

High Country News

September 29, 1986

Vol. 18 No. 18

A Paper for People who Care about the West

One Dollar

WATER



Western Water Made Simple

The first of four special issues starts on page 8

Dear friends,



High Country News

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This is the time of year when we wonder whether *High Country News* is a newspaper or a mail room. C.B. Elliott and her crew have just sent out -- and you should have already received -- your fair share of 5,000 Research Fund appeals.

The mail room atmosphere will continue for the next two months. These four special water issues will go to both readers and to 6,300 non-readers. At least we hope they are non-readers. Inevitably, some readers who belong to organizations with whom we exchange lists will receive more than one copy of these issues. If you're a real joiner, especially of groups concerned with fish and rivers, you may receive several extra copies.

We ask that you share the surplus with neighbors, friends or co-workers. You may also choose to tell us that we have, once again, screwed up, in which case we will send you a letter that apologizes and explains that, given our resources, such duplication is inevitable.

These water issues are HCN's most ambitious undertaking in three years. For the first time in that period, the paper is larger than its standard 16 pages. We had expected to go to only 20 pages, but it turned out that our printer, the *Glenwood Post*, didn't have something called a dinky, which is necessary to print a number of pages not divisible by eight. The *Post* didn't have a dinky because we had solemnly assured it, when we started printing there, that we would never exceed 16 pages. This is also the first issue in the last three years, and perhaps in the last 17 years, to use color. Finally, it is the first time we have dared print this much on a single subject.

And that scares us. Although we have stayed away from water for the last six months, we still fear drowning readers. So we have tried to keep a semblance of normality, with some Western Roundups, Hotlines and Barbs.

Paonia has three newspapers, and when we mentioned to one of the other papers that we were going to 24 pages, they giggled, since they turn out 24 to 36 pages every week. But for HCN and its antiquated equipment, 24 pages is a strain, and jokes here for the last fortnight have all been about nervous breakdowns and celebrations once the issues are done.

Despite the immersion in water, there was time to get acquainted with a touring reader -- Chuck Olmstead of Greeley, Colorado. Chuck, it turns out, has a distant relationship with HCN's editor. One of Chuck's forebears is Henry Law Olmstead, the famed landscape architect. And Olmstead worked with Betsy Pilat-Marston's forebear, Ignaz Pilat, a horticulturist from Vienna, on the design of New York City's Central Park in the 19th century.

An interest in parks may be genetic. Chuck, who teaches environmental studies at the University of Northern Colorado, has studied and written about Rocky Mountain National Park.

Another visitor from afar was Jerry Schoen, a Williamstown, Mass., computer programmer on vacation with his wife, Dyan Wiley, who heads the local arts council. He told us they hope to someday live in the West.

We were sorry to hear that Wyoming outfitter and writer Joe Back died Sept. 7 at age 87. Joe Back wrote several books, all with



Mount McKinley [Denali], Alaska

Ansel Adams

wonderful titles, such as *The Sucker's Teeth - Mooching Moose and Mumbling Men*, and his newest, in collaboration with Vic Lemmon, *The Old Guide Remembers and the Young Guide Finds Out*.

Artist and writer Mary Back, his wife of 53 years, says Joe was working on a novel, *Model T and the Lazyboard*, at the time of his death. Memorials may be sent to the Wind River Art Guild Building Fund, Box 26, Dubois, WY 82513.

As mentioned earlier, the resort town of Crested Butte, Colorado, hopes to convince the Front Range city of Aurora not to build a water storage and diversion project in Gunnison County. To that end, it has sent gift subscriptions of HCN to Aurora's three high schools. In addition, the town will sponsor an essay contest on "The importance of water conservation in Colorado's future." Winners will receive a free trip to Crested Butte, and a red-carpet welcome, says Mayor Mickey Cooper.

It is something of a David and Goliath battle; Crested Butte has 1,000 permanent residents and Aurora roughly 300 times more. But the town has experience in dealing with Goliaths. When the Amax mining company proposed a giant molybdenum mine and mill for Crested Butte in the 1970s, the ski town's representatives travelled to Amax's home community of Greenwich, Connecticut, to other Amax projects in

Australia, and elsewhere to campaign against the project. For a variety of reasons, including Crested Butte's actions, Amax spent about \$120 million on permits and land acquisition, and then dropped the project.

In the news stories about Crested Butte's fight, the *Associated Press* mentioned the gift subscriptions the town had bought, but located HCN in Crested Butte. That provoked a letter from a reader: "Have you moved again?" We haven't.

For those keeping track of the perils of Paonia, the latest blow has been the closure of Atlantic Richfield's West Elk coal mine, employing 110 people. The Mississippi utility that had been buying Arco's coal decided it was cheaper to buy out Arco's contract and purchase the coal elsewhere than to continue to import Rocky Mountain coal. Arco says it will reopen in a month with 50 employees.

To return to the Research Fund, the Ansel Adams photo shown above is one in a group of notecards that Research Fund contributors of \$250 to \$499 will receive.

Finally, a correction to Dan Dagget's story in the last issue. Kirk Koepsel of Sheridan, Wyoming, tells us the Grand Canyon shares World Heritage Site status with many other areas, including Yosemite and the Statue of Liberty.

--the staff

HOTLINE



Pellets for bullets

A professional bear-hunter in the state of Washington is leading the movement to use food instead of bullets to control black bears that ravage timber (HCN, 9/15/85). Ralph Flowers, who has killed more than 1,000 bears, says the way to keep the animals from chewing bark is to feed them five-gallon buckets of his specially developed bear-pellets. Test plots on the Olympic Peninsula show bear damage reduced as much as 87 to 100 percent through pellet feeding. Since 1975, Flowers has been the director of animal damage-control for an industrial group, the Washington Forest Protective Association, for whom he killed as many as 90 bears a season. Washington's Game Department has tentatively budgeted \$28,000 over the next two years to expand Flowers' program, and a ballot initiative on that question will be voted on this November.

WESTERN ROUNDUP

Endangered ferrets will be rounded up

Wyoming and federal game officials are trying to capture the entire population of the world's only known black-footed ferret colony near Meeteetse, Wyoming. The ferrets will be placed in a newly built research facility where state, federal and world experts will try to save the endangered species through a captive breeding program.

The 11 ferrets taken this fall bring the total number of ferrets in captivity to 17, including six trapped last year. That leaves one black-footed ferret known to be still alive in the wild. Larry Kruckenburg, Wyoming's Game and Fish communications chief, says the outlaw ferret has been spotted on several occasions but never captured.

The decision to capture the entire known population of an endangered species has few precedents and was not an easy thing to do, Kruckenburg says. There were 1,400 hours of nighttime spotlight surveys this summer -- twice that of previous years -- in an attempt to establish the exact population of the Meeteetse colony. The count was critical because Wyoming, in conjunction with a team of world specialists in captive breeding of small populations, determined that if the population numbered 14 or more, and included four breeding females, the ferrets could be safely left in the wild.

The Meeteetse colony did number 14, but only two females had litters. Those figures prompted officials to try and trap the whole colony. "Literally every expert in the world said no population could survive with that composition," says Kruckenburg. "We had to capture those animals."

Once the decisions were made August 27, the department had to act fast. By early September, the young ferrets from that season's litters disperse in search of other colonies or new territory. During this critical time researchers say young ferrets have a high mortality rate from coyotes or other predators. Ten of the 14 remaining ferrets were from this year's litters.

Trappers were in the field the day the decision was made, capturing one animal that day and most of the rest in five days. Four had been taken earlier in August. However, two ferrets from one of the litters were never captured and haven't been seen since. Kruckenburg refuses to speculate whether the two dispersed early or were eaten by predators. The department lists them as "not on study site," and doesn't count them.

This same dispersal instinct may have saved the black-footed ferret population from extinction in 1985. That year officials estimated 129 ferrets lived in the Meeteetse colony but noticed the number dwindling as the summer went on. Studies on five ferrets captured in August to start a breeding colony revealed that a canine distemper epidemic was raging through the colony. Says Kruckenburg, "Canine distemper is usually 100 percent fatal in ferret colonies." Those five died and Game and Fish captured six more.

It seemed as if the colony was empty that fall and the six in captivity might be all that was left of the black-footed ferrets. Those six survived but did not mate. However, during the winter Game and Fish officers spotted tracks in Meeteetse.



Kruckenburg suspects that some of the ferrets that had dispersed to outlying areas probably escaped the epidemic. "In all likelihood, some of those isolated ferrets returned to the core colony, which was unoccupied ferret habitat," he says.

The captive ferrets will occupy a newly built \$235,000 breeding facility at the department's Sybille Wildlife Research Unit near Laramie. If the program is successful Kruckenburg says a second breeding colony will be

started elsewhere in Wyoming or some other state. But the main intention of the program is to bring population levels up so that ferrets can return to the wild, Kruckenburg says. Besides the Meeteetse colony, the department is studying other areas. The ferret's natural range is wherever its prey -- prairie dogs -- live, which includes much of western North America.

--Steve Hinchman

There's no alternative, experts say

A decision to capture all black-footed ferrets came shortly after experts attending a three-day conference on small-population biology at Laramie, Wyoming, came to a pessimistic conclusion. They agreed that the wild population -- then at 10 animals -- would go extinct in only a few years.

Wyoming Fish and Game biological supervisor Harry Harju says it was apparent that the few remaining Meeteetse animals were needed for a captive breeding program and should not be exposed to the risk of death from predators or disease in the wild. If all ferrets are taken, it will represent only the second or third time in history that all known individuals of a mammalian species have been removed from the wild, making the species' survival totally dependent on captive breeding.

In the most successful example of this strategy, Arabian oryxes born in captivity are now being reintroduced into their native Oman after all of their wild predecessors were removed to captivity in Phoenix, Arizona.

A total of 11 female and six male

ferrets is now in captivity. Harju and other biologists working to save the black-footed species realize that bringing all the animals into captivity also carries major risks. This past spring, officials were unable to breed the four females and two young males that were captured in late fall of 1985.

But Ulysses Seal, a Minnesota biochemist and captive-breeding expert who heads an advisory group on the ferret breeding program, is optimistic. While agreeing that captive breeding of the weasel family (mustellids) is difficult, Seal says two related species of ferrets have been produced in captivity for years. He thinks there is a 90 percent chance of producing at least one litter, and a 75 percent chance of two litters next year.

Meanwhile, zoologists in several locations are using domestic ferrets or Siberian ferrets to study ways to improve black-footed production. Sperm preservation, ovulation stimulation by hormone injection, and artificial insemination are among the options being considered.

--Philip White

Forester allows Borax to explore

Regional Forester James Overbay has decided that the Forest Service will not stop Borax's mining exploration in the Rock Lake area of the Cabinet Mountains in northwest Montana.

Conservationist Cedron Jones and the Montana Wilderness Association had challenged the validity of Borax's claims and charged the Forest Service with "bending over backward" to accommodate mining. Conservationists and wildlife biologists believe the Cabinet Mountain Wilderness is home to one of the last viable grizzly

populations in the lower 48 states. Jones had filed a similar unsuccessful appeal to stop Borax in 1985.

The issue may be moot because Borax has already completed most of what the appeals hoped to stop -- simultaneous drilling on both sides of St. Paul Pass.

Overbay also refused to require Borax to make public the information it gathered during drill. He said the information was in the nature of a trade secret for the corporation, which is in a highly competitive business.

--John Holt

HOTLINE



Artifact looters convicted

Three Arizona men convicted this summer for raiding a pristine Native American site dating back to 1100 A.D. face up to one year in jail and \$10,000 in fines each. The men were caught stealing artifacts on public land near Show Low, Arizona, just north of the Ft. Apache Indian Reservation. Their first trial, however, ended in a hung jury, and a retrial resulted in misdemeanor convictions rather than the felony charges sought by the Bureau of Land Management. Elsewhere, in Blanding, Utah, Indian artifact-collector Calvin Black filed a \$3.5 million slander and false imprisonment suit against the BLM, the Forest Service and U.S. attorney Brent Ward. During raids last May in three states, federal agents seized 23 Anasazi Indian artifacts from Black's home and detained members of his family. Black charges that Ward's search warrant was improper and that the artifacts found came from private land. Black a San Juan county commissioner, is also seeking damages for alleged injury to his reputation, mental anguish and financial loss.



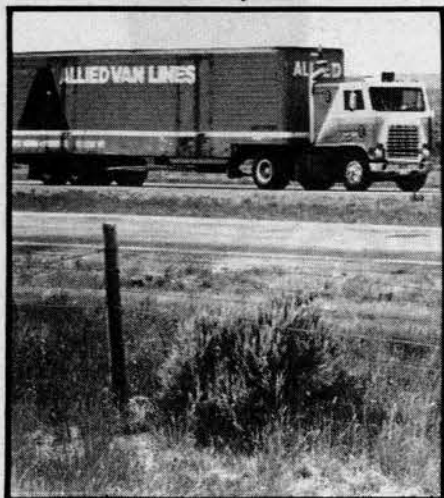
Craters of the Moon National Monument, Idaho

Burning tires is a no-no

Federal regulations helped to abort plans to film part of a science-fiction adventure film at Idaho's Craters of the Moon National Monument. The script for "Masters of the Universe" called for lots of smoke to be created by burning some 1,500 tires at various times. EPA regulations, however, prohibit polluting the air in or around the monument, which has the cleanest air in the lower 48 states, according to Environmental Protection Agency figures. The film crew's departure upset the local community of Arco, which had hoped to see as much as \$100,000 in profits.

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HOTLINE



Sun Belt to expand

The Census Bureau predicts that by the year 2000 more Americans will find their places in the Sun Belt. Arizona is projected to lead the intermountain West with a projected population of 5.6 million, a jump in rank from 27th to 15th. Colorado follows at 4.6 million, boosting its rank from 26 to 21. Nevada is expected to take 36th place with 1.9 million, up from its old slot of 43rd. By the year 2000, Wyoming, now the least populous state, is projected to gain enough residents to rise to 1 million and a rank of 43rd. Other Western states are expected to stay at or close to their present ratings: New Mexico, still 37th with 1.7 million residents; Idaho, moving up one to 39th place with 1.5 million; Montana, steady at 44th place and 1 million; and both the Dakotas, 0.7 million residents each, with South Dakota dropping one place to 46th, and North Dakota dropping one place to 47th. California, Texas and Florida are predicted to rank first, second and third most populous states in the nation, and Delaware, Alaska and Vermont will end the list in that order, reports the Census Bureau.



Idaho hunters cry foul

A group of Idaho hunters are crying foul over steel-shot regulations in three key waterfowl regions in that state. The Idaho Hunters Association told the *Post-Register* that the U.S. Fish and Wildlife Service committed "political blackmail" by threatening to close hunting areas this season if Idaho's Fish and Game Commission refused to ban the use of lead shot in those areas. Federal studies show that excessive lead shot use results in high rates of lead poisoning among waterfowl and endangered eagles. Some sportsmen, however, claim steel replacements for lead shot can damage shotguns, especially older models, and pose a serious threat to hunter safety. The U.S. Fish and Wildlife steel-shot mandate only affects target areas this year, but steel regulations may be imposed nationwide by the early 1990s, according to federal officials.

Fertilizer plant is boon to Wyoming



Opening ceremonies at the Chevron phosphate plant

Chevron's new \$245 million fertilizer plant was hailed by a top company official as a "significant bright spot" in Wyoming's slumping economy during dedication ceremonies last week.

Hundreds of people, a marching band, and a railcar full of balloons were all part of the hoopla at the day-long event. A smoke-belching, coal-powered railway engine with Gov. Ed Herschler aboard was used to cut a dedication ribbon.

The plant was situated in the state because of the area's "strategic location" on the main Union Pacific Railroad line, said Kenneth Derr, vice chairman of the board of Chevron Corp.

The plant was costly, even by oil company standards, Derr said. It is the largest project ever constructed by Chevron Chemical, the corporation's chemical and fertilizer subsidiary, he said.

Billed by a Chevron engineer as "the most environmentally sound and most technically sophisticated fertilizer plant in the world," the manufacturing complex combines phosphate slurried from Utah with sulfur from Chevron's Carter Creek gas processing plant to make products destined for Midwest farms.

Herschler spoke only briefly at the dedication ceremonies, saying "this magnificent plant" would provide not only jobs but "economic diversification, if you will" for Sweetwater County.

About 200 workers are employed at the plant, a Chevron spokesman said. The company was deluged with applications for the jobs, with 1,200 people applying for 84 operators' jobs alone, he said.

Chevron began construction on the plant about two years ago after scaling down its original size by about one-half. State officials subsequently relaxed air quality regulations governing fluoride, a pollutant emitted in the fertilizer process, to help accommodate the plant.

Meanwhile, pieces of soap-like foam floating over plant dedication

spectators were harmless, but unscheduled emissions, officials say.

Some globs of the material, cascading from nearby cooling towers, dropped on a few people at the ceremonies.

One Chevron technician said the foam was caused by the composition of the phosphate rock mixed inside plant process water. But a plant environmental official said the foam came from a detergent used to clean lines. An anti-foaming agent normally also used wasn't available, he said.

A technician with a plant construction contractor offered yet another explanation. Someone purposely added detergent to the cooling towers as part of the dedication ceremony, he said.

Whatever the explanation, the flying foam was definitely "embarrassing," one official said.

--Paul Krza

Paul Krza is a correspondent for the *Casper Star-Tribune* in Rock Springs, Wyoming.

Arizona nixes mines

Permits for two of three uranium mines proposed for the upper reaches of Cataract/Havasupai Canyon just south of Grand Canyon were denied Aug. 25 by the Arizona State Land Department.

A spokesman for the department, E.C. Spalding, said the decision was influenced by the Havasupai Tribe, which objected to the mines proposed by Energy Fuels, Inc., and by the many negative comments sent in by citizens. There had been a letter-writing campaign coordinated by the local Sierra Club group, Earth First! and Friends of the River (*HCN*, 9/15/86).

Spalding listed several reasons for denying the permits. First, because Arizona is required by law to maximize returns from its holdings, the proposed mines were examined in light of the current depressed uranium market. The state concluded that leasing would be at an artificially low price.

Second were potential pollution problems, ranging from radioactive contamination of the sole water-supply for the Havasupai Indians who live on Cataract/Havasupai Creek, to air and water pollution from the mining operations and access roads used by company trucks.

Environmentalist Mary Sojourner said she and others who had persistently fought the mine permits were encouraged by Arizona's

decision. "I hope this sets a precedent that shows the way for the Forest Service and BLM to deny other proposals for mines on federal land around the canyon."

Energy Fuels has 30 days to appeal the state's decision. State law says that permits "shall" be issued to anyone who finds ore on state lands while holding a state prospecting permit. And if Energy Fuels appeals and loses, there is still the option of going to court. Energy Fuels says it has already spent \$400,000 to explore the site.

Sojourner said anyone who treasures the Grand Canyon should savor the initial victory. "I know this is just the first step in a long journey, but it felt good to take that step," she said.

An environmental analysis for the third proposed mine in the same Grand Canyon drainage is expected from the Kaibab National Forest within a month.

--Dan Dagget

BARBS

Shame on Denver for its weird values.

The Federal Aviation Administration has told Denver that its attempts to control jet noise at Stapleton International Airport jeopardize the city's leadership in air travel.

Navajo voters to elect a tribal chairman

TSA-YA-TOH, New Mexico -- At the Navajo chapter house "where the water runs under the red rock," Navajo politicking is well underway.

Hanging out in their pickup trucks, listening to the country tunes, are local sheep ranchers and others who have traveled the dozen or so miles on gravel roads to hear Navajo tribal chairman candidate Peter MacDonald.

Local radio is laden with campaign ads and George Strait and Eddie Rabbit hardly have a chance to sing these days. The community center is one of 109 chapter houses on the 25,000-square-mile reservation that provides basic services such as showers, telephones, and meals. Inside, two women pat fry bread, stew the mutton and slice watermelon for the free chapter lunch. Chapter houses elect 88 delegates who serve on the Tribal Council in Window Rock, Arizona. The tribal chairman oversees that council.

On the wall, a Navajo rug is woven in the familiar red, white and blue stripes of the American flag. Across the room, Tribal Chairman Peterson Zah and Vice Chairman Ed T. Begay gaze down from their official portraits.

MacDonald and his running mate, J.R. Thompson, are two hours late, but no one grumbles. This is, after all, the Navajo Nation -- ruled not only by its own government and laws, but its own time-zone as well.

When MacDonald finally does take center stage, he sounds his familiar "Mac Attack" against Chairman Zah. In his rapidfire Navajo pitch, MacDonald makes it clear he wants his old job back -- the job of tribal chairman he held from 1970 until 1982, when Zah unseated him by 5,000 votes.

This election year, it is MacDonald's chance to oust the incumbent and he is confident he will do it November 4. At the August Navajo

primary election, voters whittled down their choices to Zah and MacDonald from a field of 12 candidates. MacDonald received a surprising 6,500 more votes than the current chairman.

The primary turnout was considered low, however, at 54 percent of the 84,220 registered voters, and Zah's camp is confident the general election will bring out his supporters. Zah notes that MacDonald also won the 1982 primary, only to lose in November.

Lately, both candidates have been making the coffee and fry-bread round on the chapter house circuit, trying to reach as many as possible of the 194,000 tribal members scattered throughout the expansive reservation and border towns.

Campaign themes such as economic development, education and health care ring through Navajo politics, just as they do off the reservation. But these issues take on a different meaning when applied to the unique problems of the Navajo people and its government.

Economic growth is no easy task for a people whose unemployment rate can soar past 70 percent. Both candidates know businesses shy away from building on the reservation because of the myriad tribal regulations that can stall a proposed business for two years.

MacDonald proposes extending the current business-site lease granted by the tribe from 25 years to 50 to 99 years as one way to help reservation businesses secure loans from banks wary of the shorter site lease.

On weekends, Navajo people still flock to the nearby towns of Gallup and Flagstaff to fill up on groceries, clothes and a Saturday evening meal at Furr's Cafeteria -- all off-reservation businesses that attract Indian clients.

During his administration, Zah scored a major victory with big business by renegotiating the tribe's oil, gas and coal leases. These new leases initially tripled the tribe's mineral revenue from \$35 million to \$100 million.

Encouraging Navajo youth to pursue a college education has also been a thrust of Zah's administration and his current campaign. As Chairman Zah likes to say, "When I came into office, education was not a priority. It was rated behind prairie-dog control."

