nevada 89503. Papers should be typed double-spaced and sent in duplicate. All manuscripts, whether articles, edited documents, or essays, should conform with the most recent edition of the University of Chicago Press *Manual of Style*. Footnotes should be typed double-spaced on separate pages and numbered consecutively. Correspondence concerning articles and essays is welcomed, and should be addressed to The Editor.

The *Nevada Historical Society Quarterly* (ISSN 0047-9462) is published quarterly by the Nevada Historical Society. The *Quarterly* is sent to all members of the Society. Membership dues are: Student, $15; Senior Citizen without *Quarterly*, $15; Regular, $25; Family, $35; Sustaining, $50; Contributing, $100; Departmental Fellow, $250; Patron, $500; Benefactor, $1,000. Membership applications and dues should be sent to the Director, Nevada Historical Society, 1650 N. Virginia St., Reno, NV 89503. Second-class postage paid at Reno, Nevada and at additional mailing offices. POSTMASTER: Send address changes to *Nevada Historical Society Quarterly*, 1650 N. Virginia St., Reno, Nevada 89503.

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Volume 37 | Fall 1994 | Number 3

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Front Cover: An aerial view of Lahontan Dam in the 1940s. (*Nevada Historical Society*)

Book Reviews

RECLAMATION AND THE POLITICS OF CHANGE: Rights Settlement Act of 1990

Leah J. Wilds
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A decades-long series of water allocation and use disputes between the states of California and Nevada was resolved in 1990. The process involved the negotiation of numerous compromises at both the state and national levels. The result was the passage of the Truckee-Carson-Pyramid Lake Water Rights Settlement Act (Public Law #101-618) by congress.

This act has been hailed by some as a positive example of what can be achieved when competing interests are successfully brought together to participate in the resolution of conflicts. Some observers have suggested that this act foreshadows future trends that will move western water policy beyond the control of a few vested interests. Consequently, American water policy in general, and western water policy in particular, may become more inclusive of and respond to a broad range of interests.[1]

Others are not nearly so optimistic, in large part because the "new trend" includes the negotiation of water disputes involving Native American claims and environmental issues, often to the detriment of both.[2] Efforts to negotiate twenty-two additional large-scale water conflicts throughout the United States have continued after the 1990 act. Many of these involve both Native American and environmental issues, with challenges to traditional ways of making water policy decisions in the West, and ways that tend to benefit a particular set of interests to the exclusion of others. These interests have become so entrenched as to be routinely discussed in terms of the "iron triangles" of which they are a part.

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The importance of "iron triangles" in natural resource policy in the United States has long been recognized. Also known as subgovernments,[3] subsystems,[4] and whirlpools,[5] iron triangles are "clusters of individuals [who] effectively make most of the routine decisions in a given substantive area of policy."[6] As early as 1960, Philip Foss, in his book *Politics and Grass,* demonstrated the way in which one such "subsystem" dominated U.S. grazing policy on public lands.[7] Numerous studies have identified the phenomenon in other policy areas.[8] A typical iron triangle is composed of members of relevant congressional committees having principal jurisdiction over the policy area; bureaucrats with jurisdiction "paralleling" that of the congressional committees; and private groups or organizations having the greatest stake in the outcome.[9]

One of the most widely-recognized types of iron triangle exists in the area of water policy.[10] Indeed, "[w]ater policymaking at the federal level has long been portrayed as dominated by 'iron triangles' operating through a series of pork barrel exchanges. This triad basis for water politics . . . is widely assumed to be a fixture of resource policymaking" in this area.[11] Although the names of the subsystem members vary from triangle to triangle, they tend to have one thing in common: the promotion of water development projects. The result has been a long-standing emphasis on structural solutions to the nation's water problems,[12] and the construction of over a thousand federal dams alone between 1930 and 1980.[13]

Traditionally, members of these iron triangles have included bureaucrats from one of the federal agencies that build and maintain water projects (the Tennessee Valley Authority, the U.S. Army Corps of Engineers, the Bureau of Reclamation or the Soil and Water Conservation Service); members of development-oriented committees and subcommittees in congress (especially the Public Works and Appropriations committees); and water-user constituency groups.[14] In the West, where irrigated agriculture is in place in most states, the private leg of the iron triangle has been dominated by agricultural interests. This has meant the provision of cheap water for irrigated agricultural interests and political support for the relevant congressmen and the construction agencies involved, most typically, the Bureau of Reclamation or the Corps of Engineers. It has also meant the distribution of benefits to a host of private development interests.[15]

The failure of vigorous attempts by the Jimmy Carter administration to adjust the construction-oriented direction of traditional water policy confirms the strength of the tripartite alliance that has been in place, in many instances, for decades.[16] Recently several continuing and new phenomena have combined to convince even the most cautious of observers that something different is emerging in the water policy arena.[17] The nature of that difference, however, is subject to debate.

If Carter's systematic assault on the national government's water program achieved little else, it did manage to focus national attention on the issue. And the Ronald Reagan administration's indifference to water development projects

managed to achieve some of what Carter's hostility did not. While Reagan was willing to complete major long-standing projects, he was extremely reluctant to approve new starts. During his tenure in office, even some long-authorized projects were not funded, in spite of the sunken costs involved or the outcry from western states in which those projects were to be located. Indeed, in 1987, Secretary of Interior Donald Hodel invited the Auburn Dam lobby to "buy the blueprints from the Bureau of Reclamation and build it yourself." Secretary Hodel was also the first interior secretary to advocate the demolition of a major dam (San Francisco's O'Shaughnessy in famed Hetch-Hetchy Canyon).[18] The George Bush administration was less successful in resisting pressure from congressional components of the water triangle, in part because legislators found a way to "veto-proof" their water bills; they simply attached them to bills authorizing or funding other projects favored by the president, such as the funding bill for the super collider, a multi-million dollar science project to be constructed in Bush's home state of Texas.[19]

Although critics of the "Dam Era" may be partially mollified by some of these events, it is not clear that structural solutions to the country's water problems are a thing of the past.[20] What is clear, however, is that the tendency to authorize megaprojects has been and continues to be challenged on a number of fronts.[21] It has become much more difficult in recent years to obtain authorization and appropriations for large water projects that would have been approved as a matter of course some years ago. And it looks as if some huge dams, construction of which was inevitable just a few years ago, may never be built.[22] If more change is afoot—and most agree it is—what are the sources of that change?

Population growth heads the list of sources. The West is the fastest growing region in the United States today; the vast majority of that growth is occurring in urban areas.[23] In addition, many western states have endured four, five, and even six years of drought. Some areas in California have rationed water for domestic and industrial use for over two years; parts of Nevada routinely mandate restrictions on lawn watering during the summer and early fall. Nonetheless, withdrawals for domestic and industrial uses in many western states are insignificant compared to the share which agricultural interests receive. Some observers argue that a relatively modest reduction in agricultural use, in many cases, could free up enough water to handle population growth for decades to come.[24] Such situations focus the public eye on national and state water policies.

Although irrigated agriculture consumes the lion's share of water supplies in the American West, most of it is used to grow relatively low-value crops. Bureau of Reclamation water deliveries in 1987 totaled nearly 30 million acre-feet, approximately 26 million of which are used to irrigate 11 million acres of land (9 million more acres are currently under construction). This is in contrast to the 3 million acre-feet allocated for municipal and industrial use, and the 1.1 million applied to other nonagricultural uses.[25] Yet "the gross value of all livestock and

crops on lands irrigated by bureau water in 1987 was [only] $8 billion, which amounted to 5.8 percent of farm value for the nation at large."[26] Further, "irrigation, which is used on only 12 percent of the cropland in the United States, accounts for some 80 percent of U.S. urban, industrial and agricultural water consumption."[27] Of course, agriculture in a state like California is important because it grows many specialty crops (avocados, artichokes, winter vegetables). It also brings in considerable export income. But if one eliminated acreage currently used to grow low-value crops in California that can be grown elsewhere with rainfall (alfalfa, cotton and rice), one could free up enough water for 70 million new residents. At the same time, the state's total agricultural income would be reduced by only 15 percent. California's overall economy would be reduced by only one-quarter of one percent.[28]

What is true in California is even more true in other western states. For example, at least 25 percent of all of Colorado's available water is used to grow alfalfa, with an estimated value of $170 million in 1987. Irrigated agriculture in Nevada consumes over 80 percent of the state's water supplies, to raise crops that are worth only a sliver of the state's economy ($46 million in 1986).[29] And finally, U.S. Bureau of Reclamation water is among the most inexpensive (at least for irrigated agriculture), highly subsidized, and inefficiently used water in the American West.[30] Disparities in urban and agricultural water use and pricing make it seem inevitable that a shifting of water resources away from agriculture to industrial and urban uses will occur, albeit gradually and with minimal initial impact on agriculture.[31] Nonetheless, changes in policy will necessarily create bitter conflicts as agricultural interests are pitted against municipal needs.[32]

Two other sets of interests have emerged (and in some cases, coalesced) to challenge traditional water triangles' control of water resource policy in the West. One of the most significant of these has been Native Americans. Armed with the Winters Doctrine, and represented by high-powered legal experts and lobbyists of their own, they have been changing the legal landscape in which water policies are made.[33]

In essence, the Winters Doctrine and subsequent case law asserts that Indian tribes hold "reserved rights" to sufficient quantities of water to fulfill the purposes for which the reservation was originally created; furthermore, those reserved water rights are entitled to the priority date on which the reservation was created.[34] This right is exempt from state law and is not limited by existing appropriative rights. The courts have repeatedly reaffirmed the doctrine. Although the significance of this case was not realized for over fifty years, by 1973 the National Water Commission concluded that "the most intractable problem the commission faced [was] the conflict between existing non-Indian users and newly initiated Indian withdrawals. While the Indians . . . have legal superiority to make use of the water, a later initiated Indian use . . . disrupt[s] pre-existing non-Indian uses representing large Federal, state, and private investments."[35] And although there is still a "considerable amount of uncertainty generated by the existence of Indian rights," until these rights are resolved, "state officials will

be unable to determine whether water is available for appropriation, and the sale and transfer of existing rights will be impeded.[36]

The second set of interests involves the environment. Indeed, "[t]hroughout the West, water reallocation is now beginning to reflect environmental benefits along side traditional uses for water."[37] This is in part because of increased public awareness of the values associated with recreation, fish and wildlife—and awareness of the impact of water development projects on these values. In the West, this has translated also into a focus on the major consumer of project waters, irrigated agriculture, as a significant environmental offender in its own right. Agriculture continues, for example, to remain a principal source of "non-point" pollution; the long-term consequences of pesticides, nutrients, and trace elements in drainage and return flows are only beginning to be recognized.[38] Armed with environmental statutes and legal precedents, interest groups reflecting environmental values have increased their clout in recent years. Consequently, they are much more effective.[39]

As the Reagan administration came into office in the early 1980s, the search for a long-term solution to the nation's water conflicts intensified. Numerous proposals were made, most of which embraced one of two approaches. The first advocated an "all-inclusive" approach, in which a blanket water rights settlement would be applied to all parties in dispute, Indians and non-Indians alike; typically, this approach limited federal reserved rights and increased state control over water resources. This approach was supported by the Western Regional Council and the Western Conference of the Council of State Governments, and was reflected in the bills drafted by each group. Neither bill became law.[40] The second approach, advocated by the National Congress of American Indians, included an emphasis on the resolution of water rights conflicts on a tribe-by-tribe basis. The second approach was adopted and vigorously pursued by the Reagan administration. The Bush administration followed suit. In recent years, however, what started out as a move toward the negotiation of Indian/non-Indian resource conflicts has been expanded to include various other non-traditional interests. "New battle lines are being drawn" as "environmental interests and Native Americans [continue] to play a key role in an allocation process from which they had [previously] been excluded."[41]

In short, the new trend represents an ongoing challenge to the power of traditional water policy triangles. Whether the triangles will prove to be as resilient as they have in the past, as some observers predict,[42] or whether the collection of water interests known as "iron triangles" may be in the process of disintegrating, as others have suggested,[43] remains to be seen. In the meantime, the continuing focus on negotiated settlements has generated a great deal of interest among participants and observers alike.

Early Conflict

The history of conflict over water resources within and between the states of Nevada and California is long and complicated. For over a century, different

water interests within each state have tried, unsuccessfully, to reconcile their conflicting water demands. Lake Tahoe lies in the Sierra Nevada, straddling the California-Nevada border; two-thirds of the lake lies in California, while the remainder is located in Nevada. The Truckee River rises on the California side of the lake and its natural course flows eastward through Reno to terminate at Pyramid Lake. The Carson River also rises in the Sierra and flows into the Stillwater Wildlife Management Area and the Carson Sink. The Walker River, a third river system shared by the two states, originates in California south of Lake Tahoe, and one branch terminates in Nevada at Walker Lake.[44] Given these circumstances, it is no surprise that competition emerged between the two states.

The authorization and construction of the Newlands Project in western Nevada in 1903 did little to solve the water problems of competing users in the area. Indeed, it exacerbated them by bringing into existence additional players and competing uses for that area's scarce water supplies.[45] The Newlands Project was one of the first major reclamation projects undertaken by the Reclamation Service (later the Bureau of Reclamation) under the authority of the Reclamation Act of 1902. It was designed to irrigate the lands around Fallon, Nevada. The Newlands Act made reclamation of arid regions through irrigation a national responsibility. It also set the pace and direction of future reclamation activity in the West.[46]

Upon completion of the project, additional controversies surfaced immediately, both among competing users within the state of Nevada, and between Nevada and California. During the early years, the allocation and use of water supplies were dictated primarily by local interests: Tahoe property owners, power company officials, representatives of various irrigation districts, and individual farmers. Steps were eventually undertaken by the two states, however, to conclude the disputes more formally. And as the tendency to use litigation as a means to allocate water rights increased, state and federal courts became involved. As a consequence, there resulted a number of agreements, decrees and doctrines governing allocation and use of the waters of Lake Tahoe and the Truckee and Carson river systems.[47]

In 1908, for example, the Truckee River General Electric Company entered into an agreement with the Floriston Pulp and Paper Company (both of which utilized Truckee River waters in their operations) to establish what has come to be known as "floriston rates" on the Truckee River. These rates require that water be released from Lake Tahoe (if possible) when natural flows in the river drop below a certain point. The agreement was made to assure adequate flows for the generation of electricity by the electric company, which then owned the dam at the outlet of Lake Tahoe. When the Reclamation Service obtained possession of Lake Tahoe dam from the electric company in 1915, the revised consent decree required the government to adhere to the floriston rates.[48]

Responding to pressures caused by a severe drought, the governors of Cali-

fornia and Nevada established the California-Nevada Interstate Water Conference Committee in 1931, and assigned it the task of reaching an agreement governing the allocation and use of Truckee River waters. The results of their efforts were incorporated into the Truckee River Agreement, signed in 1935. This agreement, negotiated among the major water rights holders themselves, specified operating criteria for the Truckee River, established maximum storage levels for Lake Tahoe, and laid the groundwork for the construction of Boca Reservoir to create additional storage on the Truckee system. It included the floriston rates requirement, which could be met by releases from Lake Tahoe or Boca Reservoir, once the latter was completed.[49]

In 1913, the United States government had initiated a suit to establish firm water rights for both the Newlands Project and for irrigation on the Pyramid Lake Reservation. Although the trial took place between 1919 and 1921, the final decree was not issued until 1944 (*United States v. Orr Water Ditch Company,* Equity No. A-3 [D. Nev. 1944]). The *Orr Ditch* decree, as it later became known, gave legal sanction to the major elements of the Truckee River Agreement, including the section dealing with floriston rates. It also awarded the national government water rights for the irrigation of approximately 5,800 acres on the Pyramid Lake Reservation. These rights were awarded an 1859 priority date (the year in which the reservation was created). The national government made no

An early photograph of Pyramid Lake. (*Maxwell Adams Collection, Nevada Historical Society*)

effort to obtain water rights on behalf of the Pyramid Lake Tribe for purposes *other than irrigation.* This specific focus and commitment became important during later efforts to negotiate an interstate compact between the states of Nevada and California. For the Newlands Project, the United States received a 1902 priority right to divert Truckee waters at Derby Dam at the rate of 1,500 cubic feet per second. The water was to be used for the irrigation of 232,800 project acres; for storage at Lahontan Reservoir; or for the generation of power and other municipal and domestic purposes.[50]

During the 1930s and 1940s, reclamation projects in the West were pursued as part of President Franklin D. Roosevelt's public works program to take the United States out of the Great Depression. During the 1950s, reclamation became part of the "pork" of pork-barrel politics.[51] Nevada received its share; consequently, additional storage capacity now serves the system. None of these actions resulted in long-term, comprehensive solutions to broader interstate water problems, which became more numerous and complicated as the years went by.

Competition for eastern slope waters intensified after World War II. Lake Tahoe grew into a major gaming and recreational area. The Reno-Sparks metropolitan area evolved into a bustling commercial and recreation center. Competition for water among the ranching and farming interests on both sides of the border continued. All of these changes resulted in increased demands on the system—and contributed to a growing awareness of the need for the two states to reach a comprehensive agreement regarding the allocation of their shared water resources. The political leadership in both states advocated the development of plans to allocate the water in the Walker River and the preparation of contingencies for drought years. California politicians wanted assurance that some of the flows of all three rivers would be available to support future state growth. Nevada's leaders were fearful that California would one day lay claim to the waters that, although originating in California, flowed naturally into Nevada. Both sides realized that an interstate water compact was the only way to get a comprehensive water agreement through Congress.[52]

Against this backdrop, the two states decided in 1955 to use the authority of the commerce clause of the United States Constitution to negotiate an interstate compact, which would allocate once and for all the waters which they held in common. On August 4, 1955, President Dwight D. Eisenhower signed congressional legislation authorizing representatives of the two states to begin negotiations. The ensuing process was a lengthy one, requiring the appointment of compact commissions in each state, with a federal representative to safeguard federal interests and to chair a joint commission; ratification by the respective state legislatures in identical form; signatures of the two governors; ratification by the United States congress; and the signature of the president of the Untied States.[53]

After fourteen intense, frequently-stalemated years of negotiation, an agree-

ment was finally reached: When all was said and done, 90 percent of the disputed waters had been allocated to Nevada and supplies were reserved for growth in the Lake Tahoe-Truckee area of California. In 1968, the compact was submitted to the respective state legislatures for ratification. Much to the surprise of the participants, it took yet another two years and many concessions to complete the process of state approval.[54] California ratified the compact in 1970; Nevada followed in 1971. Approval by the congress, however, was not forthcoming. The states have been operating according to the terms of the compact (voluntarily) since that time. And numerous efforts have been made to persuade congress to give its stamp of approval. Indeed, between 1972 and 1979, Nevada and California congressional delegations offered six different bills seeking ratification; none even received a hearing. One last major effort to have the compact ratified was made by U.S. Senator Paul Laxalt in 1985; although his proposal did receive a hearing, at least, no other actions were taken.[55]

A Changing Context

The failure of various parties to obtain ratification of the compact for more than fifteen years was due, in large part, to the fact that the versions of the compact submitted to congress emphasized the protection of the water rights of the vested interests involved in negotiating it, to the exclusion of other interests involved, especially those of the Pyramid Lake Tribe. Neither the possible inclusion of water to maintain Pyramid Lake nor the recognition of nonestablished or unclaimed water rights by the Pyramid Lake Paiutes under the Winters Doctrine of 1908 was seriously considered by the compact commission.[56] The commission recognized only those waters allocated by the *Orr Ditch* decree of 1944, which limited tribal water rights to agricultural use. Under the Winters Doctrine of 1908, however, and subsequent case law, the tribe was entitled to enough water to serve all the purposes for which a reservation of land was made; additionally, those reserved water rights are entitled to the priority date on which the reservation was created (in this case, 1859).[57]

As the various diversionary and storage components of the Newlands Project were completed, the water level of Pyramid Lake eventually dropped, exposing sandbars at the mouth of the Truckee; fewer and fewer fish were able to spawn. The last spawning run was made in 1938 and the original strain of Lahontan cutthroat trout in Pyramid Lake became extinct by 1940. A closely related strain of Lahontan cutthroat trout was subsequently introduced to the lake, and it has been declared "threatened" under the provisions of the Endangered Species Act of 1967. The cui-ui, which are found *only* in Pyramid Lake, have been listed as "endangered." Both are thus entitled to protection by federal law.[58] Indeed, negative environmental impacts to Pyramid Lake from the Newlands Project have triggered lengthy and intense litigation by both the Pyramid Lake Paiute Tribe and the U.S. government against the Newlands Project's operators, Truc-

kee-Carson Irrigation District (TCID), as well as virtually every other user of Truckee River water in both Nevada and California.[59] The tribe has been winning these cases—and is becoming increasingly successful in its efforts to increase flows into Pyramid Lake.[60]

