Rainbow Bridge

Hassell, Hank

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Echo Park and Beyond

The Colorado. As rivers go it isn't large. In fact, in terms of the volume of water carried it doesn't even rank among the top ten of American rivers. For the most part its course lies deep within rugged and nearly inaccessible canyons, so few settlements, and no major cities, grace its banks. Yet circumstances have conspired to make it the most litigated, the most utilized, and the most regulated stream in the world. Today almost none of its flow ever reaches its outlet in the Gulf of California, every drop having long since been diverted to quench the thirsty land around it. The world's first high concrete arch dams were constructed here in an attempt to calm its raging temper, and an entire body of precedent-setting water law has resulted from court and legislative decisions about its ownership and utilization.

The fascinating and unique history of this very special river is the result of several converging factors. For one thing, the Colorado is long and drains a huge area of the American West. From its twin sources high in the Wind River Mountains of Wyoming and the Rocky Mountains of Colorado it flows 1,741 miles across seven states and drains an area of 244,000 square miles in both the United States and Mexico. Its flow is augmented by over fifty tributary streams whose names, such as the San Juan, the Yampa, and the Gila, read like a litany in the history of exploration and settlement of the trans-Mississippi West. Also, through much of this torturous course it crosses land where rainfall is scarce, much of the surrounding country receiving less than ten inches per year.

The topography of this land is as rich and varied as its history, ranging from high mountains with peaks extending well above timberline to cactus-studded and waterless deserts where summer temperatures can reach 120 degrees Fahrenheit. It also happens to be one of the most colorful and scenic regions of the world. Today the Colorado River and its tributaries traverse seven national parks, four national monuments, and four national recreation areas, and countless additional acres of public land along these watercourses have either been set aside as federally protected wilderness or are under consideration for such status. It is also a geologist's paradise. The canyons, mesas, and mountains stand largely naked of vegetation and thereby expose millions of years of depositional history to study and interpretation.

Its precious water irrigates crops in six states and, by means of massive canals, pipelines, and trans-basin diversions, is currently fueling the growth and prosperity of such large cities as Denver, Salt Lake City, Phoenix, Las Vegas, San Diego, and Los Angeles. The high dams at Flaming Gorge, Glen Canyon, Curecanti, and Boulder Canyon generate billions of kilowatts and tie into a power grid which electrifies the entire West. With so many conflicting and largely irreconcilable demands being made upon its waters, it is little wonder that the Colorado has been a major source of conflict ever since John Wesley Powell first floated its mysterious canyons in 1869. Today it is said that in Colorado Plateau country you can steal a man's wife, his pickup truck, or his livestock and probably live to tell the tale, but you will not be so fortunate if you mess with his irrigation ditches. It is also said that a thirsty man approaching the river with a bucket is likely to be shot on sight.

Even the name has been problematic. The Pai Indians, who lived on the rims around the Grand Canyon, called it the Pahaweep, which means "Water Down Deep in the Earth." The name Colorado was
first applied by the Spanish to mark the deep reddish color the river exhibited in pre-dam days, and this name is one of the earliest non-Indian labels in the Southwest to actually endure. However, in Major Powell’s day only the lower two-thirds of the river was actually called by that name. The south branch of the waterway from Longs Peak in Colorado to its confluence with the Green was called the Grand River; only the thousand miles from today’s Canyonlands National Park to the Gulf of California bore the Spanish name. It took an act of Congress to change that situation. On July 25, 1921, at the behest of a local congressman and without a single objection from the state of Utah, the Grand ceased to be, and the stretch of river from the Rockies to the sea became the Colorado. It is called that to this day in spite of the fact that nearly all hydrologists and geographers agree that the true source of the Colorado lies in Wyoming at the head of the Green River, which carries the largest volume of water into the system.

In this arid country water is life, so from the earliest days of pioneer settlement water was being taken out of the Colorado and its tributaries via small dams, weirs, and ditches to irrigate nearby farms and pastureland. Large-scale diversion of water from the river, however, did not begin until 1901 when Charles Rockwood and George Chaffey cut a diversion channel and sent part of the river north from Mexico to California through the dry channels of the New and Alamo Rivers and into a desiccated and frighteningly hot depression called the Salton Sink (also known informally as the Valley of the Dead). It was not a difficult diversion to accomplish. The river channel was barely above sea level and the sink substantially below it, so once the water was out of its normal course it flowed naturally north and could be put to use watering the deep and rich alluvial soil in what Rockwell renamed the Imperial Valley. In a matter of months two thousand settlers had a hundred thousand acres under cultivation.

The crucial fact which Rockwood and Chaffey either didn’t know or deliberately chose to ignore was that the path chosen for their diversion was actually a channel the big river itself was prone to use on
occasion. The Colorado is one of the siltiest rivers in the world, and as the river approached its delta the reduced stream velocity would cause its load of sand to be dumped directly into the channel. As the level of the riverbed rose its pathway would become blocked, and the water would need to find another route to sea level. From time to time this new route poured north directly into the Salton Sink. Eventually this alternative channel would silt up and the river would then happily return to its old ways and flow back into the Gulf of California. The cycle would repeat on a fairly regular basis, and was actually the source of the deep, rich soil the new farmers in the Valley of the Dead were hoping would make them rich.

In early 1904 the Colorado was again ready to make its move. A rare combination of early snow-melt in the high country and heavy rain along the Gila pushed a gigantic flood surge down the river toward the Imperial Valley. The water overpowered the flimsy gates at the head of the diversion, and within a few months the entire flow of the Colorado was rushing headlong into a new lake named the Salton Sea, which now lay shimmering in the desert sun. The helpless settlers watched with amazement as nearly 25 million acre-feet of water tore out railroad tracks, toppled houses, washed away whole villages, and cut great gullies across their fields. It was not until 1907 that the river was forced to reoccupy its old bed and to flow once more south through Mexico, but in the meantime a great lesson had been taught—the Colorado River was not some mild plaything which could be turned on and off like a kitchen faucet. If the water of this great southwestern resource were ever to be put to beneficial use the river would need to be controlled and regulated as no river had been heretofore. However, the structures necessary for such a task were certainly beyond the capacities of any private corporation or amalgam of corporations then in existence. In fact, there seemed to be only one entity capable of such a project, and it was not long, therefore, before expectant southwestern eyes turned toward the federal government in Washington, D.C.

The ink had barely dried on the Powell and Dellenbaugh accounts of the exploration of the Colorado River and the surrounding country before engineers and hydrologists were eyeing the river with possible dam sites and diversions in mind. The lower river from the Gulf of California upstream to the mouth of the Virgin was, in fact, well-known and thoroughly surveyed. It was navigable, and commercial steamboat traffic had been moving up- and downriver for decades even before Major Powell had made his epic voyages. Several sites below the Grand Canyon looked promising for dams, particularly in Black and Boulder Canyons near the small Mormon settlement of Las Vegas. A large dam here would regulate the river's flow, thereby avoiding a repeat of the 1904–1907 Imperial Valley disaster, and it might also be engineered to produce enough hydroelectric power to satisfy the growing demands of cities in southern California. However, one government scientist was certain there was a better way.