Under Zah's direction, the number of college tribal scholarships has increased from 1,900 to 4,300 in the past three years. He also pushed a controversial Navajo education policy through the tribal council that forces all schools with Navajo children -- tribal, state, federal, or private -- to conform to Navajo standards.

But MacDonald supporters are not satisfied with these accomplishments. They say they are frustrated by lack of direction of the Zah/Begay administration.

"Zah has placed too much power with the tribe's Justice Department and taken it away from the tribal council," says Stan Milfred, MacDonald's campaign manager. Milfred is one of a handful of MacDonald's top supporters who campaigned for Zah only four years ago.

But Zah, who served as director of the largest Indian legal services in the

Kenji Kawano, Navajo Times Today



Peterson Zah

country from 1967 to 1982, says his administrative style is more in line with both tribal law and the "outside" world.

The candidates also differ in personal style. While MacDonald was prone to flashy cars and dress when he led the Navajo Nation for 12 years, Zah's transportation has been a beat-up 1966 International Jeep. His official portrait shows him in faded blue jeans and casual shirt.

Zah supporters consistently remind voters that MacDonald's three-term chairmanship was marred by charges of embezzlement, fraud, grand jury indictments, and misappropriated tribal funds. "Honesty and accountability" are campaign themes Zah has stressed time and again, but MacDonald's political savvy and personal charm are powerful weapons.

"We are up against a masterful politician," says Duane Beyal, Zah's press secretary. "MacDonald knows how to create excitement. Mr. Zah's problem is he's not really a politician, he's more a traditional leader."

Last month, Zah and running mate Begay publicized their income tax returns, a tactic MacDonald refused to copy. Zah has also agreed to debate MacDonald, but MacDonald has not yet accepted the offer to participate in the Navajo Nation's first debates.

Because of a lack of political parties, campaigns are based on personalities. Even a candidate's record in office isn't always a major issue. As Beyal points out, "You know, when it comes to politics, people have short memories, and unfortunately when it comes to Navajo politics, that memory becomes even shorter."

--Patricia Guthrie

BARBS

You forgot to send flowers.

A junk mail letter addressed "Dear Fellow Democrat," opens with: "I've tried everything to get you back. I explained the importance of the 1986 elections... described all the changes we have made..."

HOTLINE

Shearing hunters

A Wyoming sheep rancher who admits he charges hunters \$250 a year to hunt on public land has gone to court to defend his right to bar hunters who won't ante up. The rancher, Norman Palm, owns the only access road up Elk Mountain to Bureau of Land Management land. Two decades ago, Palm and other ranchers banded together to stop hunters from trespassing, forming a company called Elk Mountain Safari Inc. and gating the road to all but BLM personnel and paying hunters. The Wyoming Wildlife Federation lost its first court battle against the Rawlins-area rancher in 1985, but the case is back in court, pursued this time by the federal government. For now, the road is still gated.

Battling a dump

Residents near the proposed Last Chance hazardous waste dump 75 miles east of Denver packed a public hearing recently and carried picket signs opposing the landfill. Since then, the state Department of Health extended its deadline for public comment on construction and operation of the 332-acre facility from Sept. 12 until Nov. 19. The department, however, has already given preliminary approval to the region's first disposal site for toxic and hazardous materials. The proposed permit would allow a subsidiary of Browning-Ferris Industries of Houston, Texas, to bury more than 2.5 million cubic yards of hazardous wastes in 16 landfills and store almost 1.6 million gallons of hazardous wastes in 13 tanks.

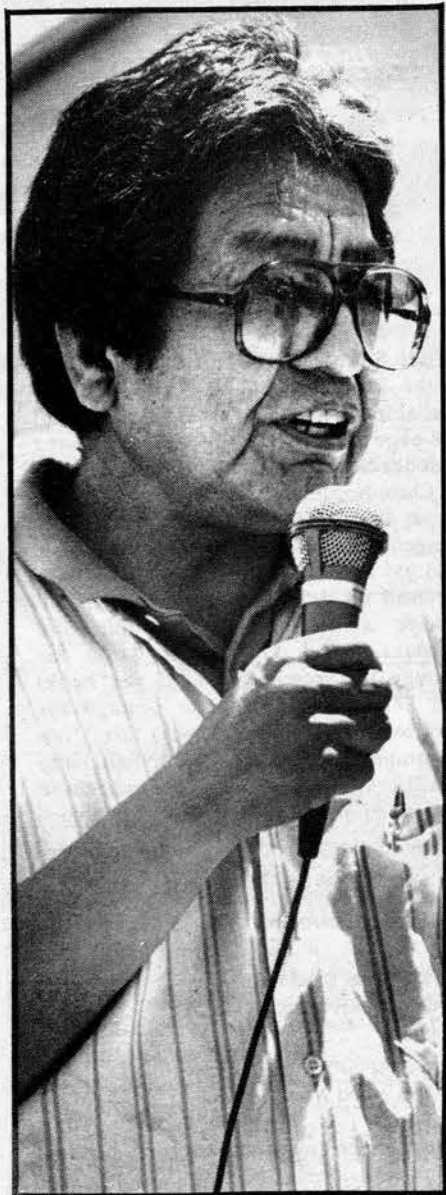
Dorothy Harvey



White River, Utah

Staying alive

The White River Oil Shale Corporation turned over its multi-million-dollar Utah oil shale facility to the Bureau of Land Management Sept. 9 and deposited \$1 million in a BLM bank account. The transaction releases the company from any obligation attached to their two lease tracts 50 miles south of Vernal, Utah, and makes the BLM the owner of \$40 million worth of mine buildings and excavations, roads, powerlines, and water and sewage treatment plants. The BLM says it will use interest from the bank account to pay the costs of maintenance and security for the plant. If oil shale never becomes an economic fuel, the \$1 million will be used to dismantle the plant and reclaim the area, says the BLM. White River worked out the deal to maintain the property in response to pressure from local residents and Utah's congressional delegation, who protested a permanent shutdown.



Peter MacDonald

Kenji Kawano, Navajo Times Today

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BULLETIN BOARD



THE REAL SCOOP

The Council on Economic Priorities, an independent New York-based research organization, has published a consumer guide called *Hazardous Waste Management: Reducing the Risk*. It highlights regulatory strengths and weaknesses, compares and ranks appropriate technologies, names companies with the best performance records and develops strategies for contracting for hazardous waste disposal. By evaluating files at regional and state EPA offices, authors B.A. Goldman, J.A. Hulme and C. Johnson found that both generators and public agencies aren't sure why they make the decisions they do.

Island Press, 1718 Connecticut Ave. NW, Suite 300, Washington, D.C. 20009. \$34.95. 314 pages.

RADON GAS RISKS

Radon gas pollution inside buildings, which increases the risk of cancer to humans, is explained in two pamphlets published by the EPA, called *A Citizen's Guide to Radon: What It Is and What To Do About It*, and *Radon Reduction Methods: A Homeowner's Guide*. The Environmental Protection Agency says indoor radon gas contamination is a major health hazard, with acceptable levels exceeded in some 12 percent of American homes. Because radon is a natural phenomenon, the EPA says it has been unable to effectively regulate exposure levels. The agency has now adopted a level of four picocuries per liter of air as the trigger for action to reduce exposure. Radon is a colorless, odorless gas that comes from the radioactive decay of uranium; what makes it hazardous to people is a buildup of the gas within an enclosure. The pamphlets are available free from the EPA, Office of External Affairs (80 EA), 999 18th St., Suite 1300, Denver, CO 80202.

CRYSTAL RIVER ACTIVISTS

The Crystal River Environmental Protection Association is a citizen's group working to preserve western Colorado's Crystal River. The Carbondale-based conservation society hopes to influence a planned Forest Service wild and scenic study of the Crystal River by soliciting public comment from the area. To obtain a copy of the association's newsletter, *Crystal Clear*, write CREPA, P.O. Box 921, Carbondale, CO 81623.

HUNTERS GET MORE SATISFACTION

Hunters are more intense about their sport than other recreationists, reports a nation-wide survey published by the National Park Service. Three of four hunters surveyed said they "particularly enjoyed" hunting, which was double the reported satisfaction-level of hiking, at 37 percent. The survey tracked outdoor recreation pursuits by "depth of involvement," so that even though swimming remains America's most popular outdoor activity, hunting was ranked as more enjoyable. Hunting has been ranked a major sport for about 7 percent of the American population for the past 25 years. Copies of the survey can be obtained from Anita Clevenger at the Department of the Interior, 202/343-7394.

THE PESTICIDE HANDBOOK

The second edition of *The Pesticide Handbook: Profiles for Action* presents updated information on 44 "problem pesticides," detailing the use, hazards and controls imposed on these pesticides worldwide. Published by the International Organization of Consumers Unions, the handbook also describes symptoms of poisoning and cures, reviews the world pesticide situation and includes the FAO International Code of Conduct on the distribution and use of pesticides. This excellent reference includes a 25-page bibliography.

Food First Books, 1775 Mission St., San Francisco, CA 94103. Paper: \$15 plus \$2.25 postage. 239 pages.

UTAH ROUNDUP

The Southern Utah Wilderness Alliance will hold its first annual Wilderness Roundup Oct. 10-12 at the Pack Creek Ranch in Moab, Utah. The Roundup will host debates between local environmentalists, government officials and business leaders over BLM wilderness, the Burr Trail and economic development issues. Guided hikes to local wilderness study areas are available after the conference. Pre-registration is \$18. Contact the Southern Utah Wilderness Alliance, Box 347, Springdale, UT 84767, or call 801/772-3468 for more information.

UTAH'S SOVEREIGN LANDS

The Utah Division of State Lands and Forestry is seeking public comment on its proposed *Rules and Regulations Governing Sovereign Lands in the State of Utah* before an Oct. 24 deadline arrives. The lands comprise the beds of the Great Salt Lake, Bear Lake, the Jordan River and stretches of the Colorado and Green rivers. Copies of the document may be obtained from, and comments sent to: Division of State Lands and Forestry, Richard B. Wilcox, 335 West North Temple, 3 Triad Center, Suite 320, Salt Lake City, UT 84180 (801/538-5387).

A GATHERING OF RIVER RATS

A Colorado Plateau Conference on Rivers will be held in conjunction with Telluride's 4th annual River Rendezvous the first weekend in October. The conference will focus on local river issues, including a roundtable strategy session Oct. 3 from 10 a.m. - 4 p.m. on wild and scenic rivers at the Elks building in Telluride. The conference will be followed by seminars for river runners. For more information contact Friends of the River at 101 East Birch St., P.O. Box 1115, Flagstaff, AZ 86002 (602/774-0130) or River Rendezvous, P.O. Box 1838, Telluride, CO 81435 (303/728-4486).

YELLOWSTONE AND THE ARTS

The Headwaters Performing Arts Consortium, a group that likes to interpret places and their human relationship through the performing arts, will perform Oct. 20 at the Park Arts Association Gathering at Triangle X Ranch in Grand Teton National Park. The consortium plans to portray the greater Yellowstone area through dance, song, theater and storytelling, beginning at 3:30 p.m. Discussion will follow. For more information on the Headwaters Consortium write to Don Briggs, Box 3537, Laramie, WY 82071.

BLM LANDS BROCHURE

A Forgotten Legacy: BLM Lands of the American West is a new, beautifully illustrated 24-page brochure published by The Wilderness Society and the Underhill Foundation. Its photos and text tell the ongoing story of the fight to protect Bureau of Land Management lands, which are nearly 25 percent of the American West. Single brochures are free; send \$5 postage for a dozen or \$10 for three dozen. Contact The Wilderness Society, 1400 Eye St. NW, Washington, D.C. 20005. (202/842-3400).

ACCESS

NEAT STUFF

VISTA VOLUNTEERS needed for exciting urban aquaculture and community gardening project in Salt Lake City, Utah. Project is well established and expanding. Volunteers will set up new garden and fish pond sites using appropriate technology, teach gardening and aquaculture to low income residents and research geothermal fish production. Some training available. Send inquiries to: Susan Anderson, Crossroads Urban Center, 347 South, 400 East, Salt Lake City, Utah 84111. (801/364-7765). (1x18p)

SINGLE? ENVIRONMENTALIST? PEACE-ORIENTED? Concerned Singles Newsletter links unattached like-minded men and women, all areas, all ages. Free sample. Box 7737-B, Berkeley, CA 94707.

CLASSIFIED ADS cost 20 cents per word, pre-paid, \$5 minimum. General rates for display are \$6/column inch camera-ready; \$8/column inch if we make-up. For ad rate brochure, write HCN, Box 1090, Paonia, Colorado 81428 or call 303/527-4898.

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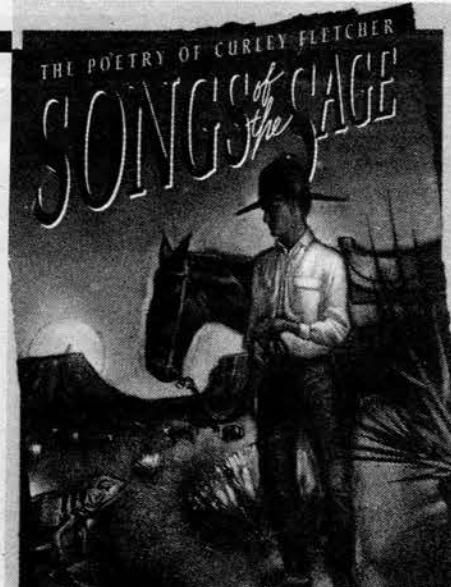
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BUCKED AND BIT

"I've been bucked off on a cactus, And a long-horned steer had me treed. I've been walked on by a polecat; I've been bit by a centipede."

--from "Chuck-Wagon Blues"

Out of print since 1931, *Songs of the Sage* by the cowboy poet Curley Fletcher has been revived in a small and handsome paperback by the Utah publisher Peregrine Smith Books. Yes, the rhythm goes clip-clip, and no, it isn't Shakespeare, but why is it so much fun to read?

Gibbs M. Smith, Inc. Box 667, Layton, UT 84041. Paper: \$9.95. 96 pages. Illustrated with drawings by Guy Welsh.

NEW IN BOZEMAN

Michael Scott, deputy conservation director for The Wilderness Society in Washington, D.C., is moving West. This October, he'll open a new Wilderness Society office in Bozeman, Montana. Scott was formerly a Denver, Colorado, staffer for the society.

STENSAAS PHOTOGRAPHY in Rock Springs, Wyoming, has produced large, vivid posters of the American West, including wild horses of Wyoming's Red Desert rearing in challenge. Posters are \$4.95 plus \$1.25 for postage. Write Stensaas Photography at Box 2151, Rock Springs, WY 82902 (307/362-6651).

RECYCLED PAPER. Free color catalog of environmental notecards and recycled office and printing paper. Earth Care Paper, 325-56 Beech Lane, Harbor Springs, Mich. 49740. (7x13p)

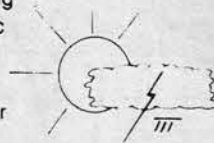


UTAH SKI COUNTRY, the second book in the Utah Geographic Series, will be available Nov. 1, 1986. This beautiful 128-page book by Brooke Williams includes more than 160 color photographs by Chris Noble and others, four full color maps, and 40,000 words of beautifully written text. Available in softcover (\$15.95) and hardcover (\$24.95). Orders received on or before Nov. 7, 1986 will receive a 15 percent pre-publication discount. Send \$13.55 plus \$1.00 for postage for softcover (\$14.55 per book) and \$21.25 plus \$1.00 for postage for hardcover (\$22.25 per book) to: Utah Geographic Series, Box 8325, Salt Lake City, Utah 84108. Money-back guarantee if not fully satisfied. (S29-027)

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LETTERS

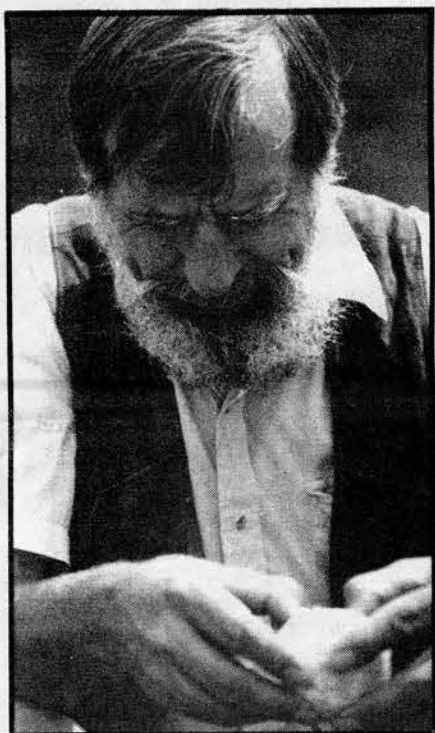
BLM IS BLUFFING

Dear HCN,

Your account of the closure of Big and Little Dominguez canyons in western Colorado to public use was very interesting. While I too am alarmed that the Bureau of Land Management closed access to this beautiful area, you and everyone else can still visit this area over that very same bridge. How, you ask?

The BLM in Colorado has no enforcement powers. Local BLM employees cannot arrest you for trespass and state law enforcement officials can't either. If they tell you otherwise they are bluffing. How do I know? As a river-rafting outfitter in Colorado for over 10 years, I and others have begged and pleaded with the BLM to enforce certain rules and regulations. I bet you guessed what their answer was. That's right. "We don't have any enforcement powers."

Reed Dils
Buena Vista, Colorado



Edward Abbey

LET THE ELK PLAY

Dear HCN,

Regarding the Sakred Kow: Alvin Josephy (HCN, 4/14/86) and Ray Ring (HCN, 6/23/86) can be very funny fellows. But there is a point beyond which facetiousness becomes merely -- facetiousness. (To quote from that old-time Montana cattleman Thomas H. McGuane.)

My point was quite sincere. If we get rid of the cattle that now infest our

public lands in the American West we will then be making room for a much greater population of elk, pronghorn antelope, bighorn sheep, mule deer, black bear, grizzly bear, buffalo, mountain lion, javelina, jaguar, desert tortoise, moose, crocodile (now making a comeback in Lake Foul, Utah) and others. This fact should be of interest to everyone who cares about hunting and putting food on the supper table. Instead of buying our meat all daintily packaged at the local supermarket, we can obtain it directly, on our own, out in the hills and on the open range. As man should. Women too, I suppose, given our androgynous society.

EAT LESS BEEF. EAT MORE ELK.

Oh give me a home
where the buffalo roam
and the elk and the antelope play;
where seldom is seen
the hamburger machine
and the flies are not swarming all day.

Cheers!
Ed Abbey
Moab, Utah

A PARK FOR NEVADA

Dear HCN,

Nevadans, both conservationists and Congressmen, are destroying the Great Basin national park idea. As long as any such national park has to be acceptable to Nevada senators or representatives who answer to Nevada's ranching and mining circles, the nation will never get an adequate park proposal. For more than 60 years, the idea of this national park has been ridiculously opposed by Nevada's public land exploiters.

Nevada conservationists may have built great bridges with groups where bridges never existed before, but these groups are not "conservationists" and too much of the grand idea is being sacrificed. If conservationists don't promote conservationist concepts, who will?

The U.S. Senate bill by anti-park Nevada Sens. Laxalt, R, and Hecht, R, would establish an insulting 44,000 acres -- monument size, hardly park size. The recently passed U.S. House bill, by so-called pro-conservationist Rep. Reid, D, would establish only 174,000 acres, and 45,000 acres of that would be a hunting preserve!

May the reader be reminded that Death Valley is 2.0 million acres, Yellowstone 2.2 million, Grand Canyon 1.2 million, Glacier 1.0 million, Everglades 1.4 million, etc. If any Great Basin park is not of similar

magnitude, how can it be representative of the Great Basin?

Well-meaning Nevadans say the park can grow larger later. This same argument was heard at the birth of ungenerous Utah's Canyonlands National Park. It started out as a 1 million-acre conservationist proposal, passed at 220,000 acres, and remains today stuck at the 250,000-350,000-acre scale.

Worst of all about the present Nevada Great Basin park proposals is the lack of a national consensus of Wheeler Park (admittedly spectacular, especially in the Great Basin) as the nation's Great Basin park. A Bristlecone-endowed mountain with unusual alpine tundra, streams and waterfalls does not represent the Great Basin. What is also required is a desert valley with its ring of mountain ranges and perhaps even a complete internal drainage system. To get this, and "empty" Nevada can well-nigh afford to give such a park to the nation, we're talking 1 million-acre scale. At 44,000 or 174,000 acres, Wheeler Park should be established instead as, say, Bristlecone Pine National Monument.

The longer we wait for a truly magnificent Great Basin park to be established, the more it's going to cost and "hurt" (range developments and Desert Land Entry settlers increasingly go in every valley every year). But Nevada's ranching circles will have no one to blame but themselves for holding up this overdue park.

Elliott Bernshaw
Salt Lake City, Utah

PRAISE FOR CIVIL DISOBEDIENCE

Dear HCN,

Having been arrested myself for trespassing on private property in the interest of conservation, I can

understand how Howie Wolke feels. There are people, such as the President of the United States, who would make criminals of those who love the land. There are few indeed who will stand on principle for preservation with sanity for our undeserved bonanza of natural resources that serve every citizen in many ways most do not comprehend.

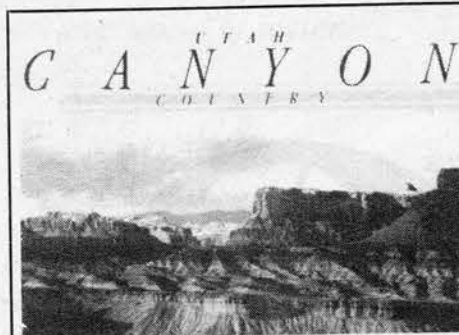
Hats off to Mr. Wolke for his criticism of "get along environmentalists," who are letting our heritage slip away in the name of compromise.

The war of indifference and abuse of the public lands is sustained by a large and complex cadre of get-rich-by-any-means capitalists, who often equate the rights of private property with owning handguns for self-defense, while over a thousand die each year in the U.S., as against a handful in Britain and Japan where they are illegal.

It is no crime to serve time in jail to atone for the sins of others. This is an old and time-honored tradition that existed in less notable form probably long before Henry David Thoreau. The jails are full of people who are there because they do not have the money to stay out, and there are thousands on the outside who are free-running criminals because of lies, deceit, inside influence in political circles and various and sundry dodges. Anyone in their right mind knows that this country thrives on corruption of one kind or another, and in spite of what the newspaper columnists write, it is much worse now than it was when I was playing in greener pastures on the farm as a youth...