For example, in the early 1970s, the secretary of the interior, responding to the provisions of the Endangered Species Act, decided to use the waters stored in Stampede Reservoir *exclusively* for the benefit of the Pyramid Lake fisheries.[61] That decision was challenged unsuccessfully by the Carson-Truckee Water Conservancy District and Sierra Pacific Power Company.[62]

And in 1973, in response to a suit brought by TCID asserting that the amount of water allocated to it was insufficient, the court found instead that Newlands Project water diverted for use by TCID was inefficiently used (45 percent of the diversions do not make it to the fields). Subsequently, a federal court-ordered administrative process, known as "Operating Criteria and Procedures" (OCAPS), in combination with several court cases, has served to significantly reduce Newlands Project diversions from the Truckee,[63] in order to provide as much water as possible to Pyramid Lake.[64]

In a second important case,[65] the secretary of the interior was *required* to deliver to Pyramid Lake all water not otherwise obligated by court decrees or contracts. The court further ordered the secretary to enforce the original 1973 OCAP, which had reduced TCID's combined Carson and Truckee river diversions to a maximum of 288,000 acre/feet annually; if the provisions of the OCAPS were violated further, the court asserted, the 1926 Newlands contract with TCID was to be terminated. TCID refused to comply with the court order and continued diverting water far and above the amount to which it was legally entitled. The secretary terminated the contract, as directed, and TCID brought suit. Since 1973, the Bureau of Reclamation has issued an interim OCAP each year, pending the outcome of the case. The secretary's right to terminate the contract was upheld in 1984.[66]

In 1988, the Bureau proposed a final OCAP with maximum annual diversions to TCID from the Carson-Truckee system to reach no more than 320,000 acre-feet/year by 1991. This proposal was challenged on a number of fronts. The tribe has also been pursuing restitution from TCID and Newlands Project irrigators for past diversions from the Truckee which violated the OCAPS, a pursuit sanctioned by the Ninth Circuit Court.[67] Such alleged wrongful diversions may be in excess of 800,000 acre-feet.[68]

Failure to achieve ratification after the 1970s also can be attributed to other factors. One of these is the environment. The national government felt, for example, that the terms of the proposed compact would conflict with its efforts to secure water to repair the environmental damage caused by the Newlands Project, not only within Pyramid Lake but elsewhere in the Carson-Truckee system.[69] Consequently, under pressure from various environmental groups, one set of environmental problems targeted in the 1990 legislation involved the

Lahontan Valley Wetlands in general, and the Stillwater Wildlife Management Area near Fallon in particular. The Stillwater Wildlife Management Area constitutes the largest primary wetlands within Lahontan Valley. Over 410,000 ducks, 28,000 geese, and 14,000 swans use the area during spring and fall migrations. Ducks breed in this area, producing approximately 25,000 waterfowl each year. Bald eagles also winter there. In 1988, Lahontan Valley was designated as a Western Hemisphere Shorebird Reserve, one of four such sites in the United States. The Truckee-Carson river system supplies water to these extensive wetlands areas, which lie on the eastern edge of the Pacific Flyway for migrating birds. These migratory birds and their habitat are protected under treaty between the United States and Canada.[70]

Since the completion of the Newlands Project at the turn of the century, it is estimated that Nevada wetlands have been depleted by 85 percent (from approximately 113,000 acres to less than 15,000).[71] In addition, the previously clean water supplies in some of the remaining wetlands have been replaced by agricultural runoff from irrigated acreage. As the efficiency of the irrigation system in the area improves through OCAP enforcement and other inducements, agricultural drainage is reduced, with consequent reductions in water flows to the wetlands. As areas of the wetlands dry off, naturally occurring trace elements will become more concentrated, and in some cases, toxic. All forms of wildlife feeding in such areas could be poisoned.[72] Something obviously will need to be done to save what remains of these valuable natural resources—and to increase and enhance the acreage.

The third set of water problems facing the national government in northern Nevada concerns the status of the Fallon Paiute Shoshone Indian Tribe. In 1890, under the provisions of the General Allotment Act of 1887, fifty 160-acre allotments of land were awarded to the tribe, followed by an additional allotment of 146 160-acre parcels of land in 1894, for a total of more than 31,000 acres. Most of this acreage was initially located in what later became the Newlands Project Area.

Following the authorization and implementation of the Newlands Act of 1902, the national government entered into contracts with the tribe, whereby 186 individual tribal members gave up their 160-acre tracts of land (for the Newlands Project) in exchange for 10-acre allotments with fully irrigable water rights attached thereto, to be served by the Newlands Project once construction was completed. Thus 30,000 acres were carved out of the Indians' reservation to make way for the Newlands Project. In exchange, these tribal members received 4,640 acres with water rights attached, to be given to the tribe in perpetuity at no cost. Additional acreage was later added to the reservation, bringing the total amount of acreage up to 5,400, again with attached water rights. However, no water was ever given to the tribe after the construction of the project. In 1978, by passing Public Law 95-337, congress recognized the failure of the government to meet its contractual responsibilities to the Indians. It also recognized tribal

An artist's conception of a bird's eye view of the completed Newlands Project. (*Nevada Historical Society*)

growth, and therefore increased the size of their reservation by 2,700 acres. The mandate of the 1978 act, however, was not carried out.[73]

By the late 1980s, then, the national government found itself the target of pressure to make restitution to the Indian tribes involved in these disputes, as well as the environmental interests that had been harmed by previous policy. It was under these conditions that the final effort to negotiate an interstate compact between the states of Nevada and California occurred.

The Negotiation Begins

Harry Reid was elected to represent Nevada in the U.S. Senate in 1986, and assumed office in 1987. His predecessor, Paul Laxalt, had failed to obtain ratification of his version of an interstate compact during his last year in office because his agreement did not adequately address federal obligations resulting from treaties and other agreements. Immediately after assuming office, Reid announced his intention to resolve the myriad issues relating to a long-term solution to northern Nevada's water problems. He chose to utilize negotiation as the means to this achievement, as promoted by the Reagan administration.

Toward the end of 1987, Senator Reid and his staff began to develop a comprehensive understanding of the various parties and issues involved in Nevada water politics. That process took nearly six months. At that time, Reid brought the major Nevada players together for the first rounds of negotiations: Sierra

Pacific Power Company (interested in the capacity to store additional water supplies both to provide drought protection and support future growth); the Pyramid Lake Paiute Tribe (interested in economic development, compensation, and the enhancement and preservation of Pyramid Lake and its fisheries); the state of Nevada (interested in seeing to it that northern Nevada's rights to water were protected from encroachment by California); and the Truckee-Carson Irrigation District (interested in continuing to utilize Newlands Project water supplies for irrigated agriculture).[74]

Although other parties would certainly be affected by the outcome, Reid felt strongly that the scope of the conflict should not be enlarged until the need arose. The Fallon Paiute Shoshone Tribe's legal position was so strong that, combined with the commitment of the national government to see to it that their situation was remedied, Reid felt it was not necessary to bring them into early negotiations. The remedy that would be forthcoming had already been agreed upon (a settlement fund of $43 million)—and would be reflected in the 1990 legislation.[75] The environmental groups advocating protection of the wetlands, most notably the Lahontan Valley Wetlands Coalition, would be brought in later in the process, after some of the more contentious elements of the agreement were worked out.

According to some observers, TCID took an adamant position at the outset. By June of 1988, it had withdrawn from the process.[76] A lawyer representing the Pyramid Lake tribal interests offered the opinion that TCID felt it had little or no incentive to participate. Apparently TCID felt that it would stand a better chance in the courts.[77] Frank Dimick, Western Relations Liaison for the Bureau of Reclamation, mirrored this sentiment: "TCID felt there was nothing to bargain for. There are different perceptions to what happened that day when they walked out. They voluntarily left, but they felt there was nothing to negotiate so they were squeezed out. Why negotiate for less water? No one left them anything to bargain with—no chips on the table."[78] One observer who wishes to remain anonymous noted the difference in atmosphere at these negotiations, compared to previous attempts. In those cases, there seemed to have emerged an "us" against "them" attitude, which pitted the non-Indian interests against Indian claims, and served to push the Indian interests into the background. Such an attitude was not apparent during the 1989 negotiations. In fact, the parties—with the exception of TCID—seemed willing to bargain rather than pursue additional years of court battles.[79] After TCID's departure, the other players remained and managed to reach agreement on the major issues involved, one issue at a time.[80]

An important building block of the initial negotiations was a preliminary agreement between the Pyramid Lake Tribe and Westpac to seek an adjustment of the floriston rates. This allowed water from Stampede to be released in the springtime during the spawning of the cui-ui fish, while allowing Westpac storage in Stampede.[81]

Reid gradually expanded the negotiations in the summer of 1988 to include the state of California, the Stillwater Wildlife Refuge, the Fallon Naval Air Base, the Fallon Paiute Shoshone Indian Tribe, the Cities of Reno and Sparks, as well as the U.S. Bureau of Reclamation and the Bureau of Indian Affairs. The last two organizations needed to sign onto an agreement before congressional ratification would be likely. As more and more progress was made, very large sessions, which included all interested parties, were held. These sessions provided participants the opportunity to report what had been accomplished to date and to obtain input. Two groups which became involved at this point in the process were the Lahontan Valley Wetlands Coalition and the Coalition for a Negotiated Settlement. Throughout this process, the parties came to realize that unless the legal and political problems facing the national government regarding the Indian tribes and the environment were adequately addressed in the settlement, ratification by congress would not be forthcoming.[82] As noted, neglect of these interests had been the major impediment to consideration of the 1985 Laxalt proposal.

An agreement was reached in a remarkably short time (less than two years). The Truckee-Carson-Pyramid Lake Agreement was signed and a draft of its component parts was submitted to congress on August 4, 1989; the proposal was signed into law by President Bush on November 16, 1990. Implementation of its provisions moved ahead.

The Settlement Provisions

The Truckee-Carson-Pyramid Lake Water Rights Settlement Act (84) contains two titles. The first settles the 70-year-old dispute between the Fallon Paiute Shoshone Tribe and the national government. It creates a settlement fund for the tribe in the amount of $43 million, to be allocated over a five-year period beginning in 1993. The fund is to be used for tribal economic development. In exchange, the tribe agrees to release all claims that it has had against the national government resulting from its failure to meet its water obligations to them. The tribe also agrees to accept and abide by the limitations imposed on their water rights served by the Newlands Project. These are not to exceed 10,587.5 acre/feet of water per year for the reservation. They agree to withdraw their previous objections to the OCAPS set by the Bureau of Reclamation for the Newlands Project in 1988. And, finally, they agree to cooperate in the development and implementation of a plan to improve the efficiency of irrigation systems on the reservation that will utilize project water.[83]

Title II is much more complicated. The first set of conflicts that it resolves concerns "the equitable apportionment of the waters of the Truckee and Carson Rivers and Lake Tahoe between the states of Nevada and California."[84] Eighty percent of the Carson River and 90 percent of the Truckee River are allocated to the state of Nevada. This accomplishes two goals. It protects the water supply

that Nevada is fully using already. At the same time, it provides some water from the two river systems to support growth in the neighboring "east slope" counties of California. It also removes the fear in both states that the other will eventually seek additional water supplies at the expense of its neighbor. Recognizing growing urban demands, it makes provisions for increased storage capacity for Sierra Pacific Power Company. Such capture and storage can ensure a degree of drought protection and provide additional water supplies to support growth.

Title II also addresses the issue of wetlands protection in northern Nevada. It authorizes the purchase of water rights by the United States government, the state of Nevada, and other interested parties from "willing sellers" in the Newlands Project service area. The target goal is to sustain approximately 25,000 acres of primary wetland habitat within the Lahontan Valley Wetlands. In addition, a fish and wildlife management fund is established, to be jointly managed by the U.S. government and the state of Nevada, on behalf of the wetlands. Provisions are also made for the protection and expansion of the Stillwater National Wildlife Refuge (77,520 acres).

The Pyramid Lake Tribe, in exchange for dropping the claims it presently has against the national government, shall receive $25 million for enhancement of its fisheries, as well as an additional $40 million for tribal economic development. Aggressive plans for the recovery and enhancement of the fisheries are also specified.

Stillwater Wildlife Management Area. (*Nevada Historical Society*)

By far the most interesting—not to mention revealing—part of this Act concerns the Newlands Project and TCID. The Act expands the legal purposes for which Newlands Project water may be used; these purposes now include—in addition to agriculture—fish and wildlife, municipal and industrial water supplies, water quality, recreation, and other purposes recognized as beneficial under state law. The expanded purposes are to be met, moreover, in a manner that will not increase diversions of the Truckee River over those presently allowed. The Act puts the TCID on the defensive by authorizing the secretary of the interior to cancel all TCID repayment obligations owed to the Bureau of Reclamation—but only provided TCID agrees to collect all such repayment obligations, *and* to use those monies to develop and implement water conservation measures. Furthermore, the debt cancellation will not occur until or unless TCID has entered into a settlement agreement with the secretary concerning claims for recoupment of the water which has already been diverted by TCID in excess of the amounts permitted by applicable OCAPS.

The Act also specifies that the OCAPS presently in effect shall remain in effect until December 31, 1997, unless the secretary decides, in his sole discretion, that changes are necessary to comply with his obligations, including those under the Endangered Species Act. It further specifies that, prior to December 31, 1997, no court or administrative tribunal shall have the jurisdiction to set aside any such OCAPS or to order or direct that they be changed in any way. Indeed, "all actions taken heretofore by the secretary under any operating criteria and procedures are hereby declared to be valid and shall not be subject to revision in any judicial or administrative proceeding."[85] Under these provisions, the TCID will be unable to make good on its implied threat to litigate the conditions of the agreement. This grant of authority is sufficient to allow the secretary to deny water to the TCID to force it to agree to recoupment of the water illegally diverted by TCID during the years TCID refused to adhere to the OCAPS.[86]

The Black Box: Washington, D.C.

The negotiated water settlement that was reached in northern Nevada was hailed as an outstanding feat by many, especially given the number and scope of the conflicts that arose at the state level. The bill had to be ratified by congress, however, to become law. And the "black box" of D.C. politics proved to be an even more complex negotiation process than that which took place in Nevada, with many congressmen, senators, committees, agencies and the president needing to sign off on the bill to make it law.

To a distant observer reading the Reno papers, the process appeared basic. The water policy bill was introduced by Senator Harry Reid and initially died in a package of other water bills in the Senate Water and Power Subcommittee.[87] The bill was later revived and attached as a "rider" to S. 3084, the Fallon Paiute Shoshone Tribal Settlement Act. This act was passed in the senate during the

last days of the 101st Session of Congress. Subsequently, it was passed by the house of representatives and was signed into law by President Bush.

Prior to that, however, the proposal had a number of other hurdles to jump. A closer look at the process which culminated in Public Law #101-618 demonstrates that several Washington politicians significantly influenced the outcome. These actors, pursuing seemingly unrelated political agendas of their own, had the power to kill the bill outright if those agendas were thwarted.

Several members of congress wanted to use the legislation to take a broader policy stance in a related issue area.[88] For example, Senator Bill Bradley, as Chair of the Senate Water and Power Subcommittee which exercised jurisdiction over the bill, questioned the rationality of continued support of western irrigated agricultural projects, especially in the face of increased competition from more "beneficial" uses (environmental, Native American, industrial, municipal).[89] Several eastern legislators made known their distaste for western water practices. They noted that farmers in Maine are going bankrupt without federal water subsidies, while western farmers living in the desert, are flourishing because of them.[90]

The message emanating from Bradley and other influential D.C. politicians was straightforward. Irrigated agriculture in the West should no longer be subsidized; rather, western water should be subject to the same market mechanisms as other commodities.[91] From their point of view, the economics of irrigated agriculture have never been even marginal. The major reason for developing reclamation projects involved the need to encourage westward development.

Currently, for example, farmers are getting 80 percent of the benefits of federally subsidized irrigation projects, while footing only 20 percent of the bill.[92] Regarding the Newlands Project in particular, in an average water year, the Newlands Project consumes more than four and one-half times as much water as Westpac Utilities' entire service area. Water consumers in the Reno-Sparks area pay roughly eighty times as much for their water as do agricultural consumers in the Newlands Project. Nearly half the water rights used by the Newlands Project are held by 3 percent of the large farmers. The Newlands Project wastes about twice as much water as the Westpac service area uses. And, finally, 82 percent of the water is used to support less than 1 percent of the economy, while 18 percent of the water use supports 95 percent of the economy.[93] Indeed, according to the Coalition for a Negotiated Settlement,

> . . . like most of the Bureau of Reclamation irrigation programs, the Newlands Project has resulted in large quantities of federally-supplied and federally-subsidized water locked into relatively low-value uses with little, if any, incentive to conserve. From the standpoint of national, or even regional, economic development, the extensive water subsidies have led to inefficient use of the land and water resources as well as of capital, labor and materials.[94]

A typical consumer of water for agriculture in the Newlands Project area pays

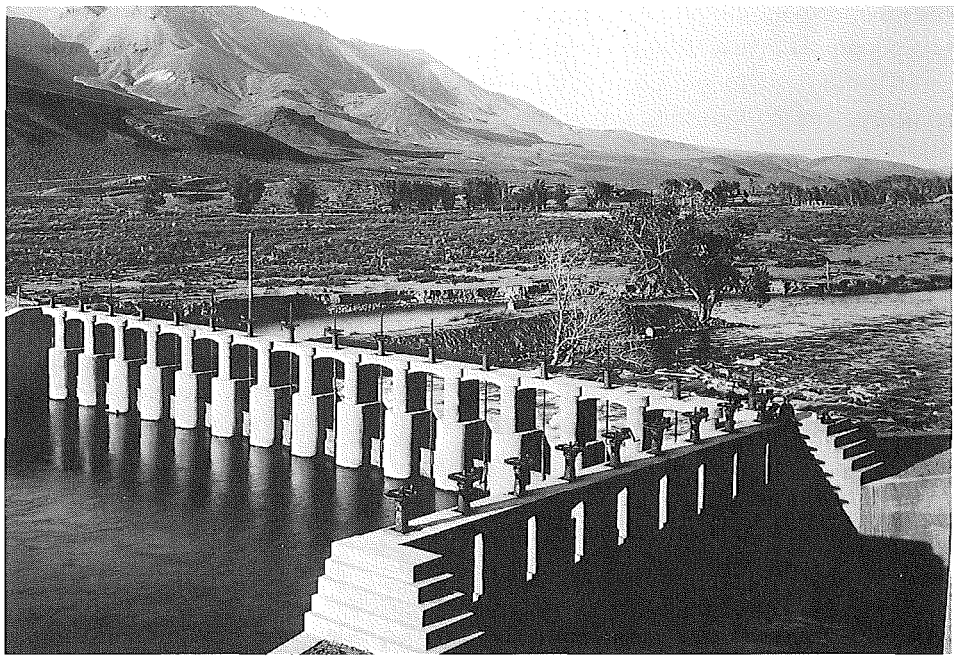
an average of $5.86 per acre/foot of water, while the average consumer for municipal/residential purposes in Reno and Sparks pays $450.00.[95] Urbanization and the drought have only intensified the concern and demand for water, both in Nevada and elsewhere in the West.[96] (Nevada is currently in its seventh drought year, despite having had a wet winter in 1992–1993.)

The Division of Water and Science of the Department of Interior has long advocated more efficient use of water resources. It has recommended storing water upstream during the dry summer months, where there is a lower evaporation rate and deeper reservoirs, with less surface area subject to evaporation. The water could be moved downstream in the fall.[97] Water so conserved would be especially valuable for urban usage at that time of the year, not to mention fish and wildlife.

The concerns expressed by various D.C. politicians regarding the inefficiency of western water projects were not the only ones to surface as the bill wound its way through the congressional system. Significant elements of the Washington bureaucracy also became involved, most of which are located in the Department of Interior. Indeed, cooperation from the Department of Interior was critical for passage of the bill. Cooperation *within* the department was difficult to obtain, however.