His name was E. C. (Eugene Clyde) LaRue, and he was chief hydrologist for the U.S. Geological Survey. It was LaRue's hypothesis that the best spot for the first high dam on the Colorado was not below the Grand Canyon but above it in the vicinity of Lees Ferry, Arizona, near the Utah state line. His thinking was that an earthen dam here could be used to regulate the river, thus allowing development of the lower reaches to proceed in a comprehensive fashion unhindered by the wild fluctuations in stream flow which characterized the Colorado River. In 1916 LaRue proposed a dam at the head of Marble Canyon just below the mouth of the Paria. His proposal envisioned a structure 244 feet high forming a reservoir with 4 million acre-feet of storage capacity backing water 186 miles upstream to the mouth of the Dirty Devil. By 1922, after his trip through Glen Canyon with the Chenoweth survey party, he had moved his dam to a site four miles upriver near Lees Ferry in Glen Canyon, and by now his project had taken on truly mammoth dimensions. This new dam was to be 780 feet high with a storage capacity of 50 million acre-feet and a reservoir 250 miles long. How LaRue arrived at his figures or even selected his sites is still a mystery. At that time the Glen Canyon country was still an unknown quantity—no feasibility surveys had been completed and no decent map of the river even existed. However, LaRue had dedicated his professional career to studying the hydrology of the Colorado, and in spite of the lack of reliable information the accuracy of his figures is a matter of record. From an engineering standpoint LaRue's proposed high dam in Glen Canyon might have been the best idea for controlling the river, but it was doomed from the start by the fact that the utilization of Colorado River water was fast becoming the major political issue in the Southwest.
By the 1920s the population of the city of Los Angeles was exploding very nearly out of control and its demand for water seemed insatiable. All local sources had been fully developed, the Owens Valley was drained of every drop, and the city fathers began to cast hungry eyes on the Colorado River. Arizona believed that the big river was its future, and while it was in no position to put the water to immediate use it was also in no mood to sit by and watch California suck the river dry. Faced with such intransigent opposition, California was unwilling to permit the first high dam on the river to be built at Glen Canyon because that would place it wholly within Arizona; in addition, this site was too far away to make practical California’s utilization of the power generated. Hence, California’s preferred site for a dam remained at a spot in Boulder Canyon straddling Nevada and Arizona. However, it lacked the resources to embark on so massive a project alone. Clearly, federal money would be required, but the support of other states would be needed to get it. Arizona was an implacable foe, and the remaining states in the Colorado River basin were already getting nervous.

This nervousness wasn’t helped any by a Supreme Court decision handed down in 1922. In Wyoming v. Colorado the court stipulated that, at least for streams flowing between states, the ownership of the water was held by he who first appropriated it, and further that this ownership could not be abrogated by later diversions which might be contemplated further upstream. What this meant for states such as Utah and New Mexico was that if California could somehow get hold of the Colorado River first and utilize the water, these states might well find themselves with no rights to use a river which actually originated in and flowed through their own territory. With the doctrine “first in use, first in right” now a matter of law, it was obvious that California was not going to get the dam or canal it so desperately wanted unless some kind of deal could be worked out for sharing the water between the seven states of the basin.

Most of these states were already members of a loose and informal association called the League of the Southwest, and the subject of the Colorado River was usually on the agenda at their meetings. However, lack of resources, simple inertia, and basic distrust...
between the members had kept anything in this direction from being accomplished. The best they could come up with was a statement issued from their April, 1920, meeting, which said, "The League of the South-west holds as axiomatic that the development of the resources of the Colorado River basin fundamentally underlies all the future progress and prosperity of the Southwest."8

This was, apparently, the high-water mark of the members' generosity and good feeling, for by their Denver meeting in August of the same year they were back to their old bickering, distrustful selves. The states on the upper river were justifiably concerned that California, with its surging growth in population and immediate need for water, would establish a de facto hegemony over the river. A. J. McCune, state engineer for Colorado, stated their collective concerns rather bluntly: "Our main fear is that Los Angeles and the people of the Imperial Valley will get the Government committed to a policy that will interfere with our development." It seemed obvious at that point that any further large-scale development along the main stream of the Colorado River would be subject to multiple lawsuits and probably remain tied up in the courts for decades. This, of course, assumed that Congress could even be persuaded to appropriate any money for such development in view of the bitter factionalisms which were dividing the basin states.

Clearly, a way out of this morass would depend upon a combination of dynamic leadership and new ideas, both of which were provided at the Denver meeting by a young lawyer named Delph Carpenter. Attending the league meeting as an aid to Colorado governor Oliver Shoup, Carpenter had served on the defense team in Wyoming v. Colorado, and, thus, had seen what court battles over water rights could be like. As a native of Greeley, Colorado, he understood the importance of developing the available water resources as a key to the region's future prosperity, but he realized that without the cooperation of the several states of the basin this development could not and would not occur. His solution was to persuade the seven states of the league to enter into a compact and negotiate among themselves something akin to a treaty dividing up the water of the Colorado River.

The U.S. Constitution expressly forbids states from entering into any such compact except by the consent of Congress (Article 1, Section 10, third paragraph).8 States had used this procedure before but never on such a grand scale as Carpenter envisioned. He considered that the best procedure would be to have the league agree to form such a compact and then petition Congress for the required permission. He persuaded Leslie W. Gillette, state engineer for New Mexico, to shepherd the proposal through the league's resolution committee, and when it reached the floor during the August, 1920, meeting in Denver it passed unanimously. By late spring, 1921, all the legislatures of the league members had approved the idea and so in May the governors of California, Arizona, Nevada, Utah, Colorado, Wyoming, and New Mexico met in Denver and formally petitioned Congress for permission to form a compact.

Congress was not slow to respond. On August 19, 1921, the sixty-seventh Congress passed H.R. 6877 authorizing the states of the league to enter into a compact "not later than January 1, 1923, providing for an equitable division and apportionment among said states of the water supply of the Colorado River and the streams tributary thereto . . ." Congress provided for a federal representative to the commission and decreed that the agreement to be entered into would take effect upon ratification by the legislatures of all the states involved plus the Congress. The Colorado River Commission was formally in existence.

President Warren G. Harding selected Herbert Hoover, then secretary of commerce, as the federal representative. The other members were W. S. Norviel (Arizona), W. F. McClure (California), Delph Carpenter (Colorado), J. G. Scrugham (Nevada), Stephen B. Davis (New Mexico), R. E. Caldwell (Utah), and Frank C. Emerson (Wyoming). The new commission, with Secretary Hoover as its chairman, held its first meeting on January 26, 1922, in Washington, D.C., and from the start it was obvious that getting the seven states to agree on a plan to divide the waters was not going to be easy. Just because the League of the Southwest had transformed itself into the Colorado River Commission did not mean that the years of distrust which had caused the stalemate would suddenly evaporate. In fact, the talks held in Washington served only to stiffen the resolve of the participants and to harden the divisions between them. On January 30, the Washington meetings were adjourned and the members headed home, ostensibly to hold hearings and consult with their constituents. It also gave Hoover and other federal officials the opportunity to apply a little pressure to individual state delegations and to search for a way out.
In the meantime the federal government was moving forward on still another front. Despite the fact that fifty years had elapsed since the Powell and Stanton Expeditions had floated the Colorado, no accurate map of the river and its canyons had been made. Without such a map it would be impossible to accurately evaluate proposed dam sites and other reclamation structures and thereby plan for the water storage which would certainly be needed once the Colorado River Commission had completed its work.

In 1921 the U.S. Geological Survey set out to remedy the situation. Two survey crews were formed, one to map the Colorado into upper Glen Canyon, and one to map the San Juan and lower Glen Canyon to Lees Ferry. The crew for the upper canyon was headed by William B. Chenoweth and included Ellsworth and Emery Kolb and E. C. LaRue. The San Juan crew was led by Kelly Trimble and included Bert Loper and Elwyn Blake. Trimble's crew left Bluff, Utah, on July 18; Chenoweth's group set out from Green River, Utah, on September 10. The task of both surveys was to get an accurate topographic map of the rivers to the 3,900-foot elevation level so as to evaluate the storage capacities of various potential dam sites in Glen Canyon. On October 5 the two parties joined at the mouth of the San Juan and on October 15 they were camped at the mouth of Aztec Creek. Together with the Hough party of the Coast and Geodetic Survey, also working at the time in Glen Canyon, they hiked to Rainbow Bridge, possibly the first boating party to do so. The next several days were spent extending the topographic survey up Aztec and Bridge Creeks to the desired elevation. This certainly provided the first topographic map of Rainbow Bridge National Monument and the first survey of the area since William Douglass's pioneering work was completed in 1910. On December 15 both parties reached Lees Ferry and the topographic survey of Glen Canyon was finished. Several members of the Trimble and Chenoweth parties went on during subsequent years to survey the upper reaches of the Green River and the Colorado River through Grand Canyon. By October 19, 1923, the map of the entire river system was complete.

