



High Country News

Friday, April 3, 1981

Lander, Wyoming

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Oil shale future: Jewel or synfuel?

In the News

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The Valle Caldera is sacred to Pueblo Indians, and a sanctuary for wildlife and tourists, too. A geothermal project has opponents steaming.

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"Go West," he said. But Horace Greeley, the pink-faced, bewhiskered editor, wanted the trip made cautiously and with care for the land.

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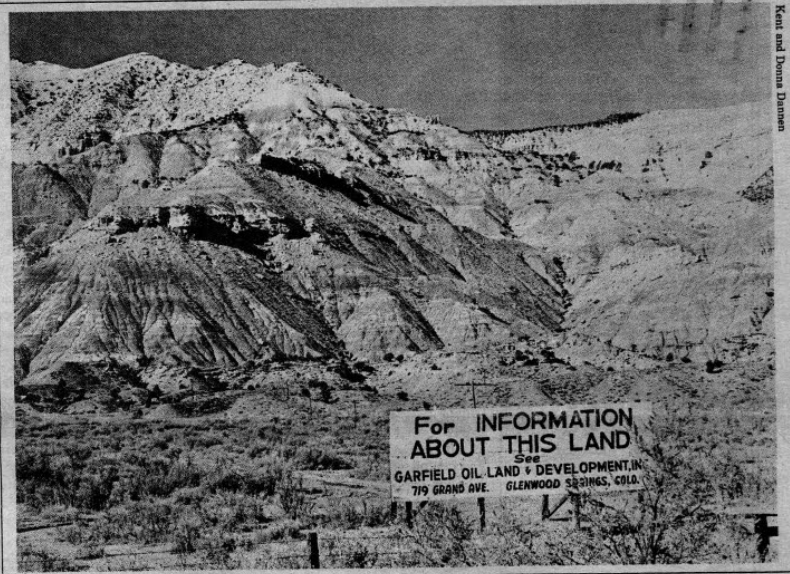
It's been half a century since towns like Pisgah, Peach Blow and Busk saw the Colorado Midland engines coming down the tracks, and it's time to look back.

TAX CUT REBUT 14

President Reagan challenged opponents to come up with a better tax cut idea, and Tom Bethell takes up the cudgel.



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Kent and Donna Danner

by Bob Anderson

(Ed. note: Bob Anderson, a geologist from Colorado, examines the future of oil shale in the Rocky Mountain region in a two part story. In this issue, he covers the properties of the oil-rich rock itself, and the jockeying of energy companies for a piece of the action.

Part one of two parts

RIFLE, Colo. — Mike Cross runs the only profitable oil shale operation in the country. He is a jeweler here in the heart of oil shale country, where he makes desk and wall ornaments out of mahogany zone oil shale, named for its rich brown hues. It polishes up beautifully, a function of the fact that it contains around 30 gallons of oil to the ton.

If you have ever seen the Roan Cliffs above this town, you have been struck by the beauty of oil shale. Its pastel oranges and browns balance against the turquoise sky above the Piceance Creek Basin, which lies in ecological limbo between the deserts of Utah and the mountains of Colorado. A hand-sized chunk is covered with fine lines, layers of organics packed 150 to the inch.

But it is the oil content, rather than the beauty, that has generated periodic national interest in oil shale.

Eastern oil shale enjoyed a brief hey-

day, supplying lamp oil and lubricating the cogs of crude oil drill rigs in the nineteenth century.

Interest in western oil shales began near the end of World War I, when supplies of natural crude were thought to be dwindling. Even *National Geographic* published a boosterish article on "oil trapped in rock." But the nascent western oil shale industry fell flat when the huge East Texas oil fields were discovered in the late 1920s.

World War II again generated fears of crude oil depletion, and the federal government stepped in to experiment with methods of "retorting" — removing oil from the rock. Above Rifle, the Bureau of Mines opened the Anvil Points operation to retort naval oil shale reserves.

In the years since, the industry has moved up and down at a faster clip. Now synthetic fuels proponents are talking as if the era of commercial-size oil shale development is just around the corner.

KEROGENOUS MARLSTONE

Just as tar sands are not tar sands, oil shales are not oil shales. The oil is called "kerogen," and the shale, at least in western "oil shales," is a marlstone.

The word kerogen is derived from the Greek keros, for wax. It is insoluble, even in hot water or acid, and must therefore be cooked, or retorted, out of

the rock. A typical shale oil recipe calls for a temperature of 900 degrees F.

Marlstone is a catchall term for an impure carbonate. It is not composed entirely of clay muds, as is a shale; marlstone primarily contains carbonate minerals. The impurities are clays.

The high carbonate composition allows the outcrops of oil shale ("kerogenous marlstone" is as unwieldy as "bituminous sandstones") to stand as bold cliffs. Shales lie low in the landscape. They flake away to topographic oblivion. But limestones and marlstones resist erosion by wind and water: witness the Redwall limestone of the Grand Canyon, the Madison formation of the Bighorns and the Black Hills, and the limestones of Glenwood Canyon in Colorado. So we have the Roan Cliffs to the south and the Cathedral Bluffs to the west of the Piceance Creek Basin, the richest portion of the nation's oil shale resource.

Western oil shale, now thought to represent 2 trillion barrels of oil, is spread across 16,500 square miles of Utah, Colorado and Wyoming, the result of a remarkable sprawling system of lakes which formed in a closed hydrologic basin roughly 50 million years ago. The rock which tells the lakes' histories is the Green River Formation, world famous for its preservation of fish

(continued on page 10)

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Dear Friends,

"The Upper Cretaceous stratigraphic section lying above the Aspen Shale and below the Adaville Formation..." Like to read about rocks? Or is the preceding section about as pleasant as eating them?

What geologists have to say is important to our future in this region — it has oil drillers on the edge of their seats even while the rest of us snooze. The problem is understanding it.