The Department of Interior contains competing (and sometimes conflicting) interests, with the Bureau of Indian Affairs, the Bureau of Reclamation, the Division of Water and Science, the Bureau of Land Management, and the U.S. Fish and Wildlife Service (among others) all under the same roof. When three assistant interior secretaries testified before Bradley's Water and Power Subcommittee in February of 1990 on this and other pending water settlement legislation, the subcommittee was unhappy with the lack of knowledge and unwillingness to cooperate among them.[98] Secretary Manuel Lujan, in response to complaints, ordered the formulation of an intra-departmental committee to iron out and evaluate the department's position. This was in essence a separate negotiation process within the department that resulted in a unified position. Members of this committee helped draft the amendment language that eventually was signed into law—language that moves away from traditional conceptions of reclamation policy in the United States.[99]

The Office of Management and Budget (OMB) and the Senate Select Committee on Indian Affairs also tried to influence a major component of the settlement. The amount of money to be allocated to the Pyramid Lake Tribe was the key issue here.[100] Although the OMB insisted that the $65 million targeted for the Tribe was much too high, the select committee thought the offer was fair, and the tribe itself was in agreement. In spite of worries that President Bush would refuse to accept this section of the bill if OMB dug in its heels, Senator Reid decided to go with the committee's recommendation anyway. President Bush apparently agreed. In the closing hours of the 101st Congress, Reid met with committee chairmen in the house, pleading with them not to exercise jurisdic-



Derby Dam, c.1904.

tion, and to let the bill go to the floor on a voice-vote.[101] He was successful in his lobbying. The bill was signed into law in November of 1990.

One pivotal aspect of the process was the united front presented by the Nevada delegation. Senators Bryan and Reid and house members Barbara Vucanovich and Jim Bilbray all favored the amended legislation.[102] Had Vucanovich wanted to, she could have killed the bill in the house. The bill was passed by a voice-vote, however, and no one exercised committee jurisdiction.[103]

Another crucial aspect of the bill's success was the united front in supporting its passage by the local parties involved in the initial negotiations. Those parties with veto power—the states of Nevada and California, the federal government, the Pyramid Lake Tribe, and Sierra Pacific—supported the measure.[104] TCID, which left the table early on and chose to take its stance opposing the measure, did not have the influence to stop the process.[105]

Between the time the bill was submitted and signed into law (nearly a year), several significant, even telling, amendments were made to it. The amendments were significant because they restricted TCID's ability to litigate, and thereby stall implementation of the settlement and protect its water monopoly. The amendments also mandated recoupment of illegally diverted project waters, giving the secretary of the interior leverage to force TCID to improve its irrigation systems. Both these amendments were added to Reid's original proposal by the Committee on Energy and Water which reviewed it. One D.C. insider who

wishes to remain anonymous suggested that Bush was prepared to veto the bill if these provisions were not included.

The amendments were telling because the national government sent a signal to western states regarding the future direction of reclamation politics and policy in the United States: No more business as usual. In response to increasing disenchantment with and criticism of reclamation projects in general, and inefficient, uneconomical, heavily subsidized irrigated agriculture in particular, there is a growing consensus that the national government is plainly moving in a new reclamation water policy direction.[106] Indeed, more than one interviewed observer went so far as to suggest that this is the beginning of the end of subsidized irrigated agriculture in the West.[107]

In the meantime, various state and local interests, TCID aside, managed to obtain at least part of what they wanted from the terms of the settlement.[108] Sierra Pacific wanted drought protection; it got at least forty years of it, provided it develops storage capacity to meet future urban demands. California and Nevada wanted assurance that their water supplies would be protected in the future; they both received such assurances *and* ended the hundred-year-old water war between the two states. The Pyramid Lake Tribe wanted money and water enough to maintain and enhance Pyramid Lake and its fisheries; it got the promise of some of both, and while those amounts may turn out not to be "enough" in the long run, the agreement continues the pattern of decisions favorable to the tribe and the lake. The Fallon Paiute Shoshone Tribe wanted justice. If one defines justice in terms of forthcoming water rights and monetary compensation for past damages, then justice, in this instance, was served. The environment benefitted as well, with provisions built in for wetlands and wildlife.

The national government may have benefitted most of all. Since it will be party to the negotiation of twenty-two (to date) water resource disputes in the United States over the next several years, both the process and the outcome served to move toward several related national goals. One of these involves the environment. The Bush administration came into office with a promise to improve the record of the national government with respect to the environment. The negotiated settlement provided such an opportunity. It also forced the Department of Interior to come to grips, at least in part, with the multiplicity of interests that are housed within it. The result was a unified position on this particular settlement, which may be indicative of future stances.

The national government was also able to move in a new direction regarding reclamation policy in the United States, a direction many feel is long-overdue. Although irrigated agricultural projects in the West probably will never be totally abandoned, it seems obvious that only the most efficient agricultural projects will continue to be even partially subsidized, at least if the policy directions pursued from D.C., and reflected in this piece of legislation, continue to be pursued.

Perhaps even more important, the national government has changed from being a reactive to a proactive participant in the resolution of reserved rights conflicts to which it is a party. The reserved rights issue has been changing the landscape of American water politics for the last decade. That landscape will continue to change, as similar sets of reserved rights conflicts are dealt with in the future. The government was also able to disentangle itself from the many lawsuits that have emerged over the years as a result of the Newlands Project.

This, of course, puts the most positive of interpretations on the outcome—and places what some feel might be an unwarranted amount of faith in the federal government's ability to carry out its responsibilities under the act. Several important questions need to be asked in this regard, and an eye kept open in the future to determine just what the answers may be.

What evidence is there that the national government will be forthcoming with the monies and water rights promised in this settlement to both tribes? If history gives us any indication, there is cause for concern in this regard. Indeed, two of the major conflicts that had to be negotiated here stemmed from broken promises made to the Fallon Paiute Shoshone Tribe and from the failure of the national government to adequately protect the interests of the Pyramid Lake Tribe under the Winters Doctrine.[109]

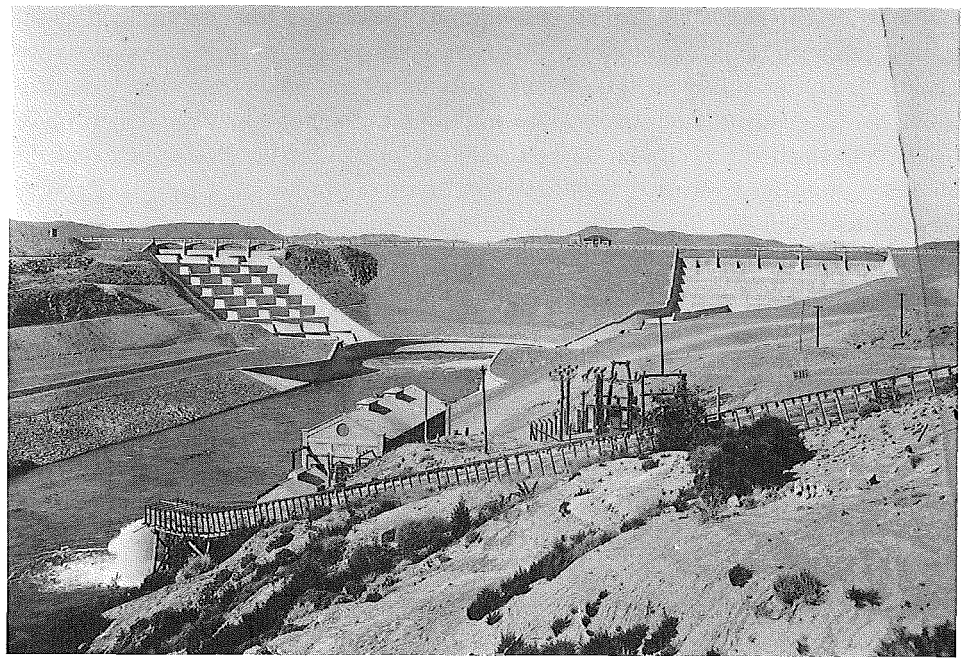
Second, can this be seen as a case of "coercive" negotiation, as some have suggested? Was "coercion" used here to force the Indians (and TCID, at least from their point of view) into or out of "negotiating" claims that might better be handled through litigation? Certainly, the national government is putting fiscal and other pressures on Indian tribes around the country to participate in negotiations of this type.

Third, what about the process of implementing the provisions of the bill? If the process breaks down, what effect will it have on the interests involved in this settlement? And what might such a breakdown portend for future negotiated settlements where Indian and environmental issues are concerned?

Implications for the Future

Iron triangles, such as the one that dominated water policy in northern Nevada for decades, are being challenged on a number of fronts throughout the American West. These include demands for change emanating from urban, environmental and Native American interests. What is likely to be the consequence of such demands? As McCool notes, typically the result falls into one of four categories:

> First, political forces from outside the iron triangle [may] have a temporary impact on a triangle, which responds in an ad hoc fashion and then returns to policy-making as usual. Second, an iron triangle can coopt potential new enemies by allocating resources to them. Third, new demands sometimes result in new iron triangles with their own system of



Lahontan Dam in an early photo. Notice the woooden flume in the foreground. (*Nevada Hiistorical Society*)

policy-making. Fourth, the rise of new interests, especially when accompanied by larger changes in the sociopolitical environment, may destroy an existing triangle.[110]

The results in future negotiations of this type may fall into any one of these categories, depending on the circumstances involved. The iron triangle of traditional western water interests, held together and frequently represented by such national organizations as the National Water Resources Association and/or the National Rivers and Harbors Congress, appears to be in the process of disintegrating—if it has not already done so, as some observers believe.[111] The iron triangle of the past, which operated for fifty years with more or less *carte blanche,* is becoming more a decentralized "network" of iron triangles. Many of these iron triangles will find themselves operating from an increasingly defensive position, as was the case with the triangle dominated by TCID. This will be especially true for those triangles that become entangled in water settlement negotiations of the type described here. The result will depend on the players, the distribution of power among those players, and the legal, political and economic circumstances involved. In this case, however, we believe that scenario number four has obtained: The classic iron triangle in northern Nevada, which historically exercised predominant control over water resource decision-making, has been broken. This is not to say that irrigated agriculture in northern

Nevada has been dealt its death blow, however; it simply means that these interests cannot count on exercising the amount of control over water resource allocation and use issues that they possessed in the past. This is in large part because the "framework" within which public resources issues are being decided is no longer primarily a local one. Instead, the congress is considering national issues in deciding these types of questions. This change in the *status quo* may be a permanent one.

If this is indeed the case, will a new iron triangle emerge to take its place? This is doubtful. In large part this is because no one private leg of a potential iron triangle, either environmental interests or Native Americans, is positioned to assume that function. Rather, a multiplicity of interests has been accommodated in this policy-making process. There is no reason to believe, either, that this will not continue to be the case in the future. These interests are reflective of newly recognized values and needs, which are themselves reflective of changed socio-economic and political conditions. As more change occurs, the current set of interests may find itself having to accommodate newer interests and values. While it should not be suggested that all future negotiated settlements will result in the kind of process and outcome(s) described herein, this is a strong possibility. The sets of interests that are included and accommodated, of course, will depend on the players, the distribution of power among those players, and the particular legal and political climate in which each settlement is negotiated and concluded. The task is to focus upon the upcoming negotiations as each unfolds. Close scrutiny of the results will undoubtedly provide us with answers to questions posed here and elsewhere in the literature regarding the future of western water policy.

Notes

[1]Wayne Mehl, Legislative Director, Office of Senator Harry Reid, Personal Interview (20 May 1991); Norman Staller, Economist, Water Resources Branch, Office of Management and Budget, Personal Interview (21 May 1991).

[2]Daniel C. McCool, "Water Welfare and the New Politics of Water," *Halcyon* 14 (1992), 85–102.

[3]Douglass Cater, *Power in Washington* (New York: Random House, 1964), 1–238.

[4]J. Leiper Freeman, *The Political Process* (New York: Random House, 1965), 1–344.

[5]Ernest S. Griffith, *Congress: Its Contemporary Role* (New York: New York University Press, 1961), 1–268.

[6]Randall B. Ripley and Grace A. Franklin, *Congress, the Bureaucracy and Public Policy* (Pacific Grove, CA: Brooks/Cole Publishing Company, 1984), 10.

[7]Philip O. Foss, *Politics and Grass: The Administration of Grazing on the Public Domain* (Westport, CT: Greenwood Press, 1960), 1–236.

[8]See Paul Culhane, *Public Lands Politics* (Baltimore, MD: Johns Hopkins University Press/Resources for the Future, 1981), 1–398; Roger H. Davidson, "Breaking Up Those 'Cozy Triangles': An Impossible Dream?" in Susan Welch and John G. Peters, eds. *Legislative Reform and Public Policy* (New York: Praeger Publishers, 1977), 30–53; Richard O'Connor, *The Oil Barons* (Boston: Little, Brown, 1977), 1–502; Robert H. Salisbury *et al.*, "Who Works with Whom? Interest Group Alliances and Opposition," *American Political Science Review* 81 (4, 1987), 1217–1234.

[9]Ripley and Franklin, *Congress, the Bureaucracy and Public Policy*, 5–10.

[10]Jeanne Nienaber Clarke and Daniel C. McCool, *Staking Out the Terrain: Resource Differentials*

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[11]Tim. R. Miller, "Recent Trends in Federal Water Resource Management: Are the 'Iron Triangles' in Retreat?" *Policy Studies Review* 5 (2, 1985), 395.

[12]Clarke and McCool, *Staking Out the Terrain*, 1–33; McCool, *Command of the Waters*, 5.

[13]Marc Reisner and Sarah Bates, *Overtapped Oasis: Reform or Revolution for Western Water?* (Washington, DC: Island Press, 1990), 1–35.

[14]Clarke and McCool, *Staking Out the Terrain*, 11.

[15]Reisner and Bates, *Overtapped Oasis*, 1–35; McCool, *Command of the Waters*, 6–11.

[16]*Ibid.*

[17]McCool, *Command of the Waters*, 226–44; Miller, "Recent Trends," 395–96.

[18]Reisner and Bates, *Overtapped Oasis*, 24.

[19]McCool, "Water Welfare," 85–102.

[20]*Ibid.*

[21]Ingram, "Politics, Markets, Society and Water Resorces," 57–71; McCool, "Water Welfare," 85–102; Miller, "Recent Trends," 395–412; Michael R. Moore, "Native American Water Rights: Efficiency and Fairness," *Natural Resource Journal* 29 (1989), 763–91.

[22]Reisner and Bates, *Overtapped Oasis*, 23–6.

[23]*Ibid*, 32.

[24]M. T. El-Ashry and D. C. Gibbons, *Troubled Waters: New Policies for Managing Water in the American West* (Washington, DC: World Resources Institute, 1986), 1–89.

[25]McCool, *Command of the Waters*, 87; Reisner and Bates, *Overtapped Oasis*, 27–30.

[26]Reisner and Bates, *Overtapped Oasis*, 30.

[27]*Ibid.*

[28]*Ibid*, 33–4.

[29]*Ibid*, 34.

[30]*Ibid.*

[31]Victor Brajer and Wade E. Martin, "Water Rights Markets: Social and Legal Considerations," *American Journal of Economics and Sociology* 49 (1, 1990), 35–43; W. R. Zach Willey and David Yardas, *Least Cost Water Supply Planning in the Truckee and Carson River Basin* (Berkeley, CA: Environmental Defense Fund, 1987), 1–8.

[32]Jurgen Schmandt, *et al.*, *State Water Policies: A Study of Six States* (New York: Praeger Publishers, 1988), 1–13.

[33]Brajer and Martin, "Water Rights Markets," 35–43; McCool, "Water Welfare," 85–102; Moore, "Native American Water Rights," 763–791.

[34]*Winters v. U.S.*, 207 U.S. 564 (1908).

[35]Brajer and Martin, "Water Rights Markets," 42.

[36]*Ibid.*

[37]Bonnie G. Colby, *et al.*, "Mitigating Environmental Externalities through Voluntary and Involuntary Water Reallocation: Nevada's Truckee-Carson River Basin," *Natural Resource Journal*, 32 (1991), 757.

[38]Willey and Yardas, *Least Cost Water*, 42.

[39]Colby, *et al.*, "Mitigating," 757–83; McCool, "Water Welfare," 85–102.

[40]McCool, *Command of the Waters*, 233–34.

[41]Colby, *et al.*, "Mitigating," 757–83.

[42]McCool, *Command of the Waters*, 248–155; McCool, "Water Welfare," 85–102.

[43]Moore, "Native American Water Rights," 763–91.

[44]California Department of Water Resources, *Truckee River Atlas* (1991), 1–4; U.S. Senate, Select Committee on Indian Affairs, *Providing for the Settlement of Water Rights Claims of the Fallon Paiute Shoshone Indian Tribes*, Report No. 101–555 (Washington, DC: U.S. Government Printing Office, 25 October 1991), 8–9.

[45]W. Turrentine Jackson and Donald J. Pisani, *A Case Study in Interstate Resource Management: The California-Nevada Water Controversy 1865–1955* (Davis, CA: California Water Resources Center, May 1973), 1–11; W. Turrentine Jackson and Donald J. Pisani, *Lake Tahoe Water: A Chronical of Conflict Affecting the Environment* (Davis, CA: Institute of Governmental Affairs, 1972), 1–3.

[46]*Ibid.*; W. D. Rowley, "The Newlands Project: Crime or National Commitment?" *Nevada Public Affairs Review* 1 (1992), 39–43.

[47]*Ibid.*

[48]*Truckee River General Agreement* (1915).

[49]California Department of Water Resources, *Truckee River Atlas*, 5–27; Jackson and Pisani, *A Case Study*, 1–16.

[50]*Ibid.* In 1973, the United States government attempted to have the provisions of the *Orr Ditch* decree reconsidered, at first by requesting the U.S. Supreme Court to hear the government's case under the original jurisdiction of that court (*United States v. Nevada and California*, 412 U.S. 534). The Supreme court refused to hear the case. The U.S. government then took its case to the United States District Court for Nevada, where the District Court held that the *Orr Ditch* decree was *res judicata* and could not be challenged in court; although the 9th Circuit Court of Appeals reversed, the United States Supreme Court rendered a decision in 1983 declaring that the *Orr Ditch* decree was indeed *res judicata*, thereby ending any lingering legal uncertainties regarding the *Orr Ditch* decree (*Nevada v. United States*, 463 U.S. 100, 143–44).

[51]Marc Reisner, *Cadillac Desert: The American West and Its Disappearing Water* (New York: Penguin Books, 1987), 115–124; Reisner and Bates, *Overtapped Oasis*, 17–22.

[52]Timothy G. Haller, "The Legislative Battle Over the California-Nevada Interstate Compact: A Question of Might versus Native American Right," *Nevada Historical Society Quarterly* 32 (3, 1989), 198–221.

[53]*Ibid.*

[54]*Ibid.*

[55]U.S. Senate, *Providing for the Settlement*, 9.

[56]Haller, "The Legislative Battle," 198–221; Mehl, Personal Interview; D. Snape, Lobbyist for Pyramid Lake Tribe, Personal Interview (22 May 1991).

[57]H. S. Burness, *et al.*, "United States Reclamation Policy and Indian Water Rights," *Natural Resource Journal*, 20 (1980), 807–25; Haller, "The Legislative Battle," 198–221.

[58]Martha C. Knack and Omer C. Stewart, *As Long as the River Shall Run: An Ethnohistory of Pyramid Lake Indian Reservation* (Berkeley, CA: University of California Press, 1984), 9–16.

[59]Elmer Rusco, "The Truckee-Carson-Pyramid Lake Water Rights Settlement Act and Pyramid Lake," *Nevada Public Affairs Review* 1 (1992), 9–14; U.S. Senate, *Providing for the Settlement*, 9–16.

[60]Robert Pelcyger, Pyramid Lake Tribal Attorney, Personal Interview (6 March 1991).

[61]It should be noted here that the Lahontan cutthroat trout have been restored to Pyramid Lake through a hatchery program; the cui-ui have also benefitted from this program—indeed, it may have saved both from extinction. What had not been achieved by this program at the time settlement negotiations began, however, was enough water to restore the fishery, which would have taken enough water to allow natural spawning to occur in the lake. See Rusco, "The Truckee-Carson-Pyramid Lake Water Rights Settlement and Pyramid Lake," 9–14.

[62]*Carson-Truckee Water Conservancy District v. Clark* 741 F.2d 257 (9th Cir. 1984), cert den. 53 U.S.L.W. 386 (26 March 1985).

[63]32 Fed. Reg. 3098 43 C.F.R. 418.

[64]43 C.F.R. 418 (a).

[65]*Pyramid Lake Paiute Tribe v. Morton* 354 F. Supp. 151 (D.D.C., 1973).

[66]*Truckee-Carson Irrigation District v. Secretary*, 782 F.2d (9th Cir., 1984), cert. den. U.S.L.W. 3867 (11 June 1985).

[67]*Pyramid Lake Paiute Tribe v. Hodel*, 887 F.2d 364 (1989).

[68]U.S. Senate, *Providing for the Settlement*, 17–19.

[69]Pelcyger, Personal Interview; U.S. Senate, *Providing for the Settlement.*

[70]George Laycock, "What Water for Stillwater?," *Audubon Magazine (November 1988), 14–25;* U.S. Senate, *Providing for the Settlement.*

[71]*Ibid.*

[72]*Ibid.*

[73]U.S. Senate, *Providing for the Settlement.*

[74]Blaine Rose, Regional Manager for Senator Harry Reid, Personal Interview (14 March 1991).