Nature is strong, but vulnerable. What we are doing to it is not in our own best interests, as attested to by the epidemic cancer rates and deaths.

Van Shipp
Versailles, Kentucky



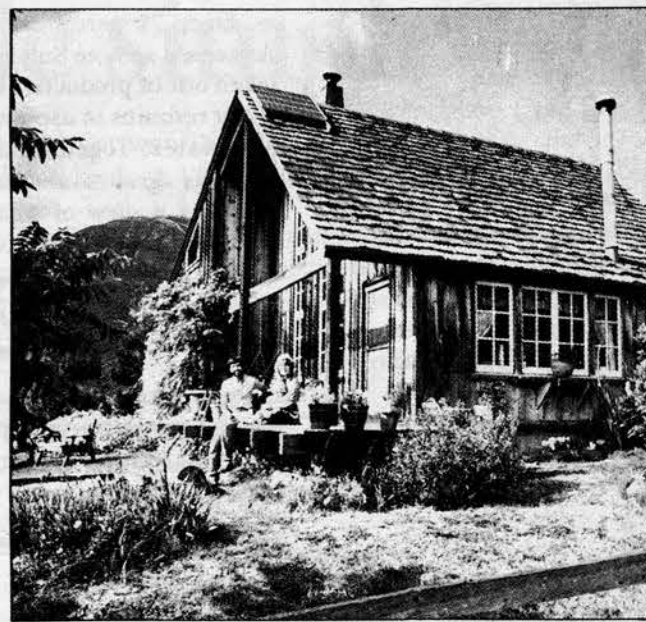
UTAH CANYON COUNTRY, the first book in the new Utah Geographic Series, is now available! Includes authoritative text by Moab author F.A. Barnes, 162 color photos by the West's finest photographers, color maps and charts, and a foreword by Ted Wilson, former mayor of Salt Lake City. Send \$14.95 plus \$1.00 for postage (\$15.95 total per book) to: Utah Geographic Series, Box 8325, Salt Lake City, Utah 84108. Money-back guarantee if not fully satisfied.



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WATER



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Special Water Issue Number 1: WESTERN WATER MADE SIMPLE, Sept. 29, 1986.

Were the writing of misleading headlines a crime, the staff of *High Country News* would already be on its way to jail for this issue's "Western Water Made Simple." Western water can never be made simple. But it can be presented logically, within a national and regional context, and that, we think, is close enough to making it 'simple.' So we plead guilty, but with an explanation.

The explanation will be found in this introduction to Western water and in the three subsequent issues. All are attempts to present Western water in a logical, understandable, on-the-ground way. This first issue lays the basis for the three coming issues on the West's major river basins. To do that, it looks at the end of the federal treasury's largesse to water; the West's effort to cope with this end via transferring water to places of greatest need via water marketing, as illustrated in southern California; and the reaction of irrigators in a remote valley in southern Arizona to the coincidental ending of the ages of hay and cotton. The issue closes with a review of a book on rivers and irrigation by Donald Worster and a bibliography of Western rivers.

9

WESTERN WATER MADE SIMPLE, by *High Country News* publisher Ed Marston.

Western water once existed in a protected world unto itself, made up of complex laws and regulations, tight political alliances, bureaucracies and massive federal subsidies. Water has now been expelled from its Garden of Eden and become subject to real world forces. Its expulsion has made it understandable to those who are not part of the arcane world of water.

14

THE CORPS ADAPTS, THE BUREAU FOUNDERS, by Washington, D.C., journalist Lawrence Mosher.

The end of federal largesse has affected the two federal water agencies in the same way, but they have reacted differently. The Corps of Army Engineers, with its national constituency, appears to have found a strategy for survival through cost-sharing. The Bureau of Reclamation, with its 17-state Western constituency, looks like a 1950s Finmobile in a 1980s showroom filled with streamlined Gramm-Rudman-Hollings models. In a second article by Mosher, California Rep. George Miller talks frankly about the new water reality in Washington, D.C.

17

SELLING WATER, OR SELLING OUT? by California journalists Robert Gottlieb and Peter Wiley.

These veteran observers of the West don't see water marketing as a panacea for what ails the region's water policy. They fear it is a bail-out to big water users who couldn't survive even with massive subsidies. They suggest that environmental groups have erred, and warn that paying ransom to vested interests is no substitute for political reform.

19

WHEN KINGDOMS CLASH, by Ed Marston.

The water lease/sale/condominiumization deal between California's Imperial Irrigation District and the Metropolitan Water District was to bring water marketing of age. Instead, it has shown that water marketing is no solution.

21

SHRINK TO FIT, by geographer Douglas Towne.

Over 70 percent of the irrigated farmland in Arizona's remote Sulphur Springs Valley has been taken out of production by the economy of the '80s. What remains in use is the best land wedded to the best water. Together, they grow high-value crops such as grapes and nuts. This remote region provides a view of what other agricultural areas will have to do to survive.

23

THE ROAD TO HELL IS PAVED WITH IRRIGATION PROJECTS.

A review by Peter Wild of Donald Worster's *Rivers of Empire*.

23

RIVER READING, by University of Arizona historian Peter Wild.

If this issue whets, or wets, your appetite for more information, this description of books on rivers should help satisfy it.

The writers

Robert Gottlieb and Peter Wiley are California writers whose syndicated column is published by newspapers around the nation. They are also authors of several books, including *America's Saints: The Rise of Mormon Power*.

Ed Marston has been publisher of *High Country News* in Paonia, Colorado, since 1983.

Lawrence Mosher is a journalist in Washington, D.C. He has written for *National Geographic* and *National Journal*, and now publishes a newsletter called *The Water Reporter*.

Douglas Towne, a geographer, is completing a masters thesis on the relationship of irrigation decline to landscape at the University of Arizona.

Peter Wild is a professor of English at the University of Arizona, and writes for numerous publications on the West in general, and water in particular.

Thank you

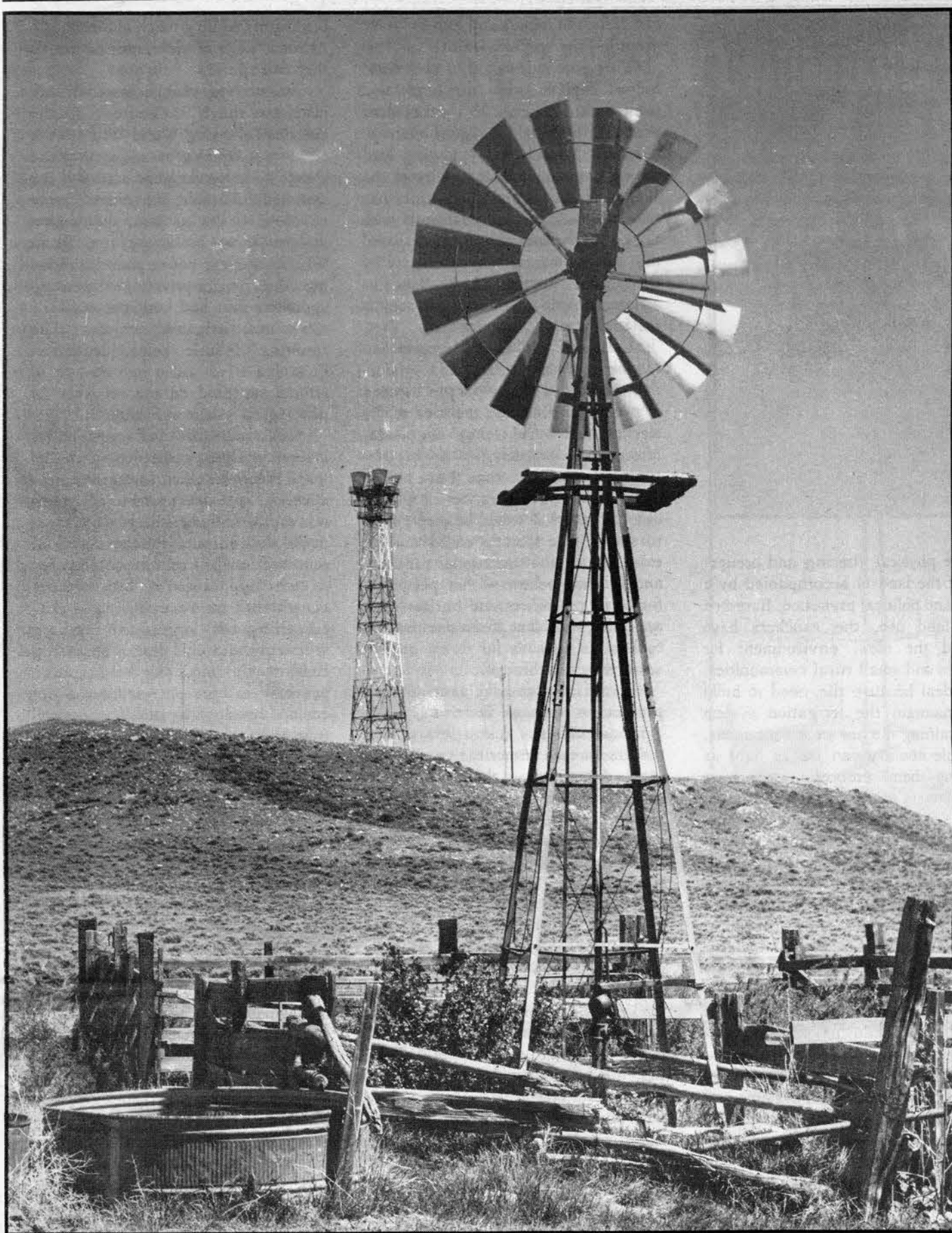
High Country News gratefully acknowledges the support of the Tides Foundation in the development of these four special issues and the circulation of 28,000 sample copies to persons and institutions interested in Western water.

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for a
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17 years of natural resource coverage
in the Rocky Mountain West

High Country News



Mike McClure

Western water made simple

Western water once existed in a protected world unto itself, made up of complex laws and regulations, tight political alliances, bureaucracies and massive federal subsidies. Water has now been expelled from its Garden of Eden and become subject to real world forces. Its expulsion has made it understandable to those who are not part of the arcane world of water.

by Ed Marston

From the end of the Civil War to the 1960s, the South was dominated by the politics of race. The singlemindedness of the South gave the region great influence in the U.S. Congress. But it was the influence of negation and inflexibility. The South spent its national political capital making the sun stand still, even as it kept its own society rigid in the armor of a segregated, unequal society.

It was not until the region's politics of race shattered that the South could

advance. A society of lords and serfs is not vital, creative or productive, and the South could not take its place among other regions until the old order crumbled.

The West also comes close to practicing single-issue politics -- in its case, the politics of water. The South had its Dixiecrats; the West has its Water-crats and Dam-icans. The South spent its political capital stopping bills that would have given blacks opportunity. The West spends its political capital pushing the Central Arizona Project, the Central Utah Project, the Columbia Basin expan-

sion, the Garrison Diversion, Animas-LaPlata and a flood of smaller projects.

The South was organized, from the courthouse up, to guarantee that those who might favor a more open society never came near power. Anyone running for public office faced a series of tough loyalty tests on race. So eminent a figure as former Arkansas Sen. J.W. Fulbright, fearless though he was on foreign affairs, toed the line on race.

Similarly, Western politicians often earn the freedom to be open on other issues by being hardnosed on water development. Sen. Gary Hart votes for every Colorado water project. Wyoming Gov. Ed Herschler helped ensure that Wyoming's uranium-oil-gas-coal boom didn't bury the state in debris. But on water he was the dam-builders' Robin Hood, proposing the diversion of \$600 million of Wyoming's mineral wealth to state-built dams and canals.

Arizona Congressman Morris Udall is a strong conservationist, but he is even stronger when it comes to water projects -- especially the

multibillion-dollar Central Arizona Project. That project has shaped Arizona's politics since statehood in 1912, when Arizona sent Carl Hayden to the U.S. Congress. There he began an effort that culminated in 1968 with the authorization of the Central Arizona Project. In 1969, his 56-year-long job done, 92-year-old Hayden left the Senate.

Hayden is an extreme, but not unique, example. Western Colorado's long-time Congressman Wayne Aspinall spent his career shepherding the water projects through Congress by crafting arrangements among the Western states. Aspinall's power rested on a rural home district where political power lay with water conservancy districts. These districts are taxing entities whose boards are appointed by judges, since water is too important in the West to be left to the vagaries of elections. The districts' mission is to use their taxing power to raise seed money to convince the federal government to build the locals a water project.

Conservancy districts are the political base on which much of the rural West rests, and they have proven stable, long-lived and potent. The ranchers and farmers who man the districts' boards and who stand to benefit from the federally financed water projects are leaders in their communities. Until recently, they and their fellow farmers and ranchers weren't blown away by busts, the way miners and loggers were.

Part of their invincibility rested on a way of life that is both admirable and stable. The Rocky Mountain cow-calf operation is the ideal economic unit for a vigorous, intelligent, self-reliant family. With some exceptions, the cow-calf men have dominated the rural Rocky Mountain West's state legislatures and congressional delegations. In theory, the U.S. Supreme Court's one-man, one-vote edict also applies to the West. In practice, a rancher's political influence is roughly one hundred times greater than that of a non-rancher in the West.

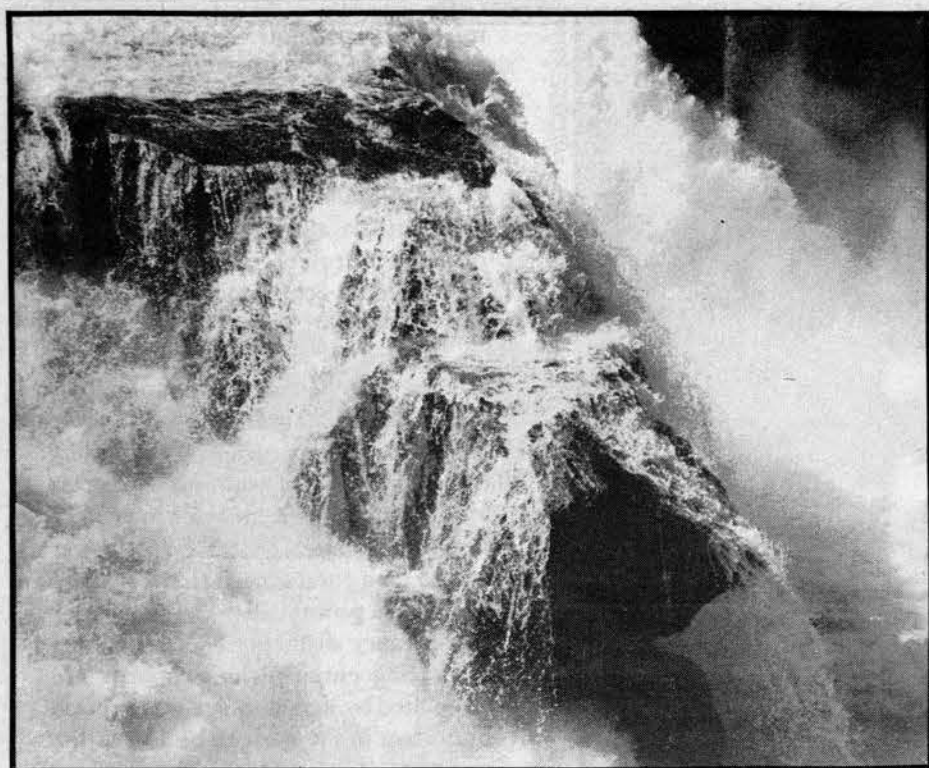
In part, the ranchers have earned that clout through a creative, tenacious form of land development. The cow-calf operation has evolved over the past century into a close fit with the mountain geography and political landscape. At the center of the ideal operation is a homeplace -- flat meadowlands below 7,500 feet or so, irrigated each summer by the snowmelt coming off nearby mountains. Attached to the homeplace are high country grazing leases granted by the Forest Service essentially in perpetuity, and as much a property right as the private land itself.

The cows and their spring calves spend June through September grazing on the national forest land, moving upward in search of new grass as the snow melts. With the cows and calves more or less minding themselves, the ranch family is free to spend the summer irrigating fields and harvesting one or two cuttings of hay.

When the herd returns from the hills in the fall a step ahead of the hunting season, the calf crop is sold to a feedlot and mother cows are fed on the hay during the winter. In March, a new crop of calves hits the ground, and the cycle begins again.

Winter or summer, the operation

(Continued on page 10)



David Spear

Simple...

(Continued from page 9)

provides vigorous, varied outdoor work. The Western rancher is part farmer, part cowboy, part entrepreneur, working year-round surrounded by the most beautiful landscape on earth. The kind of work and the landscape helps explain why so many urbanites -- both gentlemen ranchers and those who must scratch out a living -- yearn to own a ranch.

The irrigation water used to raise the hay those mother cows chomp on all winter usually flows out of a federally-built water project. That means the water is practically free to the rancher; the cost is subsidized by everyone from the national taxpayer to the people who use the electricity produced by the West's network of dams. For good measure, the cows and calves graze all summer on land the rancher essentially owns on long-term leases from the Forest Service or Bureau of Land Management. Like the water, the cost of these grazing leases is a bargain.

The land shapes the rancher as much as his irrigation systems shape it. Unlike the dryland farmer or the 19th century cowboy, the cow-calf rancher must be a social, political creature. He either cooperates by joining together to get the U.S. Bureau of Reclamation to build a project and then to keep that project's dams and canals maintained, or he and his enterprise die.

The cowboy, or rather the rancher-farmer, has been incredibly successful in establishing an economy and way of life that has dominated the rural West for almost a century in some of the most difficult country in the U.S. Drive into any remote mountain valley, climb steep trails toward almost any mountain pass, wander across any parched BLM acreage or up any wash in southern Utah, and you will find the land marked by dams and ditches or by cows munching on the federal grass.

You have to love cattle to think they do the high country much good. But in the valleys, on the irrigated homeplaces, the cow-calf man has created one of the most beautiful landscapes on earth. The green hayfields, bordered by unobtrusive irrigation ditches and surrounded by sage desert, present a varied appearance from their first greening up in the spring through the appearance of windrows and bales.

The physical altering and occupation of the land is accompanied by a social and political presence. Based on their land use, the ranchers have created the ideal environment for families and small rural communities. It is ideal because the need to build and maintain the irrigation system (maintaining ditches in mountainous, unstable country can be as hard as building them) enforces cooperation and contacts to the outside world.

But the largest effect of ranchers on the West goes beyond the unique landscape or the communities built on that landscape. Their lasting effect is the Western worldview they have created and then lent, or rather given, to the region's extractive industries.

The worldview is that of a fiercely independent rural people who insist, as their right, that government do everything it can to support their independent way of life. Examples abound as to how that world has spread beyond irrigation systems and cattle. But let us take nuclear power, just because it seems to be so remote from a rancher raising hay in Montana's Bitterroot Valley.

Congressman Wayne Aspinall was best known for his work on water. But he was also dominant on the joint House-Senate committee on atomic energy, where he worked to protect the nuclear industry from "over-regulation" and to channel federal subsidies to it. There was a clear connection between his water and nuclear activities. Just as the West had arid land that needed water, so it had huge amounts of uranium, most of which was beneath public land. A thriving, subsidized nuclear energy industry was essential to the West's uranium industry.

The West would not have been successful with the federal treasury had it felt it was asking for handouts. But it never saw itself as a beggar. Instead, it saw itself the way a Pentagon general sees himself when he comes to Congress for weapons money.

The rural Western ethic is that all wealth comes out of the ground, either as grass growing or as minerals being mined. The butchering and marketing of the animals raised on the grass, the smelting and shaping of the mined ore into pitchforks or pins or computer parts, are all very well. But these are derivative, second-class activities, only possible because farmers and

ranchers and miners and loggers have provided the stuff of wealth.

This economic vision of the world helps explain why ranchers and farmers are reluctant to market their product. It is as if knights were to demean themselves by plowing land they had conquered. It is why in the West the agricultural community has almost always formed coalitions with the extractive industries, and opposed the environmental movement. Why the phrase "tourist industry" seems as laughable to a farmer or rancher as the idea of a "service industry."

Urbanites tend to see farmers and ranchers as hardworking and productive, but also as naive people in need of protection from the realities of the world. As a result, they acquiesce, often good-naturedly, to farm programs that would enrage them if they were directed at insurance companies or automakers. It would be interesting to see if that attitude could survive exposure to what traditional ranchers and farmers believe -- that people in factories and offices and barbershops are doing work that, if not useless and foolish, is certainly far down on any scale they can think of.

So the fact that today's reclamation projects -- such as Garrison, CUP, Animas-LaPlata -- cost a few million dollars for each farmer they put on the land, doesn't cause their proponents to blink. That, they say, is the price society pays for creating the stuff of wealth. Without it and the other industries based on the earth, there is nothing.

It was this ethic that led to the damming of the Columbia River in the Northwest so that the once mighty river is now nothing but a series of lakes, with the tail of one backed up against the dam above it. It is why the Colorado River in most years no longer reaches the Pacific, instead dying an arid, salty death in the deserts of northern Mexico. It is why both the Columbia and Colorado are more plumbing than river. Almost any stretch of either river can be turned on or off by the flick of a switch.

It is why the Missouri is dammed to within an inch of no longer being a river in its upper basin states. The plains of Montana, North Dakota and South Dakota are occupied by the sprawling Pick-Sloan Reservoirs; they provide hydroelectric power, flood control and navigation water for the humid states below, while the lower Missouri, thanks to the Army Corps of Engineers, is more channel than river.

But in each of the three river basins, there are signs that an era has come to an end. The major sign comes from the U.S. Congress. Just as an earlier Congress told the South through the Civil Rights Act of 1964 that an era had ended, so have the last several Congresses told the West, by not voting funds for new water projects, that the water project era has ended.

As protracted and noisy as an operatic death, that ending has caused screams of anguish and outrage. The Dakotas say they were doublecrossed. They lost enormous amounts of river-bottom land to Pick-Sloan reservoirs, but did not get the irrigation projects that were to make up for the losses.

The upper Colorado River basin states, especially Colorado, charge that the U.S. Congress has deprived them of water that was their

birthright, while giving California and Arizona all the development funds they can spend.