Meanwhile, the second session of the Colorado River Conference was set to convene on November 9, 1922, at Bishop's Lodge near Santa Fe, New Mexico. In order to provide some publicity for the commission and to acquaint delegates with the hydroelectric potential of Glen Canyon, several reclamation and power company officials decided to organize a pre-session river trip for interested commission members. In August, 1922 four boats were taken out of storage at Lees Ferry and motored upstream through Glen Canyon to Halls Creek. Here they were joined by a party of ten organized by E. C. LaRue which had departed Salt Lake City on September 3 and which arrived by horseback at Halls Crossing on September 7. Along on the trip were Arthur Powell Davis, Federal Reclamation commissioner, Claude H. Birdseye, chief topographic engineer of the U.S.G.S., Clarence Stetson, secretary of the Colorado River Commission, and John A. Widtsoe, a member of the Council of the Twelve Apostles of the LDS Church and a member of the Utah delegation to the commission.

The party spent nine days floating through Glen Canyon looking over eight possible dam sites and admiring the scenery. On Tuesday, September 12, the party hiked up Aztec and Bridge Creeks to Rainbow Bridge. Dr. Widtsoe describes the journey in stunning terms:

"We walk in red sandstone most of the time. Beautiful pools of colored water are found all along the canyon. The sandstone is tipped up a little to form steps. In one place a parallel series of steps are formed very regularly with water running down between. Very beautiful. We name it Venus' Stairs."

Concerning Rainbow Bridge itself, Widtsoe wrote, "The Bridge is a marvelous commentary on time. What cannot time do? and What wonders hath God wrought? I spent an hour dreaming in the shadow of the Bridge." John Widtsoe's magnificent journal is one of the earliest surviving testimonies to any man's appreciation of an unspoiled Glen Canyon. Unfortunately, of course, the purpose of his trip was to cement a plan which would result in the destruction and obliteration of almost everything he saw and admired.

When the Colorado River Commission reconvened at their secluded resort in the New Mexico highlands, a solution to the impasse was at hand. Taking up an idea first proposed in January by Arthur Powell Davis, Delph Carpenter suggested simply dividing the Colorado River basin in two and allocating half the river's flow to the states in each division. The amount of water to be allotted to each state could then be worked out later, and perhaps more easily, by negotiations between the states in each sub-basin. The point of division he chose was Lees Ferry at the head..."
of the Grand Canyon. It was a spot which made great sense both topographically and hydrologically. It was the only point where the river could be easily reached and crossed between Hite, Utah, and Pierce Ferry, Nevada, and it represented a break in the watershed between the tributaries which flowed into the river from Utah and Colorado and those which entered from Arizona. His suggestion resulted in Wyoming, Colorado, Utah, and New Mexico forming the Upper Basin and California, Nevada, and Arizona forming the Lower Basin. This simple but brilliant stratagem moved the negotiations at Bishop's Lodge off dead center and onto the critical question of how to allocate the water in the river between the two basins.

Part of the problem was that no one really knew, over the long term, how much water actually flowed past Lees Ferry. The closest gauging station on the Colorado was at Yuma, but as no major tributaries entered the river between these two points, it was considered by most engineers to provide a reliable estimate. Another problem was that the Colorado's flow from year to year fluctuated wildly. Between 1899 and 1920 (the only accurate measurements available) the river had peaked at 25.4 million acre-feet in 1909 and dropped to 9,110 acre-feet in 1904. The mean for those twenty-one years was 16.4 million acre-feet, but hydrologist E. C. LaRue, in his 1916 report, indicated a figure of 15 million acre-feet as more reliable. Noting that the 1899–1920 period bracketed a severe drought (1901–1904), the Lower Basin states postulated that a higher figure of 20.5 million acre-feet as a more probable average. The bickering over this figure was critical because, in order to secure an agreement, the Upper Basin states had offered to provide the Lower Basin with a fixed annual flow. They were willing to guarantee only 6.5 million acre-feet, however, a figure California and Arizona were not even willing to consider.

The logjam was broken by a compromise crafted by Hoover and Dr. Widtsoe using LaRue's estimate of the mean annual flow of the river. Under the terms of this agreement the Upper Basin was to provide the Lower Basin with 75 million acre-feet of water through the Colorado River at Lees Ferry, Arizona, during any given ten-year period. This meant, in effect, that the Upper Basin would let precisely 7.5 million acre-feet flow past Lees Ferry in any given year, whether the river was high or low, whether the year was wet or dry. The Lower Basin would have its flow guaranteed—the Upper Basin would have to depend on the weather. This meant that the Upper Basin would be dotted with dams and storage reservoirs as a hedge against the dry years and to provide a steady, reliable flow to the farms and cities that would shortly come to depend on the Colorado and its tributaries.

This agreement also made inevitable the construction of a high dam and storage reservoir somewhere above Lees Ferry but below the confluence of the Colorado with the San Juan, in other words, in Glen Canyon. Only a dam in this location could capture all the runoff from the Upper Basin and at the same time provide the ability to regulate the river's flow as precisely as called for in the agreement. The storage reservoir would need to be large so that constant annual flows past Lees Ferry could be maintained in any long sequence of drought years.

With all the "is" dotted and the "t's" crossed, the Colorado River Compact was formally signed on Friday, November 24, 1922, and the delegates returned to their individual states to persuade the various legislatures to ratify. The compact was to run into a buzz saw of opposition. California was certain that it had been robbed by the Upper Basin of a significant portion of the water to which it felt entitled; Arizona believed that it had too little information about future water needs to even begin negotiating a pact with California and so refused to consider ratifying. Resistance was also present in the Upper Basin largely because there was serious doubt that there was enough water in the river to meet the terms of the compact. Utah went so far as to ratify the compact and then rescind its ratification.

For six years the federal government watched this black comedy play itself out and then decided to act on its own. On December 21, 1928, Congress ratified the Colorado River Compact and stated that it would become operative once California and five of the six remaining states concurred. In effect, Arizona was to be hung out to dry—the compact could be ratified and made operational even without its consent. At the same time Congress authorized the

* In *Cadillac Desert*, page 263, Marc Reisner states that the first hint that the compact might have over-appropriated the river appeared in 1965. A careful reading of the documents available to the Colorado River Commission, however, indicates that as early as 1920 there was solid scientific evidence available that the average flow in the river was closer to 13 million acre-feet than the 15 million the compact actually allocated.
construction of a dam in Boulder Canyon and construction of the All-American Canal to the Imperial Valley but made such authorization contingent on ratification by June 21, 1929. To take care of the problem of Arizona’s unwillingness to even begin negotiating a water pact with California, the act set California’s share of the river at 4.4 million acre feet annually. In effect, this allocated about 2.8 million acre-feet to Arizona, and as far as Congress was concerned the water issues within the Lower Basin were settled.\footnote{Arizona did not ratify the compact until 1944.}

With its dam and canal very nearly a reality, California responded with lightning speed. Within three weeks the legislature unanimously approved the Colorado River Compact and the governor signed the resolution. After much discussion and with extreme reluctance, Utah again ratified the compact on March 6, 1929, thereby providing the six-state margin Congress had demanded. On June 25 President Herbert Hoover pronounced the treaty to be in force, and the Law of the River, as it was soon to be known, became a reality.