[75]Pelcyger, Personal Interview.

[76]Mehl, Personal Interview; Pelcyger, Personal Interview; P. Zell, Executive Director of Senate Select Committee on Indian Affairs, Personal Interview (22 May 1991).

[77]It should be noted here, however, that the position taken by TCID and its supporters is that they were squeezed out of the negotiation process—or never really allowed to participate to begin with.

[78]Frank Dimick, Western Relations Liaison, Bureau of Reclamation, Personal Interview (21 May 1991).

[79]Mehl, Personal Interview.

[80]The important thing about the outcome of years of litigation as it stood in 1987, when Senator Reid began his effort, was that all sides had won some victories but no one felt secure or saw a way to get more of what they wanted through litigation. This was as true for TCID as it was for the other players. It still had extensive legal rights to use of water from both the Carson and Truckee rivers, but found its Truckee use being reduced by the courts. That TCID misperceived its situation and thought it did not have to compromise further is another likely explanation for the withdrawal from the negotiations (Elmer Rusco, Personal Communication, December 1993).

[81]Mehl, Personal Interview; Pelcyger, Personal Interview.

[82]*Ibid.*

[83]104 Stat.3289 (1990).

[84]Sec. 201–204.

[85]Sec. 209(J)(2).

[86]It should be noted that there is now being developed a new Operating Agreement for the Truckee River which will include, among other things, the results of the tradeoff between Westpac and the Pyramid Lake Tribe embodied in the Preliminary Settlement Agreement. The new OCAPS agreement must include provisions to alter the present court-ordered rules (floriston rates) so as to provide maximum benefit to the Pyramid Lake fishery. See Elmer Rusco, "The Truckee-Carson-Pyramid Lake Water Rights Settlement Act and Pyramid Lake," *Nevada Public Affairs Review,* 1 (1992), 13.

[87]Mehl, Personal Interview; Zell, Personal Interview.

[88]Tim Hay, Legislative Counsel, Office of Senator Richard Bryan, Personal Interview, (20 May 1991); Mehl, Personal Interview.

[89]Tom Hebert, Water Resources Assistant, Senate Agriculture Committee, Personal Interview (23 May 1991).

[90]*Ibid.*

[91]Hay, Personal Interview; Joseph Hunter, Deputy Assistant Secretary of Water and Science, Department of Interior, Personal Interview (21 May 1991); Mehl, Personal Interview; Rose, Personal Interview; Snape, Personal Interview; Zell, Personal Interview.

[92]Staller, Personal Interview.

[93]Coalition for a Negotiated Settlement, *An Economic Analysis of Water Use on the Newlands Project* (1990), 1–5.

[94]*Ibid.*, 3.

[95]*Ibid.*

[96]Dimick, Personal Interview.

[97]Hunter, Personal Interview.

[98]Bill Bettenburg, Deputy Assistant Secretary of Indian Affairs, Department of Interior, Personal Interview (23 May 1991).

[99]*Ibid.*

[100]Staller, Personal Interview.

[101]Mehl, Personal Interview; Snape, Personal Interview.

[102]Hay, Personal Interview.

[103]Mehl, Personal Interview; Snape, Personal Interview.

[104]Mehl, Personal Interview.

[105]Mehl, Personal Interview; Snape, Personal Interview.

[106]Janet E. McKinnon, "Water to Waste: Irrational Decisionmaking in the American West," *Harvard Law Review* 10 (2, 1986), 503–32; Sandra Postel, *Water for Agriculture: Facing the Limits* (Worldwatch Institute, 1989), 1–54; Richard W. Wahl, *Markets for Federal Water: Subsidies, Property Rights and The Bureau of Reclamation* (Washington, DC: Johns Hopkins University Press, 1989), 1–308.

[107]Mehl, Personal Interview; Pelcyger, Personal Interview.

[108]To be fair to the TCID, as Rowley has pointed out, "although hard choices remain ahead for the users of water in western Nevada. . . . [t]he hardest choices [now] will have to be made by the farmers and ranchers of the Fernley-Fallon area." We must recognize, after all, that this "community," which was created on the "basis of diverted river water, rightly refuses to believe that its founding and development was a mistake. It was an experiment based on a rather grand dream which has nourished a stable community in a state that has rarely enjoyed stability." Although environmental and other problems did ensue, "these can be addressed by government and community efforts in the future"; Rowley, "The Newlands Project: Crime or National Commitment," 43. Indeed, such efforts are currently underway. An attempt is being made to address the concerns of the community, and incorporate those concerns into the decisionmaking process, as implementation of this act proceeds apace.

[109]As Elmer Rusco noted in his excellent critique of this article, however, while the possibility that funds may not be appropriated to carry out all the provisions of this law is certainly present, there are strong reasons to believe that this will not happen. See Elmer Rusco, "The Truckee-Carson-Pyramid Lake Water Rights Settlement Act and Pyramid Lake," *Nevada Public Affairs Review* 1(1992), 9–14.

[110]McCool, *Command of the Waters*, 11.

[111]Moore, "Native American Water Rights," 787.

RYE PATCH DAM
A New Deal for the Lower Humboldt

Robert Autobee

Few odes, and fewer travel guides, have been written about the charm of Pershing County, Nevada. Cutting along the desert's edge, the lifeblood of the county, the Humboldt River, would be called a creek in most places. Mark Twain termed it a "sickly rivulet," offering a bored man the opportunity to jump back and forth across it until overheated, then supplying just enough water to be drunk dry. Another commentator chimed in that the Humboldt "has been damned, double-damned and drained. Only a brave man would drink it." In spite of these negative observations, a few hardy men and women grew alfalfa and raised cattle in the only oasis for miles around—the Big Meadows of Lovelock Valley. Nevertheless, even the hardiest occasionally need help. During the darkest days of the Great Depression of the 1930s, neighbors of this often dry river in northern Nevada benefited from the Bureau of Reclamation's efforts to make the area's scant moisture available to agriculture.[1]

In the center of Pershing County, the Humboldt's Lovelock Valley has been a gateway for gold and silver prospectors since the 1860s. Farming thrives, but it is a culture separate from the comings and goings of miners, ranchers, and tourists passing through the region. In the same state, but not of the same world, the valley has neither the neon gaudiness of Las Vegas nor the cowboy romanticism of "The Virginian." But Humboldt Project Nevadans are rugged individuals who outmaneuvered, and eventually mastered, one of the desert's few sanctuaries.

In 1862, pioneers from the East discovered a spring bubbling from a range of foothills, watering a natural field of rye grass. They stayed, and a settlement grew near the rye meadow. Three miles away, and a little more than sixty years later, the Bureau of Reclamation built the Rye Patch Dam. Rye Patch Dam and Reservoir is twenty-two miles upstream from Lovelock, the county seat of Pershing County. Framing the project lands are the West Humboldt and Stillwater ranges to the east and the Trinity and Hot Springs mountains to the west. The

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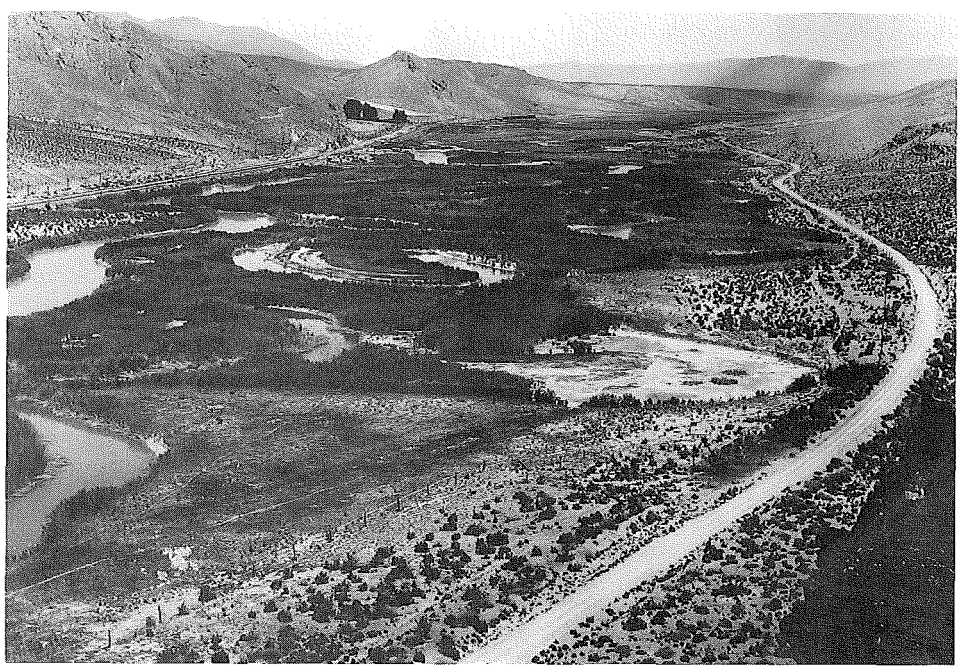
landscape of the lower river valley gently slopes from north to south, but it is almost flat in the lower reaches of the district.

Entirely contained within the borders of the state, the Humboldt River rises in the Ruby Mountains of northeastern Nevada, winding and meandering 280 miles in a southwesterly direction until it is eventually swallowed by the desert. It drains most of the northern third of Nevada with 600 miles of tributaries. Though saline, Lovelock Valley soil along the Humboldt is rich and productive, a spot of fertility surrounded by miles of emptiness. Sediments from the now extinct Lake Lahontan produced this desert anomaly of silt, clay, and highly organic soil. As the area's average annual rainfall is a scant 5.76 inches, every drop of the Humboldt is precious. Temperatures bounce across the spectrum, rarely dropping below −5 degrees Fahrenheit in the winter and topping off at 110 degrees in the summer.[2]

For most of Pershing County's recorded history, mining, not agriculture, brought wayfarers to scramble across its mountains. Miners extracted silver, gold, copper, lead, iron, soda, borax, and gemstones from Pershing County deposits. In the 1850s, newspaper correspondent Twain wrote, "the intestines of our mountains are gorged with precious ore to plethora." Above ground, only drought-tolerant desert shrubs like greasewood, rabbit brush, and wolfberry flourished.[3]



The Humboldt River meanders between Winnemucca and Golconda. (*Nevada Historical Society*)

Far away from their native rain and damp, two of England's more daring sons led the way for settlement of the Humboldt region of Nevada. Although Nevada was part of the Spanish empire, and later of Mexico, neither government had much interest in exploring the "unknown land" on the northern edge of their possessions. Off in search of beaver pelts, Peter Skene Ogden, an employee of the Hudson's Bay Company, was the first European to follow the Humboldt River. In the spring of 1829, Ogden and his party followed the river past the present site of the town of Lovelock to the river's mouth on Humboldt Lake. During the 1840s and 1850s, after three expeditions across Nevada, the adventurer John Frémont named the river after Baron Alexander von Humboldt, the German explorer and ecologist, who probably never heard of the river bearing his name. In Ogden and Frémont's wake, a small parade of mountain men, emigrants, and later gold prospectors en route to California followed the banks of the river in succeeding years. Sojourners and their animals could drink the often brackish water and feed on the plants near the riverbanks.[4]

In 1862, a determined few settlers stayed and dug the valley's first irrigation ditches. At this point, the second British subject important to the development of the valley came on the scene: During the mid-1860s, George Lovelock operated a stage stop that was the lower valley's single connection to the outside world. By 1868, Lovelock had transferred eighty-five acres of his land to the Central Pacific Railroad on the condition that the recently built railroad station be named after him. In Nevada's wide-open early days, plaguing most communities were rowdy prospectors, gamblers, and desperadoes. The town of Lovelock was spared because it was one small point on the Central Pacific line, and local miners spent most of their time in the camps sprinkled throughout the surrounding hills. One of a handful of northwestern Nevada's rail stops, the adolescent community was "smelling of new-cut lumber, sunbeaten, virile and young." In 1880, the town consisted of a Central Pacific station, four stores, three hotels, the post office, and two saloons—for only sixty people. In the surrounding valley, almost four hundred people lived on farms and ranches, raising fifteen hundred tons of grain annually and six thousand head of cattle. Thirty years after the first ditch digging, about 75 percent of the water rights in the valley had been established.[5]

Demands on the Humboldt River grew as the population increased between the 1880s and 1920s. Alternating years of flood and drought hampered farmers, and water allotments put strains on relations between neighbors. In 1884, during a flood season, the backed-up water behind Oneida dam, an earthen bulwark across the lower Humboldt, spilled into the valley, destroying acres of alfalfa fields. Farmers and ranchers donned masks and dynamited the dam to reclaim the flooded land. Another flood-control works consisted of a low dike along the last twelve miles of the river's west bank above Humboldt Lake. The upper eight miles of the dike were completed before 1906, and the lower four miles were finished in 1915. At the turn of the century, after a decade of per-

Lovelock in the 1890s. (*Nevada Historical Society*)

sonality clashes and economic setbacks, more than fourteen thousand acres were under irrigation in the valley, with most of the land producing alfalfa. In 1902, officials of the new United States Reclamation Service (USRS) had informed settlers of Lake Tahoe, the Carson and Truckee river valleys, the Carson and Humboldt sinks, and the Lovelock Valley that they would soon benefit from a mammoth 400,000-acre water project. After further study, however, officials found they had overestimated the output of the Humboldt and underestimated the amount needed to irrigate the vast amounts of desert acreage. As eventually completed, the Truckee-Carson Project (later renamed the Newlands Project) would service Reno, Fallon, and Carson City, but the lower Humboldt region was not included.[6]

In 1911, the Humboldt-Lovelock Power and Irrigation Company (HLPIC) developed the first successful local attempt to create a storage facility for regional use. The firm filed an application with the state for 57,000 acre/feet of Humboldt floodwater. Two years later, HLPIC built two adjacent, shallow off-stream reservoirs, Pitt and Taylor, at the head of the river. Designed to hold 49,000 acre-feet, Pitt-Taylor now safely stores 35,000 acre/feet. Reserves in Pitt-Taylor are limited because of evaporation and the river's high alkali content.

The hope represented by the completion of Pitt-Taylor soon melted into despair as the uncertainties of the ranching and mining economies continued into the twentieth century. But in spite of sagging prospects, people continued to

make their way to the valley, and more inhabitants created a demand for a new county government. In 1919, the southwestern part of Humboldt County broke away to form the new county of Pershing, named after General John J. "Black Jack" Pershing, leader of the United States Army in France during World War I. That same year, the USRS undertook a preliminary investigation of reservoir sites and studied the Humboldt river run-off.[7]

While the government investigated and surveyed, local concern over water control led to the creation of a few privately built storage reservoirs and drains for use in wet years. In the period from 1909 to 1924, as many as eight applications, filed by both groups and individuals, sought permission to build storage reservoirs on various creeks tributary to the Humboldt. The reservoirs could be filled only during years of very high water in their own particular streams. In 1915, a system of open drains totaling thirty miles in length covered the lower valley. Many of these drains were later abandoned during the drought cycle of the 1920s and 1930s. There are now ninety-two miles of open drains on the project, thanks to the efforts of local, state, and private groups. Although these drains offer some relief from the occasional torrents that strike the area, the project has always needed more.[8]

Bringing some semblance of organization to the efforts, the Lovelock Irrigation District was formed as part of the Nevada Irrigation District Act of March 20, 1926. After its creation, the Lovelock Irrigation District developed plans for a storage reservoir at Oreana, fourteen miles above the town of Lovelock. After spending $100,000 for engineering and legal services, the district abandoned its plans. On February 4, 1929, the district changed its name to the Pershing County Water Conservation District (PCWCD).[9]

More precious in the desert than gold, water was the focus of much state government debate and figured in many Nevada court decisions during the first third of the century. In 1903, water users on the upper and lower Humboldt took their claims to the newly formed Nevada State Engineer's Office. At the center of this fight was a capricious stream that could be bountiful or stingy without warning. In 1907, the river generously gave 522,609 acre/feet to local farmers and ranchers. In the drought year of 1920, it produced only 7,350 acre/feet. Thirty years of hearings and court appearances produced the Bartlett Decree in 1930, named for its author, Nevada's Sixth Judicial District Court Judge George A. Bartlett. Bartlett, later supported by the Nevada Supreme Court, ruled that those who had prior appropriation of the river's water held rights to use it in any way they saw fit. The generation succeeding the Big Meadows pioneers were vindicated; they had fought the hardest for control of the Humboldt and could now determine its use.[10]

Growth during the 1920s was unhurried. In 1928, besides its population of fifteen hundred people, the town of Lovelock held three hotels, a county court house, a handful of agriculturally oriented businesses, a grammar and high school, and two banks with combined deposits of $900,000. The town's role as

innkeeper for northwest Nevada was reflected in the three hotels, "which cater not only to local needs but also to a very considerable automobile tourist trade."[11]

Except for the wet year of 1932, a drought lingered from 1928 to 1935. The desert's attempt to reclaim its territory had many farmers operating at heavy losses during those years. By 1934, the added burden of the depression had forced many growers into foreclosure. Owners abandoned their farms to the county for tax delinquencies. At one point ranchers in northern and western Nevada demanded that the governor send in the state police to parcel out water from the Humboldt. In 1934 there were 32,048 acres of land under irrigation in the Lovelock Valley.[12]

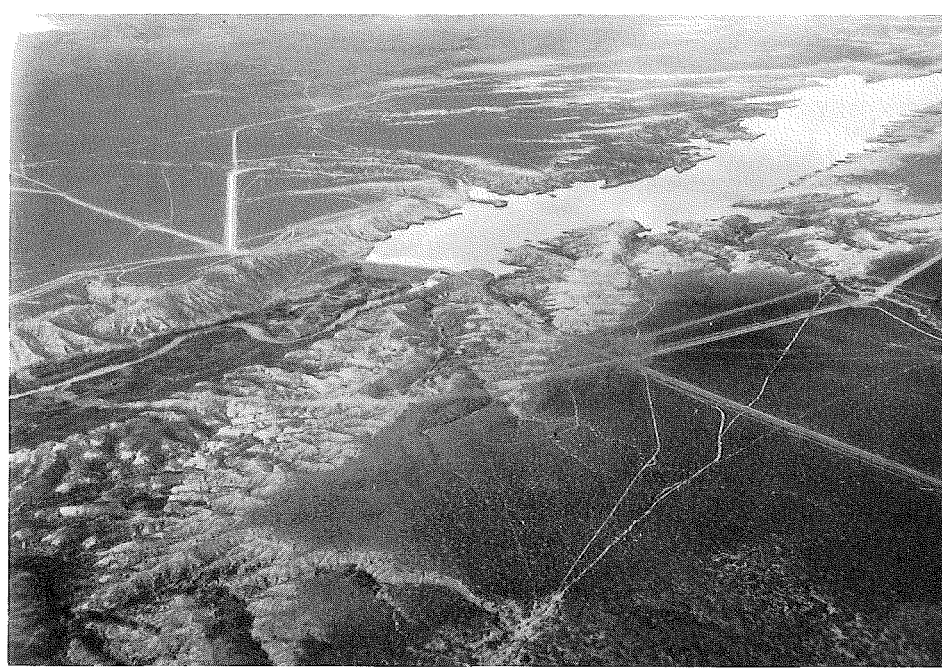
In July 1933, preliminary investigations conducted by Bureau of Reclamation engineer L. J. Foster concluded that the Lovelock Valley needed more water storage facilities to regulate the Humboldt. Two sites were in the running for proposed dams: Callahan, some thirty miles north of Lovelock, and Rye Patch. Engineers favored Callahan because of its potentially greater storage capacity and its accessibility to the existing Pitt-Taylor reservoirs. Inability to reach a working agreement with the landowners near Pitt-Taylor, however, resulted in selection of the Rye Patch site. It was now time for the federal government to bring the plan to life.[13]

Funding for Rye Patch Dam came via the National Industrial Recovery Act of June 16, 1933, part of President Franklin D. Roosevelt's New Deal. On August 24, 1933, the Public Works Administration (PWA) approved an allotment of $2 million for construction of the Humboldt Project, and funds became available less than two weeks later. Through subsequent revisions the $2 million was eventually reduced to $1,210,000. On October 1, 1934, a contract between the federal government and the PCWCD provided for repayment of expenditures made by the government during construction. President Roosevelt approved the project on November 6, 1934, and on November 12, the Bureau of Reclamation opened twenty-one bids in the town of Lovelock. The low bidder, J. A. Terteling and Sons of Boise, won the contract at $256,322.80; subsequent increases in the estimate due to redesign of the dam hiked the bid to $302,615. The contract required that Terteling and Sons complete the job within four hundred days, calculated from December 27, 1934. A Bureau of Reclamation engineer later wrote in the 1936 *Project History* that the bid was too low and cost the contractor about $60,000.[14]