Pressure for change has come not just from the U.S. Congress. In the decades following World War II, the Northwest states grew addicted to the cheap hydropower generated by the dammed Columbia. When there were no more rivers to dam, the region undertook to build the five giant WPPSS nuclear power plants, following the public-private partnership approach that had built the region's dams and irrigation projects. The resulting debacle helped lead the Columbia River basin into an age of reform centered on the recovery of that region's salmon fishery.

Just as the drive to harness rivers led to a political and economic model that favored other extractive industries, so the present effort to recover the salmon fishery has led to a model that encourages other forms of conservation. The reform push has led to the bypassing of hydroelectric generators to save fish, to the curtailing of logging to reduce sediment that would destroy spawning beds, to the modifying of irrigation projects to prevent salmon from ending up flopping amidst irrigated fruit trees and cornfields, to a new emphasis on water quality. It is as if the Northwest hit a brick wall, and bounced away heading in a totally new direction.

The situation is more subtle on the Colorado River. That basin is as plumbed as the Columbia. There are tunnels and pumps to carry its water into the Great Salt Lake basin of Utah, into the Missouri River basin of the Colorado Front Range and thence on to the Mississippi, and to southern California outside of the basin, and to Phoenix and Tucson, within it.

A small fraction of the Colorado River's water is used for cities and industry. Most of it irrigates crops -- mainly hay for cattle -- and generates electricity. Informally, the river's urban, electric and agricultural users may accommodate wildlife and recreation. They leave reservoirs high into the fall, if possible, and try to keep a trickle in a stream to support fish.

But that is *noblesse oblige*, and only to be counted on until the water is needed on the land. For the basis of Western water law is the dewatering of every stream and river in the region. Water in streams has no rights. Even where in-stream and minimum stream flow laws exist, they have marginal effects. The rafting industry is far better off today than it would be without dams. But it exists at the whim of users who are interested in irrigation, hydropower and municipal and industrial uses.

So while the Columbia is firmly embarked on an era of reform, the Colorado is in an ambiguous position. There is no salmon on the Colorado to bind the river system together. Its own endangered species -- the hump-backed chub and the squawfish -- do not have the Indian-sportsmen-commercial fishery constituency the salmon has.

Pressure on the Colorado River comes from other directions. First, the extractive economies, including the cow-calf operations, are dying. That's the stick of change. The carrot is the increasing value of water for urban and recreation uses.

San Diego and other southern California cities, as well as Phoenix and Tucson, say they desperately need

water. Within the Rockies, the recreation industry says it could rescue Colorado, Idaho and western Montana if it had the water to work with. Numbers show that even though they must piggyback on other water uses, rafting, fishing, hunting, hiking and sightseeing generate amounts of money that are in the same ballpark as agriculture, logging or mining. But these recreation and lifestyle uses all depend on water -- water in streams, in full reservoirs, and in shallow aquifers to maintain wetlands and marshes.

The title of this four-issue series is: Western Water Made Simple, and the title is certainly a sign of the times. Until this decade, Western water had grown increasingly ornate, adorned by layer on layer of regulation, law, precedent. Ministering to that body of legal doctrine and practice were the conservancy districts, their attorneys, the state engineers, the elected officials.

Even harsh critics of the water system had to be canonical -- had to speak in the liturgy of the established church. Their criticism came through only in the way in which they used the liturgy, much as a secret atheist might wonder aloud in Sunday School: Now just where did Cain's wife come from, anyway?

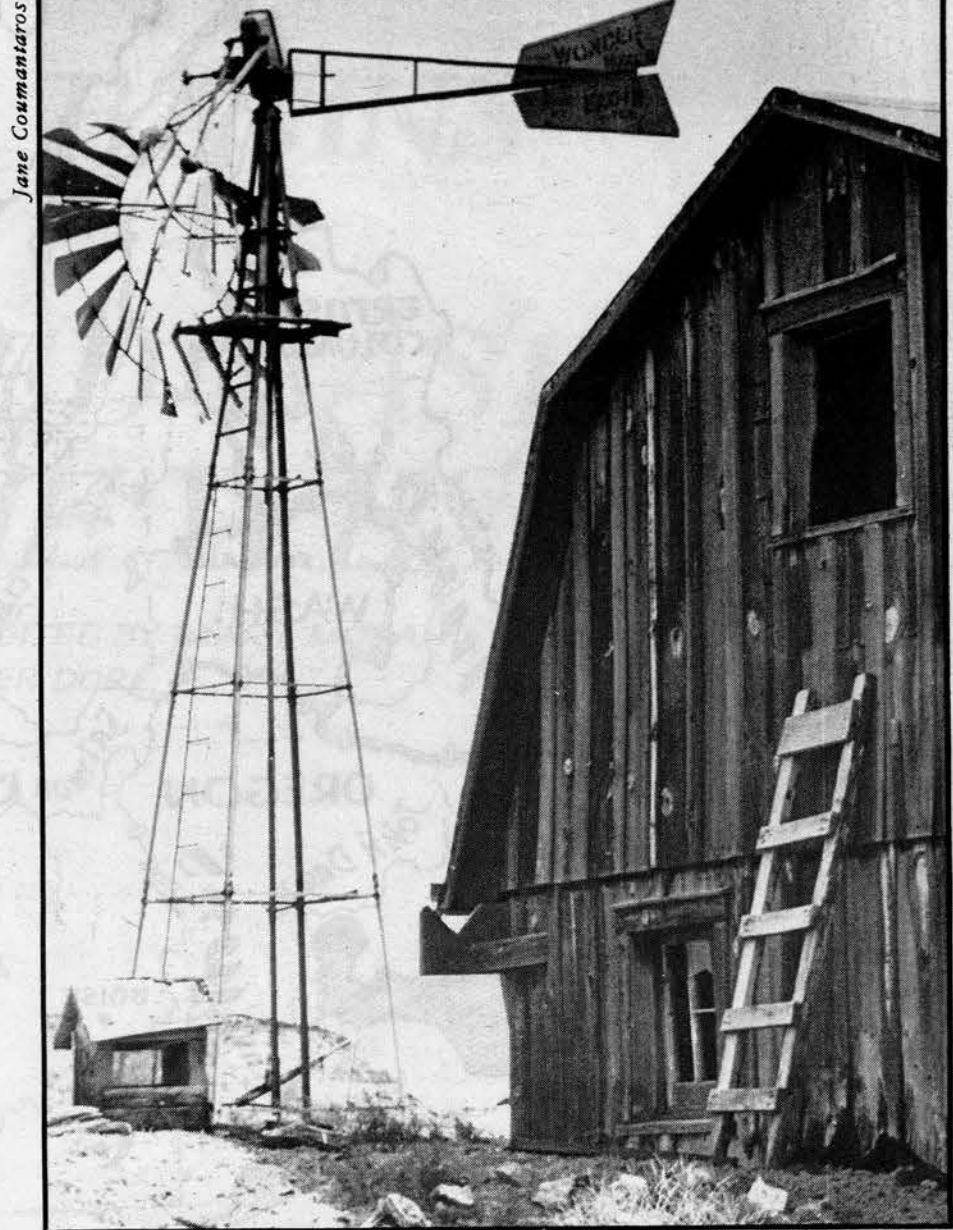
Water was complex for the same reason that Louis the Fourteenth's government was complex. It was hedged round by moats and walls meant to separate it from outside forces; meant to make it as self-sufficient, as unchanging as

possible. Until recently, if you wanted to know about Western water, you had to learn about the Colorado River Compact of 1922, about *Arizona versus California*, about the doctrines of prior appropriation and beneficial use, about senior and junior rights, about first in time and first in right, about the history of Pick-Sloan, about "water is for fighting and liquor is for drinking."

Those embellishments won't disappear. But it is possible today to speak of making Western water simple because it is becoming naked to the world. It no longer exists in an armored cocoon of congressional appropriations, judicially appointed water conservancy districts, and a conservative, landed rural class.

For better or worse, water is becoming a commodity. Until now, Western water was mostly tied to the land, which meant it was tied to agriculture. It was not subject to trade for dollars. Several years ago, Wyoming was told that tens of millions of dollars could be saved by retiring land in central Wyoming instead of building facilities to remove the salt that farming put into the water. It seemed logical to retire the land. But Wyoming said that the Big Sandy Project must stay in production, and it has, to the best of its marginal ability. Wyoming reacted much as the Catholic Church would were it told that it could make billions by moving the Vatican to make room for a shopping center.

Those traditional attitudes are disappearing in the face of Gramm-Rudman-Hollings, the decline in ranching and mining and logging, and the emergence of economic activities



based on water flowing in streams rather than through turbines or over fields.

Western water is becoming simple because it is entering the world in which the rest of us live. It is

becoming subject to forces we are all familiar with. After decades of a cloistered existence, it has rejoined the secular, profane, hand-to-mouth world the rest of us are so familiar with.

	COLUMBIA RIVER BASIN	MISSOURI RIVER BASIN	COLORADO RIVER BASIN
RIVER LENGTH [miles]	1,214(3)	2,315(6)	1,450(5)
BASIN SIZE [square miles]	259,000(3) 258,000(2)	529,400(3) 530,000(6)	210,000(5) 244,000(2) 250,000(3)
AVERAGE ANNUAL RUNOFF [acre-feet]	180 million (2) 185 million (4)	65 million (6) 58 million (4)	16 million(5) 14.8 million [1896-1983 average](2) 14 million(4)
AVERAGE FLOW AT RIVER MOUTH [acre-feet]	185 million(5)	49.4(6) 54.6(7)	0
IRRIGATED LAND [acres]	7.0 million (1)	14.139 million [1985 projection](7)	0.644 million - Upper Basin (1) 1.527 million - Lower Basin (1) 2.171 million - Total
RESERVOIR STORAGE CAPACITY [acre-feet]	41 million [active capacity] (4)	75 million [active capacity](4) 75 million [mainstem, total capacity] (6)	84 mil. [total capacity](1) 60.3 mil. [total, major reservoirs](2) 54 mil. [active capacity](4) 58.9 mil. [active, major reservoirs](2)
HYDROPOWER CAPACITY [megawatts]	22,000(4)	3,300(6)	1,586 - Upper Basin (1) 2,200 - Lower Basin (1) 3,786 - Total

Collecting the numbers for a statistical table on the Columbia, Missouri and Colorado basins is not a simple task. Different agencies control various aspects and various regions within each basin, and often measure the basin characteristics in different ways.

The Bureau of Reclamation divides the Colorado River basin into Upper and Lower basins, and in terms of logging information they are entirely distinct from each other.

Obtaining the numbers on total

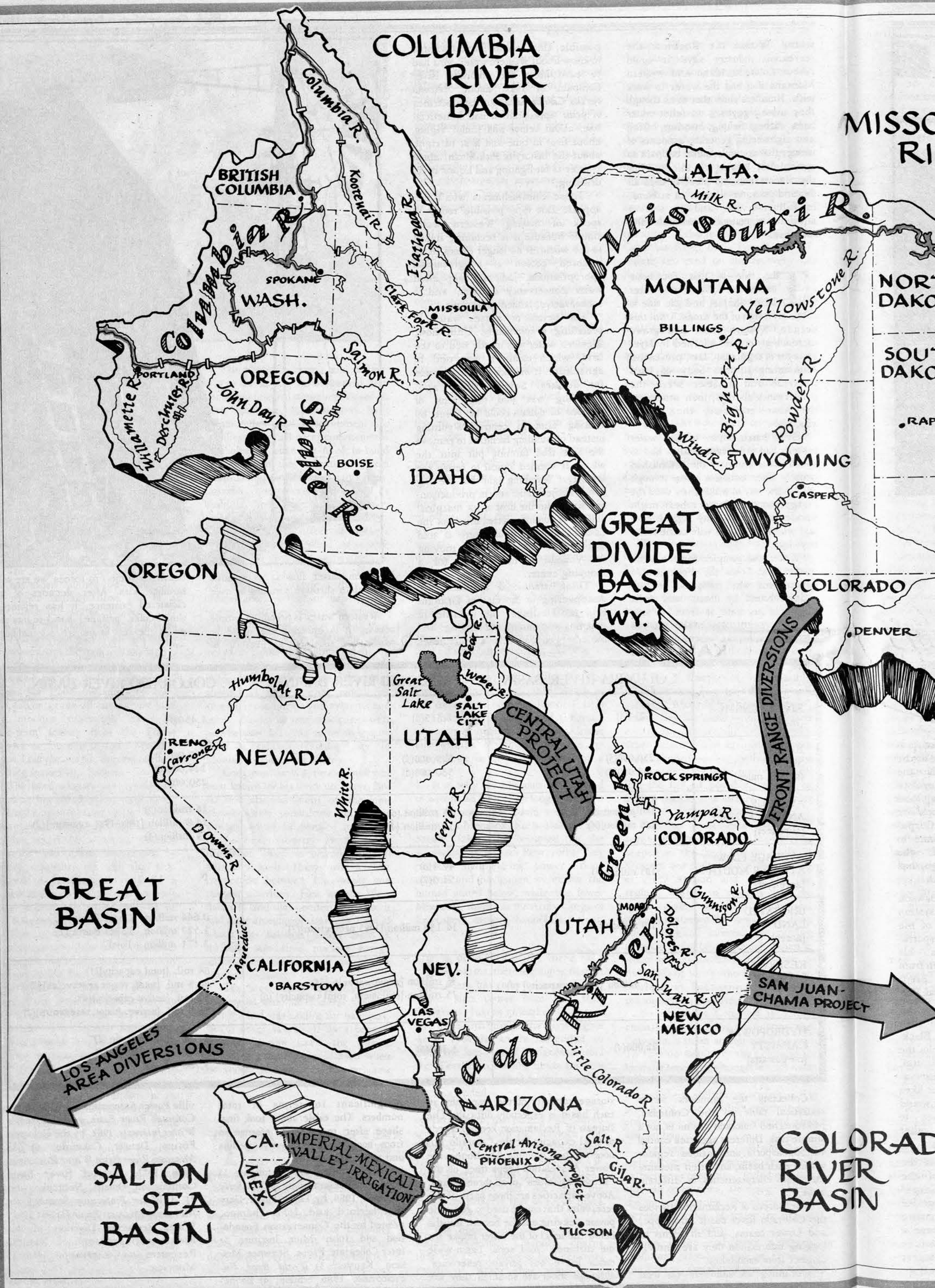
storage capacity of the reservoirs in each basin is especially difficult. The Bureau of Reclamation keeps records of total capacity for the Colorado but none for the Columbia. The Bonneville Power Association keeps track of the "active capacities" of all three basins. Active capacities are those parts of the reservoirs that can be used to generate power, leaving out the bottom depths below the level of the water intake for the turbines. And some basin-wide totals leave out private reservoirs, although most are so small they are

insignificant in terms of total numbers. The table above took final shape after reconciling information from books, reports, encyclopedias and many phone calls.

Sources noted are as follows: 1) Bureau of Reclamation; 2) *The Salty Colorado*, 1986, by Taylor Miller, Gary Weatherford and John Thorson, printed by the Conservation Foundation and John Muir Institute at Inter-Collegiate Press, Shawnee Mission, Kansas; 3) *World Book Encyclopedia*, 1986 edition; 4) Bonne-

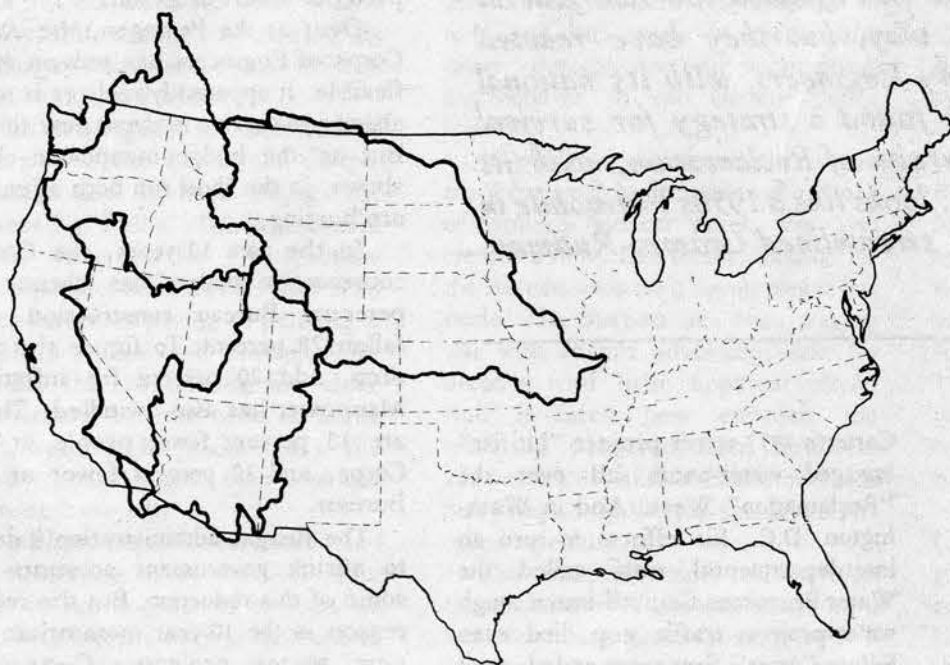
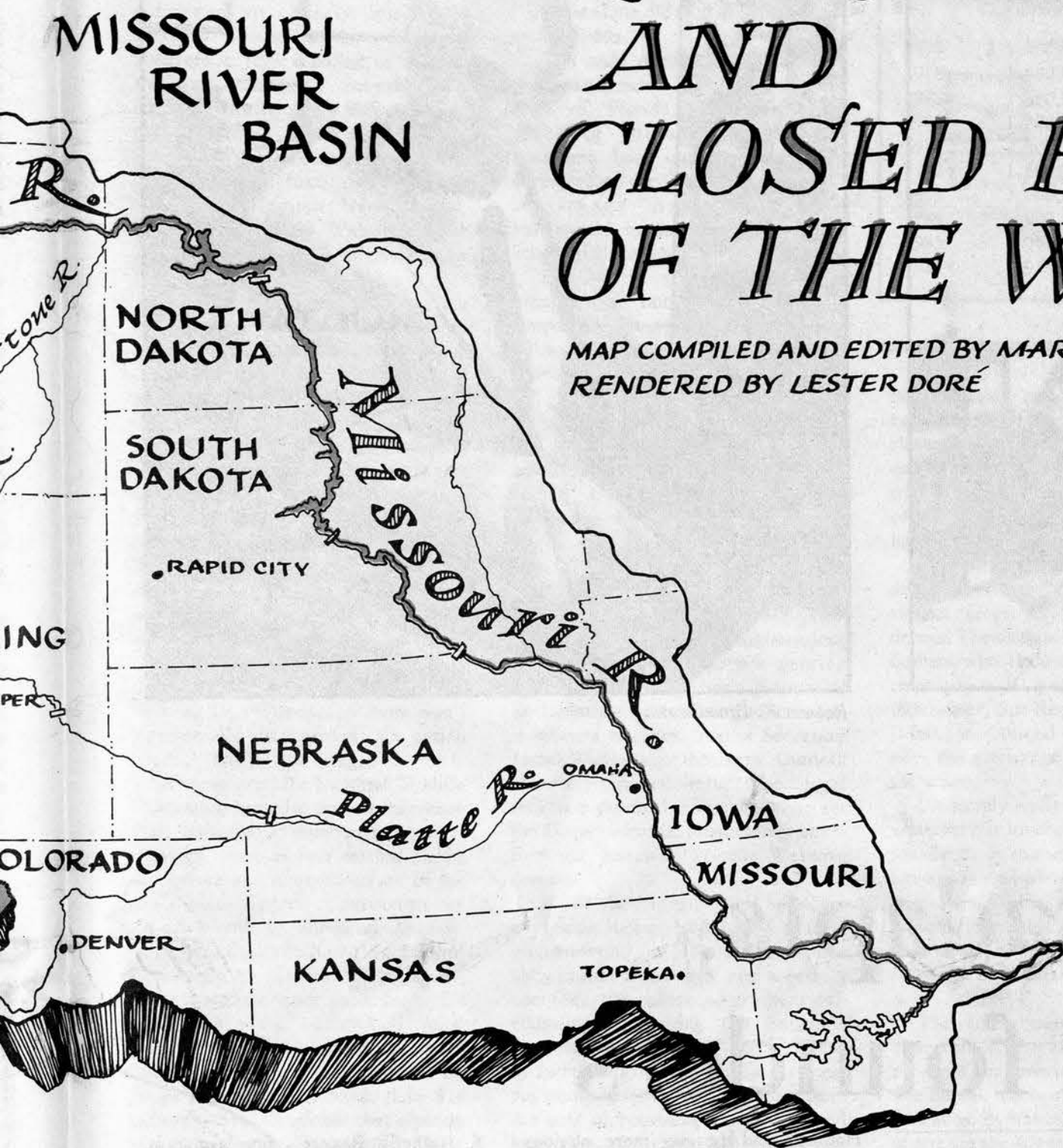
ville Power Association; 5) *The Upper Colorado River Basin and Colorado's Water Interests*, 1982, by the Colorado Forum, Denver, Colorado; 6) *The Missouri River Basin Water Resources Plan*, 1977, Missouri River Basin Commission, Omaha, Nebraska; and 7) *A Water Protection Strategy for Montana, Missouri River Basin*, 1982, Water Resources Division of the Montana Department of Natural Resources and Conservation, Helena, Montana.