As part of the Boulder Canyon Act the Congress authorized the secretary of the interior

“to make investigation and public reports of the feasibility of projects for irrigation, generation of electric power, and other purposes in the states of Arizona, Nevada, Colorado, New Mexico, Utah and Wyoming for the purpose of making such information available to said states and to Congress and of formulating a comprehensive scheme of control and the improvement and utilization of the water of the Colorado River and its tributaries.”\footnote{Echo Park and Beyond}

The Interior Department did exactly as it was told. By 1946 they had a report ready for the Congress and the seven basin states identifying 134 potential projects or units of projects.\footnote{Wyoming for the purpose of making such information available to said states and to Congress and of formulating a comprehensive scheme of control and the improvement and utilization of the water of the Colorado River and its tributaries.} However, the report warned, “There is not enough water available in the Colorado River system for full expansion of existing and authorized projects and for development of all potential projects outlined in the report.”\footnote{Wyoming for the purpose of making such information available to said states and to Congress and of formulating a comprehensive scheme of control and the improvement and utilization of the water of the Colorado River and its tributaries.} It therefore asked the states to work together and prioritize their needs.

One proposal of special note was for a dam in Glen Canyon at LaRue’s preferred site four miles upstream from Lees Ferry. The Bureau of Reclamation provided two alternatives for the Glen Canyon project. The first was a dam 401 feet high with a storage capacity of 8.6 million acre-feet. This project would work in tandem with a dam at the mouth of Dark Canyon on the Colorado in Cataract Canyon and a dam on the San Juan at Great Bend. These three dams would together maximize hydroelectric generation capacity from the two rivers. The second alternative was for a single high dam at the Glen Canyon site. This dam would raise the water 604 feet and create a reservoir containing 34 million acre feet.\footnote{Wyoming for the purpose of making such information available to said states and to Congress and of formulating a comprehensive scheme of control and the improvement and utilization of the water of the Colorado River and its tributaries.} This alternative maximized storage capacity, but its lake would have inundated both the Dark Canyon and Great Bend dam sites and thereby reduced the project’s hydroelectric potential. It is worth noting at this point that a dam somewhere in lower Glen Canyon had been part of the picture at least as far back as 1916. The only controversy was its exact location and its size.

By 1950 all remaining water issues were settled and the Department of the Interior and the four states of the Upper Basin had a proposal ready to present to Congress. This plan, called the Colorado River Storage Project (CRSP), was but the first phase of a massive engineering program which would eventually involve a complex series of canals, trans-basin diversions, irrigation works, and hydropower developments. The initial stage called for the construction of ten major dams and attendant storage reservoirs. There was to be one dam on the Yampa (Cross Mountain), three on the Gunnison (Blue Mesa, Whitewater, and Crystal), four on the Green (Echo Park, Flaming Gorge, Gray Canyon, and Whirlpool), one on the San Juan (Navajo), and the granddaddy of them all, Glen Canyon on the Colorado.\footnote{Wyoming for the purpose of making such information available to said states and to Congress and of formulating a comprehensive scheme of control and the improvement and utilization of the water of the Colorado River and its tributaries.} Two of the dams, Whirlpool and Crystal, were strictly designed for power generation; the others were to be multiple use facilities built for river regulation, water storage, and hydropower.

The structure planned for Glen Canyon was a vastly different dam than either of the alternatives presented in the 1946 document. For one thing it had been moved upstream to a point seventeen miles above Lees Ferry. The bureau had been busy studying the rock at many different sites and had concluded that a location near the mouth of Wahweap Creek presented the fewest difficulties. For another, the proposed dam was lower by twenty-five feet than the high dam envisioned earlier. It was to raise the river 580 feet and have a storage capacity of 26 million acre feet, 24 percent less than that planned eight years
were not sure a higher dam would hold in the porous and fracture-prone Navajo Sandstone. Even so, it would be a massive achievement, pooling behind its graceful concrete span a reservoir holding over half the storage capacity of the entire Colorado River Storage Project and representing almost two years’ flow of the whole Colorado River system.

The bureau presented its program to Congress, confident of a friendly reception and swift approval. The senators and representatives of the Upper Basin had wholeheartedly supported appropriations for Boulder Dam and the All-American Canal and felt it was high time they now got their share of federal money and attention. The boys at the bureau were convinced that they were doing God’s work by harnessing otherwise useless rivers, thereby bringing water to a thirsty land, and they felt it would be easy to sell at least the major components of the plan to a development-minded Congress and a newly elected Republican administration. They foresaw no problem with the fact that two of their dams were square in the middle of a national monument.

Dinosaur is an odd-shaped preserve straddling the boundary between northeastern Utah and northwestern Colorado. It was originally proclaimed a national monument by President Woodrow Wilson in 1915 to protect a unique quarry of dinosaur bones and fossils discovered along the Green River by paleontologist Earl Douglas in 1909. The bones actually protruded from the surface in the grey and pinkish shales of the Morrison Formation, and the opportunity to watch scientists dig the huge femurs and vertebrae out of their final resting place attracted a fair number of visitors. These tourist dollars were helping to sustain Vernal, Utah, and other nearby communities, and so by the late 1920s the prospect of increasing the flow of money into area pockets had local people lobbying the National Park Service to increase the size of the monument and extend it into the highly scenic canyons adjacent to the quarry.

The Park Service found the idea interesting and therefore sent Roger Toll, superintendent of Yellowstone National Park, to evaluate the scenic and historical merits of the proposal. His survey resulted in a letter from Harold Ickes, secretary of the interior to President Franklin Roosevelt, in April 1938 recommending an expansion of Dinosaur National Monument to include the canyons of Lodore, Whirlpool, and Split Mountain on the Green to the north and the beautifully sculpted canyon of the Yampa to the east. The proposal was not without controversy, however. In the early 1900s the Federal Power Commission had made several power withdrawals in Lodore and along the Yampa, and the agency was concerned that the monument expansion not affect these withdrawals. Accordingly, language was inserted in the presidential proclamation to the effect that, “This reservation shall not affect the operation of the Federal Water Power Act of June 10, 1920, as amended, and the administration of the Monument shall be subject to the Reclamation Withdrawal of October 17, 1904, for the Browns Park Reservoir Site in connection with the Green River Project.”

Thus satisfied, the FPC withdrew its objection, and on July 14, 1938, President Roosevelt issued the proclamation expanding Dinosaur National Monument to 312 square miles in two states. In its wilderness heart, at the confluence of the Green and the Yampa, lay an incredibly beautiful place called Echo Park. Named by Major Powell while he and his party camped along its banks on June 17–21, 1869, it was at this spot that the Bureau of Reclamation proposed to put its dam.

The structure the bureau proposed for this location was a concrete arch dam rising 255 feet above the river and impounding a reservoir with 6.46 million acre-feet of storage capacity. It was designed to work in tandem with a second much smaller dam downstream in Whirlpool Canyon whose sole purpose was to generate electricity. Taken as a single unit, the Echo Park-Whirlpool Canyon project would have been the largest power producer on the Green. Its reservoir was puny, however—barely one-fourth the size of that planned for Glen Canyon. The site was actually one of the fourteen potential sites staked out on the river by the U.S.G.S. Green River survey of 1922 led by Ralf R. Woolley, but its selection on the Bureau of Reclamation’s final list made it the centerpiece of the entire Green River portion of the CRSP.

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* Much of the material which follows concerning Dinosaur National Monument and the Echo Park controversy is taken in summary form from Mark W. T. Harvey's encyclopedic treatment, *A Symbol of Wilderness: Echo Park and the American Conservation Movement* (Albuquerque, New Mexico: University of New Mexico Press, 1994). Therefore, except at critical junctures, the only sources cited in subsequent pages are those supplying information beyond the scope of Mr. Harvey's work.
Figure 4.4: The basin of the Colorado River showing sites proposed by the Bureau of Reclamation as part of the Colorado River Storage Project. Lees Ferry is in the middle of the figure just below the Utah line.
The National Park Service was well aware of the area's potential for hydroelectric development at the time Dinosaur National Monument was expanded in 1933, and had even gone so far as to agree that once the dams were in place the status of the monument would be changed to that of a National Recreation Area. By 1950, however, the Park Service was singing a different tune. In a document actually compiled in 1946 the service stated, "The dam would be totally alien to the geology and landscape of the monument. It would be... from the viewpoint of monument values, a lamentable intrusion... Particularly deplorable effects of the Echo Park Reservoir would occur in the localities of Pat's Hole and Echo Park..."