Rye Patch Dam, Hyrum Dam in Utah, and Agency Valley Dam in Oregon were similar federal projects aiding agriculture in sparsely populated western farmlands. According to Reclamation Commissioner John C. Page, the bureau's decision to build in a vast area whose population was small was based on numbers—not on numbers of people, but on the enormous number of acres in need of water. Couched in an illustration easterners could understand, Page's rationalization declared: "Nevada has about 71,000,000 acres of land, yet only

487,000 acres are irrigated in the State, and without irrigation none of it can be farmed. It is as though in all New England with New York State added, no agricultural land could be found except in Rhode Island, and only half of Rhode Island could be farmed." The job of bringing that acreage under irrigation began on January 31, 1935.[15]

More than a half century after its completion, Rye Patch Dam blends with its surroundings. Only the cement arches of the spillway gate on the dam's left side detract from the natural setting. The dam's design has three major structural features, embankment, outlet, and spillway. The reservoir, twenty-one miles long, runs from Rye Patch Dam north to the Callahan Bridge, near the town of Imlay. The finished earthfill, a rock-faced structure, stands seventy-one feet high, and its crest is eight hundred feet long. The 10,820-acre lake holds 190,000 acre/feet of water. The outlet works can release a thousand cubic feet per second (cfs) and its spillways can discharge twenty thousand cfs. Rye Patch Dam's foundation is a mixture of clay, sand, and fine gravel. Exactly 322,900 cubic yards of compacted earthfill covered by 9,800 cubic yards of gravel and 36,200 cubic yards of rockfill and riprap form the Rye Patch Dam. While these figures are impressive for a dam across a river as phlegmatic as the Humboldt, the more pivotal figures for those involved in Rye Patch were how many people could find jobs and how much hope could be squeezed out of a paycheck or a harvest. In the eyes of the New Deal, Rye Patch Dam was a people's project, and laborers of all types profited from its development.[16]



Rye Patch Dam and Reservoir. (*Nevada Historical Society*)

Enrollees in the Emergency Conservation Work (ECW) program did many essential jobs toward completion of the project. The ECW was a New Deal program established in 1933, and in 1937 was officially named the Civilian Conservation Corps. The ECW offered unemployed young men an opportunity to fight dust storms, restock streams, and save forests for wages of a dollar a day plus room and board. Located on the northern outskirts of town, Camp Lovelock was home for almost two hundred ECW volunteers between the ages of seventeen and twenty-four. Federal funds, through the ECW, and donations from local water users paid for the work done by the ECW laborers.[17]

Recruits installed a telephone line, upgraded a road around the reservoir to replace the public roads submerged by the construction, built a bridge, and hauled a thousand cubic yards of riprap and gravel for use in the dam and spillway. The most important task of the "soil soldiers" was maintenance and improvement of rotted wooden water-control structures, unsafe bridges, and ditches obstructed by weeds and willows. In addition, they cleared brush from around the dam and over most of the reservoir bottom. The combination of a seven-year drought and the depression had rendered almost all lower Humboldt water users incapable of paying for upkeep and repairs. Both workers and farm families benefited as the ECW built forty-two concrete diversion works, seven metal flumes, and twelve timber bridges to replace badly deteriorated structures. At completion, a bureau engineer commended the ECW's contribution to a dam with a "simplicity and dignity of design, appropriate choice of material, permanence, utility, carefulness of detail, accuracy of alignment, and honesty of workmanship." Their work stood as "a monument that will long remain a worthy record of cooperative public achievement reflecting credit on its builders." The ECW camp officially closed in September 1938.[18]

The contractor's camp was a half mile east of the dam site on the rim of a canyon overlooking the river. Access to the construction site was by a road 1.25 miles long and a railroad that reached from the Victory Highway (U.S. Route 40, or now Interstate 80). Twenty bunkhouses, each housing four men in a fifteen-by-fifteen area, took up most of the space on the camp site, which also included two warehouses, a cook house, a blacksmith forge, and a machine shop. A small open shower operated in the summer only. On March 16, 1936, the only major accident during construction occurred, the result of a fire that destroyed the machine shop.[19]

The government's inability to provide steel-sheet piling to the contractor at the scheduled time for foundation work was responsible for the project's longest delay. After a ninety-one day wait, both sides agreed to add the extra time to the contract schedule. Some engineers from the bureau groused about the "second-hand stuff" passing for Terteling and Sons equipment and causing breakdowns that added to the slow pace of construction, but the job met its timetable, and the dam and reservoir emerged in sturdy condition.[20]

Contract wages during the depths of the depression were good—for the lucky

few who had jobs. The highest number of men employed by Terteling and Sons was 171 in November 1935. The maximum wage for skilled labor was $1.10 an hour. The minimum for unskilled labor was originally 45 cents an hour, but, in the fall of 1935, the contractor boosted the unskilled minimum to 62.5 cents an hour for the duration of the project in order to meet the state of Nevada's minimum-wage scale. Except for those in management jobs, no one on the project worked more than eight hours a day or more than forty hours a week. From February 1935 to May 1936, a total of 264,985 man-hours went into the Rye Patch Dam.[21]

The earthfill in the dam was spread in layers eight inches thick along a horizontal plane. Embankment materials did not take water, and the sprinkling method used on earthfill dams in more hospitable locations did not help to compact the material in the dry conditions. Engineers developed an injector application to supply enough moisture to allow the earthfill to settle. After injection, the embankment was kneaded and compacted by tractors and a sheep-foot roller. The machines made forty-six passes across the surface to get the material to pack down. A boulder field two miles southeast of the dam furnished the dam's fill and riprap. Crews operated two steam shovels among the boulders, one to load rock and the other to excavate and run the rock over a grizzly (a screen used for separation of ore, gravel, or soil) to remove waste materials.[22]

A trash rack covers the outlet entrance that leads into a concrete-lined circular tunnel, 12 feet in diameter, that runs for 472 feet; at its end, two sets of high-pressure slide gates control flow into two steel discharge pipes. A gate chamber and a control house, connected by a section of the tunnel, are used for inspecting and operating the gates. Maximum capacity is 2,700 cfs, and discharge is into the spillway stilling basin. The gate section, chute, and stilling basin are made of reinforced concrete. The spillway's width is 110 feet, its length 353 feet, and its full capacity 20,000 cfs. Discharging the flow into the spillway are five steel radial gates, 17 feet high by 20 feet wide. Hoists lift the gates on the operating platform. A 30-foot-wide roadway spans the top of the spillway arches.[23]

In the summer of 1936, Acting Reclamation Commissioner John C. Page candidly praised the Rye Patch project. Rye Patch and its sister dams in Oregon and Utah were "not large and their construction was not dramatic," but "vital to the people of the projects they serve and the States in which they are located." The final cost of $1,341,739 was the price of bringing service and stability of the Lovelock Valley.[24]

Once Rye Patch went into service, many upstream settlers were jealous. Soon after the reservoir gathered its first drops of water, people on the upper Humboldt wanted to share. Some north of the Lovelock Valley attempted to secure better priorities than provided by the Bartlett Decree. From 1937 to 1941, lawsuits and threats of lawsuits reverberated through the valley and involved the Pershing County Water Conservation District, Humboldt-Lovelock Power and

Irrigation, and local landowners. In June 1941, after months of negotiations, state and federal agencies and private parties adopted a treaty and compact settling disagreements, withdrawing litigation, and re-establishing the authority of the Nevada state engineer to supervise distribution of the Humboldt's waters. In 1941, after the PCWCD assumed responsibility for operation, the reservoir delivered its first stored water. Two years later, a repayment contract with a thirty-six-year term between the PCWCD and the federal government commenced.[25]

In attempting to bring the Humboldt River's scattered collection works under one umbrella, local and federal agencies purchased land and water rights across northern Nevada. On January 21, 1939, government forces completed construction of minor works near Battle Mountain, 125 miles east of Rye Patch Dam; these works were collectively known as the Battle Mountain Water Collection and Development System. Rights to 1,925 acre-feet of Rye Patch Reservoir water were transferred to Battle Mountain users. Physical transfer of purchased water from Battle Mountain to project lands required the straightening of twenty-seven miles of river channel, widening of three miles of channel, construction of nine miles of levees, and removal of eleven diversion dams.

In 1945, the PCWCD purchased the water rights in the Pitt-Taylor Reservoir so as to add its 35,000 acre-feet capacity to that of the Rye Patch Reservoir. Pitt-Taylor Reservoir provides supplemental storage only in years when Rye Patch Reservoir is full. A mid-1950s rehabilitation-and-betterment contract provided for repair of original levees and construction of the Iron Point Relief Channel, some eighty miles from the project. Simultaneously, the Bureau of Reclamation completed channel clearance, straightening, and reconstruction of the Upper Slaven Diversion Dam, nearly 130 miles east of the valley. On October 6, 1955, the PCWCD signed a contract with the government for rehabilitation and betterment of works in Battle Mountain. The bureau purchased two ranches comprising 30,065 acres and the water rights of five other ranches, totaling 47,742 acre/feet. The PCWCD owed $122,988 to the federal government, which was paid in twenty installments between 1957 and 1978.[26]

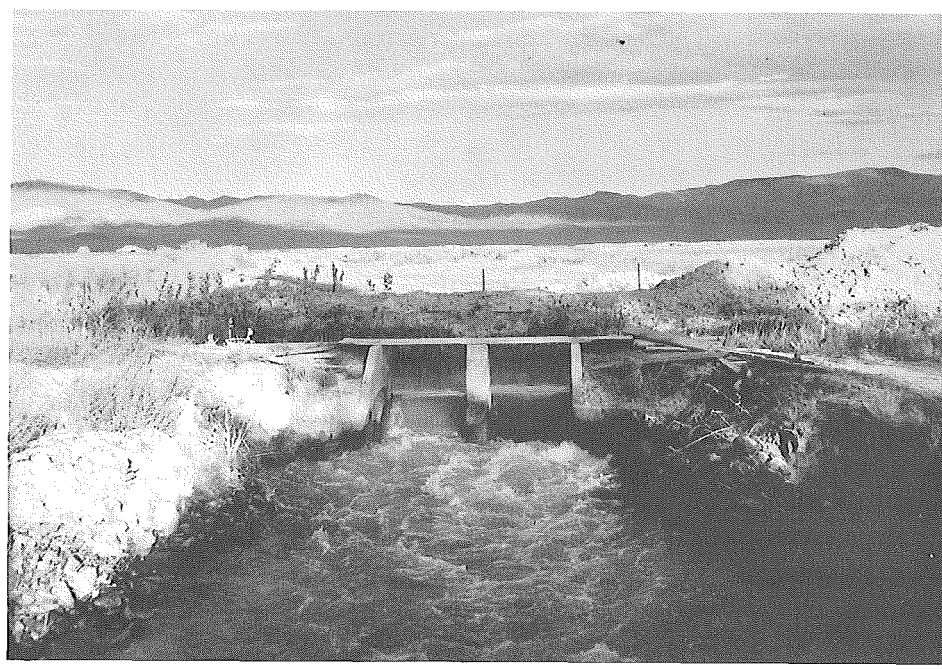
For years after completion of the Rye Patch Dam there continued resentment over water rights on the Humboldt. On the upper Humboldt, two dry years in succession means major crop losses. A big flood strikes once in a decade, and periods of low flow happen in two or three years out of ten. In 1963, the then director of the Nevada Department of Natural Resources, Hugh A. Shamberger, admitted that, while the Humboldt Project was a "very effective water resource development," its planning did not "include basin-wide consideration of the overall problem of relating the basin's water supply to the total land resources of the basin."[27]

In 1971, the PCWCD sought to enlarge Rye Patch Dam and Reservoir and turned to the federal government for help. The decision to enlarge the Rye Patch works coincided with another capricious weather cycle. In 1975, winter and

spring rains resulted in run-off of 390,000 acre/feet, 2.5 times higher than normal. The following spring, run-off was 134,000 acre/feet, 10 percent below average. During 1975–76, construction enlarged Rye Patch Dam to a height of 78 feet with a crest 1,074 feet long. These improvements raised the dam's height by 3 feet and lifted normal water-surface elevation by 2 feet. The reservoir's storage capacity gained an additional 23,000 acre/feet for a total of 213,000 acre/feet. The expansion cost the district $287,210.[28]

An additional feature of the Humboldt Project is the system of irrigation distribution works built before the arrival of the Bureau of Reclamation. They include six canals (Young, Union, Rodgers, Big Five, Irish American, and Pitt-Taylor Diversion) and five ditches (Old Channel, B&B, Lakeshore, Tule, and Seven) constructed, owned, and maintained by independent companies not incorporated into the project. The PCWCD operates and maintains most of these private distribution systems under separate agreements with each ditch company.[29]

In 1940, the Pershing County Chamber of Commerce promoted rural growth with a free advertising campaign and a listing service to help farmers sell their lands. Trying to stimulate investment in Lovelock Valley, the chamber sent mimeographed forms to Nevada farmers describing the value of valley property. The bureau's magazine, *The Reclamation Era,* also provided space for anyone wishing to advertise their land for sale. That year, the town's population numbered 1,375.[30]



An irrigation lock and ditch in the Lovelock Valley. (*Nevada Historical Society*)

There have been a few half-hearted attempts to attract newcomers since the 1940s, but Pershing County remains sparsely populated at the close of the twentieth century. For almost a hundred years, this north-northwest region has comprised 20 percent of Nevada's land area, but holds only 2 percent of the state's population. According to the 1990 census, 4,336 people reside in the county, with 2,069 living in the town of Lovelock. Nevada's total population is 1.2 million; in comparison, Pershing County remains the "unknown land" to the rest of the state. The grandchildren and great-grandchildren of the original settlers still live in the area, a continuity reflected in the ethnic homogeneity of Pershing County. Its 1990 population was 79.1 percent white, with Hispanics as the next largest group, at 15.3 percent. Median age is a youthful 31.7 years.[31]

In the late 1980s and early 1990s, the region rode the renaissance of another gold-rush boom cycle. The town and valley had been diversifying the local economy through agriculture, mining, and earth processing. Still, the fluctuating nature of these sectors meant that the valley suffered more when bad times came than did the rest of Nevada. The late-1980s gold rush, in a nearby three-county area (Lander, Humboldt, and Elko), has become the richest in American history, as Nevada produced more than half the nation's gold, valued at $1.5 billion in 1987. The ripple effect from the excitement in this corner of the state stimulated plans to lure industry to the town of Lovelock. Boosters promoted the valley's proximity to Reno, ninety miles away, and its railroad and interstate connections to the metropolises of the West Coast. Money brought by tourists

Downtown Lovelock in the late 1920s. (*Nevada Historical Society*)

retracing the steps of the Donner Party, or wishing to relive Nevada's silver rush, often finds its way into Lovelock's shops, motels, and restaurants. But Lovelock's reputation as a place to go only on the way to someplace else continues.[32]

Before the Rye Patch Dam, the valley's agricultural production consisted mainly of hay sales to California dairymen, dressed turkeys shipped to Pacific coast markets, and local and mining-camp demands for dairy products, poultry, and finished livestock. In 1934, a year before construction, the alfalfa crop provided 5,000 tons. After damming the Humboldt, local farmers, buoyed by their perceived command of the river and a sense of experimentation, branched out to introduce new crops to the valley. In the late 1930s, water-hungry corn stalks first shot out of the ground, and the 1938 harvest of 500 acres of sugar beets was hailed as a "new and fairly successful experiment." A contract with Spreckles Sugar Company of California anticipated a long marriage between the sugar company and the growers. Planters' confidence increased the beet acreage the following year to 1,549. In 1938–39, most of the valley's 17,504 tons of beets traveled approximately 250 miles from the town of Lovelock to the Spreckles beet processing mill at Woodland, California. But in 1940, the dream died quickly as a total crop failure due to insects and vegetable mosaic wiped out the beet acreage. Only a few acres were raised the following year, as cattle feed. As of 1990, no beets grew on the Humboldt Project.[33]

Since 1936, principal project crops have been alfalfa, wheat, hay, oats, and barley, grown on a total acreage of 39,623. In 1936, cultivation of 10,000 acres provided 45,000 tons of alfalfa, and an additional 4,000 acres of grain averaged around 40 bushels per acre. In 1990, the harvest was 61,285 tons on 12,257 acres. In the same year, the total value of crops grown on Humboldt project lands was $10.1 million. Despite the increase of crop value over the forty-year period, the trend has been toward larger farms and fewer farm families. In 1941, eighty farms provided a home and a living for 1,000 people. Twenty-five large-scale farms, mainly operated by tenants or managers, averaged a thousand acres and covered 75 percent of the project's irrigable area. Independent owner-operators tilled the remaining 25 percent of farmland, managing an average of 160 acres. Humboldt farmers worked twenty-five days a month, ten hours a day, with most of the chores completed without any hired help. Almost fifty years later, in 1990, the project is home to ninety-two full-time farms managed by 250 people. The trend does not seriously trouble the valley where the tractor allegedly made its first appearance in Nevada, but it does mirror a situation faced by all of rural America.[34]

The livestock industry is a vital element in the northern Nevada economy, lifestyle, and legend. At the turn of the century, Pacific coast stockmen and upper Humboldt ranchers sent cattle and sheep into Lovelock Valley for pasture and feeding. In 1908, a hundred thousand head of livestock roamed the valley. The Lovelock town feedlot provided the material necessary for the creation of a

fertilizer factory. In 1928, farmers received $1.50 per ton of manure. Locals claimed a ton of manure sold for each ton of alfalfa fed to stock. Drought and depression decreased the valley's cattle to five thousand head in 1934. A turnaround happened two years later, and eleven thousand cattle and twelve thousand sheep ate grass watered from the Rye Patch Dam. Poultry was also important, as fifty thousand pounds of turkey were marketed in the late 1930s. Hungry livestock herds on the upper Humboldt Basin and in the Central Valley of California have created the two largest markets for Lovelock Valley alfalfa. Nearly a third of the project's alfalfa is sold to California markets for processing. Local processing facilities include alfalfa mills and grain elevators. Ranchers and farmers ship their products via the Southern Pacific Railroad and by truck down Interstate 80 and U.S. Route 95.[35]

Seizing the narrowest of opportunities and taking advantage of unique circumstances are the threads that run throughout the Humboldt story. It began with a patch of green encircled by desert and a trickle of water called a river by explorers and settlers. The pioneers wrenched every drop from the river and gathered what they could grow from the land. The persistence and ingenuity of the lower Humboldt settlers resulted in a protracted water-rights battle that eventually paid off for their descendants. The Bureau of Reclamation's decision to build Rye Patch Dam was as much a testimony to one group's efforts as it was a desperately needed make-work depression-era project. In 1991, historian James Hulse wrote that the Humboldt is a "very small river by national standards," but "it has had an importance far beyond its size." For 150 years, the lives, struggles, and small victories of the inhabitants of the Lovelock Valley have confirmed that statement.[36]

Notes

[1]Mark Twain, *Roughing It* (New York: Harper and Brothers, 1913), 194; Frank deSaussure, "Rivers to Nowhere," *Westways* (December 1967), 5. *Roughing It* is a fanciful recollection of Twain's newspaper and traveling days in the American West of the 1860s.

[2]U.S. Department of Interior, Bureau of Reclamation, *Annual Project History, Humboldt Project* (cited hereafter as *Annual Project History*), vol. 6 (1960), 1; F. M. Spencer, "Water Users Assume Operation and Maintenance," *The Reclamation Era* (March 1941), 81.

[3]James C. Bard, Colin I. Busby, and John M. Findlay, *A Cultural Resources Overview of the Carson and Humboldt Sinks, Nevada* (Carson City: Bureau of Land Management, 1981), 6–7; Twain, *Roughing It*, 186.

[4]Bard, Busby, and Findlay, *Cultural Resources Overview*, 13, 16.

[5]James W. Hulse, *The Silver State: Nevada's Heritage Reinterpreted* (Reno: University of Nevada Press, 1991), 122; Dale Lowell Morgan, *The Humboldt, Highroad of the West* (New York: Farrar and Rinehart, 1943), 305; Bard, Busby, and Findlay, *Cultural Resources Overview*, 33; *Annual Project History*, vol. 1 (1934–36), 140. The Southern Pacific Railroad bought out the Central Pacific in 1899.

[6]Bard, Busby, and Findlay, *Cultural Resources Overview*, 33, 48, 57; Hulse, *The Silver State*, 122; David Thompson, *Nevada: A History of Changes* (Reno: The Grace Dangberg Foundation, 1986), 156; U.S. Department of Interior, Bureau of Reclamation, *Final Report on Design and Construction of Rye Patch Dam and Reservoir—Humboldt Project—Nevada* (Denver: Bureau of Reclamation, 1938), 2.

[7]*Annual Project History*, vol. 13 (1979–80), 1.