--Mary Moran



RIVER BASINS AND CLOSED BASINS OF THE WEST

MAP COMPILED AND EDITED BY MARY MORAN
RENDERED BY LESTER DORÉ



AN-
PROJECT

COLORADO
RIVER
BASIN

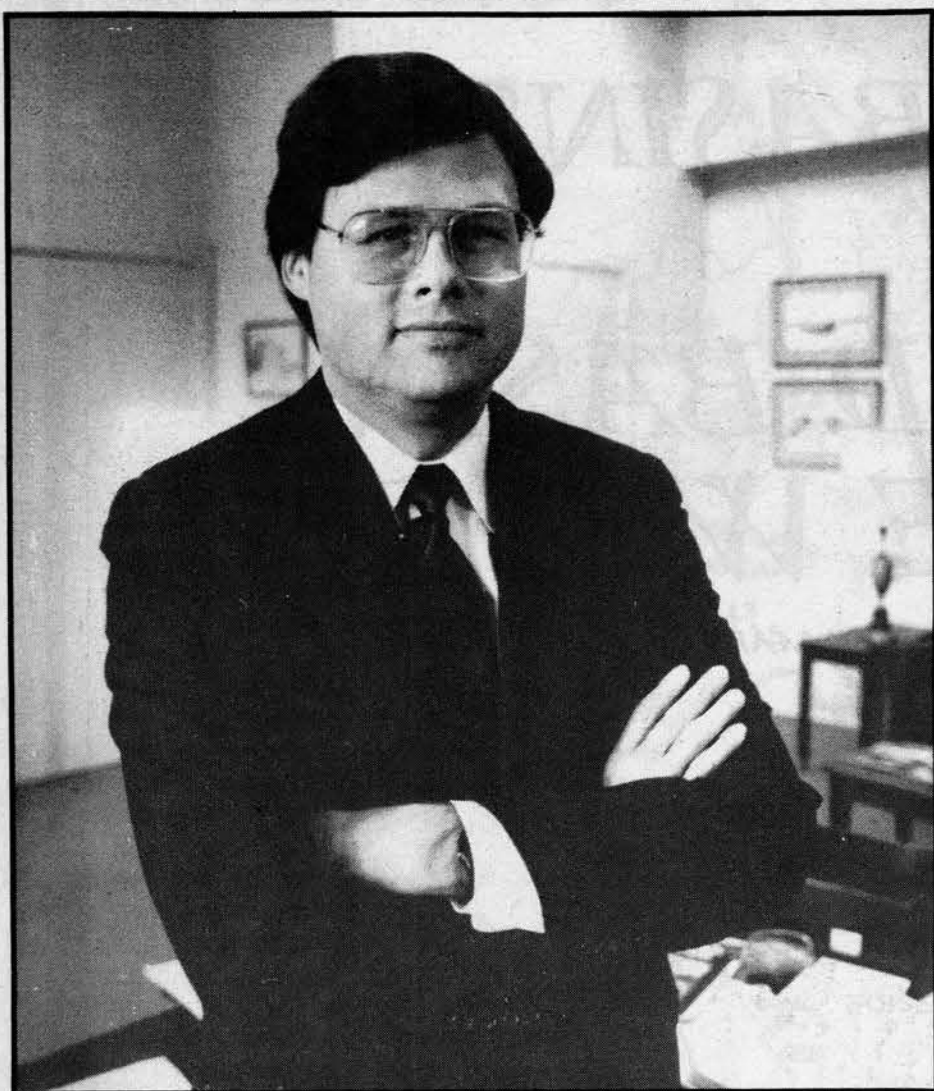
The West is composed of four major bathtubs. Three are river basin bathtubs: the sprawling Missouri, the compact Columbia, and the elongated Colorado. The major river in each basin collects water that falls within the natural boundaries of that basin and dumps it, eventually, into the Atlantic, in the case of the Missouri, and into the Pacific, in the cases of the Columbia and Colorado. The fourth of the West's major bathtubs, the Great Basin of Utah and Nevada, has no outlet. Its water drains into the Great

Salt Lake and other closed sinks, and stays there.

Man has not been willing to live with nature's division of the West into basins. So, when it suits us, and it often suits us, we build canals, tunnels and pumping stations to move water from one basin to another. The San Juan-Chama diversion puts Colorado River water in the Rio Grande basin, and thence on to the Gulf of Mexico. Denver's Front Range captures water out of the Colorado River basin and sends it under the Continental Divide,

into the Missouri. On the other side of the Colorado River basin, the Central Utah Project transfers water from the Colorado to the Great Basin. Southern California, the greatest diverter of all time, pulls water out of many places, including the Owens River (of *Chinatown* fame) in the Great Basin and the Colorado River. The desert irrigators on the California-Mexico border transfer Colorado River water into the closed Salton Sea basin. The megalopolis around Los Angeles dumps its water into the Pacific Ocean.

14-High Country News -- September 29, 1986



Robert K. Dawson



Robert K. Broadbent

The Corps adapts, the Bureau founders

The end of federal largesse has affected the two federal water agencies in the same way, but they have reacted differently. The Corps of Army Engineers, with its national constituency, appears to have found a strategy for survival through cost-sharing. The Bureau of Reclamation, with its 17-state Western constituency, looks like a 1950s Finmobile in a 1980s showroom filled with streamlined Gramm-Rudman-Hollings models.

*Hey diddle diddle,
Gramm Rudman's a tickle
Bob Broadbent's flown the
coop.
The water babies cried
Over projects denied,
And the Corps run off
with the loot.*

by Lawrence Mosher

If you think the Reagan Revolution stands for preserving traditional Western water interests, think again. The Reagan people would like to humor those interests, but the new fiscal realities are undermining their ability to do so. The biggest federal budget deficit in history is the hammer that is destroying the old order, even though the environmental era laid the foundation for change.

Western water politics buried Jimmy Carter's second-term hopes as much as the Ayatolla Khomeini did.

Carter's 1977 water project "hit list" enraged water-users all over the "Reclamation" West. And in Washington, D.C., his efforts to turn an interdepartmental waif called the Water Resources Council into a tough water-projects traffic cop died even before Carter's first term ended, axed to death by peeved congressional budgeteers.

But Carter's vision, without Carter and his council, is firmly on track. And what the Georgian environmentalist couldn't do, federal budget deficits are doing. The Reagan administration is caught in a fiscal vise that is squeezing the federal water agencies dry.

Robert N. Broadbent, who ran the Bureau of Reclamation before becoming an assistant Interior Secretary, has returned to Nevada to run an airport. An excellent administrator and personally popular, he left behind a beleaguered, circle-the-wagons agency dogged by both Gramm-Rudman-

Hollings and the ever more obvious perils of desert irrigation.

Over at the Pentagon, the Army Corps of Engineers has proven more flexible. It apparently realizes it must change to survive in these new times. But as the budget-manpower chart shows, in the short run both agencies are hurting.

In the past 10 years, the Corps' construction budget has shrunk 34 percent. Bureau construction has fallen 28 percent. To figure the real drop, add 20 percent for inflation. Manpower has also dwindled. There are 15 percent fewer people at the Corps, and 10 percent fewer at the Bureau.

The Reagan administration's drive to shrink government accounts for some of this reduction. But the major reason is the 10-year moratorium on new water projects. Congress, responding to an alliance of environmentalists and fiscal conservatives, has not approved a major new water work since 1976. In 1984, operations and maintenance spending exceeded construction for the first time in Corps history. But an end to that construction drought seems at hand, in large part due to an internal change at the Corps.

The Corps' Strategy for Survival

One of the quieter shifts to take place since 1980 has occurred at the Corps, where William

R. Gianelli, Reagan's first assistant Army Secretary for civil works, lit the fires of cost-sharing. Gianelli, the 'father' of California's water development, realized that unless local interests would pay a significant share of up-front costs, the Corps' construction arm would continue to wither. Robert K. Dawson, who replaced Gianelli two years ago, has picked up the cost-sharing torch.

Although the 40-year-old Dawson is a graduate of the pork-barrel system -- he was staff administrator of the House Public Works and Transportation Committee for seven years -- his approach has evoked praise even from such environmental critics as Brent Blackwelder, the Environmental Policy Institute's top water guru:

"Dawson has pursued the cost-sharing initiative with vigor," Blackwelder allows, although he faults the Corps for still promoting 'structural' solutions rather than water conservation and efficiency. Blackwelder likes cost-sharing and user fees, but would also like to see alternatives to dredging, channelizing and other traditional approaches to water.

On the day last March that the Senate passed its version of the omnibus water bill, the Corps' Dawson said, "If we are able to devise a new charter or cost-sharing partnership, we're going to have a strong federal water resources program, with the Corps as the largest and pre-eminent participant. But if we don't get a new charter, then I see that

program withering away. It just comes down to whether we get this legislation."

In pursuit of the legislation, which is in a House-Senate conference committee as of this writing, Dawson convened an unlikely legislative strategy session in his Pentagon quarters in July: it pulled in most of the top Washington environmental leaders. Amazingly, Dawson and representatives of the Sierra Club, National Wildlife Federation, Environmental Policy Institute, Wildlife Management Institute, National Audubon Society, Izaak Walton League and Friends of the Earth came together.

The subject was: how to get the House conferees to bend enough toward the Senate version of the omnibus water bill to avoid a presidential veto? Both the environmentalists and Dawson opposed the House bill because its cost-sharing provisions were too weak, and it was loaded down with 125 more projects than the Senate bill. The environmental groups endorsed the Senate bill because of the relatively limited number of new projects and because it would cast requirements for significant cost-sharing in legislation.

The group was told by the Corps' chief of engineers, Lt. Gen. E.R. Heiberg III, "The system now won't let you build water projects the nation needs," and no one disagreed.

A week later, the National Wildlife Federation hosted a press conference that featured a number of former enemies, such as four retired Corps executives and representatives of the Associated General Contractors of America and the American Association of Port Authorities. Lynn Greenwalt, the NWF's vice president for resource conservation, said:

"The National Wildlife Federation cannot support the authorization of hundreds of new water projects with an estimated cost of more than \$18 billion without significant cost-sharing and user-fee requirements. Those reforms are absolutely necessary for the nation to set priorities and weed out the political boondoggles from the genuinely necessary projects that represent sound investment and wise natural resource management."

Ed Osann, who lobbies Congress for the NWF, answers the question: Why would an environmental group support any water works bill? Why not go for 20 years of no new starts? First, he gives a negative reason. The Senate and House appropriations committees have indicated that "they're tired of waiting, and have tried to appropriate dollars" even without a bill authorizing new starts.

But mainly, he says, the bill represents an opportunity to institutionalize user-fees and cost-sharing that will make the construction of water projects more or less self-correcting. Local users, he says, won't put up their own money for worthless or uneconomic projects. "It's not a panacea, but it's a big step forward."

Another Washington, D.C., group that has spent much time lobbying against water projects, the Environmental Policy Institute, disagrees. Brent Blackwelder says, "The reforms are not strong enough. But it's a judgment call. No one is sure how much cost-sharing it will take to kill a boondoggle, or encourage non-structural solutions." His group also fears that reforms imposed at the top won't stick. "In the field the Corps will try to undercut reform."

Have 10 years of blocked water projects left the nation with an infrastructure gap? Are good projects mixed in among the House's list of 300, or the Senate's smaller list? Blackwelder sees no kernels of gold: "It's the same old stuff -- solutions out of the 1940s."

The only need Blackwelder sees are those created by old projects. The state of Florida, for example, is spending millions to put the meanders back into the Kissimmee River, which the Corps "channelized" 20 years ago. "A re-reclamation bill -- that would be interesting. It would send a different signal."

But while the environmental groups may not be unanimous in supporting even a Corps water-works bill with reform provisions, support or opposition to the bill is a "judgment call." The Corps' willingness to push for user fee and cost-sharing reforms has blunted criticism and put some environmental groups in the agency's corner. Over at Interior, however, things are different.

The Beleaguered Bureau

Throughout the first four years of the Reagan administration, while the Corps was gearing up for survival, Interior's Bureau of Reclamation was refusing to acknowledge new realities. Interior Secretary James Watt fought the Corps' Gianelli at every policy turn. The fight reflected political differences that set the Corps' national constituency apart from the Bureau's 17-state Western domain.

While the Bureau's local sponsors pay some money back to the federal government in 40- and 50-year obligations or through per acre-foot user fees, the federal government still ends up subsidizing the Bureau's projects in a variety of ways. These include negligible or no-interest payments, user fees that do not reflect the cost of providing the water, and long-term repayment schedules that do not reflect inflation. Watt feared that any shift toward cost-sharing by the Corps would erode the built-in subsidies of the Bureau.

With Watt gone, the Bureau has gotten out of the way of the Corps' initiatives and is itself biting the cost-sharing bullet. The agreement reached June 30 for the Animas-LaPlata project has Colorado and New Mexico interests paying 18 percent of the \$379.3 million cost. Environmentalists say the cost sharing was done with mirrors, but the need to settle Indian water rights claims gave the project broader support than it would otherwise have had.

The Bureau is not so much affected by cost sharing as by the blunt fact that it is running out of projects to build. Much of its work is devoted to finishing mammoth projects authorized years ago, such as the Central Arizona Project, which will transfer Colorado River water beyond Phoenix to Tucson, and the Central Utah Project, which will move Colorado River water from eastern Utah into the Great Salt Lake Basin.

Earlier this year, Congress approved what may be the last of these major Bureau systems: North Dakota's Garrison Diversion Unit of the Pick-Sloan Missouri Basin Program. After decades of controversy, the House passed a pared-down version that will cost just under \$1 billion. Rep. George Miller, D-Calif., whose Interior and Insular Affairs

HOW FISCAL EROSION HAS NIBBLED AT WATER AGENCIES

	ARMY CORPS OF ENGINEERS		BUREAU OF RECLAMATION	
	Construction	Manpower	Construction	Manpower
1977	\$ 1,400,000	33,050	\$ 721,042	9,180
1978	1,500,000	33,002	574,756	8,249
1979	1,300,000	32,958	401,056	8,252
1980	1,700,000	32,539	424,319	8,308
1981	1,600,000	32,745	576,115	8,139
1982	1,400,000	32,173	548,505	8,307
1983	1,500,000	30,564	636,009	8,292
1984	927,000	28,935	695,318	8,277
1985	955,000	28,645	754,300	8,103
1986	919,000	28,395	521,700	8,245

Subcommittee on Water and Power handled the compromise, made it clear Garrison was moving forward only because of strong past political commitments and the fact that a congressionally appointed commission had forged the compromise.

Even so, more federally subsidized irrigation water to produce more surplus crops triggered a spirited debate. The original bill required that farmers who choose to raise surplus crops pay a 10 percent surcharge on their water. But Rep. Philip R. Sharp, D-Ind., introduced an amendment to raise the surcharge to the full cost of the water:

"It simply defies logic that today, whatever our historic approach to this has been, it makes no sense to go forward as we have in the past without saying 'Look folks, we are not going to subsidize something that is counter to federal policy now, and is almost certain to be counter to federal policy in the future.'"

The amendment failed. But the close vote in the House -- 203-199 -- presages an inevitable policy shift. The Bureau has not just run out of new dam sites. By having irrigated millions of acres in the West, it has also helped bury the nation under a mountain of food, and thus made its 'reclaim the desert' mission not only unnecessary but counter to the current public interest.

Its plugging of every major river in the West, and the irrigation of millions of formerly desert acres, has also created a new, and ironic, mission for the Bureau: cleaning up messes it has made. The Bureau has been waging war with an old adversary, salt, for decades with little apparent effect. Now it faces new enemies: the mounting pollution from fertilizers and pesticides, and in California's rich San Joaquin Valley, a special culprit called selenium.

This trace element, toxic at high concentrations, is common in Western soils, including those found in the San Joaquin Valley. In 1983, the Fish and Wildlife Service, which operates a bird refuge at Kesterson Reservoir, discovered duck birth deformities and deaths. Selenium was the culprit, carried there by the San Luis Drain from 42,000 acres in the San Joaquin's Westlands Water District. On March 30, 1985, Interior Secretary Donald P. Hodel announced that the tainted drainage would cease by June 30, 1986.

Since then, the Kesterson debacle has come to spotlight the growing confusion over the Bureau's future. With new dams nowhere on the horizon, the Bureau is left only with trying to remedy the ill effects of its

past work. How well is it equipped to handle re-reclamation?

Congressman Miller, whose Interior panel on water and power oversees the Bureau, views the array of problems symbolized by Kesterson as the Bureau's potential Waterloo:

"It used to be that you just put the water on the land, the land bloomed, and everybody was happy," Miller said recently. "Now we know that this also starts an event that is then played out over a long period of time, and this is now turning out to be somewhat catastrophic at Kesterson."

"The Interior Department wants to stumble along with Kesterson and the drainage problem for another decade. But our committee is rapidly losing confidence in the Bureau, and is starting to look for alternatives. Interior's agencies don't have the sense of urgency that toxics dictate you now must have. Science is showing that toxics are running faster than the bureaucracies."

"Interior will come up here and tell you how to build a dam that some congressman promised his state in 1945. But they can't seem to say how to clean up the drainage mess... This is their challenge, and they are running out of time."

Another drainage mess, one which began ticking with the first damming of the Colorado, is the growing salting of that now almost totally throttled river. After U.S. farmers on Reclamation projects nearly ruined Mexico's best agricultural area by sending that nation Colorado River water with 1500 parts per million of salt, Congress enacted the Colorado River Basin Salinity Control Act in 1974. Its goals were to build a desalting plant at Yuma, Arizona, and to engineer costly solutions at various, mostly upper basin, salt sources.

As Marc Reisner points out in *Cadillac Desert*, no consideration was given to the cost-effectiveness of reducing irrigation use of the Colorado, which produces 37 percent of the river's salinity.

"One could easily achieve the same results (as the desalting plant) by buying out the few thousand acres of alkaline and poorly drained land that contribute most to the problem, but there, once again, one runs up against the holiness of the blooming desert," Reisner writes.

Only in 1984 did Congress amend the 1974 law to bring in the water management ideas of the Soil Conservation Service. The SCS now notes that over half of the one million acres of irrigated land contributing the salt are correctible without expensive

(Continued on page 18)

Light at the end of the (water) tunnel

Last spring, a week before the House of Representatives approved the \$902.2 million Garrison Diversion Project in North Dakota, Lawrence Mosher interviewed George Miller, a California Democrat who is chairman of the Interior and Insular Affairs Subcommittee on Water and Power. Excerpts from that interview follow:

Q. What is the future for federal water agencies?

A. They would like to argue that their role has not changed, because they see themselves as very multi-faceted organizations. But the fact is that they have not placed equal emphasis on these facets, but rather a singular emphasis on developmental projects. The other concerns -- water conservation, management, new technology -- have taken a back seat. But projects are less relevant today than a decade ago. The public understands this, and now the governmental agencies must too.

We have gone through a decade of major transition in which there has been a virtual moratorium on public works projects. Now there is a re-emergence (the water bills) in an entirely new atmosphere and requiring a new coalition. We will be bringing the Garrison project to the floor of the House next week. (The bill passed April 23: 254 to 154.) To get this bill this far, after a five-year delay, has required a coalition of local input, environmental concern, and the water agencies all on an equal footing now.

If you look at the projects still on the drawing board that would merit consideration by this committee, a very clear message has been sent that if anyone thinks they can just put their head down and ram a project through the Congress of the United States, they will get a big, big headache and no project. Unless you include the environmental community and serious economic studies in lieu of phony feasibility studies, you cannot run that gauntlet now. The beneficiaries are now too small in number compared to the high costs.

Q. How have the congressional dynamics changed?

A. The current legislation is a major test, but let's remember that only three or four years ago people here were saying no way in hell will we ever have cost-sharing. Now we're bargaining over the percentages. Yes, the House Public Works Committee is another scene, but the debate is still different now than only a few years ago. What has happened, driven by the federal deficit, is that Western water development or Mississippi River basin development, or various inland waterway improvements are no longer the sole purview of the members of Congress and senators from that state. Because of the deficit, the community of review now involves many more members of Congress than it did when I came here 12 years ago.

Part of it is a response to something that happened when I first got here, which was that the Interior committee used to be the exclusive

jurisdiction of the 17 Western states. Then Congressman Phil Burton started putting Easterners on it. He put people like Phil Sharp of Indiana on it, and all of a sudden members started asking questions. Now the barn door is open, and a lot of people are asking questions. And now you have to respond -- not like the old days.

Q. What about the Corps of Engineers?

A. I don't think there's any question that the Corps of Engineers is turning around. Their constituency is greater in number than the Bureau of Reclamation, but yes, they are turning around. I sit on the budget committee and I see what drives the process, and we have a number of proposals in the budget committee to start to change the federal-state shares of financing projects.

The rule is that change is incremental. You don't do it in one step. But the whole process now is more accelerated than four or five years ago.

Q. What is the future for irrigated farming in the arid West?

A. Because of Kesterson (the National Wildlife Refuge in California polluted with selenium), we now have to look for drainage problems in a lot of irrigation projects. We are looking at the kinds of lands involved. With the Garrison project, one of the questions we raised was the ability of those lands to absorb irrigation water. There is a great deal of urgency to find out how you contain this problem of drainage pollution.

Q. Should the Corps and Bureau of Reclamation merge?

A. Two bad reputations don't make a saint. I don't think this is terribly relevant. The question is how do you get both of these agencies -- it used to be the consensus that the Corps was the worst of the two -- to use their talents to deal with today's problems as opposed to the problems they inherited from the 1940s and '50s. That's the big challenge. If the outside organizations, whether they are environmental, budgetary, scientific, or whatever, are forcing these agencies to do this, and if they don't change, they're going to get left behind.

This is the problem with Kesterson. The Interior Department wants to stumble along with Kesterson and the drainage problem in the valley for another decade, and massage it and look at it and hold conferences. But our committee is rapidly losing its confidence in the Bureau, and is starting to look for alternatives. Perhaps we ought to let the local irrigation districts or local communities deal with this, and if we're culpable in creating the problem, then maybe our role is to finance the solution without dictating it.

We want scientific standards and goals in the cleanup. But we're running out of patience with the Interior Department because its agencies don't have any sense of

urgency that toxics dictate you must have today. The science is now showing that the toxics are running a little faster than the bureaucracies. We thought they were isolated in the soils and plant life, and now we see these toxics are moving up the chain. And yet the department has thwarted the one or two efforts out there because they didn't think of them first. And that is not winning any fans in the Congress.

Q. Is the Kesterson pollution problem causing farmers to consider retiring their land and marketing their water to the cities?

A. It is stimulating a discussion. But it remains to be seen whether it will result in a development of a water market in California. There are a number of serious questions. The public has an interest: what happens to its share of the water? There are also serious questions about the long-term utilization and management of this resource that have not yet been properly addressed.

There is no question that the problem of drainage at Kesterson has accelerated the discussion. In selected cases water markets will become a reality. In some cases, however, you may not want water markets to develop, because you have the ability in the present system to reallocate water to another use through intentional decisions that may not be the same decisions dictated by market forces.

If you end up with pure water marketing, all the water in the state of California would end up between Santa Barbara and San Diego. And this may not be what you want to do.

I'm sure the same thing is true for Colorado and the rest of the Rocky Mountain states. There may be other public interests that have to be addressed concerning water than simply allowing only money to move it. In its rawest form, Owens Valley was water marketing! They (Los Angeles) went up and bought all the land and water there, and today we may not want decisions to be made in that fashion. It may be that the city of Los Angeles had a higher and better

use for that Owens Valley water. But I'm not sure we want decisions today made that way throughout the West. We would end up with a lot of little oases and a lot of brown areas in between.