The Park Service and the Bureau of Reclamation were, however, both agencies of the Department of the Interior, and at the time the bureau was by far the more powerful both in terms of influence and appropriations. It was, therefore, a foregone conclusion that once the proposal was before Congress the bureau's voice would be the only one heard. However, in an effort to appear fair, interior secretary Oscar Chapman held a public hearing on Echo Park on April 3, 1950, in the Interior Building in Washington, D.C. Among the opponents who testified were Bestor Robinson of the Sierra Club, William Voight, Jr. of the Izaak Walton League, Charles Saurs of the Advisory Board on National Parks, Ira Gabrielson of the Wildlife Management Institute, and Newton Drury, director of the National Park Service. By today's standards, it was an impressive gathering, but at the time conservation organizations such as the Sierra Club were mostly small with very localized membership and almost no national voice. Their argument was further weakened by the fact that almost none of the participants at the hearing had even been to Echo Park, much less floated down the rivers which were in dispute. Their case rested rather on the notion of national parks and
monuments as sacred American places which should be inviolate to development, particularly of the type contemplated by the Bureau of Reclamation.

It was a strong theoretical argument but one not likely to win the day. Chapman bided his time and then at the end of June announced his decision in favor of the bureau’s proposed dam. Newton Drury was furious. In his annual report to the secretary of the interior he blasted the Bureau of Reclamation for putting the whole National Park System in danger and then resigned as director of the Park Service effective April 1, 1951. In the meantime the Saturday Evening Post published a scathing piece by Bernard DeVoto entitled “Shall We Let Them Ruin Our National Parks?” Concerning the proposal for the Echo Park complex, he wrote, “The only reason why anyone would ever go to Dinosaur National Monument is to see what the Bureau of Reclamation proposes to destroy.”

The piece was accompanied by stunning photographs of Echo Park and Whirlpool Canyon and generated a high level of interest and discussion nationwide. This, coupled with the furor over Drury’s very public resignation, put Chapman in a bind. Unwilling to saddle the Democrats with any additional controversy on the eve of a presidential election, he simply refused to submit the Colorado River Storage Project to Congress. The debate would have to await a new administration.

Although not apparent at the time, the delay played right into the hands of the project’s opponents. With awareness of the consequences of the bureau’s proposals on the increase, the public mood in favor of continued unrestrained development was beginning to shift away from what had heretofore been almost unanimous acquiescence. It would, however, take leadership and considerable skill in organization and public relations to translate this general unease into a movement powerful enough to stop the forward momentum of a plan thirty years in the making.

That leadership was to come, interestingly enough, from the badly fragmented American conservation movement, and the impetus began with a small California-based hiking group few people had ever heard of.

Harold Bradley was a longtime member and officer of the Sierra Club and one of the few who had actually floated the rivers of Dinosaur National Monument. His father had been active in the club since the early days of the century, and Harold had childhood memories of Hetch Hetchy Valley and its destruction by a dam in 1923. He brought to the Echo Park controversy not only firsthand knowledge of the scenic values involved and a commitment to stopping the bureau’s plan but also a home movie taken during his river trip. The film began making the rounds of Sierra Club chapters, most of which were located in northern California, and excited considerable interest, so much so that club leadership began planning for a series of trips down the Yampa and Green for the summer of 1953. Nearly two hundred members made the journey, including most of the officers. From that point on the enthusiasm within the club for the battle ahead began to rise exponentially.

The unquestioned leader of the upcoming battle proved to be the club’s executive director, David Ross Brower. Born in Berkeley, California, on July 1, 1912, he had attended UC-Berkeley from 1929 to 1931, but dropped out to work as a writer and publications editor. There were two obvious passions in Dave’s life—words and mountain climbing—and by working for the Sierra Club he was able to indulge both. He had been a member since 1933, had helped edit the Sierra Club Bulletin since 1935, and became the club’s first executive director in 1952. Under his leadership the Sierra Club was to be transformed from a small California-based hiking association principally concerned with the Sierra Nevada to a national organization whose name was virtually synonymous with the environmental movement itself. He was a passenger on the 1953 float trip to Dinosaur, and from that point on the battle to defeat the Echo Park power complex became his personal obsession.

Dave Brower realized early on that if the Bureau of Reclamation were to be stopped three elements in the strategy would be absolutely necessary. First, a national campaign would need to be waged, through every media outlet available, to inform the American people about what was at stake in the fight. Not only were scenic values about to be destroyed, but, so the argument went, the entire future of the national park ideal was at risk. Second, a coalition of organizations with national stature would need to be formed. Brower’s leadership saw to it that by the time the battle was in full swing seventy-eight organizations had signed on, including such heavy hitters as the Izaak Walton League and the American Federation of Garden Clubs, plus virtually every conservation-minded organization in the country. Third, it
Figure 46: Whirlpool Canyon. The Echo Park-Whirlpool complex was the focus of the first intense environmental battle of the modern era.
was Brower's particular genius in this case to realize that even with the first two elements in place success would hinge on finding some major flaw in the Bureau of Reclamation's justification for the project. Although counseled away from this part of the strategy by such notables as Luna Leopold, formerly chief hydrologist of the U.S.G.S., and Walter Huber, a professional engineer and the club's president, Brower realized that an appeal to scenery and preservation alone would not carry the day. Congressmen normally friendly to development-oriented interests but conservative by nature would need a reason to vote against the project strictly on its lack of merit.

Of course, developing a media campaign and setting up the required coalition take time, and the election of Dwight Eisenhower to the White House in 1952 gave the conservationists the breathing space they needed. Fiscally conservative and basically hostile to the rolling pork-barrel politics of his predecessor, Eisenhower took office and promptly slapped a no-new-starts policy on expensive federal water projects. Therefore, by the time newly appointed secretary of the interior Douglas McKay had sorted things out and had decided to back the bureau's plan for Echo Park, it was December, 1953, and Brower was nearly ready for them.

Editorials and newspaper articles were popping up all over the country, and visitation to the national monument, which had never been very high, started to skyrocket. Brower had two new motion pictures, Wilderness River Trail about Dinosaur and Second Yosemite about the tragic loss of Hetch Hetchy, making the rounds of Rotary and garden clubs from Massachusetts to California, and on January 4, 1954, just two weeks before the start of congressional hearings on the Colorado River Storage Project, his newly minted and ever-expanding coalition held a press conference in Washington, D.C., denouncing the Echo Park portion of the project. Only the third piece in Brower's grand strategy was missing.

He found the final argument he needed in the congressional testimony of Ralph Tudor, an undersecretary at the Department of the Interior. Tudor patiently explained to the House Interior Committee that Echo Park Dam was necessary because its evaporation rate was lower than any possible alternative, such as New Moab, Gray Canyon, or Dewey. In this he was undoubtedly correct and had he stopped there the bureau's argument might have been convincing. However, Tudor took the fatal next step and proposed a hypothetical. Suppose, he mused, we were to simply add thirty-five feet to the height of the proposed dam in Glen Canyon. This would add 5 million acre-feet to that reservoir's storage capacity, almost the capacity of the Echo Park-Whirlpool Canyon complex. However, the reservoir behind the high Glen Canyon alternative would have a surface area of 186,000 acres and would evaporate 691,000 acre-feet annually. The bureau's preferred low Glen Canyon-Echo Park combination would evaporate 627,000 acre-feet annually. The difference was only 70,000 acre-feet, but Tudor triumphantly announced the difference to be 165,000 acre-feet. Some functionality at the Department of the Interior had forgotten to subtract Echo Park's projected evaporation from the non-Echo Park alternative and had given Tudor unreliable information.