[8]U.S. Department of Interior, Bureau of Reclamation, *Final Report on Design and Construction of Rye Patch Dam*, 2; *Lovelock Irrigation District* (J. G. White Engineering Corp., 10 July 1928), 5.

[9]U.S. Department of Interior, Bureau of Reclamation, *Humboldt Project, Nevada* (Salt Lake City, December 1952), 3.

[10]Hulse, *The Silver State*, 233; *Annual Project History*, vol. 2 (1937–40 [1937]), 28.

[11]*Lovelock Irrigation District*, 1–2.

[12]*Annual Project History*, vol. 1 (1934–36), 6, 24, 138; Donald J. Pisani, "Western Nevada's Water Crisis, 1915–1935," *Nevada Historical Society Quarterly* (Spring 1979), 3.

[13]"Rye Patch Dam Completed," *The Reclamation Era* (July 1936), 174; Alfred Merritt Smith, *Geological Report on Four Proposed Damsites for Storage Reservoirs on the Humboldt River, Nevada* (Reno: State of Nevada, Bureau of Mines, 1933), 8–10. The Nevada mining engineer prepared the geological report.

[14]L. J. Foster, "Construction of Rye Patch Dam," *The Reclamation Era* (July 1937), 152; *Annual Project History*, vol. 1 (1934–36), 44.

[15]"Rye Patch Dam Completed," 174; U.S. Department of Interior, Bureau of Reclamation, *Repayment of Reclamation Projects* (Washington, D.C.: U.S. Government Printing Office, 1972), 177.

[16]Foster, "Construction of Rye Patch Dam," 154–55.

[17]*Annual Project History*, vol. 1 (1934–36), 134; Thomas Williamson, "CCC Construction of Parapet and Curb Walls, Rye Patch Dam, Humboldt Project, Nevada," *The Reclamation Era* (January 1939), 16; Alfred R. Golzé, "Operation and Maintenance of CCC Equipment on Reclamation Projects—Its Relation to National Defense," *The Reclamation Era* (April 1941), 118. Golzé was supervising engineer of the CCC.

[18]*Annual Project History*, vol. 1 (1934–36), 120, 134–35; Williamson, "CCC Construction of Parapet and Curb Walls," 16.

[19]*Annual Project History*, vol. 1 (1934–36), 115, 117.

[20]Foster, "Construction of Rye Patch Dam," 152; *Annual Project History*, vol. 1 (1934–36), 113.

[21]*Annual Project History*, vol. 1 (1934–36), 117; U.S. Department of Interior, Bureau of Reclamation, *Final Report on Design and Construction of Rye Patch Dam*, 23.

[22]*Annual Project History*, vol. 13 (1979–80), 1; *Annual Project History*, vol. 1 (1934–36), 8–9, 45; Foster, "Construction of Rye Patch Dam," 154–55.

[23]*Annual Project History*, vol. 1 (1934–36), 9.

[24]"Rye Patch Dam Completed," 174.

[25]*Annual Project History*, vol. 13 (1979–80), 1; *Annual Project History*, vol. 2 (1937–40 [1937]), 27; [1940], 16, 25–6.

[26]*Annual Project History*, vol. 13 (1979–80), 1; U.S. Department of Interior, Bureau of Reclamation, *Repayment of Reclamation Projects*, 177.

[27]Hugh A. Shamberger, "Water Management and River Basin Planning," 110–11. Paper delivered at Water Resource Management Committee Symposium (Carson City, 26, August 1963), Bureau of Reclamation Library, Denver.

[28]*Annual Project History*, vol. 13 (1975–76 [1976]), 13, 16.

[29]*Annual Project History*, vol. 13 (1979–80), 1.

[30]*Annual Project History*, vol. 2 (1937–40 [1940]), 51; U.S. Department of Interior, Bureau of Reclamation, *Crop Report and Related Data; Federal Reclamation Projects, 1939–43*, vol. 1 (1941), 1.

[31]U.S. Department of Commerce, Bureau of Census, *1990 Census of Population and Housing, Mountain Division, Nevada* (Washington, D.C.: 1991), vol. 1, Summary Tape File 1A.

[32]Hulse, *The Silver State*, 328–30.

[33]*Annual Project History*, vol. 1 (1934–36), 140; *Annual Project History*, vol. 2 (1937–40 [1938]), 2; [1939] 31, 36; [1940] 56, 91.

[34]U.S. Department of Interior, Bureau of Reclamation, *Crop Report and Related Data*, vol. 1 (1941), 1; U.S. Department of Interior, Bureau of Reclamation, *1990 Summary Statistics: Water, Land, and Related Data* (Denver: Bureau of Reclamation, 1990), 173; *Annual Project History*, vol. 1 (1934–36), 129; U.S. Department of Interior, Bureau of Reclamation, *Humboldt Project, Nevada*, 7, 19. Approximately 1,700 acres of project land are not in agricultural use.

[35]*Annual Project History*, vol. 13 (1979–80), 1; *Annual Project History*, vol. 1 (1934–36), 132; *Lovelock Irrigation District*, 25.

[36]Hulse, *The Silver State*, 13.

FORESTS AND WATER SUPPLY
Robert L. Fulton, Science, and U.S. Forest Policies

William D. Rowley

By the end of the last century questions of how best to utilize and conserve the resources of the West pressed upon experts and laymen alike. Those resources included the land itself, water, timber, forage, minerals, even wildlife, as well as the breathtaking beauty of the western landscape. During the mining depression of the 1890s, some Nevadans wanted a prosperous irrigated agricultural society to replace the defunct mining economy. As early as 1877—with the first indications of the impending failure of the Comstock Lode in that year—Robert L. Fulton, Land Agent for the Southern Pacific Railroad Land Company, a subsidiary of the Central Pacific Railroad, became associated with an early and ambitious irrigation plan to bring water from Prosser Creek near Truckee to Dog Valley and then to the valleys north of Reno. Many such plans, with their crucial problem, bringing water to the land, challenged the ingenuity and organizational abilities of western Nevadans well into the twentieth century.[1]

As a Renoite from 1874 until his death in 1920, Robert Fulton touted the resources of Nevada, advocated colonization by agricultural settlers, urged the railroad to promote Nevada settlement and the sale of its lands, and finally sought every means to bring water to the land. He joined forces with Francis G. Newlands in the early 1890s to help the new arrival from California to purchase prime reservoir sites in the promotion of irrigation in Washoe and Douglas Counties. He also participated in the Newlands-backed State Board of Trade. Of Fulton, James G. Scrugham's *History of Nevada* notes in a biographical sketch:

> He made himself an authority on the lands of the Great Basin district, soil, climate, irrigation, methods of cultivation, and in fact he neglected no subjects which had a bearing on the successful utilization of the lands controlled by the railroad as well as those of the state in general. With an immense fund of scientific and practical knowledge at his command, he conveyed this information to the public through the publicity department of the railroad. For a number of years he also owned the leading Republican

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newspaper at Reno, the *Gazette,* and used its columns also for the advertisement of Nevada's agricultural and other natural resources.[2]

His writings on Nevada appeared not only in the local press, but in San Francisco publications and in national periodicals such as *The Irrigation Age* and even the prestigious publication *Science.* In 1896 he contributed a lengthy piece to *Science* entitled, "How Nature Regulates the Rains." His venture into this sphere with theories about snow, forest, and water runoff for the streams proved to be controversial and touched one of the major disputes then going on in the scientific community concerning the interrelationship, if any, of forests and water supplies for western lands. Fulton declared in the 1896 *Science* article that the destruction of forests, contrary to what earlier generations believed, did not result in the depletion of adjacent streams "and to all consequent evils."

Fulton, of course, wrote from the perspective of the eastern Sierra that had largely been clear cut as a result of the Comstock's tremendous demand for lumber products two and a half decades earlier. He went on to say that, "I endeavor to point out some of the reasons why many close observers, after long years of study have been led to believe that if there is any difference in the flow of streams and the size of springs before and after the trees are cut from above them, the balance is in favor of the open country."[3]

Fulton offered the testimony of many living in the vicinity of the Sierra to the fact that the removal of timber facilitated the run-off of water into the streams. He believed that "the strongest force at work to save our rivers is the drifting winds [drift causing] which heap up the snow in great banks, and in this the trees are a constant obstacle." He noted as a result of the development of the Comstock mines, the eastern slope of the Sierra was cut over for a distance of thirty miles, covering the heads of such streams as Hunter's Creek, White's Canyon, Thomas Creek, Galena, Steamboat and other small rivers, which have furnished water for irrigation since 1860 to the owners of probably twenty thousand acres of land in valleys below. "The consensus of opinion among this class of citizens, intelligent American farmers all of them," wrote Fulton, "is that there is virtually no diminution in the supply of water that reaches them from the hills." Truckee Meadows rancher G. R. Holcomb said that the supply of water was equally certain if not more so and attributed it entirely to the drifting snows that occur more easily without the timber.[4]

Fulton quoted the honorable Ross Lewers of Washoe County who read a paper before the American Horticultural Society in which he said that in Nevada "the water supply from the mountains is greater and more permanent now than it was before the timber was cut off." Continuing to quote Lewers, Fulton stated:

> The reason for this is that the wind has a more unimpeded course, and as all the snow storms come from nearly the same point in the south, the snow is blown over and lodges on the north sides of the ridges where it is piled deep in drifts, and not being exposed directly to the sun's rays it melts very slowly and thus affords a more permanent supply.

Robert L. Fulton. (*Nevada Historical Society*)

Spring floods are less frequent and for the same reason. I do not pretend to decide how much, if any, the presence of trees induce precipitation. They may moisten the air, but the humidity is all taken out of the ground by the roots, and I observe that the undergrowth and grass is more luxuriant since the timber was cut off.[5]

Fulton observed that the wind was crucial in piling snow in great heaps and packing it away in deep crevices. In this work, "the economy of nature is manifested." He explained:

The center of the body will not melt at any time and it requires a very warm day to get at the under side of a snow drift. The grass will be growing all around it before the ground underneath it gets warmed up sufficiently to start a stream from it, but let a tree stick its head up through the first crust and it will go quickly. I have yet to see the first body of perpetual snow lying among the trees. It will hardly do to say that the timber lies below the line of perpetual snow, for there are many banks which only disappear entirely once in ten years or so, when there comes a long dry summer, which have trees growing higher up on the same mountain side.

Despite these derogatory comments on the ability of forests to conserve water, Fulton hastened to say that he did not wish to be seen as favoring the destruction of the forests. He was well aware of the growing popular outcry in the press and in professional journals against the wanton depletion of forest resources in the country by the 1890s. There were even suggestions of a coming "timber famine." He could only say that, "Whatever is proven there will always be abundant reasons for preserving extensive tracts of woodland everywhere that trees will grow, and it is time the matter became one of public concern."[6]

Within the month the pages of *Science* magazine contained a rejoinder to Fulton's assertions. It came from a prestigious source. Barnhard E. Fernow, Chief of the Division of Forestry, U.S. Department of Agriculture, sent a sharp reply under the title, "Pseudo-Science in Meteorology." Fernow saw Fulton's article as an unfortunate attack on "the favorable influence of forest cover on meteorological phenomena and especially on water flow in the western Mountains." Since far-reaching economic policies depended on the answer given to the questions raised by Fulton, Fernow justified giving the subject further attention "in order to warn against the many erroneous observations and fallacious conclusions contained in the article referred to." At this crucial point congress was pondering the future of millions of acres of forest reserve lands set aside by the president under authority granted in the 1891 General Land Revision Act. Congress still had not decided what purposes these government forest lands should serve. Pseudo-scientific observations could serve only to confuse congress and the public on the future status of public forest lands. Fernow charged that Fulton had done harm "by neglecting to sift more carefully the untutored and too-often-prejudiced opinions and notions of so-called 'practical' men. . . ." In doing so Fulton's article discredited observations of laymen as well as scientists.

Fernow denied the validity of the main argument: Trees are mechanical obstructions preventing snow from reaching the ground; transpiration and greater evaporation under trees reduce the available water supplies; hence forests are, as far as water flow is concerned, an evil. He conceded that the argument had been advanced before by others "with a flavor of authority." He dismissed these arguments and said that the winds at high altitudes promote evaporation and said those who take the Fulton position ignore the influence of forest cover on waterflow, namely "as to the manner in which the rivers receive their water."

Surface flow into the rivers is the least important and "means rapid flow, high water stages, alternating with low water, uneven distribution through the years." Subdrainage, which the forests and forest floor promote, means:

> less excessive water stage, more even, steady and persistent flow, for the ground water reaches the river sometimes only several years after it first sank into the soil, and hence equalizes the effects of dry and wet seasons which the surface waters are carried off at once and are responsible for floods, followed by low water. Anything, therefore, that tends to change surface drainage into subdrainage is to be encouraged.

According to Fernow the forests provide this influence. With forest removal, the exposure of soils and damage from fires and sheep herding, all soils become gradually more compact and less penetrable. Then more water flows over the surface and less remains for subdrainage. Ultimately changes appear in the flow of rivers and streams. Although a greater volume of water might flow in the streams and rivers all of this change is deleterious. Clearly Fernow was perturbed that Fulton's opinions received notice in *Science* because he saw them as inaccurate science and also because they might contradict what he saw as "far-reaching economic policies depending in part on the answer which science or well sustained observation and argument can give to the question. . . ."[7]

These "far-reaching economic policies" were exactly what congress was debating as it moved toward the passage of the forest management legislation in 1897. Furthermore the Fulton-Fernow dispute was much more than a disagreement between a practical man and a learned man of science, or between a man who made observations on the basis of hearsay and a collection of local opinions and a man of professional science with a national reputation. Some might perceive it as an embarrassing moment—the presentation of a parochial, local viewpoint on the role of forests in water protection that deserves to be forgotten. More accurately, however, the incident can be seen as part of a larger scientific debate on this question and not simply as a crude local assertion verses a sophisticated scientific position.[8] Fernow, it should be noted, referred to Fulton's views as containing "a flavor of authority." He said this because others in Fernow's own national scientific community, some of them prominent figures, also advanced such views. This no doubt lent a certain amount of additional pique to his criticisms of Fulton's ideas.

As early as the 1870s G. K. Gilbert, a scientist geologist who contributed the chapter "Water Supply" to John Wesley Powell's famous 1878 *Report on the Lands of the Arid Region of the United States,* declared that, "The cutting of trees for lumber and fence material and fuel has further increased the streams. By the removal of foliage, that share of the rain and snow which was formerly caught by it and thence evaporated, is now permitted to reach the ground, and some part of it is contributed to the streams." He believed that the activities of "the white man" (Euro-Americans) promoted a greater percentage of snow to be

John Wesley Powell and Southern Paiutes, 1873. (*J. K. Hillers photograph, Bureau of Ethnology Collection, Smithsonian Institution*)

melted and a less percentage to be evaporated directly. All of this, he said, "follows from the destruction of trees and grass." His conclusion was that, "By reducing the amount of vegetation he gives a freer flow to the water from rain and melting snow and carries a greater percentage of it to streams, while a smaller percentage reaches the air by evaporation from the soil. By the treading of his cattle he diminishes the leakage of the smaller water channels, and conserves the streams that gather there. In all of these ways he increases the outflow of the land. . . ."[9]

These observations backed with scientific authority were made as early as the mid-1870s. They might be categorized with other popular doctrines of the decade that encouraged the advance of the American agricultural empire into the Great Plains and the mountains. Such was the assertion by scientists at the University of Nebraska that "rain follows the flow."[10] Still Gilbert's views should not be dismissed as premature speculations on the relation of timber cutting and grazing to the outflow of water from the land and into the streams and reservoirs. The eminent figure of John Wesley Powell continued to elaborate into the 1890s on the earlier observations of Gilbert. The destruction of

forests either by man or by fire increased run-off and therefore this increased the volume of water in streams and in reservoirs, which should be welcomed by reclamationists. In discussing what he called "The Non-Irrigable Lands of the Arid Region," in an 1890 issue of *The Century Magazine,* Powell noted in reference to the forests that in recent years there had occurred "vast destruction of values, together with the enormous ravishment of beauty." These events, he said, have enlisted for years

> the sympathy of intelligent men. Forestry organizations have been formed; conventions have been held; publicists have discussed that subject; and there is a universal sentiment in the West, and a growing opinion in the East, that measures should be taken by the General Government for the protection of the forests.

Though he found this subject of profound interest, he also noted that "sometimes factitious reasons are given which detract from the argument for the preservation of the woods."[11]

Powell found the preservation of the forests in the arid regions a many-sided question. It could not be reduced to the simple formula of "Save the Forests Store the Floods" later proclaimed after the turn of the century by *Forestry and Irrigation* magazine. Forests like all vegetation live on water. Plant life drinks up the water and the leaves return all that is unused to the air "where it may float away to form clouds in other regions." Powell estimated that perhaps 40 percent of the rainfall of a region is dissipated in this manner. The consequences for the streams are not important in a humid region, but when streams have a value that increases by their volume, as in an arid region, the results are noteworthy.

Powell asserted that, "Researches on this subject made in the Wasatch Mountains and elsewhere by scientific men show that a great increase in the volume of the streams may accrue from the denudation of the mountains of their evergreen garments." Those looking to increase the water flow from the land and into the streams and to fill the reservoirs should not be so quick to advocate the blanket protection of the forests. Furthermore when mountain declivities are grassy slopes,

> the snows of winter drift behind ledges and cliffs and into great banks among the rocks, and they fill ravines and canons, and are thus stored in compact bodies until they are melted by the summer suns and rains. But when forests stand on the slopes the snows are spread in comparatively thin sheets, and great surfaces of evaporation are presented to the sun and the wind.

Powell concluded that, "For all these reasons the forests of the upper regions are not advantageous to the people of the valleys, who depend on the streams for the fertilization of the farms." Both Fulton, the untutored Nevada publicist, and Powell, the noted scientist, stand together in their theorizing on forests and water supplies.

Perhaps Powell's conclusions reflected his admiration for the success of Mormon settlement, community control, and exploitation of resources that had occurred in Utah. It also reflected Powell the engineer who had a greater trust in man-made reservoirs than the natural reservoir created by forest influences which he deprecated for the purpose of storing water. Powell did acknowledge in his critique of "forest protectors" that the "immediate slopes" adjacent to reservoirs "should be forest clad, and that all declivities above, the waters of which cannot be discharged in large part of the sediments before reaching the reservoirs, should also have their woods preserved." Forest on these selected slopes best prevented the sedimentation of natural and artificial storage reservoirs. Therefore, it was necessary that in the utilization of timber, "judgment and circumspection will be necessary properly to select the areas to be denuded. It is thus that the people of the valley are interested in the forests of the mountains."[12]

Just as Fulton's views were quickly challenged, so were Powell's views in the next issue of *Century Magazine.* Abbot Kinney, a southern California forester and later author of *Forest and Water* (1900), replied that Powell's views were "revolutionary" and represented "a bald and vague statement against the experience and writings of every prominent forestry man of whom we have knowledge." Kinney admitted that riparian trees are "gross water users," but the trees upon the mountains were a different story, "and their effect is, without known exception, beneficial to irrigators and water users in the valleys below."

Kinney incredulously restated Powell's transpiration argument that in arid countries the trees take up and evaporate about forty percent of the rainfall into the air; that the snows melt faster in forests; and that the volume of water in a stream will be larger if its watershed be bare than if it were wooded. Kinney cited a host of European and American authorities among them Antoine Becquerel, M. Marchand, William Cullen Bryant, George Perkins Marsh, Heinrich Berghaus, and Ernst Ebermayer, who "without exception known to me, [are] opposed to this view of Major Powell's." He wrote that,

> Time, place and instance have been cited over and over again to show that the denudation of mountain districts is followed by increased torrent or flood action and diminished regular flow in springs and streams, often by the entire desiccation of these. In my reading, as in my observation as a forest officer, I have never read or known of a instance to warrant Major Powell's theory. It is at variance with all the known facts.

He goes on to say that the most ordinary power of observation shows that soil remains humid longer in a forest than on bare open lands. So also snow remains longer under trees than in the open. Furthermore, "Powell confutes himself" when he says in reference to storage reservoirs, "Storm waters wash the sands from naked hills and mountains, and bear them on to the creeks and rivers, by which they are carried to the storage basins." This is a description of "torrent

action," but it stops at reservoirs, according to Powell, and he does not consider the movement of detritus-laden streams to farmlands below. "As soon as such a stream leaves the steep grades of the mountains it drops its load, fills its bed, and changes its course. No one is safe in the bottom lands," when the mountains are denuded, Kinney concluded.[13]

From these raging arguments in the highest circles of American science on the nature of the relationship of forests to the outflow of water into the streams and reservoirs, it is apparent that local citizen, entrepreneur, developer, and land agent Fulton's views should not be lightly dismissed. They parallel those of the noted scientist of the West, John Wesley Powell. They were not necessarily uninformed, they were not parochial, and they rested upon the same soundness of observation and with the backing of preeminent scientists as did the opposing Fernow position that emphasized the importance of "forest influences" in the production of favorable flows of water from the mountains.