HCN runs into the difficulty all the time, and we're lucky to have Bob Anderson around to help us out. Anderson, who has done some work for the Powder River Basin Resource Council, now lives in Denver. He is a certified geologist, but he might also be called a translator — he turns the heavily compressed sediment of professional Geology-speak into the kind of polished pebbles you can put on a layperson's sideboard. In the past he has tackled tar sands and other equally exciting subjects — crucial to the region but not the kind of barnburning stories that make run-of-the-mill journalists salivate. This week he is tackling oil shale.

Not only does Anderson put his flinty material into readable prose, he lightens it up with amusing asides. Talking about the Piceance Basin, for instance, he adds some marginal scrawl on the etymological origins of the oil-shale-rich region's name. "Piceance, by the way, is pronounced pee-ants, a clever disguise by the map-makers," begins Anderson, and goes on to explain that some people believe it to be a Frenchified way of describing the way insects in the area were lured forth by certain human functions.

The Coloradan says that he's now off to the Pacific Northwest for a while. We expect to see more of his work when he returns this summer.

When we write a story exposing the loss of millions of dollars in revenues due to lax mineral tax enforcement, we expect to get mail. But we do not, and did not, expect to get a lot of mail when we ran a cover story on the tweedy subject of a college professor.

Apparently, we were wrong. Ken Western's piece on John Baden (3-6-81), a professor at Montana State University who recommends private ownership of public lands, generated more mail than anything we've published recently. You'll see a sample of letters this issue — they're still coming in.

— the staff

Western Roundup

Blasters reprieved in Marshall wilds

U.S. Forest Service Chief Max Peterson has ruled that an application to set off explosives in three Montana wilderness areas in a search for oil and gas must be considered by regional foresters.

Peterson was responding to an appeal by Consolidated Georex Geophysics, a Denver-based exploration company which had its application to conduct seismic tests in the Bob Marshall, Great Bear and Scapegoat wildernesses rejected last April. At that time, the agency's northern regional forester, Tom Coston, sidestepped the issue of wilderness resource exploration by rejecting applications from companies that had no leases on the land they were exploring.

CGG, which had no leases in the wilderness areas, intended to collect its oil and gas information and sell it to interested energy companies.

CGG first applied in 1979 to set off explosives over lines covering 161 miles in the wilderness area, and another 46 miles in adjacent national forests. Coston approved only the testing outside the wildernesses.

In ordering Coston to consider wilderness exploration as well, Peterson said in part: "The citizens of the United States have an interest in assessing all values lying in those wildernesses."

"It's a heavy," said Dick Guth, an information officer with the Northern Region office. Coston must now take another look at the CGG application Standards for mineral leasing and exploration in wilderness areas remain murky and controversial. The Northern Region has a task force studying the issue which is not expected to issue a report before 1982.



CGG workers check seismic data

The CGG appeal attracted the attention of the Mountain States Legal Foundation, Interior Secretary James Watt's former sinecure, and the Rocky Mountain Oil and Gas Association, both of which filed briefs supporting CGG. The Bob Marshall Alliance, the Wilderness Society and the Sierra Club filed in support of Coston's April decision not to consider CGG's application.

Wilderness Society Montana Representative Bill Cunningham said opponents of seismic exploration and resource development in wilderness areas would wait for Coston's decision before deciding what steps to take. In the meantime, they have scheduled a march and rally in Missoula April 24.

N.D. mixes oil tax and water

Sufficient funding for water development projects is on many western minds these days, and North Dakota legislators are no exception. To increase available construction money, the Republican-dominated body voted to divert ten percent of a new oil severance tax directly into the water resource coffers.

Known as Measure No. 6, the severance tax (6.5 percent on crude oil) was approved by voters last November, and revenues were allocated for education, tax relief and a permanent trust fund.

Arguing that water resources development is the best thing the state could do for future generations, however, House Majority Leader Earl Strinden (R-Grand Forks) led a successful effort to redistribute the trust fund monies to the water resources budget. Backers of Measure 6 called the move a "raid" of the trust fund and "a violation of the will of the voters."

Mineral tax gets day in court

On March 30, the U.S. Supreme Court heard oral arguments on the challenge by several coal-burning utilities that Montana's 30 percent severance tax on coal was excessive and a barrier to interstate commerce. Several utilities and seven states — none of which have major coal reserves of their own — are challenging the tax.

The utilities, supported by Texas, Minnesota, Iowa, Wisconsin, New Jersey, Michigan and Kansas, are not challenging Montana's right to tax coal, but only what they call the excessiveness of the 30 percent level. They also contend that states with large energy resources are unfairly damaging states without energy minerals through the severance tax.

Montana, supported by mineral-rich Wyoming, Colorado, New Mexico, North Dakota and West Virginia, as well as a number of environmental groups, argued that Montana's tax adds very little to the cost of coal to the consumer. Montana Attorney General Mike Greely said there is no difference between Montana's coal tax and state taxes applied to manufactured goods that are sent out of state. Lower courts have so far supported Montana's arguments.

A decision is expected in late June.



Crows lose fishing, hunting control

The U.S. Supreme Court has ruled that the Crow tribe cannot regulate the hunting and fishing by non-Indians on private lands within the reservation.

The case began several years ago when a Montana man was fishing along the Little Bighorn River on land within the reservation that had been purchased by the state of Montana as a fishing access site. The man was arrested by a Bureau of Indian Affairs agent for violations of the tribal code.

In court, the tribes argued that they had jurisdiction over hunting and fishing on private land. The court disagreed, saying, "Non-Indian hunters and fishermen on non-Indian fee land do not enter into agreements with the Crow Tribe so as to subject themselves to tribal jurisdiction." However, the tribe still has the authority to regulate fish and game issues on tribal land for both Indians and non-Indians.

The case does not directly affect tribal rights under the Winters Doctrine. The Winters Doctrine, established in 1909, says tribes are entitled to all waters flowing in, through or adjacent to reservations. F. Woodside Wright, a department attorney for the Montana Department of Fish, Wildlife and Parks, said, "The issues were strictly hunting and fishing issues and ownership of navigable rivers, based on treaty interpretation. Winters Doctrine affects the use of water, which this case does not. However, it could affect hunting and fishing issues on other reservations; but you would have to read each treaty." Wright believes, however, that some people will use the decision as precedent in Indian water use cases. Tribal Winters Doctrine rights are currently being adjudicated in Wyoming over rights to the Bighorn River as it flows through the Wind River Indian Reservation.