Brower seized on the error like a lion with a mouse in its paw—at least it was a start. He still had 70,000 acre-feet to account for, but he figured where there was one mistake a second might be lurking. Evaporation was critical to the bureau's argument because the bureau said it was and because every acre-foot evaporated in the Upper Basin would need to be made up in storage somewhere else. Brower began to look hard at the bureau's figures for Glen Canyon: the low Glen Canyon reservoir would have a surface area of 153,000 acres and would evaporate 526,000 acre-feet annually, while, according to the bureau, the high Glen Canyon alternative would have a surface area of 186,000 acres and would evaporate 691,000 acre-feet annually. He assumed that surface area and evaporation would be in direct proportion, i.e. doubling the surface area would double the evaporation, etc., but the bureau's estimates did not conform to this model. Doing his own calculations Brower figured that the high Glen Canyon alternative should only evaporate 640,000 acre-feet annually, making this alternative very close to a substitute for the Echo Park complex. He was sure that the opening he sought had at last been found and it lay in the bureau's own arguments.

When Brower laid out his findings before the House, the Interior Committee was stunned. How is it that this college dropout could out-calculate the best engineers and hydrologists in the country? The very next day the bureau had Cecil Jacobsen fly out from the Salt Lake City regional office to counter the argument. What he did basically was give the House committee a snow job by using calculus and
Figure 47: David R. Brower
higher-order physics to demonstrate that Brower's linear model was a vast oversimplification. Probably no member of the committee had the foggiest notion of what Jacobsen was talking about, but they were sure that the upstart Brower had been put in his place. The Utah delegation in particular was sure it would never have to hear any more about this evaporation nonsense.

Brower understood no more about Jacobsen's argument than did any member of the House, but he had friends who might. He called Richard Bradley, professor of physics at Cornell University and son of Harold Bradley. Richard had floated Dinosaur with the Sierra Club in 1953, was a committed environmentalist, and he told Dave that he would see what he could do. What he found was that evaporation was a very inexact science with little published research and almost no reliable data. He confessed to not understanding Cecil Jacobsen's mathematical reasoning either but opined that the bureau's estimates were probably as good as any.

At that point lightning struck. One day in April, while checking his mail, Richard Bradley found an envelope sent from Floyd Dominy, acting assistant commissioner of the Bureau of Reclamation and soon-to-be commissioner in his own right. The envelope contained revised bureau estimates for evaporation from the high Glen Canyon alternative and it pegged the rate at 646,000 acre-feet per annum, almost exactly what Dave Brower had calculated. Why Floyd Dominy, of all people, would be assisting the conservationists in a controversy involving his own agency has never been answered (and Floyd isn't talking), but the cat was now out of the bag. Brower had his issue and he kept hammering it home all through the summer and fall of 1954.

It is worth noting at this point that David Brower and the Sierra Club were not proposing Glen Canyon Dam as a substitute for Echo Park Dam—the bureau was already planning on building a dam in Glen Canyon. Nor was Dave necessarily proposing to use high Glen Canyon as an alternative to Echo Park. He was simply using a tactic that every successful debater needs to have honed to an art form—the ability to use an opponent's arguments to build the case against his own proposition. Ralph Tudor, not David Brower, raised the possibility of a high Glen Canyon Dam as an alternative to the Echo Park complex. He introduced it as a way to show that there was no viable substitute to building Echo Park Dam. Dave Brower was simply using Tudor's own hypothetical as a way to demonstrate that there was indeed at least one way to meet every stated objective of the CRSP without sacrificing Dinosaur National Monument in the process. To Brower's credit he was ready with other alternatives as well. He pointed out that the Upper Basin could utilize 70 percent of its allotted water from the Colorado River basin without building a single storage reservoir. Also, as a third alternative he proposed reducing the number of CRSP dams to four (Flaming Gorge, Cross Mountain, Navajo, and Curecanti), thereby providing a cushion of at least 23 million acre-feet of storage. In Brower's opinion that stripped-down alternative would allow for full consumptive use of the water while at the same time allowing sufficient reserve to enable the Upper Basin states to meet the terms of the compact.

The argument they decided to use centered on the weak and friable rock structure at the Glen Canyon site. In October 1954, Commissioner of Reclamation Wilbur Dexheimer wrote to Richard Bradley that the high Glen Canyon alternative which the conservation alliance was pushing was inherently
unsafe in the Navajo Sandstone. In fact, he went so far as to state that bureau engineers were unsure about the safety of any dam at the Glen Canyon site. Called before the House six months later to explain himself, Dexheimer backpedaled furiously. He explained that while high Glen Canyon was inherently unstable, low Glen Canyon was perfectly safe. Since the difference in height was only thirty-five feet, it was an argument which could be sustained neither by the laws of physics nor common sense. Nobody was buying it.

A half-hearted attempt was made by the bureau to put Rainbow Bridge National Monument in the way. While low Glen Canyon would certainly flood the Kayenta Sandstone gorge beneath the bridge, the high alternative would partially inundate the bridge itself. The bureau had already admitted, however, that even with low Glen Canyon some sort of protective structure would be necessary to shield Rainbow Bridge from the disastrous effects of a fluctuating reservoir; high Glen Canyon would merely add urgency to necessity. The argument was specious and quickly went away.

By mid-1954 it appeared that Brower's three-pronged strategy was paying off. The Great Evaporation Controversy had called into question both the need for Echo Park Dam and the Bureau of Reclamation's own competence in defending it. These early successes reassured and solidified the anti-Echo Park Dam coalition, and thousands of letters had begun to pour into House offices in support of preserving Dinosaur National Monument intact. The controversy was making the House Interior Committee wary of the whole CRSP enterprise and reluctant to take any decisive action at all. The bill, therefore, languished in committee through the remainder of 1954 and landed square in the lap of the newly convened Eighty-fourth Congress early in 1955.

The continued delay emboldened David Brower to an action no one would have contemplated a year earlier. Thoroughly versed by now in every aspect of the CRSP and well-acquainted with many a sympathetic congressman, Brower thought he had the votes to defeat the whole Colorado River project, not just Echo Park Dam. Accordingly, in December, 1954, he approached the Sierra Club board of directors to ask permission for his new strategy. The board was reluctant to grant Dave's request. For one thing, the coalition of organizations so carefully built and nurtured was not happy with the change in objective. Many of the participating organizations had signed on to save the National Park system, not stop development in the whole Colorado River basin. For another, the board was not sure Dave could deliver on his proposal, and the attempt might bring with it ultimate defeat. Accordingly, not only did the board deny Brower's request, but it went one step further and passed a resolution stating that the club was not opposed to any CRSP dam outside of a national park or monument.

Dave was disappointed but not dejected. Victory in Echo Park was within his grasp and the marvelous coalition he had put together was strong and intact. In addition, he had one major card left to play. Brower figured that the capstone of his publicity and public relations effort should be a book which would not only show and explain the issues at stake in Echo Park but also celebrate the National Park idea. As publisher he lined up Alfred A. Knopf, which had a commitment to parks and conservation, and for author-editor he had Wallace Stegner, literature professor at Stanford and one of the foremost western novelists and historians of the day. This Is Dinosaur: Echo Park Country and Its Magic Rivers debuted in the spring of 1955 just as the debate over the CRSP was at its peak. Knopf donated enough copies so that one could be placed on the desk of every congressman, and Howard Zahniser of the Wilderness Society camped in the halls of the House Office Building with a movie projector offering continuous showings of Brower's movies, particularly Two Yosemites. Congress had never before seen a media blitz of this magnitude. Members were literally besieged by angry constituents demanding that Dinosaur be left alone, and the mail on the issue was overwhelmingly in favor of preservation.