It's one thing to have water contracts governed by statute that provide certain rights in drought conditions to recall a portion of the water. It's another thing to let those situations be governed by contracts that may not take droughts into account. So there are a lot of questions about what laws to apply to water marketing. But it does address a number of issues linked to water conservation and management that we are looking at concerning the highest and best use of this resource.

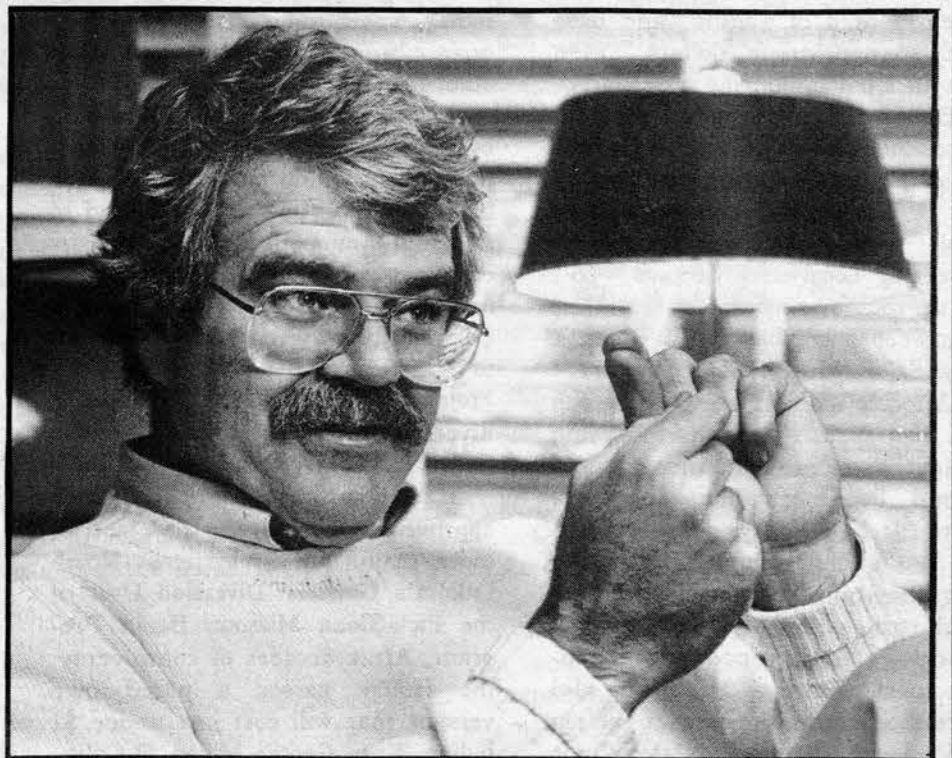
There's going to be a clash, and I can't predict the outcome. We have to start pulling it apart. I'm for water marketing, but I'm not for Noah Cross (a character in the movie, "Chinatown") being the water master to decide who's going to get it and who isn't.

Q. What are the implications of the Westlands Water District lawsuit? [Westlands in California is the country's biggest water district. Farmers there are suing the Interior Department over how much it should pay for its irrigation water and whether it should pay anything more to resolve its drainage problems.]

A. One of our concerns is that all of the costs of these changes are not self-contained within the beneficiaries of the contract. Some of these costs overlap onto other people. The issue here is whether they are politically powerful enough to get what they want. Should they succeed, which I very much oppose, what you will see is that a lot of other irrigation districts will pay for Westlands' greed politically. Once again, Congress is going to be confronted with a district that is keeping a very substantial amount of special privilege for a very few, very wealthy people, and that's just going to taint all of Western irrigation.

--Lawrence Mosher

Richard A. Bloom



California Rep. George Miller



Selling water, or selling out?

These veteran observers of the West don't see water marketing as a panacea for what ails the region's water policy. They fear it is a bail-out to big water users who couldn't survive even with massive subsidies. They suggest that environmental groups have erred, and warn that paying ransom to vested interests is no substitute for political reform.

by Bob Gottlieb and Peter Wiley

For more than five years, environmentalists have grappled with the problem of developing strategies in the era of Ronald Reagan and the conservative retrenchment. In the area of water policy, environmentalists feared that the tentative reforms of the Carter administration would be swept aside in an avalanche of new water projects and hostility to environmental values.

To meet this challenge, certain key individuals and groups argued that an affirmative strategy was required to marry Reaganism to the goals of the environmental movement. They turned to 'water markets' as an idea they hoped would appeal to conservatives and also protect the environment.

The strategy worked, and today the water market concept is the hottest thing going in the arid West. It is the talk of development interests and environmentalists, conservative and liberal politicians, Bureau of Reclamation officials and Office of Management and Budget red pencilers alike. Bills have been introduced and back rooms are rife with talk of entitlement transfers, sale/leaseback arrangements and other trade-offs that evoke the now sacrosanct free market.

To conservatives, water markets are economic transactions, pure and simple. But to most environmentalists, markets imply something else: greater efficiency in water use, which means fewer new dams. They also see additional environmental safeguards built into the water deals. Overall, it is clear that markets create "winners." But are there no "losers"? Does everybody win, as claims Tom Graff, a

leading water-market advocate attorney for the Environmental Defense Fund?

A water-market transaction can take place in a number of ways, ranging from the sale of a ranch along with its water rights, to more complex leasing or to the separation of land from its water. In states such as Colorado or Utah, there have always been water markets of a sort. During the synfuels boom of the late 1970s, agricultural interests sold water, usually with the land still attached, to oil companies and speculators who helped drive the price as high as \$1,750 an acre-foot.

But those transactions are the exceptions. In almost all cases, water rights and entitlements have been based not on market principles, but on politically crafted water allocation systems, much of it in the form of federal programs. The ongoing construction of the Central Arizona Project and the Central Utah Project are driven by congressional appropriations of billions of dollars. They are political projects, with political distribution of the resulting water.

This political system, some charge, is inefficient and inequitable, favoring large users such as agriculture, which uses more than 85 percent of the water in most Western states. Federal Reclamation projects, with built-in subsidies originally intended to further the family farm in the West, brought more land under cultivation. But in many cases, especially in California, they also led to the concentration of land ownership in the hands of large operators.

Within this system of public subsidies, there have been clear winners and losers. Large agricultural

interests and urban developers operating in some outlying areas have been big winners. Losers have included federal taxpayers, inner city urban interests, small farmers squeezed by concentration and overproduction, and the environment. Free-flowing rivers and streams have especially suffered, as they became dammed, ditched and diverted.

By the 1960s, this publicly subsidized and regulated system reached its height. Proposals could still be heard for giant multibillion-dollar water transfer projects stretching from Alaska to the Great Plains to the Mexican border. At the same time, criticism began to surface, particularly among certain academics. A seminal study in 1965, entitled "Northern California's Water Supply," put forth for the first time in a detailed way the notion that water markets might correct the system's inefficiencies. A water market, the argument went, would make it more profitable for those farming marginal lands with imported water to sell their cheap subsidized water to the highest bidder, such as a nearby urban area.

During the 1970s, the water market idea got little attention. Instead of seeking efficiency through free markets, water leaders continued to press for politically subsidized water projects. Then came the election of Ronald Reagan and the referendum defeat of California's Peripheral Canal project -- two events that dramatically influenced both the water industry and environmentalists.

Soon after his election, it became clear that hope for new projects was misplaced, despite pro-development and anti-environmental rhetoric from Secretary of Interior James Watt and Reclamation Commissioner Robert Broadbent. Instead, talk of cost-sharing with the states and a squeeze on existing authorized projects dominated the first Reagan term, almost as if a more combative Carter had been re-elected.

To their surprise, conservation groups, which were rapidly gaining members, found themselves on the offensive. In this context, the water

market idea resurfaced. Under the leadership of Tom Graff and Zach Willey of the Environmental Defense Fund, the idea was seen as a way to appeal to conservatives while strengthening environmental protection.

A clear indication that the desire for environmental protection was still strong in the land came in California's 1982 Peripheral Canal referendum. For more than 15 years after construction had first begun on the California Aqueduct, Central Valley and Southern California water development interests had been coveting a Peripheral Canal to increase the project's yield. Stymied through two terms of Gov. Reagan, the water interests, in conjunction with his successor, Jerry Brown, came up with a package that traded off water development for limited environmental protection.

Some environmental leaders argued that the package was the best deal possible. But the vast majority of environmentalists disagreed. With the help of a split in the water industry and an inspired campaign that undercut the consensus for development in the southern part of the state, they produced 90 percent majorities against the canal in the north. The package was defeated by more than 3 to 2.

The vote only involved Californians. But California is the major water developer in the West. California inspired the Colorado River Compact and Hoover Dam. California interests drained Owens Valley and built the California and Colorado River aqueducts. The defeat of the Peripheral Canal by Californians could only mean that water politics would never again be the same.

Three extraordinary events reinforced the change. The first involved the Imperial Irrigation District. During the Peripheral Canal campaign, the California Department of Water Resources reported that IID was wasting an enormous amount of Colorado River water -- 438,000 acre-feet a year -- due to such things as unlined canals. A mix of lawsuits, media attention and threatened action by the state placed the District in a politically difficult situation.

The Imperial District's problems had become an issue for urban Southern California as well. Critics of the Peripheral Canal had argued that the Metropolitan Water District of Southern California (MWD is the Big Daddy of water wholesalers in the area) didn't need the canal; it could "find" alternative sources of supply by measures as simple as paying for conservation.

In 1981 and 1982, when the idea first surfaced, both districts strongly denied such a deal was possible. Two years later, as political and legal pressure on IID's waste mounted, the two bodies began to negotiate.

A third party interested in the trade was a member of the MWD -- the San Diego County Water Authority. San Diego, which at times is 90 percent dependent on water it imports from the MWD, had been a leader in the fight for the Peripheral Canal. The authority spent \$625,000 on advertising to tell people that, without the canal, San Diego would run out of water in less than 20 years. The defeat of the canal set San Diego's water managers to wondering if it needed to look for its own water.

(Continued on page 18)



Tom Graff, Environmental Defense Fund

Selling water...

(Continued from page 17)

The situation was ripe for a fast-talking Louisiana speculator/entrepreneur named Doyle G. Berry. During the synfuels boom, Berry and associates, known as the Galloway Group, had bought Colorado River basin water rights in Colorado. They anticipated selling them to synfuel companies, but they didn't anticipate the collapse of oil shale.

When that happened, the group began seeking other buyers. It approached San Diego with a proposal: build a hydroelectric dam on Colorado's free-flowing Yampa River and thereby establish a beneficial use. Then pay off the Upper Basin states (Colorado, Utah, Wyoming, and New Mexico) in the Colorado River system, as well as Arizona in the Lower Basin, for use of their entitlements.

The idea, the Galloway Group hoped, would appeal to the Upper Basin states. They are not yet using their full allocated share of the Colorado River, and with the sharp decline in agriculture, mining and energy in the Upper Basin states, the day seems far off when those states would impound and use that water. Instead, the Upper Basin states' share of the water continues to flow downstream. At present, California gets to use much of that surplus. When the Central Arizona Project is in full operation, some of the unused Upper Basin water will flow there. In any case, the Upper Basin gets no benefit from that water except to watch it flow past.

The idea of 300,000 to 500,000 acre-feet of water caused San Diego to jump at the offer and pay a \$10,000 option on the deal. Then all hell broke loose. The Southern California MWD staff was livid. They said the deal violated the Colorado River Compact and other agreements collectively known as the Law of the River. They argued that a MWD member was trying to buy surplus Colorado River water that would otherwise flow to the district as a whole.

At first, nearly everyone in the water industry supported MWD. Even environmentalists, who were promoting the market idea, were aghast at damming the Yampa. But within a year, consensus shifted. Talk centered less on the specific Galloway proposal than on San Diego's growing commitment to buy water from those who either didn't need it or found it profitable to sell. The Galloway idea wasn't going anywhere but the water market idea survived.

San Diego especially toyed with purchasing water from agriculture. The Authority made known its interest in the IID situation, hinting that it might pay a lot more than the MWD, much to the latter's dismay. San Diego also began to talk to parties in the Central Valley, including corporate farmers such as Tenneco. Those landowners had, by 1984 and 1985, become much more receptive to the market idea.

The handful of corporations that control two-thirds of the state water in the Kern area had profited enormously over the previous 15 years, due to their cheap California Aqueduct water. By comparison, urban residents who got their water from the MWD were paying higher rates because the MWD's water from the project was much more expensive than agriculture's water. The system was designed to have urban users subsidize agriculture. In this case, though, the subsidy wasn't going to the family farm; it was going to enormous corporate farms.

But cheap water and corporate treasuries weren't enough. By 1985, the farm crisis had reached Kern

County. Talk of default or return of the water entitlements, cheap as they were, surfaced. Some of the biggest corporate farmers -- Tenneco, Tejon Ranch, and the George W. Nickel interests -- indicated a desire to get out of farming, and approaches were made to San Diego and the MWD. The Kern situation had transformed several major agricultural players from critics to supporters of water markets, especially in light of its bail-out possibilities.

As of fall 1986, talk about water markets is just that -- talk. In each of the episodes described, outside political or economic pressures created the impetus for discussion. Moreover, at least in these cases, water marketing is not free of environmental or equity problems: one plan would build an unnecessary dam; another would bail out and thereby further subsidize corporate landowners passing as farmers.

For environmentalists such as EDF's Graff, there will always be tension between those who advocate markets as an economic transaction and those, like EDF, who say any deals have to contain provisions to protect the environment. Graff also argues that although subsidies may exist in any buy-out, the market idea is the quickest way to change the status quo by transferring water from farms to cities.

There are other ways to change the status quo -- some, such as the Natural Resources Defense Council, urge that the interest rates on the projects be raised, thereby removing some of the water subsidy to farms and likely

retiring production on marginal lands. That in turn would reduce overall water use. But Graff says such reform is very slow, at best, given agriculture's continuing political power.

The question of winners and losers in water market deals is also the question of future water development. If, by creating water markets, marginal lands are retired because farmers sell water, then there is more water in the system and less pressure to build new dams and ditches. This is no small feat.

But it is possible that we are in the midst of an historic economic shift that will force corporate landowners out of farming without water-market deals. In that case, the water market would be just another subsidy. There is also no reason to believe environmental protection will be built into water market deals unless political pressure is applied. Why not, then, apply that pressure to raise interest costs to agriculture, accomplish the same goal, and put the subsidy/bail-out option to rest?

Those choices relate to the way environmentalists assess the strength of their position. It suggests different ways of meeting the quandary of Reaganism: by action and political pressure, or by adopting a free market strategy. It comes down to the analysis of whether the free market for water is just one more boondoggle, or an avenue for change in a transitional political era.

Corps and Bureau...

(Continued from page 15)

pipelines to run the salty water to the ocean (one plan had a pipe carrying both salt water and coal), or enormous man-made evaporation ponds (mini Great Salt Lakes) in the desert. Instead of these structural solutions, SCS tries to correct over-watering, high-surface runoff and other matters under control of the farmer. It is Blackwelder's non-structural 'reclamation,' but it is not coming from the Bureau.

While non-structural improvements are going forward, so is the Yuma plant. Now 60 percent complete, it will use reverse osmosis and lots of electricity to deliver 67,000 acre-feet of water at a fairly pure 295 parts per million of salt. It will cost \$210 million to build, and \$333 per acre-foot of water produced. By comparison, upriver irrigators pay the Bureau \$3.50 an acre-foot for water -- water they often return to the river loaded with salt.

The plant should open in 1989, allowing the U.S. to fulfill its treaty obligations to Mexico to deliver 1,360,000 acre-feet a year of Colorado River water, with an average saltiness of no more than 115 parts per million of salt more than the water arriving at Imperial Dam for diversion to California's cities and farms.

The Future Versus the Past

You don't have to be a cost-benefit accountant to guess which federal agency is

more attuned to the times. While the Corps is lining up agreements that call for 50 percent local financing of deep-draft ports, the Bureau is trying to finish up its construction agenda by spreading the financial burden around the nation.

A favorite place to stick these costs is on those who use electric power generated by Western dams. The so-called large 'cash register' dams were meant to subsidize irrigation projects farmers couldn't afford.

But NWF's Osann says the use of power revenues from Glen Canyon, Flaming Gorge, Curecanti, et al, was sleight of hand accounting. "Electric power rates aren't raised to pay for irrigation dams." According to Osann, the electric power revenues won't be diverted to pay for irrigation projects until the dam itself is paid for. Given the typical 50-year repayment schedule, that will be well into the next century. And then the irrigation projects are repaid at zero interest.

Even worse, says Osann, the hydro projects themselves are grossly subsidized, so the use of these 'cash registers' to justify building irrigation projects represents a subsidy within a subsidy.

Lately, that subsidy within a subsidy has been toned down a bit. To satisfy the fiscal squeeze, water users are letting the electric power revenue surcharges for the latest projects start flowing to the Treasury immediately. The Animas-LaPlata cost-sharing agreement signed June 30 requires Colorado River Storage Project users to pay for irrigation costs immediately, instead of 50 years from now. That will increase CRSP rates about one-tenth of a cent. Since CRSP power is dirt cheap -- a penny a kilowatt-hour -- that

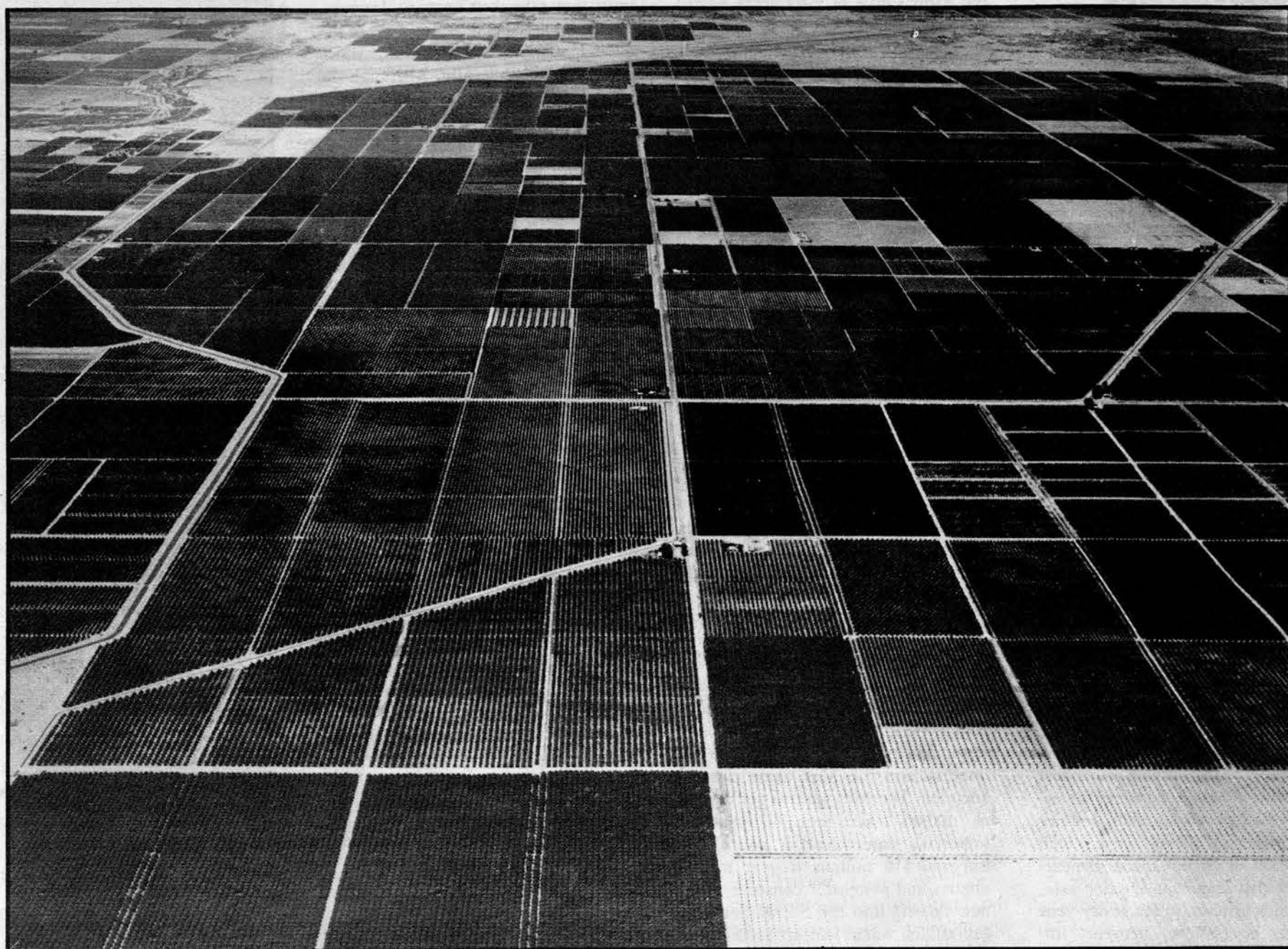
means a 10 percent increase in rates.

The \$1 billion Garrison project employed the same power revenue speedup. Pick-Sloan power customers will begin paying a share of the project costs immediately, rather than after 50 years.

And Central Arizona Project completion requires Arizona power users to pay an additional 4.5 mills on part of Hoover Dam's power.

The Bureau has tapped another source. The financing agreement for Plan 6 of the Central Arizona Project -- a tradeoff for abandoning the controversial Orme Dam Project -- will use federal money authorized by the Reclamation Safety of Dams Act. That law's funds are earmarked only for existing dams. Interior's Solicitor, however, contends that applying the money to build the new Cliff Dam in Plan 6 is legal because Cliff Dam replaces the authorized Orme Dam. If there is any logic there, the National Wildlife Federation fails to see it, and is attempting to block construction.

There you have the Bureau of Reclamation blueprint for survival: drill its money-siphon deeper into the public-power revenue base. While the Corps has developed a practical strategy for surviving into the next century, the Bureau of Reclamation has been designing an artifice of buckpassing to hydropower consumers in order to finish its past agenda.



U.S. Bureau of Reclamation

Imperial Valley

When water kingdoms clash

The water lease/sale/condominiumization deal between California's Imperial Irrigation District and the Metropolitan Water District was to bring water marketing of age. Instead, it has revealed the pitfalls that lie in the path of water marketing.

by Ed Marston

Over the next decade, the millions who live in the southern California megapolis centered on Los Angeles will lose 650,000 acre-feet of water now available to them out of the Colorado River. That water will be diverted away from the 45-year-old Colorado River Aqueduct and into the spanking-new \$3.6 billion Central Arizona Project as ordained by interstate agreements and court decisions.