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Bill Armstrong

Armstrong backs off new dam funds

Breaking an age-old tradition in the Colorado congressional delegation, Republican Sen. Bill Armstrong has refused to back federal budget increases to start or resume construction of two Colorado water projects.

The state delegation, including Democratic Sen. Gary Hart (D), stood united before House and Senate appropriations panels last week to endorse the Reagan administration's construction budget for ongoing water projects.

But saying he would "be less than true to my own beliefs" if he were to propose additions to the administration's budget, Armstrong dissented when the delegation asked for \$3.3 million more to begin construction of

the proposed Animas-La Plata project near Durango and resume building the Narrows dam near Fort Morgan.

Both projects were halted by President Carter's 1977 "hit list" campaign to eliminate uneconomical or damaging water projects. While Interior Secretary James Watt has promised new construction starts in the 1982 budget, the 1981 Reagan proposal includes no funds for start-ups.

Armstrong said another year's wait on construction was necessary to the Reagan program of fiscal restraint. But Hart, whose unwavering support for Colorado water projects contrasts with his other policy stands (both fiscal conservatism and social liberalism), said Armstrong's dissent would endanger Colorado's chances of getting the funds.

CORRECTION

In HCN 3-20-81 we reported that a U.S. Interior Department committee voted 3-2 to close the controversial Potholes-Baseline Flats area of Grand Teton National Park to snowmobilers. HCN had the vote right but the voters wrong. Voting against snowmobiles in the Potholes area were chairman Wally Schirra, the former astronaut and member of the Interior Department's Council on National Parks; Ron Tipton, a Wilderness Society representative; and John D. Hunt, assistant dean of the college of Natural Resources at Utah State University. Voting to leave the Potholes open to snowmobilers were Jerry Tracy, a Teton County commissioner, and Jan Wilson, director of the Wyoming Recreation Commission.

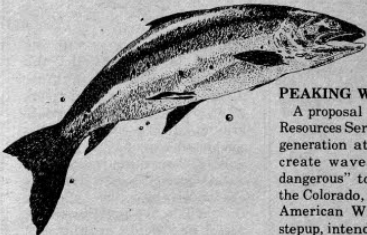
hotline

WYOMING AUDIT

Wyoming state auditor Jim Griffith says that auditing the mineral industry will be one of his top priorities in the two remaining years of his term. The recent legislature authorized him to hire three special auditors to inspect mineral production records in the state in an effort to make sure the state gets all the mineral severance taxes and royalties it deserves. (See HCN 2-6-81, p. 1, for a story on Wyoming's lost uranium revenues.)

CLEAN AIR

Industry, it seems, is not the only interest group unhappy with the Clean Air Act these days. The Sierra Club and the Natural Resources Defense Council, also suffering cloudy reception on the clean air channel, are supporting federal legislation to extend to 1985 the compliance deadlines for steel plants. It's a "fine tuning" of the act, the groups say, made necessary by "economic conditions." Maybe this is what Colorado Sen. Gary Hart (D) was referring to last month when he said the only choice is between keeping deadlines no one will meet, or scrapping the deadlines. Hart, in growing company, favors the latter.



ALTON COAL

Lawsuits are piling up over former Interior Secretary Cecil Andrus' decision to designate part of the Alton coal field near Bryce Canyon National Park unsuitable for strip mining. Environmentalists and some area ranchers are suing to close the area he left open; Utah International, the coal developer, is suing to open the area he closed; and the state of Utah is suing to assert its right to regulate coal mining in the state. Andrus, of course, is now out of office, and his successor, Secretary James Watt, is yet to consider the issue.

GLACIER ROAD

Wildlife experts who fear that road improvements around Glacier National Park will lead to more development and less wildlife got a boost when the Federal Highway Administration agreed recently to draft an environmental impact statement. Concern about a proposal to pave a road that runs along the North Fork of the Flathead River on the west side of the park has focussed primarily on grizzly bears. The bears have already shown an interest in the garbage created by a recent surge in human population on the west side of the park. The 60-mile road, already partially paved, runs from Columbia Falls to the Camas Creek entrance to the park.

GEOTHERMAL GLOWS

Backers of the Raft River Geothermal Project near Malta, Idaho, left out of President Reagan's new budget, are having trouble finding new funds for their multi-million dollar facility. But down in northern Nevada all systems are go. A consortium of five utilities, including Pacific Power & Light Co., have hired a Texas firm to build them a 10-megawatt well-head generator that can be moved around the state to new geothermal sites as old ones dry up.

PEAKING WAVES

A proposal by the Water and Power Resources Service to increase the power generation at Glen Canyon Dam will create waves that are "extremely dangerous" to whitewater boating on the Colorado, says Jerry Mallett of the American Wilderness Alliance. The stepup, intended to provide as much as 25 percent higher peak power, will also effect the trout fishery and erode beaches and campsites, the group is charging. A draft environmental impact statement on the proposal is forthcoming.

LARGER LEASES

The present 5,120 acre size limit on oil shale leases is too small for economical development, says Rep. Dan Rostenkowski (R-Ill.), and he's introduced federal legislation to up the size ceiling and give the Secretary of Interior wider discretion on development provisions.

INDUSTRY CLEAN-UP

The Amoco Oil refinery in Salt Lake City says it will pay an unspecified share of the \$1 million necessary to clean up an oil shale dump now owned by the city. In a case similar to the disaster at Love Canal, N.Y., the city bought the land, dump and all, and then discovered carcinogenic chemical waste after a bulldozer clearing land for a park sank through the sludge. Unlike New York's Hooker Chemical Co., Amoco officials say they're willing to help solve the problem before nearby residents are injured. And in Canon City, Colo., state health officials say they are pleased by the Cotter Corp. efforts to move its uranium mill tailings to a new, lined disposal pond. "Everything we cited them for has been corrected or is on track for a compliance schedule," said Robert Arnott, assistant director of the state agency, and the company has been granted a new radioactive materials operating license.