Perhaps, the difference lies in the term "favorable conditions of water flow." It is defined by Fernow as a steadied, measured outflow of waters into the streams rather than a sudden torrent or freshet in the spring that sweeps all before it in a course down the mountains. True, adequate man-made reservoirs might catch an "out flow from the land" and capture a greater volume of water than might be absorbed by the sponge action of the forest and later released. This view no doubt appealed to the engineering propensities of a Powell and even a practical railroad man like Fulton. The forest as nature's natural reservoir was merely a concept. The actual water rushing from the land into streams and reservoirs was a real, tangible event to Fulton and Powell that should be encouraged.

Yet in announcing the two basic purposes of government forest reserves in the 1897 Management Act, congress appeared to accept the more abstract concept of the forest as nature's reservoir. Congress declared that forest reserves should be established primarily to secure their water flows and insure a continuous supply of timber.[14] But the first mentioned purpose was "of securing favorable conditions of water flows," not "the out flow from the land." The difference in the two descriptions is vast. It can be argued that congress clearly sided with preserving the integrity of what would be called today "the forest ecosystem."

NOTES

[1]Barbara Richnak, *A River Flows: The Life of Robert Fulton* (Incline Village, Nev.: Comstock Publishing Co., 1983), 73. The author gratefully wishes to acknowledge the access provided to the Robert L. Fulton papers held by John Fulton of Tahoe City, California.

[2]Scrugham, *History of Nevada: The Narrative of the Conquest of a Frontier Land* (Chicago: 1930), 398. Fulton was also the first president of the Nevada Historical Society, from 1904 to 1907.

[3]Robert L. Fulton, "How Nature Regulates the Rains," *Science* 3 (10 April 1896), 546–47.

[4]Fulton, "How Nature Regulates," 550.

[5]Fulton, "How Nature Regulates," 551.

[6]Fulton, "How Nature Regulates," 552; Sherry H. Olson, *The Depletion Myth: A History of Railroad Use of Timber* (Cambridge, Mass.: Harvard University Press, 1971).

[7]Barnhard E. Fernow, "Pseudo-Science in Meteorology," *Science* 3 (8 May 1896), 706–8.

[8]For example, the laudatory Richnak biography of Fulton chooses to ignore his ideas on this subject.

[9]Stephen J. Pyne, *Grove Karl Gilbert, A Great Engine of Research* (Austin: University of Texas Press, 1980); G. K. Gilbert, "Water Supply" in John Wesley Powell, *Report on the Lands of the Arid Region of the United States*, ed. Wallace Stegner (Cambridge, MA: The Belknap Press of Harvard University Press, 1962), 89.

[10]James C. Olson, *History of Nebraska* (Lincoln: University of Nebraska Press, 1955), 173–4.

[11]John Wesley Powell, "The Non-Irrigable Lands of the Arid Region," *The Century Magazine* 39 (April 1890), 919–20.

[12]Powell, "Non-Irrigable Lands," 920.

[13]Abbot Kinney, "Forests and Streams," *The Century Magazine* 40 (August 1890), 637–38.

[14]Harold K. Steen, *The U.S. Forest Service: A History* (Seattle: University of Washington Press, 1977), 36.

NOTES AND DOCUMENTS
WATER DEVELOPMENT AND ITS STORAGE IN THE STATE OF NEVADA

J. G. Scrugham

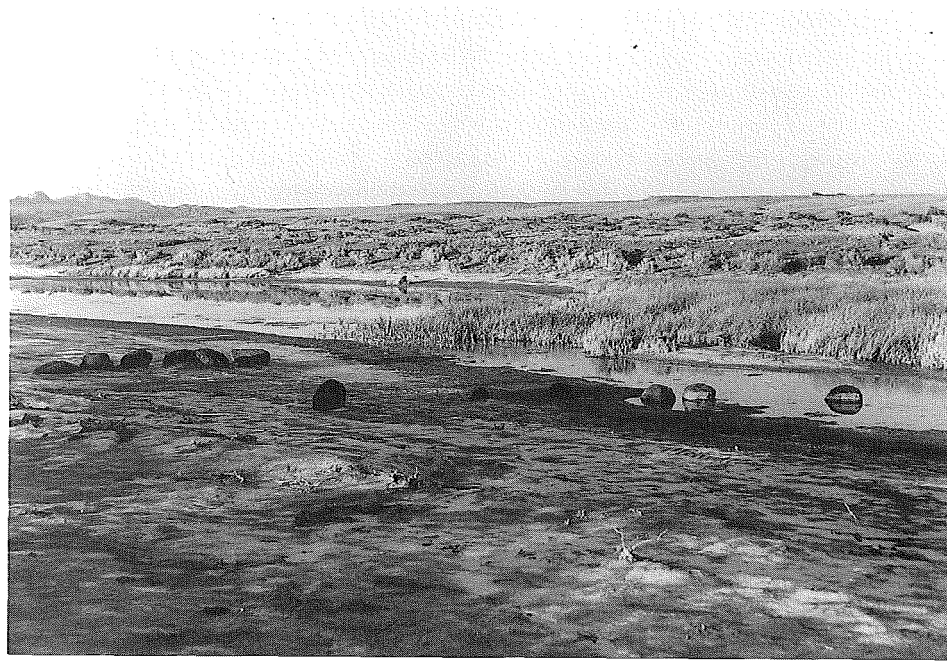
The factors upon which Nevada must depend to increase her population and wealth during the next decade are worthy of the most careful attention of every citizen. Thoughtful minds will not place too much reliance upon outside agencies, either political or financial, to bring about Utopian conditions of prosperity within the State. We must depend upon ourselves to develop our unused natural resources. The procedure to effect this development is clear cut and practical but requires persistent and well-directed community effort to bring it to a realization. The unused resources referred to are primarily the wasted waters of the Truckee, Carson, Walker, Humboldt, Virgin and Colorado rivers. The progressive citizens of the Walker River district have already united to utilize the potential wealth that for ages past has been evaporating from the surface of Walker Lake. They have organized an irrigation district, raised large sums of money through the sale of bonds, constructed a great reservoir, and are today storing waters at Topaz Lake that means assured prosperity and growth for their community.

The great handicap to agricultural and power development in Nevada is the fact that no satisfactory regulation, distribution or storage of water can be made on any stream until the relative rights of the parties of interest have been determined. The rights on the Walker River and a few of the smaller stream systems have been determined by court decrees. It is to the interest of every honest and fair-minded citizen to assist the State Government in having the relative rights on all of the rivers within our borders definitely established at the earliest possible date.

A native of Kentucky, James G. Scrugham was trained as an engineer and came to Nevada to teach in the College of Engineering at the University of Nevada, later serving as dean. He was state engineer from 1917 to 1922, when he was elected governor on the Democratic ticket, serving one term. Afterward he was publisher of the *Nevada State Journal* for five years and then was elected to the house of representatives in 1932. He continued to be active in the promotion of Colorado River development and mining. This article first appeared in the *Nevada Newsletter* of February 18, 1922.

On the Truckee and Humboldt rivers alone over a million acre feet of water were wasted during the past year. Large and valuable amounts of water can be profitably impounded on the Colorado, Truckee, Humboldt, Carson and other smaller stream systems as soon as adjudications can be completed. The problems of satisfactory adjudication are vast and complex. Upon their successful solution depends the future economic development of the Commonwealth of Nevada and consequent prosperity of our business enterprises. We cannot afford to stand still. It is a fundamental law of nature that individuals, states and nations must either develop or perish. The necessity for a definite determination of water rights was realized long ago by our administrative and legislative officials and adequate legislation has been provided. Many persons who honestly believed that their rights were being placed in jeopardy and a few who desired to take what does not belong to them, have vigorously resisted all adjudication proceedings. However, through the medium of frequent meetings and discussions the issues have been clarified and a better understanding of the vexing problems involved has been secured by practically all of the water-users who have the best interests of their communities at heart. The adjustment of the Carson and Humboldt rivers water-rights is well on the road to completion, thanks to the splendid spirit of co-operation displayed by these water-users.

In order to determine the proper allotment and distribution of water on these two systems over four thousand surveys and maps have been made and nearly



Salt Creek Crossing between the Humboldt and the Carson sinks. "Waste water being lost by discharge." (*Nevada Historical Society*)

one hundred thousand water measurements have been recorded for use in determining the rights of some eighteen hundred claimants. The settlement of relative rights on the Truckee and Colorado rivers is even more complex on account of overlapping Federal and interstate rights and the conflict of corporate interests. As soon as court decrees are entered, confirming the rights of present users as defined by competent legal authority, then there devolves upon every good citizen the duty of thoughtfully considering ways and means to conserve the tangible wealth in the form of water which is going to waste in his community.

All of the ultimate resources that lie dormant around us are useless unless the thought and desire to use them are firmly implanted in the brains of our people of action. We must adopt more definite and aggressive policies. Ten years of time and thousands of dollars in money have been lost to the State through discordant and ineffectual efforts in handling the Truckee River situation. While the jealous contention of Tahoe riparian owners and other California interests have been a retarding factor, our greatest enemy has been our own lack of vision and concerted effort.

Happily, the situation has apparently improved to such an extent that plans for a great impounding reservoir to be located wholly within Nevada have been generally agreed upon by the principal State and Federal interests. The United States Congress, through the Reclamation Service, has appropriated a large sum of money for such reservoir construction which is expected to become available within the next year if further local discord does not block governmental action. Coincidently with the adoption of a definite policy for Truckee River development, an understanding should be reached between State and Federal interests in order to allow a fuller utilization of the waters of the Carson River. The prosperous condition of the highly-developed lands in the Carson Valley is a most potent argument for the construction of further impounding works to conserve the spring floods.

There are very rich undeveloped agricultural lands lying adjacent to unappropriated waters of the Virgin River in Clark County. This lack of development is due to three principal causes; the frequent high and destructive river-floods, the distance from consuming markets and the lack of transportation facilities. It appears, from the fragmentary records available, that more than 150,000 acre-feet of water are annually discharged from the Virgin into the Colorado, which water would be available for appropriation if it could be economically diverted and impounded for beneficial use. Probably 20,000 acres of additional land can profitably be irrigated in the Virgin Valley if the water is not previously appropriated in the states higher up on the source. Another promising development is the irrigation of about 12,000 acres of land adjacent to the Colorado River near the southern boundary of the state. This area has an abundance of water available, being usually flooded during the late spring and summer months. With the

"View of the site of the proposed Boulder Canyon dam near Las Vegas, on the Colorado River. The river, as shown between the canyon walls, is about 300 feet in width." (*Nevada Historical Society*)

installation of proper flood control, much of this land can be profitably cultivated.

In view of the increasing demand for land, it is probable that there is a considerable acreage in Nevada which can be successfully irrigated from groundwaters. However, under present conditions, the speculative element encountered in underground water explorations is usually too great to warrant its being undertaken by persons of limited financial resources. The large majority of such experiments have been failures, chiefly because of a lack of understanding of the economic and technical factors necessary for success. The topography of Nevada is made up of a series of trough-like valleys lying between mountain ranges. These valleys are usually bowl-shaped and are filled with alluvial debris eroded from the mountains. It has been definitely established that adequate quantities of ground-water can only be obtained from the buried stream channels in the alluvial deposits. The streams of water which descended the mountain slopes and brought about the alluvial valley filling have been extremely variable in position. When the stream-bed remained stationary for a considerable length of time, there was deposited a quantity of gravel along its course which was easily pervious to water. As the channels shifted, the old stream-beds were covered with hardpan, clay, or silt, and became lost to sight. In nearly all valleys in this State there appears to be many of these abandoned stream channels of gravelly nature, all leading from mountain slopes toward the center of the basin.

Water which falls in the mountains in the form of rain or snow descends and enters the upper ends of these buried channels through the coarse talus at the foot of the mountains. If clay and hard-pan beds surround the ancient stream channels further down the slope, artesian pressure is generally developed. Every effort should be made to encourage exploration for these artesian pressure zones. They are most likely to be found in an area intermediate between the foot of the mountains and the centers of the bowl-shaped valleys. The areas nearest the mountains are best for pumping-water explorations, but rarely have the clay or hardpan seal necessary to produce artesian conditions. The areas in the centers of the valleys generally have the stream channels either pinched out or too choked with fine detritus to carry an adequate quantity of water for economic use.

Underground Water Areas

The depth and location of the old stream channels can only be determined by exploration, but experience indicates that certain localities are much more favorable than others. Broad valleys having gentle slopes, and, with a sufficient watershed, are very promising places for exploration. Given a good soil, favorable climate, and accessibility to markets, which can be found in several places, it appears that many underground water areas in Nevada can be profitably developed; provided that the requisite capital and technical knowledge is avail-

able for the work. Another field for expansion should be opened by the passage of legislation embodying land settlement opportunities for ex-soldiers, such as is offered in the American Legion Adjusted Compensation Bill. This measure passed the lower house of Congress by an overwhelming majority but met with temporary defeat in the Senate because of certain opposition which is expected to be overcome at an early date.

There is a most urgent and insistent demand on the part of ex-service men to secure some form of land benefits such as given to Canadian and Australian soldiers by their governments. If the United States Government will adopt a similar plan, then Nevada and the other public land states can reasonably expect a substantial influx of ex-soldier settlers and their families. The completion of the Newlands Reclamation project would be given a great impetus and the burden of charges on the present settlers should be correspondingly reduced.

Boulder Canyon Project

Nevada does not need to depend entirely upon irrigation, mining and stock-raising to enhance her population and wealth during the next decade. One of the greatest undeveloped water-power sites in the entire world lies at Boulder Canyon in Clark County. Many hundreds of thousands of horsepower can be very cheaply developed by waiting capital, provided that a definite authority can be established through State and Federal co-operation which will adequately protect the rights of all interests involved. Electro-chemical and metallurgical industries will congregate where the lowest-cost power can be obtained. With its favorable transportation facilities, Las Vegas or some nearby point in Southern Nevada may become a center for the electrolytic copper refining industry. If large deposits of high-grade alunite can be found in Southern Nevada, it is possible that an aluminum or potash industry may be attracted. The manufacture of lithopone, carbide, nitrates, and the electrolytic treatment of zinc ores offer other promising fields for investigation. These possibilities are not the filmy products of a visionary mind. They are as substantial as hard work and hard thought can make them.

Strong Co-operation

Some of the ablest technical, legal and financial authorities in America are co-operating with the State and Federal agencies in an effort to bring about a fair solution of the complex riddles involved in the conflicting claims of rights on this great power source. At this time it appears that the Federal Government is the only agency with sufficient strength and influence to coordinate the various contending interests and make it possible that actual construction work can be started at a reasonably early date. It is expected that the Colorado River Development Commission recently authorized by Congress will soon recommend some definite plan of action for ratification by the interested State Legislatures

"Topaz Lake Reservior, recently constructed by the Walker River Irrigation District. These impounding works, situated near Yerington, Lyon County, conserve the flood waters of the Walker River." (*Nevada Historical Society*)

and the Congress of the United States. In case that Federal Government is finally determined upon as the proper agency for construction and operation, Nevada will probably press its claim for the allocation of a substantial quantity of free power from the source in lieu of its loss of taxable property. This power can be sold at rates which will attract industries and at the same time prove a source of revenue to our commonwealth. We must not blind ourselves to the fact that whatever is undertaken by the people of Nevada will have to stand on its merits against the full rivalry and competition of similar enterprises in neighboring states. Our geographic handicap can primarily be overcome by carefully planned policies of development, preferably to be worked out by the civic and commercial organizations which are already functioning in our principal communities.

The University of Nevada and the state high schools will aid materially in the task if they can instill in the minds of their students the great fundamental requisites of high character, initiative, trained capacity, and sympathetic understanding of fellow-man, which are necessary for true leadership. In the ultimate analysis great undertakings never succeed without the energizing force of individual leaders. Among our citizenship we have a large and constantly increasing number of thoughtful men and women whose views are not beclouded by partisanship or selfishness. In their hands lies the future greatness and prosperity of our State.

BOOK REVIEWS

Viva Las Vegas: After Hours Architecture. By Alan Hess. Foreword by Robert Venturi, Denise Scott Brown, and Steven Izenour. (San Francisco: Chronicle Books, 1993, 128 pp., illus., filmography, bibliography.)

Neon Nevada. By Sheila Swan and Peter Laufer. (Reno: University of Nevada Press, 1994, 93 pp., illus., bibliography.)

Nearly twenty-five years ago, Robert Venturi, Denise Scott Brown, and Steven Izenour—three architects seeking to escape the strangle holds of the "international style"—published *Learning from Las Vegas,* a landmark in the history of what would eventually become known as the theory of post-modernism. In the glitter and excess of the Las Vegas strip, Venturi and company discovered a populist, democratic, and laissez-faire alternative to the rigid planning and elitism of postwar American architectures. Las Vegas, they suggested, was an urban environment designed for the pleasure of consumers rather than producers: It represented what people liked, not what architects thought was good for them. If architects should not literally emulate Las Vegas practices in other contexts, they should at least reflect on what it had to offer rather than dismiss it for its lack of "good taste" and "aesthetic purity."

In *Viva Las Vegas: After Hours Architecture,* Alan Hess, an architect and critic, follows a path that has already been conceptually cleared by Venturi, Scott Brown, and Izenour. Their endorsement of Hess's project in the book's foreword underscores this intellectual connection. *Viva Las Vegas* is by no means *Learning from Las Vegas* twenty-five years later. It represents a more definitive account of Las Vegas architecture, both as an in-depth analysis of the buildings themselves and as a historical narrative of the city's architectural development viewed in relationship to economic and social change. The text is accompanied by a series of beautifully reproduced photographs of the Strip and Downtown—casinos and signs both familiar and obscure, icons of the present and destroyed landmarks of the past.

At one level, *Viva Las Vegas* is an exercise in urban archeology, an unraveling of the historical layers lurking behind Las Vegas's dazzling facade. From a sleepy railroad town to one of the great examples of automobile-strip culture, Las Vegas is chronicled from numerous perspectives: shifting assumptions about the connection between casinos and their signs; the ongoing historical

relationship between Downtown and the Strip; the impact of efforts at widening the tourist base on aesthetic strategies and building design; and sober assessments of the effect of such personalities as Wilbur Clark, Bugsy Siegel, and Howard Hughes. Hess's treatment of Hughes typifies his flair for analyzing the significance of such larger-than-life figures. He credits Hughes with having a distinct vision of Las Vegas as a place where the masses can live out their fantasies of being rich, famous, and living in luxury, and notes the reclusive millionaire's contempt for Circus Circus's efforts at creating an environment for families. He likewise suggests that Hughes, like Bugsy Siegel before him, was unable to shape the Strip in his own image. Ultimately he is important as a transitional figure in the history of the Strip's development, an entrepreneur whose reputation as a financial wizard made Las Vegas legitimate for investments by corporations.

If Hess's book can be viewed as historical archeology, it can also be seen as "architectural history from the bottom up." *Viva Las Vegas* rescues from the "condescension of posterity" obscure and unrecognized architects and sign artists (to adapt the historian E. P. Thompson's phrase) responsible for the ultramodern Sands, the "stupendous and joyful image" created by the Stardust sign, and the perfection of theme architecture found in Caesars Palace. Wayne McAllister, George Vernon Russell, Melvin Grossman, Hugh Taylor, Martin Stern Jr. and the master craftsmen of the Young Electric Sign Company are the true heroes of Hess's narrative. At the same time, there is a connection between Hess's enthusiasm for their achievement and his critical analysis of recent transformations in the aesthetics of the Strip. He unfavorably contrasts the individualism and innovation of the 'fifties and 'sixties, when the Las Vegas Strip was "a city of shapes and colors and animation," to the corporate anonymity of the 'eighties and 'nineties, where the latest towers at Excalibur, the Sahara, and Circus Circus "reflect mass economics but not mass taste." Hess acknowledges that the latest Vegas building boom is part of a continuing dynamic of perpetual change, but he clearly prefers an older set of priorities.

Viva Las Vegas is persuasive as a contribution to a cultural and social history of architecture, but it runs into problems in the larger lessons that it draws from its subject. For Hess, not only should we take Las Vegas architecture seriously, but we should also look closely at Las Vegas as a model of strip culture for late twentieth-century America. Hess has in mind the way in which the Las Vegas Strip successfully appeals to dreams and desires gleaned from the American cultural imagination (what he whimsically describes as "form follows fantasy") in open, interactive, and joyous public spaces. He views this urban populism as representing the modern equivalent of classical Italian piazzas.