The loser of this water is the Metropolitan Water District, or Met, a vast public entity that supplies water to 5,200 square miles of homes, lawns, swimming pools, car washes, cemeteries, offices and industry in six sprawling yet densely settled southern California counties.

Whether the Met can cope with the loss of enough water to supply 1.5 million people will determine if its service territory can expand at a projected 180,000 people per year. How it copes with the loss will determine the fate of the hottest, perhaps the only, new idea to hit Western water in decades -- water marketing.

In pure form, water marketing is the treating of water as a commodity

to be bought and sold on the basis of supply and demand. In most areas of life, a marketplace for commodities is the rule. In Western water, it is revolutionary.

For example, the Met's first reaction to the looming loss of water to Arizona was not to seek water to buy. It sought instead to bring in 'new' water from northern California by building the Peripheral Canal. The construction of long canals or big dams to obtain more water is the traditional response of institutions that control water in the West. But California voters barred construction of the Peripheral Canal in a 1982 referendum, and set the stage for a test of water marketing.

Literally next door to the Met's urban 5,200 square-mile territory are one million acres (1,700 square miles) of desert ministered to by the Imperial Irrigation District. Half of the land, 500,000 acres, grows crops year-around, thanks to Colorado River water.

Without the Colorado River, the Imperial Valley would be essence of desert. It lies several hundred feet below sea level, has 100 days when the temperature hits at least 100 degrees, has no usable groundwater, and gets three inches of rainfall a year. But with its 2.5 million acre-feet of

Colorado River water -- one-sixth of the river's yearly flow -- the Imperial Valley is one of the world's most productive farm areas.

A desert farmer's religion is that he can never have enough water. But that belief is being challenged in the Imperial Valley. In the early part of this century, jerry-built efforts to divert the Colorado let it escape its natural channel to the Gulf of California, and pour unchecked into the Imperial Valley. By the time it was recaptured, its flow had transformed a dry sink at the low point in the valley

into the Salton Sea. Today that sea functions as a catchment for irrigation water that doesn't evaporate or get taken up by plants. As a result, the Salton Sea has grown steadily over the decades.

In 1980, a farmer adjacent to the sea tired of building dikes to protect his farmland against the rising waters. The five-man Imperial Irrigation District board wasn't interested in his problem, so he turned

(Continued on page 20)



Imperial Irrigation District

Salton Sea, in the northern Imperial Valley

Kingdoms...

(Continued from page 19)

to the state bureaucracy for help. In 1984, he got it. The State Water Resources Control Board ruled that Imperial and its farmers were wasting water, and that the wasted water was causing the Salton Sea to rise. A state study showed that by spending several hundred million dollars to line ditches and take other steps, the waste could be stopped.

In California, wasting water is a literal crime. Although Imperial is fighting the decision, the ruling has put pressure on it to stop letting its water seep through its dirt ditches, and to stop its farmers from sloshing too much water onto their fields. Studies show Imperial could save about 440,000 acre-feet (3 percent of the Colorado's flow and enough water to supply 1.2 million people) while keeping its 500,000 acres green.

Imperial could use the wasted water to irrigate 100,000 more acres of desert. But that is the last thing its farmers want. Alfalfa, the stuff of hay and the valley's top crop, has fallen drastically in price; the market for another major crop, cotton, is in sad shape.

Moreover, the saving of water beyond the 100,000 acre-feet or so already conserved would require money Imperial doesn't have. That combination of circumstances appeared to set the stage for a water sale, lease, condominiumization or dry-year insurance agreement, between Imperial and the Met.

Such a deal had been studied and promoted for years by the Environmental Defense Fund. But the person who got things into motion was a picaresque businessman named Tom Havens. Havens is attractive and energetic, and his all-American entrepreneurship gained him the ear of Imperial's five-man board. Havens, in an August interview, said he saw immediately that he faced a major cultural problem -- the tendency of Imperial's farmers to distrust L.A.'s city slickers.

They had good reason for fear. According to Havens, Imperial, secure in its very senior water rights and in its fertile desert land, hadn't made itself an integral part of the California water network. It had stayed to itself. It wasn't politically or economically savvy, and so it wasn't ready to start cutting deals.

"The Imperial Valley has 100,000 people living in the desert. There is a pitchfork mentality there," said Havens.

By comparison, "The Met is like a laser beam. It is well organized. It has a large staff. It can task-force 200 people on a project in a matter of days. It can intimidate, control and dominate every water district and water attorney in California."

Moreover, the Met informally heads a network of California water boards. "They are good at exerting power, but they don't have imagination. The typical age of California water board members is 65, and until now nothing had ever changed. A 65-year-old appreciates the past. The future is dark, depressing, uncertain."

Havens said he convinced Imperial's board that it needed "an army to supplement your pitchforks." In preparation for the wheeling and dealing, Imperial brought in as general manager a 30-year veteran of

the Army Corps of Engineers named Charles Shreves.

The board, at Havens' suggestion, found an army in the person of Parsons Water Resources. Parsons, an immense engineering and construction firm, has hit hard times due to the disappearance of the mega-projects it had specialized in building. The forces that had defeated the Peripheral Canal and created the time for water marketing had also sent Parsons in search of work in privatization, efficiency and conservation.

Parsons' Imperial task force, headed by another Army Corps veteran, Joe Bratton, was to do the legal and engineering work needed if Imperial was to negotiate on an equal basis with the Met. And, in Havens' mind at least, Parsons was to play big brother to Imperial, lending the district its political and negotiating muscle. For his matchmaking, Havens said he was promised a share in future income from a water sale.

The Imperial-Parsons relationship started out bravely, with Parsons talking of the new world of efficiency and conservation. And in 1985, a non-binding memorandum of understanding between Imperial and the Met came close to adoption. The Met was to get the use of 100,000 acre-feet a year of Imperial's water. And it was to pay Imperial \$10 million a year to line ditches and generally conserve water now flowing into the Salton Sea. The \$10 million works out to \$100 a year per acre-foot. But both sides said the water wasn't being bought and sold. The Met was giving Imperial money to conserve water, and in return getting the use of the saved water.

The proposed deal caused political stress that the Imperial board couldn't withstand; in June, two critics were elected to the five-person board, and

until they take their seats in January, nothing will happen. A key part of the unrest was due to Parsons, which became a villain locally. Although the firm came in saying it would share in the risks of the game, it charged Imperial several million dollars to do an efficiency study critics said merely rehearsed old reports.

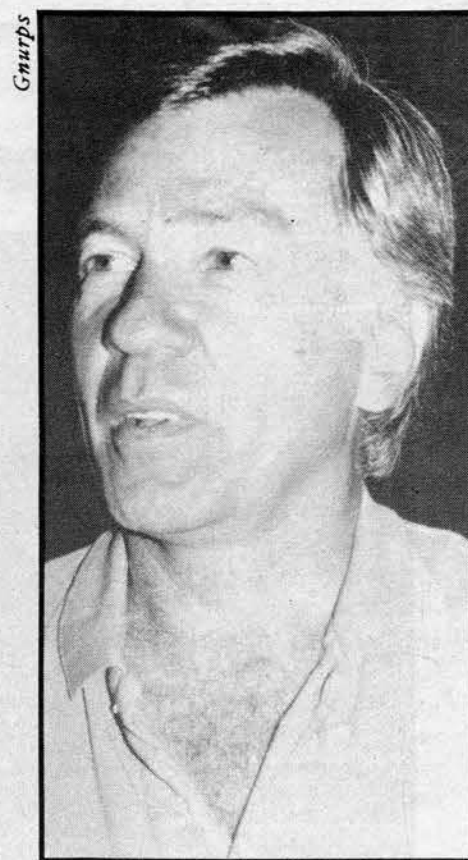
Under pressure, Imperial backed away from Parsons and the \$100 an acre-foot deal. After formal public hearings and numerous coffee-shop conversations, the board decided its water was worth \$250 an acre-foot, plus built-in escalators for inflation. Then, in August, Imperial made its inability to cope with water marketing official by breaking off all negotiations.

Havens blames the collapse on Parsons, which, he said, couldn't adapt to Imperial's needs. "In the past, Parsons' clients told it what to do." In this case, Parsons had to show the way. "But it's not their culture to be innovative or entrepreneurial."

Instead of leading the Imperial Valley out of the desert, Havens said, "The psychology that has been allowed to develop by Imperial and Parsons has been fear -- fear of receiving \$90 million a year for their water... Imperial's mentality is to not give up a drop of water under any circumstances. I think that's death. And Parsons chose to do Imperial's bidding."

Havens said negotiations were also handicapped because both Imperial and the Parsons task force were led by Army Corps of Engineers veterans. "They're used to having lots of staff, lots of preparation for a decision. They're both far from what the marketplace needs."

For the moment, the Met appears content to watch Imperial squirm

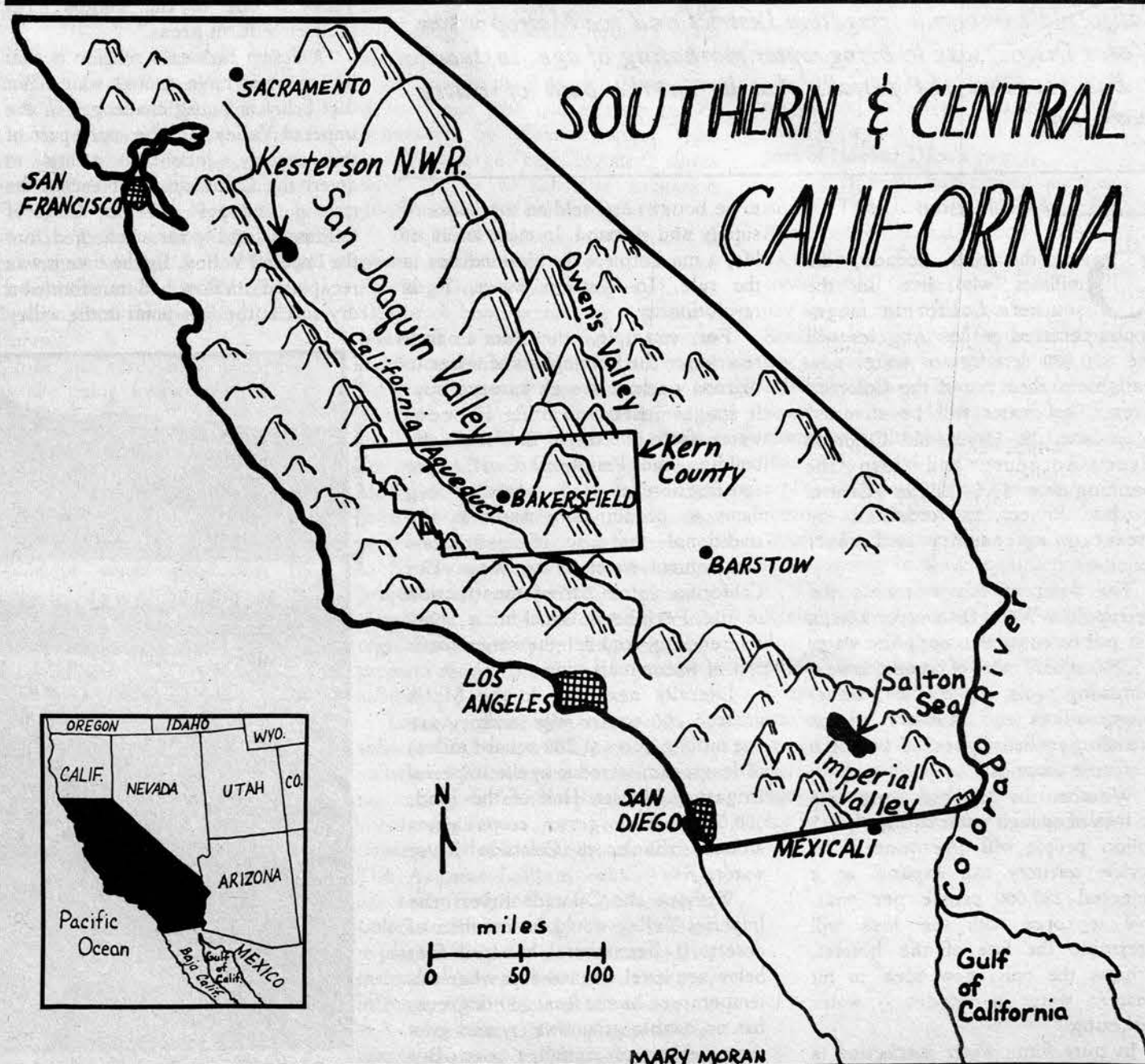


Tom Havens

while the law against waste water tightens around it. The Met can afford to wait. Wet years have kept the river full. Moreover, the urban water supply district sees lots of eager sellers out there. For example, corporate farmers in the Kern Valley who use water imported from northern California would love to unload it on the cities.

Although the impasse seems to say that water marketing is not yet here, it is also true that no one is pushing the Peripheral Canal. Water transfers in some form appear to be the solution of choice.

But the Imperial-Met brawl also shows that water is not just another economic commodity. Politics are still there, only now it is local and regional politics rather than federal politics.





Arizona Range News

In the abandoned town of Kansas Settlement, Arizona

Shrink to fit

Over 70 percent of the irrigated farmland in Arizona's remote Sulphur Springs Valley has been taken out of production by the economy. What remains in use is the best land wedded to the best water. Together, they grow high-value crops such as grapes and nuts. This remote region provides a view of what other Western areas dependent on irrigation water may have to do to survive.

by Douglas Towne

In Colorado, California is still used as a boogeyman to scare up support for expensive water projects. The would-be dam-builders say: "If we don't build this, California will take our water."

But in California, the boogeyman is the spectre of too much water, and "stealing" Colorado's water has a relatively low priority these days. The failure of the Peripheral Canal referendum in 1982, which blocked further export of northern California water to the south, was to have set off a rush to grab more Colorado River water. The huge Metropolitan Water District, which supplies water to southern California's sprawling urban areas, was to lead the rush, Colorado water experts warned.

Things haven't worked out that way. Instead, the MWD has been inundated by would-be sellers of agricultural water from the nearby irrigated inland valleys. In fact, the California boogeyman is that of a WPPSS-like financial debacle. (WPPSS, the acronym for the Washington Public Power Supply System, is pronounced Whoops.) But instead of nuclear power plants, this WPPSS, speculates Tom Graff of the Environmental Defense Fund in Berkeley, could be the California Water Project.

The California Water Project brought northern California water south to urbanites and to corporate farmers in Kern Valley. The urban users subsidize the irrigation water, but even so Kern Valley's corporate farmers can't make a go of it.

Graff speculates that after the California elections this November, state government will have to decide how to bail out the California Water Project. A buy-out by the MWD may be one route to a bail-out. But MWD's urban customers are already paying more than their share for the water brought from the north, and they may balk.

Kern Valley's agricultural troubles are statistically visible. Ten to 15 percent of the land that was irrigated a few years ago lies fallow today. A one

million acre-foot per year groundwater overdraft has become a 3.5 million acre-foot replenishment of underlying aquifers. (Kern Valley agriculture is served by both pumped groundwater and imported surface water.)

Some of that replenishment is due to unusually wet years. But much is due to the kind of fundamental economic changes that created WPPSS, that left the West with an enormous electric power surplus, that closed copper, coal and molybdenum mines in the region, and that killed plans for various grandiose water and natural resource developments throughout the West.

Southern California is complicated: It is made up of corporate farmers with deep pockets, subsidized water, the most fertile land in the world, 365-day growing seasons and proximity to enormous urban markets. These factors give the area's agriculture

enormous inertia that tends to delay the visibility of trends.

By comparison, the irrigated farming region in the valleys of southeastern Arizona has little institutional, political or private muscle to withstand the blowing of fresh economic winds. The lack of inertia is immediately apparent on an evening visit to the Arizona hamlet of Kansas Settlement. This community in the shadow of the Dragoon Mountains once supplied services to the farmers in Sulphur Springs Valley. Now, all is dark and still. The only signs of life are a few lighted farmhouses dotting the surrounding landscape.

The faded words "Sodbuster Bar and Grill" can be seen on one of the abandoned buildings, sign of a bygone era of expansion. A broken Lucky Lager Beer neon light dangles from the roof; tumbleweeds block the entrance to the decrepit but intact building. Like the remaining farms in the vicinity, it is near collapse but still standing.

In Cochise County, Arizona, which includes the Sulphur Springs Valley and other farming areas, only 22 percent of the irrigated farmland in 1976 was still in production in 1983. From a peak of 171,400 acres, the irrigated land dropped to 38,640 acres. And abandonment continues.

Much of the cropland being abandoned came into production in the 1960s, when cheap land prices and high prices for cotton and grain attracted farmers from Texas. The acres they brought into cultivation were generally not prime agricultural land, and the need to irrigate more and often poorer land depleted the underlying aquifers.

So southeastern Arizona, like many irrigated lands in the West, experienced dropping aquifer levels and rising energy costs to pump up water from ever deeper levels. The average cost per acre-foot of water pumped using natural gas in the Kansas Settlement area increased from \$25 in 1975 to \$80 in 1985. Water must be drawn up from a depth approaching 500 feet. The pumping costs, a rise in interest rates, expensive tractors, the high cost of chemical farming and dropping

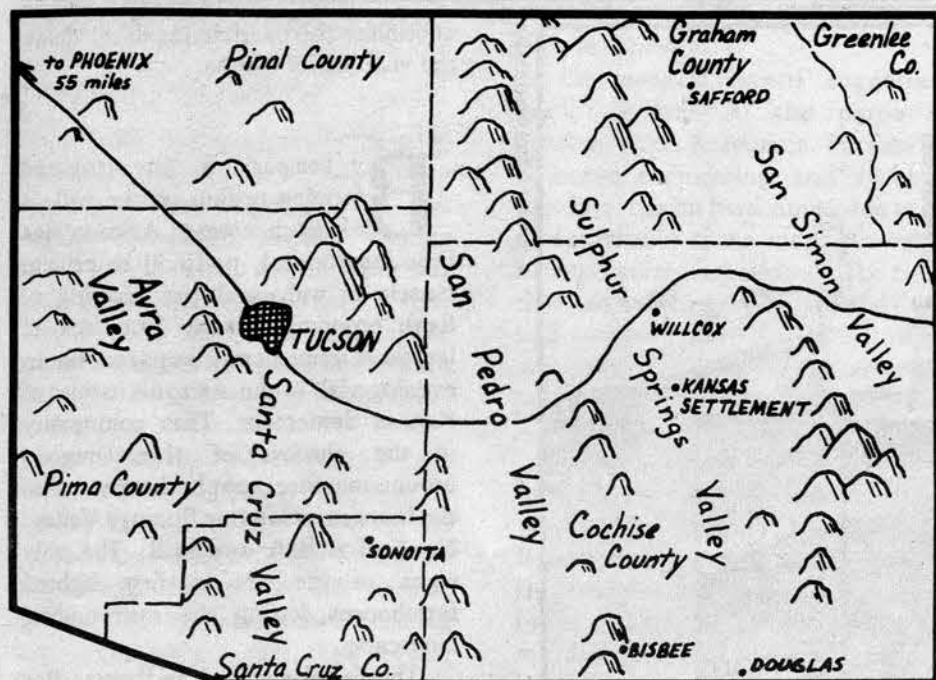
(Continued on page 22)



Arizona Range News

Irrigation canal, Sulphur Springs Valley

22-High Country News -- September 29, 1986



SOUTHEAST ARIZONA



0 10 20
miles

adapted by Mary Moran
from a map by Douglas Towne

Shrink...

(Continued from page 21)

commodity prices combined to drive 78 percent of the irrigated land out of production.

The evidence of that abandoned land is visible in the form of rusting irrigation pumps and barren or weed-infested fields that a few years ago were covered by cotton, grains and sorghum. Lacking any natural cover, these fields of sandy and loamy soils fall prey to erosion, dust and weeds. "What we're doing is creating very dramatic desert areas," says Martin Karpiscak, a researcher in the University of Arizona's Office of Arid Land Studies.

It is difficult to get anything but tumbleweed to grow on this dry, often saline soil. Karpiscak says the best revegetation occurs on farms whose irrigation systems still work. But most irrigation systems are inoperable because of disuse and lack of parts. And there is the problem of who will pay to pump groundwater onto abandoned fields. Farmers usually aren't concerned or can't afford the costs, and government assistance is minimal.

The area has not always been in crops. Ranching became the dominant economic activity when settlers arrived in the 1870s, and found the lush grassland on the valley floors. Livestock grazing flourished, and the town of Willcox soon became one of the leading cattle shipping centers of the nation.

Interest in farming started when unusually heavy rains prompted a group of homesteaders to plant crops in 1905. When rainfall returned to normal, farmers turned to groundwater, and over the decades irrigated farmland took over more and more grazing land as the efficiency of pump motors increased, making irrigation more economic.

In theory, the area could return to ranching, or be used for wildlife habitat. But reseeding for livestock grazing rarely makes economic sense, and the incentive for conservation practices and weed control is weak. Livestock operators do lease abandoned farmland and graze cattle on it to keep the weeds down. But the cattle

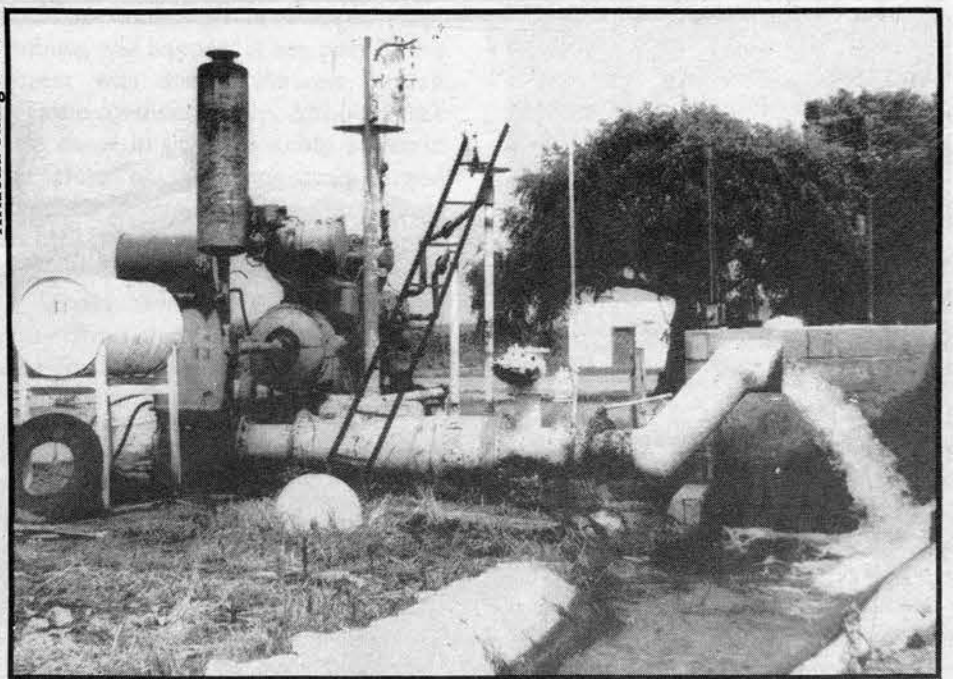
increase erosion and dust and interfere with the natural cycle of vegetative succession; some think they may do more harm than good over the long run.