NATURAL RADIATION

High radioactivity levels found in Edgemont, S.D. homes is due not to uranium mill tailings, but rather to natural sources, according to an unnamed official of the Nuclear Regulatory Commission. Some 12 percent of the 334 homes sampled thus far have indoor gamma radiation levels above Environmental Protection Agency standards. But according to Nuclear Fuel, a McGraw-Hill publication, one unnamed NRC official said, "We feel the predominant source is natural radiation rather than mill tailings." The most recent owners of the mill tailings in Edgemont, the Tennessee Valley Authority, is contesting its responsibility for cleanup costs.

CONSERVATION CREDITS

Investment tax credits for industrial efforts to save energy would be doubled from 10 to 20 percent, under a bill introduced last month by Sen. Malcolm Wallop (R-Wyo.). Financial assistance, under the Industrial Energy Security Tax Incentives Act, would go towards converting oil consuming plants to coal, purchasing recycling equipment and fostering cogeneration. Citing a study that estimates a \$20 billion a year investment need by industry for energy conservation, the Environmental Policy Center in Washington said Wallop's bill was "urgently needed" and could save 3 million barrels of oil per day by the year 2000.

PARK VISIBILITY

Arguing that "we cannot base our economy solely upon the tourists," local officials near Bryce Canyon and Zion national parks in Utah opposed new federal rules to protect visibility from scenic park vistas. The state Bureau of Air Quality is holding hearings throughout the state on its plan to comply with the federal Clean Air Act requirement, and speakers at a recent St. George hearing were largely against additional protection. But most of the 35 persons testifying in Salt Lake City supported the strictest regulations and agency director Brent Bradford, according to the *Deseret News*, says, "It's obvious we will have to find some kind of middle ground."

YELLOWSTONE SYN FUEL

The Tenneco Corp. is asking Montana, North Dakota and Wyoming for permission to use water from the Yellowstone River near Glendive for use in a coal gasification plant to be located in Montana. A Tenneco subsidiary has claimed 80,650 acre-feet of the river's water, but the plant would require only 14,000 acre-feet. Tenneco promises to avoid conflicts with agricultural water users in drought years by building an 800-acre storage reservoir to be filled during spring and winter. The company would then pump the water from the Yellowstone Basin to the Little Missouri Basin, where the \$2.3 billion plant would be built. The Yellowstone Compact prohibits taking the water from the Yellowstone Basin without permission from the three states.

COLO. AIR DELAY

Encouraged by the prospect of new federal environmental policies, the Colorado House Committee on Transportation and Energy unanimously approved a bill last week delaying the implementation of a motor vehicle inspection and maintenance program. Previous delays resulted in threats of economic penalties and sanctions by the Environmental Protection Agency. But calling the program "the biggest rip-off ever," the bill's sponsor, state Rep. Mick Spano (R-Arizona), said, "I doubt if the present administration will allow sanctions on the states." Rather, said Spano, a one-year delay will save \$10 million in inspection fees, and that, contrary to findings of a federal study headed by Sen. Gary Hart (D-Colo.), the program has not been proven effective in reducing carbon monoxide levels.

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Western Roundup

Powerline quizzed

Trans-state transmission lines must meet a test of public need, under legislation passed this session by the South Dakota state legislature.

The new law, sought by the South Dakota Resources Coalition and other critics of the proposed MANDAN power line project, requires the state's utility company to prove such a need during public evidentiary hearings this fall — a forum project critics hope to use to disprove such claims.

In other actions, the Coyote State solons approved a hazardous waste transportation control bill (exempting petroleum products from its regulation), upheld the U.S. Fish and Wildlife agency's wetlands preservation program that utilizes perpetual easements, sent two mining and exploration reform bills to an interim study panel, and amended the state's environmental policy act to make the preparation of impact statements discretionary with state agencies.

Esther Edie, chief lobbyist for the Resources Coalition in Brookings, called the latter bill "disastrous," and said it could affect future state-funded water development projects. State water policy director, Vonni Kallemeyn, however, says federal impact reviews would almost be certain on such projects.

Idaho nixes air

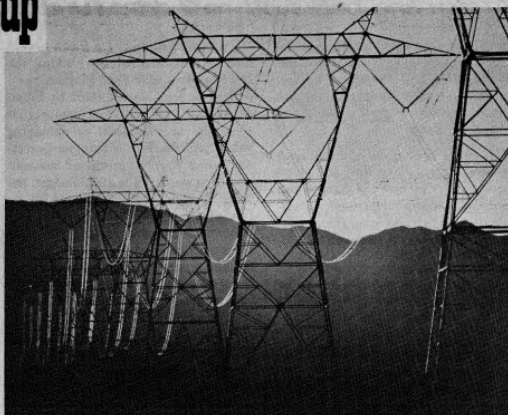
Idaho Gov. John Evans (D) is repealing all of the state's air quality protection rules, responding to the scrapping of the Bureau of Air Quality by the state legislature.

That agency was just one victim of the Republican-dominated budget-slashing Gem State legislature. Other targets included all of the state's groundwater monitoring program, one-half of the stream channel protection budget, one-quarter of the parks department budget (forcing the closure of three state parks), and a fifth of the water quality bureau's budget.

The healthiest survivor among natural resource agencies was the state Fish and Game Department, which received a hefty 40 percent budget increase in part to set up a new non-game species management program.

Eliminating the Bureau of Air Quality drew the sharpest criticism from environmentalists in Idaho. Pat Ford of the Idaho Conservation League in Boise says his group will use that move as a campaign issue in the next election to help oust unfriendly solons.

The U.S. Environmental Protection Agency, which supplemented the state agency's \$280,000 budget this year with \$600,000 in federal funds, is expected to take over the state air quality program. A similar move occurred in Oregon three years ago when that state's legislature cut its drinking water program, leading EPA to set up a program there that has "worked pretty well," according to EPA Region 10 spokesman Bob Jacobson in Seattle. "But there's no way we can replace everything (in the Idaho air program)," he said. "What we're losing, besides some funding, is the hands-on experience that the state agency personnel have gained over the years."