In spite of all this the outcome remained in doubt until the last possible moment. On April 20, 1955, the Senate approved the Colorado River Storage Project, with Echo Park Dam included, by a vote of 58-23. On June 6, John Saylor, a Republican representing Pennsylvania's Twenty-second District and the point man on the Interior Committee for the conservationists, introduced an amendment to delete Echo Park from the bill. It failed, and the prospects looked bleak. However, on June 8, by skillful parliamentary maneuvering, Representative Saylor was able to resurrect the amendment, and this time it passed 15-9. However, the subcommittee attached a rider to the bill requiring a restudy of the whole issue of Echo Park with a report due the president by
the end of 1958. This rider was anathema to the preservation coalition, and they turned up the heat. By now it was becoming increasingly obvious that no bill with even a hint of Echo Park Dam was going to pass the full House, and so on June 28 the full Interior Committee, by a vote of 20-6, deleted the offending amendment. Echo Park Dam was gone for good.

However, the battle was not done. Brower and his coalition partners knew that when the House bill went to conference with the Senate it would be possible to reinsert Echo Park Dam almost by stealth. Furthermore, when the conference committee report came back to the House no amendments would be allowed. Accordingly, the preservationists upped the ante. They demanded provisions in the bill which would prevent Echo Park Dam from ever being considered again, at least not without considerable parliamentary maneuvering, and it was here that muscle-flexing really became evident. The preservationists rounded up the votes necessary to prevent the House from even considering the CRSP bill until appropriate language was added. Brower and his people were thereby able to keep the proposal bottled up for the remainder of 1955.

Western congressmen such as Wayne Aspinall of Colorado and William Dawson of Utah tried to find a little wiggle room, first by pledging not to support Echo Park Dam in the House-Senate Conference Committee and then by pledging to defeat any bill containing the project. The coalition held Congress in an iron grip, however, and as the year ended, it was obvious that unless western senators and representatives relented on this issue there would be no Colorado River Storage Project at all. Word finally came down in December, 1955, that the Upper Basin congressmen were ready to deal. The conservation coalition sent in its most amiable and best-liked member, Howard Zahniser, executive secretary of the tiny Wilderness Society. Howard had worked for the federal government, first with the Biological Survey and then with the Department of Agriculture, finally moving to the Wilderness Society in 1945. He was well-acquainted with the federal bureaucracy and with Congress, so he was the logical choice.

The fateful meeting took place on December 20 in Congressman Dawson’s office, and when it was over the coalition had its legislative goals in hand. Inserted into the Colorado River Storage Project Act were the following words: “It is the intention of Congress that no dam or reservoir constructed under the authorization of this chapter shall be within any national park or monument.” This provision effectively blocked the authorization of any construction within the boundaries of Dinosaur National Monument without legislative repeal of this language. The Echo Park-Whirlpool Canyon complex was, therefore, never to appear again.

Rainbow Bridge National Monument was also important as part of these deliberations. Not quite satisfied that the above language was sufficient to protect it, conservationists insisted on a second protective provision: “... as part of the Glen Canyon Unit the Secretary of the Interior shall take adequate protective measures to preclude impairment of the Rainbow Bridge National Monument.” These two provisions, taken together, made it illegal for any water from the proposed reservoir behind Glen Canyon Dam to back under the bridge, and it gave the secretary of the interior the responsibility and authority to see that such a thing did not happen.

With these two protective measures now in the bill the conservationists withdrew all objections, and on March 1, 1956, the Colorado River Storage Project Act passed the House 256-136. The conference committee version, sans Echo Park Dam and with both protective provisions in place, passed both House and Senate on March 28, and on April 11 President Eisenhower signed it into law.

The Bureau of Reclamation lost no time beginning work on the units of the CRSP which Congress had authorized. The first contracts related to Glen Canyon Dam were for the access road to the dam site from Kanab, Utah, and were let within the month. Construction on the dam site itself, which included building the steel arch bridge across the canyon, site preparation for the dam, and the blasting of the diversion tunnels, actually commenced on October 15. The first bucket of concrete was poured at last on June 17, 1960.

In the forty-odd years since the Colorado River Storage Project Act was passed, a huge amount of mythology was built up around Glen Canyon Dam, much of it blaming David Brower and his allies for sacrificing an unknown Glen Canyon in favor of preserving the somewhat less scenic but better-known canyons of the Green and Yampa in Dinosaur National Monument. Unfortunately, some of this mythology has been printed in otherwise well-researched books and articles. Phil Fradkin writes, "In the early
1950's there were plans for a dam in Echo Park but conservationists succeeded in blocking it and the site was switched to Glen Canyon. Russell Martin states that David Brower believed and stated publicly that "... as long as little Rainbow Bridge National Monument ... was protected, Reclamation ought to build Glen Canyon Dam to the very rim of the canyon walls." Not even the Sierra Club Bulletin was immune. Commenting in 1973 on the Echo Park controversy it wrote, "The damsite has been moved to a remote little-known place called Glen Canyon ..." Each of these statements betrays a serious lack of knowledge concerning the history of water planning and development in the Southwest and a gross misunderstanding of the role Glen Canyon Dam was to play in the whole Colorado River equation.

The fact is, of course, that the dam in Glen Canyon was no last-minute substitute for the Echo Park-Whirlpool Canyon complex. Glen Canyon had been in the bureau's plans from the beginning and was the key element in the whole picture. By capturing the entire runoff from the whole Upper Basin, it made precise regulation of the river into the Lower Basin possible, and its huge storage capacity was the hedge the Upper Basin needed against the dry years which would surely come. With the large reservoir in place, Utah, Colorado, and Wyoming could divert water from the basin for agricultural and industrial uses without having to worry about the flow of the river dropping below the required 7.5 million acre-feet per year specified in the compact. By contrast, Echo Park was a very small fish in a very large pond. Its comparatively tiny reservoir would have had no measurable impact on the CRSP's total storage capacity, and with Flaming Gorge Dam just upstream its effect on river regulation would have been minimal.
Echo Park’s sole reason for being was the generation of electricity, a function which at Glen Canyon was a mere sidelight. The only observable effect the deletion of Echo Park Dam had on the CRSP was to alter the bureau’s repayment schedule for construction of its water delivery network, and the bureau was not about to defend the despoliation of a highly scenic national monument as an accounting gimmick. Hence, the government simply had no adequate fallback position once Brower and his allies had shredded its evaporation rate hypothesis, and the conservation alliance found the bureau’s feeble arguments not to push aside.

That the tool David Brower used to demolish the bureau’s argument for the necessity of a dam at Echo Park happened to be a higher-than-planned dam in Glen Canyon was perhaps unfortunate, but it was an argument handed to him by the Bureau of Reclamation itself and he would have been foolish not to use it. It is also crucial to remember that the alternative the “Save Dinosaur” crowd was using was not Glen Canyon Dam itself but a simple increase in the height of the planned reservoir. The high Glen Canyon structure Brower and his friends were pushing was a mere 5 percent higher than the dam the bureau was already planning to build anyway. The most telling argument, however, against those who would blame David Brower for the eventual inundation of Glen Canyon is that the high Glen Canyon Dam, which the preservationists forced were using throughout most of the debate on the CRSP, was never built. When the debate was finished and the project authorized by Congress, the Bureau of Reclamation went out and built, without variation, the dam in Glen Canyon that they had always planned to build. Hence, the net result of Brower’s arguments was the deletion of the Echo Park-Whirlpool Canyon complex from the CRSP; the net effect on the bureau’s plans for Glen Canyon was nil.

A more poignant but no less false assertion is that the Sierra Club failed to fight the construction in Glen Canyon because of total ignorance concerning the scenic wonders the dam and its reservoir would utterly destroy. While it is certainly true that Glen Canyon was not a widely known and appreciated wonder, it was not exactly “the place no one knew.” Tour guides such as Ken Sleight, Norm Nevills, and Art Greene had been ferrying paying customers down the Colorado and through Glen Canyon for decades before the debate erupted, and it seems fair to assert that many more people had seen Glen Canyon than had ever boated the Green and Yampa Rivers through Dinosaur. Wallace Stegner, a Sierra Club member, leader in the fight to save Echo Park, and editor—author of This Is Dinosaur, had floated Glen Canyon twice and had been mesmerized by the experience. He told Dave Brower that the fight over Dinosaur was a no-win situation for conservationists, that even if Echo Park were saved a much more scenic and glorious place would almost certainly go under.