Farmers around Tucson face many of the same problems found in Sulphur Springs Valley. But they have a resource the Sulphur Springs farmers lack: There is urban demand for their water and land. Because Tucson and the farmers in the Avra and Santa Cruz valleys pump from the same aquifer, the city has purchased and retired 13,000 acres of farmland to acquire the accompanying rights. Although this means the outlook for farming is bleak, at least farmers have a market for the land and water, something that isn't true in the sparsely populated basin and range valleys of southeastern Arizona.

Not all farmers have given up on farming around Kansas Settlement, although those who are still hanging in there don't always claim they are rational. Dan Dunagan, who owns one of the surviving farms around Kansas Settlement, says, "I'm a farming addict. Once it gets in you, it doesn't go away."

But there are also rational grounds for optimism, and it doesn't stem from some scheme to extend Central Arizona

Arizona Range News



Groundwater irrigation pump, Sulphur Springs Valley

Project water south and east from Tucson. It comes instead from changes in philosophy and practice.

Instead of attempting to get maximum production from the greatest number of acres, some now farm only their best soils in an attempt to get the most yield per acre at the lowest expense. There is also a shift to higher value crops that need less water.

High-water-use crops such as cotton, sorghum and grains are being replaced by fruit and nut crops with a high economic return. Pecans, apples, peaches, pistachios and grapes are the main new crops.

Dunagan grew up growing cotton, and it remains his favorite crop. But cotton costs him \$200 an acre for water alone. He investigated less water-intensive crops and decided to plant wine grapes. Young plants can be drip-irrigated (a tiny tube sends water to each individual plant; traditional irrigation methods flood the entire field) for about \$15 an acre; even mature plants will cost no more than \$50 an acre.

Wine grapes are becoming an important crop in the Southwest; many vineyards have sprung up in Arizona, New Mexico, Texas and Colorado. The industry has grown to the point that the four vineyards near the town of Sonoita were granted official viticultural area status. That gives them the right to use the name "Sonoita" on their wine labels and, hopefully, build consumer loyalty.

These crops are expanding in the southeastern Arizona valleys because

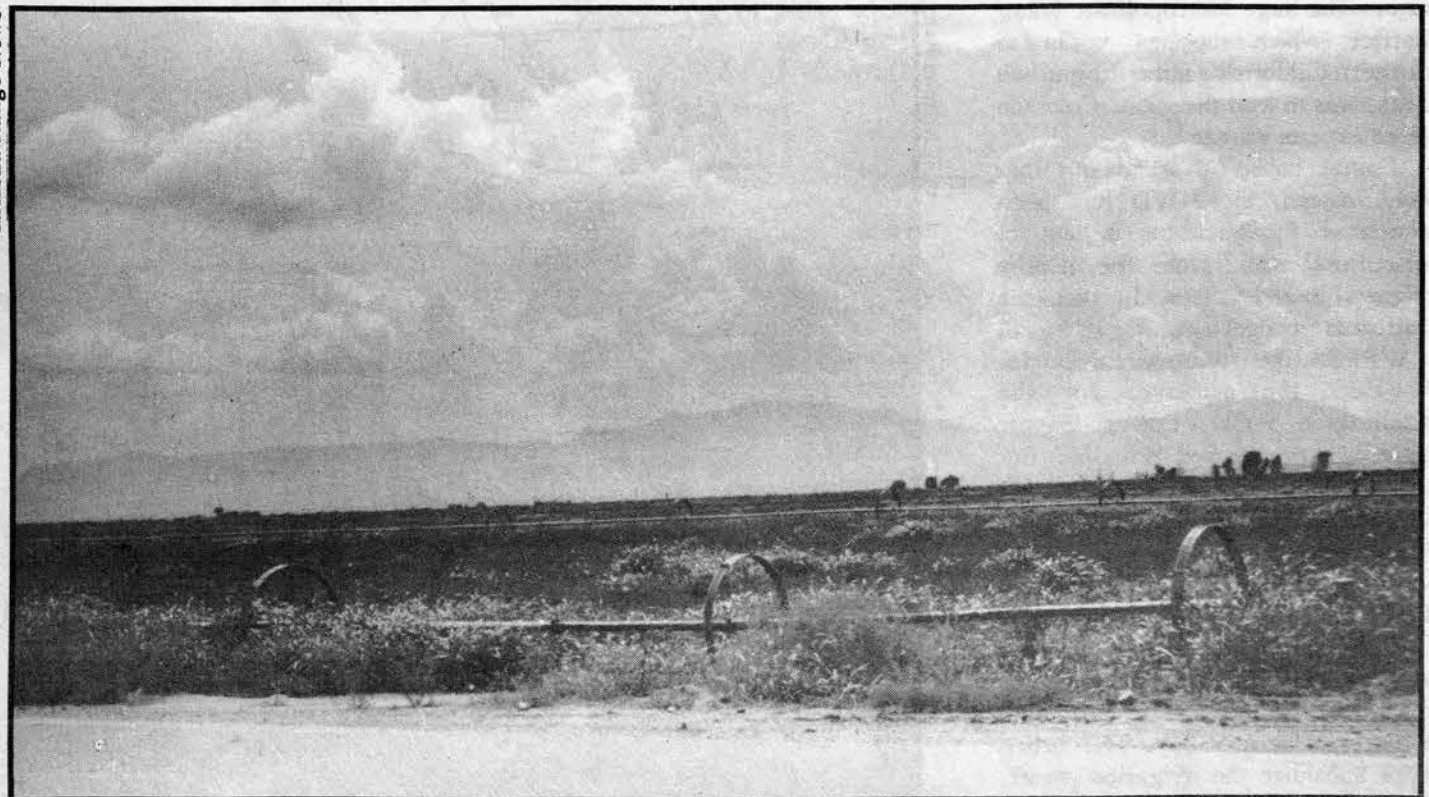
they have several advantages. Some of their advantages are economic: They can use the more efficient drip irrigation systems and they are being brought into production at a time when land prices are depressed. But they also have natural advantages. They are better adapted to the region's higher elevation, which means more rain and lower temperatures than found in other areas of Arizona.

But there are constraints: a large initial investment, a lag between that investment and the first yields from the trees or grapevines, and a lack of available local credit. Together, these conditions favor outside investors over the local farmer who has been raising cotton or grain.

Nevertheless, those who have stayed here are optimistic that agriculture in the region's broad north to south trending valleys -- between mountains that explorer John Wesley Powell once described as "100 caterpillars crawling north from Mexico" -- will survive. They say that improved use of water, the reduced amount of land in production, and the new crops are finally in tune with the region's water resources, soil and climate.

Earl Moser, a farmer near Willcox, has noticed in recent years that the water level in his wells has risen. He believes the rise stems from the large amount of abandoned cropland -- land he thinks was marginal and should never have been put to the plow. "What we've got left is the best land with the best water."

Arizona Range News



Sulphur Springs Valley, Arizona

A bibliography of river books

If the foregoing stories whet, or wet, your appetite for more information, this bibliography of river books should help satisfy it.

by Peter Wild

Coffee-table volumes aside, surprisingly few books deal generically with the West's river systems. This might be because rivers are relatively rare in the West, and most writers, somewhat provincially, but understandably, celebrate specific watercourses, much as Arab poets celebrate particular oases.

In any case, a couple of things need to be said about an overview. Attitudes toward rivers and attitudes toward water in general cannot be separated; the West's rivers flowing underground are inseparable from those more obvious ones flowing above. In one way of looking at it -- the way that most people have looked at it -- rivers were concentrations of what was most needed: water. Hence, the changing views toward the region's rivers that this brief bibliography indicates in large part parallel the shift to kindlier views toward all resources.

On their expedition through the unexplored treasure trove of the Louisiana Territory in 1804-1806, Lewis and Clark did not find the hoped-for navigable route to the markets of the Orient. Traveling up the Missouri River, over the Continental Divide, and then down the Columbia, however, they did demonstrate the first advantage of the West's watercourses, disconnected as they might be, as highways for later exploitation and settlement. Bernard DeVoto's edition of *The Journals of Lewis and Clark* (Boston: Houghton Mifflin, 1953) is one of the best introductions to this stage of westering. His *Across the Wide Missouri* (Boston: Houghton Mifflin, 1947), an account of the early fur trade in the Rocky Mountains, further confirms the early economic importance of rivers.

More than hard economics, an aura of stardust glittered over the West. And the fact that much of this vast domain lacked water didn't deter the dreamers. In his *The Central Gold Region: The Grain, Pastoral, and Gold Regions of North America* (Philadelphia: Sower, Barnes, 1860), William Gilpin, the first territorial governor of Colorado, called newcomers West, promising them that there rain followed the plow, that farmers could take their ease on their front porches while their untended fields of corn and melons grew with abandon.

As confused as his ravings seem to us in an age of regular water shortages, the public preferred this approach rather than face a more demanding reality. George Wharton James encouraged the delusion. His *Reclaiming the Arid West: The Story of the United States Reclamation Service* (New York: Dodd Mead, 1917) typifies a heady literature proclaiming a "new day" of prosperity based on turning the West's few rivers out of their channels and into farmers' fields. Some people had second thoughts. In 1859, armed with his monstrous umbrella, the eccentric

editor of the New York *Tribune*, Horace Greeley, rode a stagecoach across the West to investigate the prospects for farmers. Cautiously optimistic about some of the better-watered valleys, his *Overland Journey* (New York: C.M. Saxton, Barker, 1860) bluntly described others as places where "famine sits enthroned."

More tapping of rivers would be the solution, the boosters cried back. But in *Irrigation: Its Evils, The Remedies and The Compensations* (43rd Congress, 1st session, Senate Misc. Doc. 55, Washington, D.C., 1874), George Perkins Marsh warned that nature could go haywire when meddled with, a thesis earlier explored in his massive *Man and Nature* (New York: Charles Scribner, 1864), the first scientific account pegging environmental degradation to man's abuses. Mary Hallock Foote later showed the cost in human suffering. In her novel *The Chosen Valley* (Boston: Houghton Mifflin, 1892), men struggle beyond their financial and emotional limits to irrigate arid Idaho.

Her misgivings that "victory, if it come, shall border hard upon defeat," had been foreseen by John Wesley Powell. In his *Report on the Lands of the Arid Region of the United States* (Washington, D.C.: U.S. Government Printing Office, 1878), he called the attention of Congress to a hard truth: The region's few rivers couldn't possibly create the lush Garden of the West that both officialdom and common wisdom envisioned. Eyebrows went up at such lack of patriotism. Booming railroad and real-estate interests branded Powell a heretic and a socialist.

In this highly charged atmosphere, change came slowly. However, as historians and scientists continued to review the facts of the West, they saw the startling implications. Walter Prescott Webb's *The Great Plains* (Boston: Ginn and Company, 1931) has little to say directly about rivers, but his observations on pioneers' struggles over water and the resulting shifts in law and society showed that the West was shaped by factors far different than dreams. As the years went by, all but the glib could see that those dreams were turning into nightmares as rivers went dry and farmers failed in droves. Arthur Maass's *Muddy Water: The Army Engineers and the Nation's Rivers* (Cambridge: Harvard University Press, 1951) joined a number of studies throwing doubts on the whole massive manipulation of the West's rivers. And though he but tentatively perceived the dire consequences of plunder, Norris Hundley documents the political circus over converting rivers into dollars with *Water and the West: The Colorado River Compact and the Politics of Water in the American West* (Berkeley: University of California Press, 1975).

Only in the last decade or so has reality begun to sink in. The arid West

is not a Garden; its often-failing rivers are barometers of the region's general health. *Water Scarcity: Impacts on Western Agriculture* (Ernest A. Englebert, ed. Berkeley: University of California Press, 1984) gathers a wide number of views on the legal, environmental and economic implications of future water use. Despite the diversity of the essays, they point to one conclusion: the West's survival will depend on adjustment to a limited resource.

If the above suggestions seem frustratingly diffuse, help has arrived. Donald Worster's *Rivers of Empire: Water, Aridity, and the Growth of the American West* (New York: Pantheon Books, 1985) draws the history, folklore, politics, and economics of the subject together into a comprehensive overview of the region's rivers. A scholarly but readable achievement, *Rivers of Empire* belongs on the shelf with the handful of books essential to understanding the West.

The road to hell is paved with irrigation projects

Rivers of Empire: Water, Aridity, and the Growth of the American West

Donald Worster. New York: Pantheon Books, 1985. 402 pages. \$24.95, cloth.

Review by Peter Wild

The vision of it was enough to make our land-starved forefathers suck in their breaths: millions of small farms spreading from the Mississippi to the Pacific. There, democracy would flourish and prosperity flower, as Thomas Jefferson said they would if based on an independent yeomanry of soil tillers. The dream had the grip of religion.

But there was a hitch. Making the open spaces bloom required one thing they didn't have: water. To get it, argues Donald Worster, the West sold its social, economic, and ecological soul -- along with a good deal of its self-respect.

For Westerners didn't want to pay the bills for water development. They traded their much vaunted "rugged individualism" for the paternalism of a federal bureaucracy with its hands on their spigots. Power rose to the top and the ingeniously hopeful small farmer lost, while large landowners played cozy with politicians and grew fat on subsidies.

Nationwide, the country suffered from more than raided pocketbooks. It suffered the loss of the West's once symphonic rivers, their waters dammed, channelized, turned into a mere single-purpose commodity with a dollar sign attached. All this to produce crops best grown in the humid East to begin with, and at any rate, crops the economy didn't need. The tug of the dream was that strong; it pulled us into an absurdly mammoth scam.

A scam soon to end, however. Lest one think Worster an alarmist, the professor of American environmental studies at Brandeis University reminds us of the course Egypt and other irrigation-dependent societies have taken throughout history. As long as they cared for their resource and accommodated technology to nature, they prospered. But if, flushed with success, they bent their efforts to the domination of nature, they soon disrupted their environment. That began the quick, irreversible slide toward salinization, overworked soil, destroyed fisheries, siltation, floods, and collapsing dams. These are

precisely the problems plaguing the West today.

Worster is thorough in his documentation and steely in his arguments. However, some aspects of *Rivers of Empire* make me uncomfortable. Throughout, he sees the United States as inevitably having fallen into the present predicament by indulging in wishful thinking. One can make a good case that this is historically true, and in some sense inevitable. If so, Worster's admittedly entertaining irony is all for naught. History becomes a bad joke we play on ourselves, to be recorded as black humor.

But then, as if some sales-oriented editor had touched Worster's shoulder to remind him that a book ends best on the upbeat, in the concluding pages the author turns almost cheerful, and comes up with a plan to save the West. This scheme will involve "a redistribution of population eastward" with small, ecologically sensitive communities left behind to tend the earth with light-handed stewardship. The conclusion, offered as a crescendo on the final page, reads: They will "irrigate their spirit more than their ego." It sounds very much like the maunderings of a leftover hippie.

Still, given the powerful scholarship of the rest of the book -- its delving into history, anthropology, folklore and government documents -- we should forgive him that. Not since Wallace Stegner's study of John Wesley Powell in *Beyond the Hundredth Meridian* have we had such a compelling overview of the subject. And that was back in 1954; it is my guess that *Rivers of Empire* will take its place on the shelf with the handful of classics essential to understanding water in the West.

RIVERS OF EMPIRE

*Water, Aridity
& The Growth of
The American
West*

BY DONALD WORSTER



Coming attractions

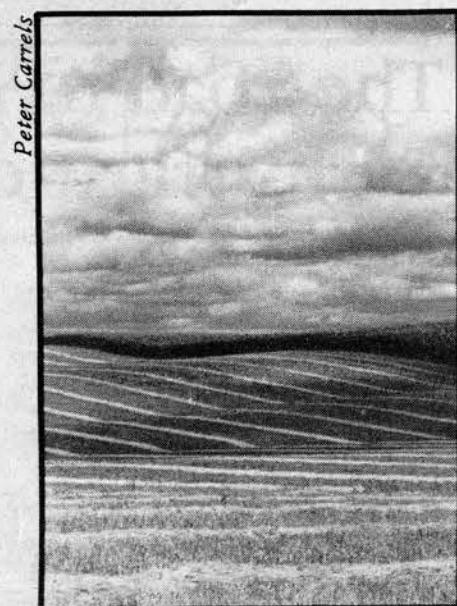


Cynthia D. Stowell

Special Water Issue Number 2: THE COLUMBIA RIVER BASIN: AN AGE OF REFORM. Oct. 13, 1986.

In the period after World War II, the Columbia River and its major tributaries were dammed and diverted until they had almost ceased to be rivers. But the rivers, and the Indians' river-based culture, may yet prove capable of surviving the assaults upon them. If they survive, it will be due to several circumstances. Most important are the salmon, an incredibly valuable array of fish species that can only survive in a more or less intact river system.

This special issue on the Columbia River describes the Columbia's Age of Reform. Professors Charles Wilkinson and Dan Conner describe the hurried trip of the young salmon, or smolt, downstream. Writer Chuck Williams describes the Columbia River basin's natural and man-made geography. Freelancer Cynthia Stowell paints a compelling picture of some of America's most successful Indians -- those living on Washington's Warm Springs Reservation. Finally, Williams describes the way in which downstream interests view the effort to recover the salmon, and Idaho writer Pat Ford describes the upper basin's problems with the steps the lower basin is taking.



Peter Carrels

Special Water Issue Number 3: THE MISSOURI RIVER BASIN: IN SEARCH OF DESTINY. Oct. 27, 1986.

Compared with the Columbia and Colorado rivers, the Missouri River is a throwback. It is fully dammed in its upper reaches, and it has been channelized by the Army Corps of Engineers in its lower reaches. But in a curious sense, especially in the upper basin, it lacks direction.

To the chagrin of many in the Dakotas, the Missouri has missed out on the Age of Reclamation. Some

version of the Garrison Diversion Project will be built in North Dakota, but it will not approach the hoped-for size even though North Dakota has spent enormous political capital on behalf of the project. And South Dakota will apparently never get its version of Garrison -- the Oahe Project.

The Dakotas have also missed out on the Age of Energy. During the 1970s and early 1980s, the Dakotas thought their water was to be used to make synthetic gas and oil out of coal, to ship coal in slurried form to Texas and Louisiana, and to generally help turn America's engines. The energy glut has changed that.

This issue takes a fundamentalist, on-the-ground approach to Missouri River water. It opens with a natural history of the upper Missouri by Nels Thoreson. Marjane Ambler, a Wyoming writer, walks irrigation canals in Wyoming with an Indian ditch rider to describe how water is used on an Indian Reservation. She also contrasts a Bureau of Reclamation irrigation project with a Bureau of Indian Affairs project. Mike Jacobs, editor of a daily newspaper in Grand Forks, North Dakota, shows how his state had tied its destiny to the Garrison Project. Writer Peter Carrels of Aberdeen, South Dakota, tells why he loves the land and sky of the prairies and Great Plains. Carrels also provides a bibliography of books on the Missouri. Ed Marston interviews a Bureau of Reclamation employee who believes that in the arid West, irrigation is the best civilizing and development tool there is. Marston also reviews Carl Frederick Kraenzel's 1955 classic: *The Great Plains in Transition*.

Special Water Issue Number 4: THE COLORADO RIVER: THE RIVER AS PLUMBING. Nov. 10, 1986.

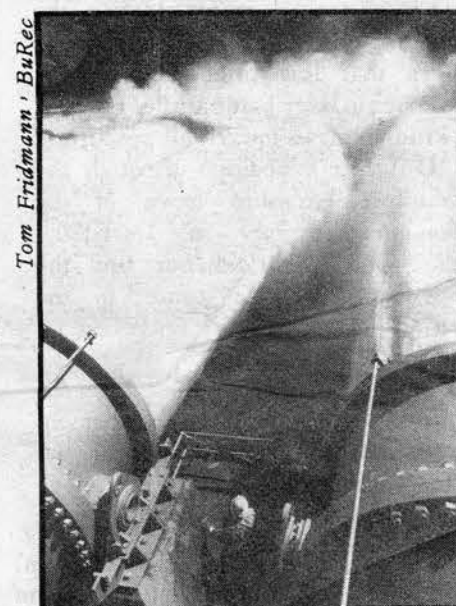
The Colorado River has been plumbed for a variety of purposes: to supply cities on the Denver Front

Range, in southern California, in central Arizona, in Utah's Salt Lake City area; to irrigate millions of acres; to generate hydropower.

Now the plumbers are fighting among themselves. Old alliances are breaking apart because there are too many straws in the river. Too many promises have been made. And too many old mistakes are now presenting their bills for payment.

Rose Houk and Mary Moran describe the natural history and geography of the Colorado River. Paul Krza writes from southern Wyoming about Fontenelle Dam -- a dam that wouldn't be worth much even if it didn't leak. Jeanne Englert describes how the Dolores Project in southern Colorado threatens to bankrupt its beneficiaries, and how that situation didn't defer a start on the nearby Animas-LaPlata project.

Other articles describe a new guest at the Colorado River's increasingly stingy banquet -- recreation -- and the effort underway in Colorado's Grand Valley to take the salt out of the river. A soil specialist from Mexico's Mexicali Valley describes the Colorado River delta, and how the river looks from below the border. Peter Wild contributes a bibliography on the Colorado River.



Tom Fridmann, BuRec

Making sense

High Country News is read by people who believe the Rocky Mountain West can make sense. They believe the flow of seemingly random information about mining, about wilderness, about water, about grazing fees, about roading and logging, about acid deposition, can be displayed in logical patterns.

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Katharine Collins