EPA Document - Charles O'Rear

Evanston sniffs as 'sour' gas nears

With deep-drilling oil and gas rigs moving closer to populated areas, officials in southwestern Wyoming say they are worried about the possibility of poisonous leaks.

Drilling companies have made spectacular oil and gas finds north and south of Evanston in recent years by drilling much deeper than traditional wells. But much of the gas discovered at depths below 10,000 feet is "sour" — laced with hydrogen sulfide, a poisonous gas. Now the rigs are moving closer to Evanston's populated areas.

"We're concerned about it," said Mayor Dennis Otley. An official for Amoco (Standard Oil of Indiana), one of the major drillers in the area, said her company has made one sour gas find — the Uroz well — just south of the city limits, and is drilling another well. Other companies have applied to drill new wells within city limits.

Most of the proposed wells in town would be relatively shallow, drilling to depths where "sweet" gas is usually found. But Chuck McLean of the Overthrust Industrial Association, a group of oil and gas companies formed to miti-

gate the impacts of development, said companies have found evidence of shallow sour gas deposits around Evanston. The geological structure, he said, may be "topsy-turvy," with sour gas deposits overlying deeper sweet gas — a reverse of the usual situation.

Oil company officials say new technology enables them to drill sour gas without endangering workers or nearby citizens. The National Institute for Occupational Safety and Health reported that 26 workers were killed by sour gas exposure in Texas and Wyoming between 1974 and 1978. But a spokesman for the Occupational Safety and Health Administration in Cheyenne, Wyo., told the *Casper Star-Tribune* that his agency had no reports of death or injuries in Wyoming due to hydrogen sulfide exposure "in the last few years."

Neither industry nor town officials could confirm rumors of a civil defense plan for evacuating Evanston citizens in the case of a major sour gas leak. The county civil defense director was not available for comment.

Weak D.C. reception for sage reb bills

Since their friend James Watt took over the Interior Department, the Sagebrush Rebels have fired few shots in Washington. It's hard to find Sagebrush leaders there who still advocate what used to be the movement's central goal: putting federal lands into state hands.

Utah's Orrin Hatch (R) is one exception to that rule, however. Hatch is still trying to gather co-sponsors to reintroduce the land transfer bill that caused a stir in Western states during the last session of Congress.

He hasn't gotten them yet. But his aide, Jim Black, maintains that land transfer is still a top priority for Hatch, because Watt can't give the Rebels all they need.

"A lot of guys don't want to chuck rocks at Jim Watt and neither do we," Black said. "But there is an overriding national interest that makes this bill



necessary."

Now that Watt's in charge, the debate is shifting from attacks on federal incompetence and arrogance to questions of state sovereignty and nationalization of the country's resources, Black said.

"Is it wise and prudent for the feds to own and control 50 percent of the nation's most valuable resources?" Black asked. "It's just not compatible with the American scene. It's tantamount to nationalizing the auto industry."

In the West, too, many Sagebrush Rebels have been pacified by the promises of the new administration. But a few land transfer advocates are sticking to their guns.

"The states should control their own destiny," said John Keenan of Sagebrush Rebellion, Inc., in Boise. "In the long run the BLM will not be a friendly landlord."

— Joan Niece

barbed wire

Rumors that the newly-renamed Water and Power Resources Service will switch back to its old christening, and perhaps its old ways, were substantiated by a recent agency press release. Announcing the appointment of Robert Broadbent, the Interior Department Secretary said, "...he will be outstanding as Commissioner of what we shall always regard as the Bureau of Reclamation." Broadbent, we note with interest, was formerly a Federal Bankruptcy Trustee, as well as water district director for that oasis of oases, Las Vegas.



An Aurora, Colo., proposal to save water this summer by banning new lawns drowned in a flood of criticism last week. Opponents of the ban said the resulting dust would increase allergic reactions, while others said no new lawns might mean more crime, reports the *Denver Post*. Most notable was forester Ken Hostetler's warning that less lawn watering would raise the city's ambient air temperature. Melting ice fields in the nearby Rockies could only be next.



Joggers, often unperturbed by rain, have been curbed by the impending drought. Frequenters of a hillside trail in western Colorado were asked to desist because the ranch owner is moving in his cattle to get a jump on what looks like a water-short irrigating season. But they can still use the nearby road, he says, if they keep the gates shut.



K.T. Roes, a reporter with the *Powell Tribune*, compiled the First Annual High Plains Drifting Awards for Wyoming legislators who broke new grammatical ground during the recently-completed session. Rep. Charles Scott (R-Casper), won note for voicing his fears of "the subsidization of one industry by another," and Sen. Diemer True (R-Casper) invented a useful new word, "hypohecate." History collided with itself in the syntax of Rep. Dan Budd (R-Sublette County) when he said what government encroachment would lead to: "The clock is going to have a hammer and sickle on its face and we're all going to have to raise our arms and say, 'Sieg Heil.'" Others worried about "the nitty gritty of nuts and bolts" and "raising (legislators') shackles." Roes wisely concluded with the malapropism of Rep. James Roth (D-Green River): Doesn't that make this verbiage rather mute?

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Jemez geothermal drilling strikes angry chord

by Jack Kutz

The Valle Caldera of northcentral New Mexico has often been described as "the mountain that blew its top." The incredibly violent volcanic eruptions that occurred here during the Pleistocene era a million years ago rank among the most dramatic events in North America's geologic history.

Catastrophic eruptions, followed by the collapse of the area's structural dome, created a crater 15 miles in diameter and deposited the material that formed the plateaus and canyons of the Jemez Mountains.

Today, it is a land of extreme beauty. The Caldera is richly meadowed; the canyons are deep and rugged; and the mountains are heavily forested with spruce, fir and aspen. The area supports a variety of wildlife, including deer, elk, bear, cougars and a rare endangered amphibian, the Jemez Mountain salamander.

Although the Caldera itself is almost entirely on private land, the mountains surrounding it have long been a mecca for tourists and outdoor recreationists. For the residents of the rustic villages of Jemez Springs and Ponderosa, the Jemez country has been an idyllic place to live. And for the Pueblo Indians of the region, it is a land of great religious significance, a place of sacred springs, shrines and herbs.