There are numerous problems with this position. Aside from the fact that the pyramids, ancient Rome, and medieval castles have only a tangential relationship to the American cultural imagination, it is to be wondered whether Hess has really come to grips with the contradictory aspects of "populism." It is an

ideology which can imply either deep connections to the lives and dreams of ordinary people or forms of address which manipulate them out of self-interest. In Las Vegas both kinds of populism exist. Where one begins and the other ends, or how to foster the former rather than the latter, are critical questions for urban planning that are not confronted by Hess. Most important, for what cities is Las Vegas potentially a model? The Las Vegas Strip is certainly a vibrant space, but its appeal is to tourists rather than to the people who live there. Indeed, the only cities that it could possibly provide an inspiration for are those which like Las Vegas have economic infrastructures based on gaming and tourism.

This final observation points to what is perhaps Hess's greatest omission: he never considers Las Vegas in relationship to other urban areas with which it has the most in common, that is, other cities in Nevada. The close historical connection between Nevada cities and towns is the subject of Sheila Swan and Peter Laufer's, *Neon Nevada,* a photo documentary of neon signs taken on statewide trips in 1978 and 1992. Swan and Laufer are reminiscent of folklorists whose mission is to preserve the vanishing signs of a dying culture. In a vibrant series of photographs, accompanied by reflections on their two journeys, they provide testimony to the disappearance and dilapidation as well as the current renewed interest in neon. Like Hess's book, *Neon Nevada* pays tribute to sign artists whose names do not appear on the products that they create. But ultimately Hess treats his subject in isolation. As Swan and Laufer's photographs taken as a whole remind us, there is a common imagery of neon-sign forms that exists throughout the state. Las Vegas did not grow up in isolation: It has an important relationship to the state as a whole. If anyone is to learn from Las Vegas, it's the rest of Nevada.

Dennis Dworkin
University of Nevada, Reno

No Equal in the World: An Interpretation of the Academic Presidency. By Joseph N. Crowley. Foreword by Clark Kerr (Reno, Las Vegas, London: University of Nevada Press, 1994. xiii + 300 pp., appendixes, bibliography, index.)

President Joseph Crowley of the University of Nevada, Reno has written a new book on the university presidency which will initially puzzle some readers on the politics of Nevada and the West. He has departed from his previous themes and provincial orientations to a much broader and more ambitious challenge: an analysis of the evolution of the office of chief administrator of institutions of higher learning in America during the last 150 years.

We should recognize at the outset what this book does not attempt to do. It

does not deal with Nevada's universities or with the broad spectrum of academic history or its challenges. It looks at the academic executive office as a *genre* and deals only in passing and peripherally with the business of educating students and conducting research. At one level the book may be regarded as a study of a decapitated presidential office. Yet it is an engaging look at the taxonomy. He takes his title from the retirement address of Charles W. Eliot of Harvard, who fondly described his profession as one that had "no equal in the world."

In 1989, Crowley went to Oxford, England, for a semester, read and reflected intensively and digested his ideas on what it had meant to others to be a president of an American university and began to craft his book on the subject. The result is a variegated assortment of profiles, anecdotes and comparisons, well conceived and well written. It is partly a series of vignettes summarizing the impressions of and about hundreds of those who have served as academic executives in the United States during the past century and a half. It is also a panorama of metaphors about presidents and the presidential office(s). In addition there is a glossary of terms that have been applied to the office, the holders of the office, the characteristics needed to operate it, and the university itself.

Crowley is keenly interested in the titans and legends who served from shortly after the Civil War into the early twentieth century during the "first Golden Age of American higher education." This category included such men as Eliot (Harvard, 1869–1909), Andrew D. White (Cornell, 1868–1885), Daniel Coit Gilman (Johns Hopkins, 1875–1901), William Rainey Harper (Chicago, 1891–1906), and David Starr Jordan (Stanford, 1891–1913), among others. He chronicles and laments the decline of the responsibilities of the office to the function of mediator and bureaucrat. After guiding his readers through the alpine heights, Crowley gradually offers us a plethora of lesser figures, successful and unsuccessful, and describes the transformation of the office in more recent times. One of the longest chapters (the penultimate one) deals with "The President in Fiction," an assortment of imaginary presidents in make-believe universities.

The result is an impressive but sometimes confusing kaleidoscope in which Crowley seems to be searching for a theme around which to organize his diverse evidence. He settles in the last pages on nautical metaphors, with the image of president as captain or pilot trying to guide a ship on rough seas, or tacking or drifting or dry-docked.

Crowley is to be commended for stepping aside from his bureaucratic duties for several months to look at the panorama of literature on American university presidents and for taking on a project of this scope. Both admirers and detractors of his performance as president of the University of Nevada in Reno for the past sixteen years will be tempted to use this document as an instrument for measuring his own success or failure in that office. Perhaps friends and critics alike will be able better to understand his patient stoicism and his apparent fondness

for his high-pressure job after they have read this book. Once again the University of Nevada Press has done an excellent production job.

James W. Hulse
University of Nevada, Reno

Defender of the Old Guard: John Bricker and American Politics. By Richard O. Davies. (Columbus: Ohio State University Press, 1993, xiv + 271 pp. ill., bibliography, index.)

In the able hands of Richard Davies, professor of History at the University of Nevada, Reno, the figure of Republican Governor and later Senator John W. Bricker of Ohio emerges with sparkling clarity in this fine political biography. Davies argues that Bricker's political values were a direct outgrowth of his late-nineteenth and early-twentieth-century, modest Ohio farm community background. Those values centered on hard work and individual self-reliance. Davies convincingly contends that Bricker's "many political victories and personal achievements notwithstanding, this is ultimately a story of defeat and frustration" (p. xi). Bricker's failures stemmed in large part from his inability to grow beyond the limits of his background, despite the vast changes that had transformed the twentieth-century. As Davies amply demonstrates, Bricker became even more intransigent and embittered in his views, particularly after World War II, hence the title of his book *Defender of the Old Guard.*

Bricker was born in 1893 and raised on a farm near the central Ohio village of Mount Sterling. The Ohioan graduated from Ohio State University and later from its law school, where he displayed a gregarious personality and penchant for hard work that characterized his entire life. After law school Bricker moved easily into the social circles of the white, middle class, business and professional men from Ohio's small towns and growing suburban areas. His political gifts were exhibited early on, with his being appointed to several minor government posts during the 1920s and 1930s before being elected as Ohio's attorney general, and as governor in 1938. Davies describes his accomplishments as governor as "minimal." The Ohioan ran an honest and efficient administration. But in a controversy over public relief, he proved to be more concerned about rooting out "chisellers" than addressing the human misery brought on by the Great Depression. Bricker was a contender for his party's presidential nomination in both 1940 and 1944, and secured the vice presidential nomination in 1944. Davies regards this moment as the zenith of Bricker's political life. Once in the national spotlight after 1944, Bricker's limitations became apparent, especially after re-

vered journalist William Allen White deprecatingly referred to him as "an honest Harding."

In 1946 and 1952, after winning successive elections as senator from Ohio, Bricker entered his "Old Guard" phase. Senator Bricker was a strident opponent of the New Deal and Fair Deal, a heated partisan, a virulent defender of Senator Joseph McCarthy and his "ism," and an intractable foe to the Cold War policies of the Truman and Eisenhower administrations. Bricker is best known for his unsuccessful attempt to pass a constitutional amendment to restrain presidents from committing the United States through executive agreements, the so-called "Bricker Amendment." Like professors Gary Reichard and Duane Tannenbaum, Davies portrays Bricker in this fight as a clumsy politician who despite initially having sixty-seven cosponsors to his proposal, was still outmaneuvered and defeated by the crafty Eisenhower. One item of note that Davies adds to this story is that Harley Kilgore, who cast the deciding vote against the amendment, was probably ill and heavily medicated—not intoxicated, when he voted. Bricker was defeated in his third senatorial race in 1958 by a combination of bad luck and well-organized labor forces.

This biography accomplishes much of what it sets out to do. Davies skillfully exploits the Bricker Papers and weaves a number of other archival materials to present his story. He provides useful annotations in his bibliography that should guide future scholars. Most importantly Davies avoids the twin traps that ensnare most biographers: He is neither idolatrous nor derogatory toward his subject; his judgments about Bricker's views are uniformly well reasoned and fair-minded.

What limits the usefulness of the volume, however, is that it does not provide much help in locating Bricker in the broader stream of American conservatism or in understanding how conservative political views are formed. To be sure Davies provides some insightful comparisons to the conservatism of Bricker's fellow Ohioan Robert A. Taft, but there is not much on how Bricker's views compared with such conservatives as Herbert C. Hoover, Barry Goldwater, or any of the southern Democrats. The book is also silent on how socio-economic backgrounds of political leaders shape their political thinking. In Bricker's case Davies argues that a small town, midwestern background led Bricker to Old Guard conservatism. For Gerald P. Nye of North Dakota and Harry S Truman of Missouri, his contemporaries, this same upbringing led in very different directions. What accounts for this?

Unquestionably this slender volume will help others interested in reconstructing the history of Ohio politics and twentieth-century American conservatism. In short, *Defender of the Old Guard* is a first-rate political biography of a second-rate politician.

David R. Kepley
National Archives

Trappings of the Great Basin Buckaroo. By C. J. Hadley. (Reno: University of Nevada Press, 1993, xii + 198 pp., ill.)

As the dust jacket copy says, photojournalist C. J. Hadley's *Trappings of the Great Basin Buckaroo* is a celebration of the buckaroo's extraordinary talent for creating beautiful handmade cowboy gear. These intricate works of art—reins, reatas, ropes, bits, spurs, horsehair gear, boots, saddles, and blankets—are painstakingly crafted in the traditional manner.

The photographs, both portraits of a few of the men and women whose lives are deeply involved with the running of cattle on the high desert east of the Sierra Nevada and the Cascades, and of the utilitarian implements of the cattle rancher's trade (but taken to the level of painstaking craft), are dramatic, interpretive, and pleasantly surprising. The book is arranged as a sequential interaction between the photos of artists and artwork and brief accounts of the lives of the men and women who keep traditional cowboy crafts alive and who themselves continue to use the utilitarian artifacts which are in most ways holdovers from an earlier time—late twentieth century ingenuity and skill applied to a legacy of forms from the last half of the nineteenth century: hackamores and mecates, jinglebobs and rowels, slick forks and bucking rolls, chaps and tapaderos.

The individual characters portrayed come alive, some of them vividly: Frankie Dougal, Forest Fretwell, Al Tietjen, Vicki Sailors. . . . Hadley has a good ear for dialogue, and that's a far greater talent than one might suppose. This particular reader could have done without the selections of "cowboy poetry,"however. The form is inherently cornball and gotten up. Any relationship between these "songs" and genuine Western folk ballads is purely coincidental.

A few portraits of the land itself would have been a welcome addition: the great, fractured landscape of high desert, basin and range, piñons and sage, the Warners, the Rubies, Owyhee River, Humboldt River, the Snake. There's a necessary and generating relationship between terrain and the men and women who live and die upon it. A few pages devoted to such photography would have provided an important dimension for readers, say, in Boston or Miami or Liverpool. Likewise, an end-cover map showing where these people live and ply their trades—that too, would have been a nice touch.

Of concern to any reviewer is what particular avenue of thought and/or conviction influences a particular writer or photojournalist. C. J. Hadley is the publisher of *Range* magazine and is deeply involved in the Range Education Foundation, which has as its "sole purpose . . . to tell the truth about livestock operators and the public lands and to help preserve the western way of life."

As a native westerner and livestock operator, this particular reader is aware that somewhere in the neighborhood of 42 percent of public lands grazing is done by large, non-family operators, insurance companies and corporations.

Those who practice free-enterprise call this cowboy welfare. It is the private land rancher who has preserved the western way of life, not the transient "romantic" cowboy of legend and cinema. Ranching is more than Western clothing, artifacts, rodeos, and cowboy poetry. The public lands, after all, do belong to the general public, not to a select few who feed their livestock at the public trough.

On balance, can a book written by an English woman "who got lost in the American West," possibly be authentic? If we're willing to grant that "momentary suspension of disbelief," as Coleridge called it, the answer may be stretched toward the affirmative.

John Berutti
Sattley, California

Presbyterian Missions and Cultural Interaction in the Far Southwest, 1850–1950. By Mark T. Banker. (Urbana: University of Illinois Press, 1993, 272 pp., illus.)

Presbyterian Missions and Cultural Interaction in the Far Southwest is an excellent study of the Presbyterian Mission Schools in the four corner region of Utah, Arizona, New Mexico and southern Colorado. In this area during the late nineteenth and early twentieth centuries, the Presbyterian Church operated a series of schools for Native American, Hispanic, and Mormon children. Mark Banker, the author, limits his study to these three groups. Banker states his objective is to explore "the impact of the Southwest on the Presbyterian Church" (xi). Although he provides an excellent history of the mission schools, he does not adequately address the impact of the region on the denomination, therefore limiting the scope of his study.

The traditional Presbyterian missionary strategy for the West was to send in missionaries to organize churches in areas with a concentration of Anglo-Americans. This approach did not work with the three population groups in Banker's study, and a new means of evangelism was required. Drawing from the church's historical interest in education, the Presbyterian Church embarked on a project to open mission schools to serve the "exceptional populations" of the Southwest. The dynamic missionary to the Rocky Mountains, Sheldon Jackson, wrote to the Secretary of Home Mission Board, "they won't come to hear preachers, send us a teacher" (49).

At first, the Presbyterian Church was reluctant to start an extensive network of mission schools. Mission schools had been used by the denomination on reservations with Native Americans and in the foreign missions, but most church leaders supported public education efforts within the United States and its territories. However, there were few adequate opportunities for schooling

within the boundaries of Banker's study. The church soon discovered that education was needed in certain areas to enable missionaries in their work and to help integrate target groups culturally within the American mainstream.

The Presbyterian Church led all other denominations in starting mission schools in the Southwest. Banker cites three factors in the Presbyterians' success. First was the establishment of the transcontinental railroad which opened the inter-mountain West up to missionaries. The second component of Presbyterian success was the reunion of the two main Presbyterian bodies (the Old School and the New School) in 1869. The third ingredient was strong and dynamic leadership provided by missionaries like Sheldon Jackson, Home Mission administrators like Henry Kendall and Cyrus Dickson, and women leaders like Faith E. H. Haines and Mrs. Darwin Jones.

The Presbyterians' commitment to mission schools was strengthened in the 1880s when Sheldon Jackson encouraged the Woman's Executive Committee to fund the schools. By 1890, the women of the church were supporting 118 schools in the Southwest, the South including the Appalachian Mountains, and Alaska. During the twentieth century, as public education became more widespread, most of the local mission schools were closed and those that remained became boarding schools or served special interests.

Banker acknowledges the limited success of the church in making Presbyterians out of the students of the mission schools. Though the schools had great impact on the Southwest and in many cases provided the only opportunities for education, numerically most were not successful in converting the students to the faith of their teachers. However, there were a few exceptions, such as with the Pimas in southern Arizona where the majority of the tribe converted and joined the Presbyterian Church. Banker goes into detail with reasons for the limited success, demonstrating the difficulties of each group. Banker's treatment of obstacles the Presbyterians faced when working within Mormon-dominated areas is especially insightful.

I would have liked to have seen the study area of this book expanded to include all populations within his defined geographical area. By limiting his study to mission schools, Banker does not fulfill the scope of his title. He does not deal in any detail with missionary activities among the miners, ranchers, railroad workers, and other Anglo settlers. The culture of these groups, especially the miners and the immigrants who worked on the railroad, also created problems and was often at odds with the culture of Eastern missionaries.

I was disappointed that Banker did not cite *Ambassador to the Saints* by Claton Rice (Boston: Christopher Publishing House, 1965). This autobiography is about Rice's ministry in Utah during the first two decades of the twentieth century. Rice first served the Presbyterian Church and mission school in Saint George and later served churches in Cedar City and Myton. He tells, in personal terms, how living within a Mormon dominated area affected him personally and even changed his outlook and some of his views on theology. Had Banker discovered

this book, it could have enriched his study and given him another personal example of how the Southwest affected one Presbyterian missionary.

Banker has provided an outstanding history of the Presbyterian Church's involvement with mission schools in the Southwest. He utilizes charts and maps which help the reader understand the magnitude of the Presbyterian mission school system in the Southwest. In addition, he provides detailed notes and a superb bibliography. Banker is able to place the mission school movement within the larger context of nineteenth and twentieth century Protestant evangelicalism. He discusses the assumed link between Protestant evangelicalism and Americanism in the nineteenth century and the impact of the Fundamentalist controversy in the twentieth century. His study is also a reminder of the important leadership given by the women of the church in supporting and in serving in the Southwestern mission schools. Although limited in its scope, I recommend this book to anyone interested in the activities of Protestant Churches in the American West.

Charles Jeffrey Garrison
Presbyterian Church
Cedarville, Utah

NEW RESOURCE MATERIALS

Nevada Historical Society

Eureka and Palisade Railroad Records

Only a small portion of the corporate records of the Eureka and Palisade Railroad, one of Nevada's most colorful shortline railroads during its lifespan of 1873 to 1938, has made its way into public institutions. Recently, the Society's small collection of Eureka and Palisade records was augmented with the addition of company annual reports (office copies containing tipped-in correspondence and notes) for the period 1900–1914, an invoice book for 1892–1902, and a number of miscellaneous documents. These materials, in combination with the Eureka and Palisade records held by the University of Nevada, Reno library and other repositories, provide historians with important new information on the history of the railroad.

Reno Silver Sox Material

As the result of donations by Kerry Ditmars and Martha Martin (in memory of her brother, David Gerst), the Society has acquired a valuable group of printed materials, photographs, and museum artifacts relating to Reno's minor league baseball team, the Silver Sox, which existed from 1947 to 1992 (the team was named Reno Padres, 1982–1987). Included among the items given to the Society are programs, tickets (some signed by Silver Sox players), schedules, caps, pennants, bats, sets of player cards, souvenirs, and other printed memorabilia from the 1980s and 1990s, together with photographs of many of the teams between 1949 and 1972. We appreciate these gifts, which help to document the development—and travails—of professional baseball in Nevada.

Mining Handbook Microfilm

During the first third of this century, an indispensible source of information on the mining industry in the United States and the world was the series of mining *Handbooks* edited by Horace J. Stevens and, later, Walter Harvey Weed and others. These volumes, which were initially issued annually and later every two years, were titled *Copper Handbook* from 1901 to 1914, and then, after the publication's scope was expanded, *Mines Handbook* from 1916 to 1931. They

contained detailed current data on mining companies, their officers and owners, properties, production, and potential, and they constituted virtually an industry "Bible." In the years since the *Handbook* ceased publication, the volumes have become scarce; no complete run of the series exists in the state of Nevada and the volumes are difficult to find elsewhere.

Over the past several months, with funds provided through generous grants from the Charles H. Stout Foundation, the Society has microfilmed all volumes of both the *Copper Handbook* and *Mines Handbook,* and has made the copies of these essential mining history documents available for public use. Anyone desiring further information about the *Handbook* microfilm should contact the Society's library.

Eric N. Moody
Manuscript Curator

University of Nevada, Reno

The Gardnerville Woman's Literary Club was founded in 1916 for the education of its members, the bettering of the home, and the uplifting of the community. Members took turns reading literature of the times and reporting to the membership on their assigned books. Guest lecturers were invited to discuss special topics and socials were held several times a year. The club continues to function today and has recognized the value of its history with the donation of its administrative records to the Special Collections Department. The records date from 1916–1991 and include minutes, bylaws, printed programs, a club history, and a scrapbook of clippings.

Virginia Kersey has had a long record of community involvement, especially in parks and recreation planning, at the local and statewide level. Kersey, who recently retired as budget officer of the Planning, Budget and Analysis Division of the University of Nevada, Reno, has donated records related to her service on the Nevada State Parks Advisory Commission, Nevada State Multiple Use Advisory Committee on Federal Lands, Citizens for Parks and Trails 2000, and Citizens for Rancho San Rafael Park. Kersey's collection provides an overview of the philosophies and development of Nevada parks and recreational facilities during the 1980s and early 1990s. Working records for each of these organizations document goals, objectives, and methodologies of these groups. Included are minutes, reports, planning documents, correspondence, memoranda, position papers, ballot issues, action plans, and financial analyses.

The Children's Cabinet, Incorporated, was formed in 1985 by a group of concerned citizens to serve "children at risk." It is a private, non-profit organization addressing the needs of children and families in northern Nevada which

works closely with public social service agencies and the court system. The Children's Cabinet has donated its administrative records, 1985–1993, to the Special Collections Department. These records chronicle program development of the Cabinet and include minutes of the board of directors, mission statements, position papers, reports of major program activities, and newsletters. Personnel and case files will be retained by the Cabinet.

Susan Searcy
Manuscript Curator

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