Back in Utah, forces were mobilizing to keep Glen Canyon as well as Echo Park free from dams. A smattering of river runners, canyon country enthusiasts, and outdoor activists led by Al Quist, owner of Moqui Mac River Expeditions, and Ken Sleight formed the Friends of Glen Canyon in an effort to focus at least some attention on a place they felt was getting short shrift. In June, 1954, they sent a delegation to Washington and actually got a hearing before a Senate committee, where they urged the creation of Glen Canyon National Park. They extolled the beauty of the canyon to anyone that would listen, including Dave Brower and his allies, but in the end their voice was too faint and their influence with the Washington power structure virtually nonexistent. The preservationist alliance was certainly sympathetic but felt that saving a place which was actually protected as part of the National Park system had to take precedence.

As has been shown already, David Brower went to the Sierra Club board in late 1954 to ask permission to change tactics and attempt to bring the whole CRSP bill to a grinding halt. To this day Dave believes that had the club backed him he could have at least forced a drastic reworking of the whole Upper Basin water plan and thereby saved Glen Canyon. There is no question that anti-CRSP sentiment in the House of Representatives was large and growing. California lawmakers were perfectly happy to see the Colorado River flow undiminished and unregulated through Grand Canyon and into Lake Mead; midwestern farm states were not at all pleased to see billions in tax money spent to grow crops that were already in surplus; genuine conservatives were appalled that the first Republican administration in twenty years was actually pushing through Congress the largest load of pork since the New Deal. However, with the benefit of hindsight it seems obvious that David Brower could not have stopped the development of the water resources in the Upper Basin, at least not permanently. The pressures for
development were simply too great to overcome, and the national obsession with the preservation of natural landscapes, which is so much a part of the current political climate, was, in the 1950s, nowhere to be found. Fueled in part by military and other defense-related spending, Utah's economy began to boom both during the war and afterward, and its rapidly expanding population was putting a premium on both water and electricity. That the development-minded '50s generation would simply let the Colorado and Green Rivers flow undeveloped into the Lower Basin was, therefore, unthinkable. Had Brower stopped the CRSP in 1955 it would have been back in 1956 or in some subsequent year, perhaps in altered form, perhaps not. In any case, water resource development in the Upper Basin, at least under terms dictated by the Colorado River Compact, was absolutely dependent on a dam in Glen Canyon.

Dave Brower realized this in May, 1954 when, speaking before the Water Resources and Power Task Force of the Hoover Commission in San Francisco, he stated, "I do not think there will ever be any alternative found for Glen Canyon reservoir. That is such an important part of the whole Upper Colorado project I don't see how even the nature-lovingest person of all . . . could find a way to save that." He had it exactly right then, so his subsequent suggestion that Upper Basin water might be stored in Lake Mead really misses the point. The Law of the River is quite specific in asserting that all the water flowing past Lees Ferry, Arizona, belongs to the Lower Basin states. The compact has the binding force of a treaty, and, therefore, it would take much more than an act of Congress to change that reality. Hence, for all practical purposes the fate of Glen Canyon was sealed on that November day in 1922 when the Colorado River Commission decided to divide the waters at Lees Ferry. The subsequent destruction of one of the most beautiful places on earth rankles nature lovers and environmentalists to the core and will continue to be an open wound for generations to come, but there is no excuse whatever for laying the blame at the doorstep of either David Brower or the Sierra Club.

With all this in view, was there no way that Glen Canyon could have been saved? Back in the late 1930s a small opening presented itself and came agonizingly close to succeeding. In June, 1936 Franklin Roosevelt's secretary of the interior, Harold Ickes, proposed a huge new national monument in southern Utah. Encompassing 6,968 square miles, it would have included almost all of today's Grand Staircase-Escalante National Monument, Canyonlands National Park, Glen Canyon National Recreation Area, and more besides, amounting to nearly 8 percent of the total area of the state of Utah. After running into fierce opposition from local cattle ranchers and the State Planning Board, the proposal was pared down in 1938 to 2,450 square miles, hugging closely the Green and Colorado Rivers from Mineral Canyon and Moab on the north to Lees Ferry on the south. The new proposal actually attracted considerable local support but ran into delay and difficulty over language state authorities wanted inserted into the proposed presidential proclamation which would have guaranteed the right to future power and mineral development inside the monument. The outbreak of World War II caused an understandable shift in Interior Department priorities from conservation to development, and the Escalante national monument proposal went on the shelf, never to return. Had the area been part of an officially designated park or monument it might have been possible to save it; without any official status tucked away in one of the most remote and desolate corners of the country, there is little anyone could have done to save Glen Canyon from its fate.

Instead of concentrating on what the conservationists of the time failed to do, it might be wise instead to contemplate what they accomplished. It is probably no exaggeration to state that the battle over Echo Park and Rainbow Bridge in the 1950s shaped in large measure the environmental future of the United States. Those who were aware of the Bureau of Reclamation's plans for the Southwest were absolutely convinced, probably correctly, that if Echo Park were dammed, the national park ideal in this country would drown with it. A very bad precedent had been set when Hetch Hetchy Valley inside Yosemite National Park was flooded to provide water and power for San Francisco, and it was feared that a second such intrusion would prove fatal. As Mark Harvey has written, "Conservationists regarded Echo Park Dam as a great test. To let it be built would be to surrender to all similar efforts threatening parks and wilderness lands." Hence, what David Brower and his colleagues were defending was not a single canyon in a remote corner of Utah, but rather the integrity of all those places which had supposedly been set aside in perpetuity.
In defending the idea of a national park as a refuge of wilderness and unspoiled beauty, Brower struck a nerve in the conscience of the American public and was thereby able to rally a powerful coalition to his cause. Mark Reisner is certainly wrong when he attributes the salvation of Echo Park to “Brower and a handful of conservationists.” The army of supporters which Brower was able to muster is even today the largest single-issue coalition ever to confront a congressional proposal. Ordinary Americans by the tens of thousands called and wrote their congressmen on this issue, not because they had floated or ever expected to float the rivers in question, but simply because national parks and monuments and the ideas behind them were too important to admit despoliation. The issues, then, were not primarily about scenery or recreation; rather the crux of the argument was that within those arbitrary lines drawn on a map the kind of development being proposed by the Bureau of Reclamation was simply unacceptable.

Of course, none of this would have mattered had it not been for the bulldog tenacity and unerring instincts of one man, David Ross Brower. By rejecting the counsel of his closest advisors and confronting the bureau’s arguments head on, Dave revealed himself to be a brilliant tactician and a master of logical argument. Interestingly enough, the experience he gained in the Echo Park fight translated directly to the tactics he was to employ a decade later when once again he was to face the Bureau of Reclamation in battle, this time over proposed dams in the Grand Canyon.

Dave was privileged to float through Glen Canyon three times before the gates at the dam finally closed and this beautiful, gentle canyon became only a treasured memory. The loss of this place was to haunt his dreams for decades thereafter, but it only steeled his resolve that, at least on his watch, this tragedy would not be repeated elsewhere. In *The Place No One Knew* he penned perhaps the most heartfelt requiem ever composed to a locale which should have been saved but wasn’t. The result is that today “Remember Glen Canyon” is a rallying cry for preservationists the world over.
Bridge Creek joined Aztec Creek, and Aztec and a hundred others the Colorado, where a bank beaver had a home but his progeny will not. For the flood has come that does not recede and the natural world will miss what the ages built here, and here alone. Just a few miles below this junction a great dam is at work. Not to put water on land. Not to control the river. Not to save water in an arid land. But to divert the force that created beauty, to generate kilowatt hours of electricity instead. For a replaceable commodity we spent this irreplaceable grandeur. Your son may pass close to it. But neither he nor any man yet to be born will ever know it, nor will the intimate things that gave this place its magic ever again know the sun.

This we inherited and denied to all others. The place no one knew well enough.

—David R. Brower