CALDRON VALLEY

Valle Caldera is Spanish for "Caldron Valley." Beneath the surface of the Caldera lies a great boiling caldron of geothermal liquids and vapors — an energy resource which Public Service Company of New Mexico, Union Geothermal Company of New Mexico (Union Oil) and the U.S. Department of Energy plan to develop.

As a part of the Federal Geothermal Program, DOE and the two commercial partners have proposed the construction of a 50-megawatt geothermal well field, power plant and transmission line to be located on the Baca Ranch within the Caldera. The purpose of this demonstration plant, according to DOE's Environmental Impact Statement, is "to provide information on the economic, technologic, and environmental aspects of electrical generation from a liquid-dominated source" and "is aimed at enhancing development of electrical production from the bulk of the U.S. geothermal resource."

The power plant will be very similar (from the standpoint of power cycle design) to the closed condenser system now being designed and built at the Geysers in northern California.

If this project successfully demonstrates 50-MW capacity, future expansion up to 400-MW is expected. The EIS notes, "Development of a proposed 50-MW demonstration power plant already represents a change in the character of a portion of the Baca Location from a relatively natural setting to an industrial one. Expansion to 400-MW would considerably escalate this change."

The residents of the Jemez Mountains are less than enthusiastic about the industrialization of their countryside. Angry opposition to the project has come from the All Indian Pueblo Council, La Raza Unida and an ad-hoc citizens group, Save the Jemez (STJ).



"Why ruin the Jemez Mountains for a marginal energy source that would trade perhaps our state's most beautiful area for California kilowatts?" asked STJ member Dr. G. Theodore Davis.

Spokesmen for PNM insisted that the utility "has gone to enormous pains" to affect the area as little as possible. Nevertheless, the impact will be considerable.

So far, 22 test wells have been drilled over an area of 43 square miles. "Already we're seeing the beginnings of a boom town," said Davis. "There are 80 semis per day on the tourist road and plans for a 250-unit trailer park."

The project's impact on the area's water resources is one of the opponents' major concerns. The proposed 50-MW plant would extract approximately 9,665 acre feet of water per year from geothermal supplies, and would re-

inject approximately 6,856 acre feet, thus consuming 2,809 acre feet annually.

In a report prepared by Geological Services of Tulsa for the Santa Clara Pueblo, hydrologist Tom Aley concluded, "The extraction of more water from the thermal aquifers than is re-injected would rapidly lead to major dewatering of the thermal aquifers. This dewatering would induce groundwater recharge from overlying groundwater supplies, which in turn would divert waters from surface water supplies. Induced water recharge would have major impacts on surface water supplies."

The EIS acknowledged the reduction in the flow of springs and wells fed in part by geothermal reservoir outflow is expected to occur but added "the total amount of depletion is not known at

this time."

Jemez country residents fear the worst. Jemez Springs councilman Michael Stoy said, "One of the early impacts of the project could be the cut-off of the water supply of the 212 customers of the Jemez Springs Domestic Water Co-op. We know the project will lower the level of wells, and reduce water for irrigation, but the cut-off of our water supply is even more serious."

SACRED SITE

Pueblo Indians of the region view the proposed power plant as a violation of the American Indian Religious Freedom Act — the legislation that protects and preserves Native American religious sites and sacred objects and the freedom to worship through ceremonial and traditional rites. The Pueblos have taken the position that the whole Jemez Mountains are sacred and constitute a religious site.

PNM has assured the Indians that no shrines or archeological sites will be disturbed, that the transmission line corridor will avoid all known religious sites and that no drilling or exploration will take place on Redondo Peak, the sacred mountain above the project. However, the Indians contend that this only shows PNM's lack of understanding of the Pueblo religion.

According to Pueblo beliefs, life must be lived in a way that maintains the balance of nature and causes no damage to the spirit world. Geothermal drilling is considered a sacrilege, since it invades the underworld, which is the most important level of nature in Pueblo cosmology. The contamination or disturbance of underground water is particularly serious because water is the medium by which spirits travel to and from the underworld.

"Every part of the earth is sacred," said Jose Lucero of Santa Clara Pueblo. "Our church cannot be contained within four walls."

James M. Hecker, attorney for Santa Clara, added, "Pueblo shrines have much the same significance as altars in the Catholic church. The shrine at the top of Redondo Peak is the altar, and the area surrounding the peak is the church. It is nearly impossible to establish or maintain one's focus of devotion and worship in the natural church-like setting when only a short distance away there is the visible ugliness of plant technology, the audible shock waves of drilling operations, and the occasional smell of noxious hydrogen sulfide fumes. The situation is comparable to operating a jackhammer in the interior of a Catholic church."

All seven Pueblos in the vicinity (Santa Clara, Tesuque, Jemez, Zia, Santa Ana, San Felipe and Cochiti) have opposed the project. The All Indian Pueblo Council has indicated it may file a lawsuit to stop construction.

The impact of the project will extend beyond the power plant and the well fields lying in the shadow of Redondo Peak. Transmission of the electricity generated will require the construction of a 20-mile long, 115-kilovolt power line across the Valle Caldera.

In 1976, the entire Baca Location (Baca Ranch) was designated as a National Natural Landmark because of its scenic qualities and relatively well preserved natural state. The briefs ac-

(continued on page 12)



"They cannot pay any amount of money to buy out our interest; once our water is gone we as a people will not survive."

Jose Lucero, Santa Clara Pueblo

Greeley said, 'Go West,' but fought the 19th century 'Great Barbeque' of public land

© 1981 by Peter Wild

Nearly a hundred years ago, an article in the *Atlantic Monthly* contrasted the careful forestry practices of Europe with America's rapine, then drove a point home:

Any fool can destroy trees. They cannot run away; and if they could, they would still be destroyed, — chased and hunted down as long as fun or a dollar could be got out of their barkhides...God has cared for these trees, saved them from drought, disease, avalanches, and a thousand straining, leveling tempests and floods; but he cannot save them from fools, — only Uncle Sam can do that.

The author of the famous passage was John Muir. Through such eloquent bluster, he filled his readers with the combined shame and self-righteous ire that compelled many of them to support his movement for environmental reform. Yet Muir had been living quietly among his grapevines in Northern California until Robert Underwood Johnson, campaigning editor of *Century Magazine*, lured the vineyardist back into the mountains to view recent devastation by lumbermen and sheepherders. After their camping trip, Muir became the activist "John of the Mountains," father of the Sierra Club, founder of national parks, and druid of many nature lovers to this day.

If editor Johnson, far less colorful than Muir, seems to play a minor role in the unfolding of conservation history, his part was nonetheless typical of a specialized band of conservation promoters. Progressive journalists formed an auxiliary corps, supplying essential support to leaders of environmental causes. They saw to it that the conservation articles found wide audiences in the *Atlantic Monthly*, the *Century*, *Scribner's*, and other opinion-setting magazines and newspapers of the day; they penned sympathetic editorials and often used their considerable influence to lobby behind the scenes in Washington.

While the Muir-Johnson team had its platoon of contemporary counterparts and their followers down through the decades whole companies, historians often gloss over or miss entirely the journalistic predecessors of the Muir generation. Horace Greeley, founder of the *New York Tribune* in 1841, stands out among this group of editors which early recognized environmental care as one need in a crusade for social betterment.

We often think of America's first reform period as coming somewhat later, as a backlash during Muir's time to the excesses of what Mark Twain wryly labeled "The Gilded Age." However, the decades of earnest strivings had their beginnings in the pre-Civil War years, when a nation grappling with the chains of slavery and stumbling toward a prolonged war, began to deal with broad questions of civil rights and social change.

As in many periods of change, something ill-defined yet electric was in the air. It might be, so some people thought, the aura of a dawning Utopia, when humans at last would discover their ideal selves. Massachusetts' Brook Farm, in existence between 1841 and 1847, is perhaps the best known of the experimental, communistic communities which turned their backs on the evils of society and sought a more divine reality by rooting themselves in the soil. Some of the colonies, like the Shaker groups, followed sternly religi-

ous principles. Others, despite earnest leadership, were hodgepodes of would-be poets, philosophers, and just plain freeloaders. They dotted the countryside, taking their messages of hope westward into the raw wilderness.

On one of these communes, called Hopedale, might be found Horace Greeley, America's most celebrated editor, spending a weekend of respite from the jangles of New York City, happily grunting over a spade or intently, nearsightedly, sewing grain sacks. When the editor visited Massachusetts' Brook Farm, an unconverted bystander quipped that Greeley "looked like a wandering Moses at a fair, ready to be duped by a fakir."

Visionary Greeley certainly offered a large target for cynics. The oddity of his appearance, with his pink face of babylike mildness fringed by throat-whiskers, his broad-brimmed hat, white overcoat, crooked cravat, shapeless trousers, and white socks, his shambling gait and absent-minded manner, was exaggerated by every caricaturist," notes one commentator, who continues, "His squeaky voice and illegible handwriting became themes of familiar humor."

The large influence over public opinion that Greeley eventually wielded didn't come easy for this odd fish swimming in the roiled social and political waters of the time. Crude frontier neighbors in New Hampshire had marveled over the towheaded Greeley, who as a child learned to read — upside down — at the age of three and who became ill merely at seeing rain outside his log-cabin window. This strange, sickly babe would doze off at local spelling bees, wake at his turn, mouth the proper letters, then fall back into slumber. His father, Zack, partook too liberally of rum, the frontiersman's escape from grinding reality.

Years later, Greeley helped found the Republican party, served a brief term in Congress, and held considerable sway over the outcome of state and national elections. But debt plagued him, as did his wife's hopeless hypochondria — not to mention the repeated skewerings by Thomas Nast, whose cartoonist's pen mercilessly exploited the editor's weak points. Added to his troubles, Horace suffered from bouts of mental instability, which he unclinically referred to as "brain fever." Humility was not a virtue counted among the reformer's traits. A Greeley contemporary lanced the moralist as a "self-made man who worshipped his creator."

At the age of sixty-one, the editor challenged President Grant for election and lost his last bid for the official stamp of public recognition. He died soon after, incoherent in a sanatorium.

A large part of the public was charmed by the indomitable Greeley image — especially of the gangling youth walking out of the wilderness, a few belongings dangling in a bundle from a stick, to seek and find fortune in New York City. It was impressed by a man who, though born into hardscrabble circumstances, mastered the ins-and-outs of publishing to found the *New York Tribune* at the age of thirty.

The growing number of subscribers learned, even as it chukled, that in the main Greeley's odd genius could be trusted. The readership of the *Tribune* eventually extended from the Atlantic seaboard to the Mississippi River. Greeley further extended his influence through books and lecture tours. Rural people flocked around Greeley as he stumped the countryside speaking on this or that moral issue. They not only



listened to his counsel on politics but sought his guidance on personal problems as well. On a rare visit to New York, a farmer might clump up the stairs to the Tribune office, seeking the trusted editor for advice on what crops he should plant.

In the main, the public today remembers Horace Greeley for his four famous words, "Go West, young man." He also dedicated one of his many books, *What I Know of Farming*, to "The Man of Our Age, Who Shall Make The First Plow Propelled By Steam." He was a booster indeed, but a sensitive one, not at all along the lines of the typically aggressive nineteenth-century captains of industry. In his *Reollections* he urges:

Men of means and of thrift should buy up sterile tracts that are offered for sale at low rates, and promptly cover them with White Oak, Hickory, White Pine, Locust, Chestnut, &c. Timber grows steadily clearer and dearer; streams become desolating torrents at intervals, and beds of dry sand and pebbles for weeks in Summer and Fall, because our hills have been so generally stripped and denuded of trees. Let us unitedly cease to do evil and learn to do well in relation to trees.

Unlike the expanding nation, Greeley loved nature far more than gold. He believed in development, but to him clearcutting virgin forests for quick profits, overgrazing the recently settled prairies, and recklessly tearing down mountainsides in the search for metal were anathema.

He told the nation's restless youth with dollar signs in its eyes to go South, to go East, as well as West — to find a rundown farm, buy it cheap, and restore it through a lifetime of care. "Nature offers us good bargains," he lectured, "but she does not trust and will not be cheated." In an effort to check the nineteenth century's "Great Barbeque" of the land, he sternly reminded readers that "The one great error that misleads and corrupts mankind is the presumption that something may be had for nothing....But the universe was framed on a plan which requires so much for so much."

New Yorker Greeley did not equate industrialization with the evils of cities. The editor's hopes for the growing Republic included the benefits that large-scale manufacturing could bring to civilization, but they also included Thomas Jefferson's dream of a rural America living in prosperity and at peace with the land. To state the association more directly, in Greeley's mind the nation would prosper if, and only if, it lived at peace with nature. "A good workman," he remonstrated, "does not quarrel with his tools."

By Greeley's time, westering had become a disturbing reality. With each discovery of gold in California or Colorado, more Eastern clerks threw down their pens, more Eastern farmers abandoned their plows, to rush by the thousands across the Mississippi and plunge into the unknown beyond. Some villages in the East were left all but depopulated, while their former occupants ditched and dug and axed the new lands in search of instant wealth. Such a get-rich-quick mentality cut across the grain of Greeley's basically conservative outlook.

He illustrates this in one of his most witty, readable, and informative books, *An Overland Journey*. In the Spring of 1859, the editor — as always clutching his huge umbrella — clambered aboard a carriage of the Erie Railroad

and headed West. Four months later he was back in New York City, having bounced across the plains and over the Rocky Mountains on stagecoaches to San Francisco, then returned by steamer via the Isthmus of Panama.

Along the way, he visited the gold diggings outside the haphazard log city of Denver, in Utah interviewed Brigham Young, cagey leader of the Mormon Church, and toured the Sierra's Yosemite Valley. The trip, and the

tal, now dense and opaque with pulverized rock." As to Greeley's always beloved trees, he spoke of "the general devastation of timber" by the busy miners. Few people listened. He sadly concluded: "Remonstrance were idle, but I must be permitted to deplore."

A week later, however, he had a nearly prophetic inkling of hope. When, suffering badly from saddle sores, the tenderfoot editor dismounted in the Mariposa Grove of redwoods, his spirits

"Nature offers us good bargains, but she does not trust and will not be cheated."

— Horace Greeley

dispatches he sent back, served several purposes for Greeley and his *Tribune* readers. At a time when some people scoffed at constructing a transcontinental railroad, comparing the proposal to building a bridge to the moon, Greeley wanted to see for himself if it could be done. Also, as William Hale puts it in *Horace Greeley: Voice of the People*, "He wanted to get away for awhile from the political turmoil. He may have thought it would be a good thing to get his readers' minds off it too. The West was America's greatest adventure. It might also prove now to be its place of self-renewal and salvation."

With the latter thought particularly in mind, Greeley was fairly flabbergasted by the West's resources, the rich potential of the Kansas prairie, the seemingly endless forests along the Pacific coast. But he wrote about the negative aspects, too. Because of this balance, *An Overland Journey* remains one of the most reliable accounts of the early West.

Unlike many a glowing contemporary account of Western travel, the book informed would-be pioneers that the plains of eastern Colorado were "treeless, cheerless, forbidding," while in parts of Nevada "famine sits enthroned." Proof lay in the immigrants streaming eastward past Greeley's stagecoach. They had pitted themselves individually against nature and broken their bodies against the realities of the arid West. Instead of this laissez-faire gamble, Greeley advocated homestead laws that would grant families sufficient land for their needs.

A believer in orderly development, Greeley urged settlement by colonies, which could cooperate to build the irrigation projects necessary for successful Western agriculture. Greeley, Colo., founded along such lines with the editor's support, was an example of a sensible but rarely followed alternative to predominantly slapdash settlement.

The editor pointed to the reckless search for gold as typifying the mistaken attitudes toward the West. Thousands of treasure hunters were blasting the West's mountains with the idea of striking it rich and returning East in a few months for a life of ease. Greeley cautioned his readers that "the hardest way to obtain gold is to mine for it....a good farmer or mechanic will usually make money faster."

Destruction accompanied the tomfoolery that paid most adventurers in disillusionment and heartache. Touring the gold fields of California, Greeley lamented the consequences of hydraulic mining, which used powerful jets of water to eat away mountains. The result was "watercourses torn up and gouged out, and rivers, once pure crys-

soated at the giants' beauty. He ended his eulogy to them: "I am sure they will be more prized and treasured a thousand years hence than now, should they, by extreme care and caution, be preserved...." A few years after, young John Muir arrived in the area to take up the theme and begin his long campaign for preservation.

These and similar issues of stewardship Horace Greeley, blinking innocently behind his thick glasses, echoed in books and editorials throughout his long public career. However, though he grasped the basic complexity of ecological cycles long before the public even cared about them, he harbored some pet ideas that now strike us as curious, if not wrongheaded.

In 1853, Greeley bought a farm near Chappaqua, a village thirty-five miles north of New York City. It was a rundown place, more a hobby than a paying proposition for the harried newspaperman, a refuge where the nineteenth-century romantic could withdraw on weekends to dabble in experimental farming. For some reason, the boughs of hemlock trees irritated Greeley. "There was something laugh-

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able," comments biographer Van Deuseh, "about the editor of America's most powerful newspaper...climbing thirty feet up a hemlock, ax in hand, bent on trimming off all its branches from there to the ground." In *What I Know of Farming*, farmer Greeley sang the praises of spreading swamp muck over fields as fertilizer, a laborious undertaking of dubious value.

Yet in the main, there is an oracular, modern ring to Greeley's warnings about man-caused desertification, to his fears concerning overpopulation and pollution. Unless society acts, "our great cities will be destroyed by their own physical impurities," he predicted. His apprehensions over clearcutting and overgrazing, over erosion and flooding brought on by reckless abuses to nature, ushered in the massive awareness in America's largest metropolitan area that a few decades later led to creation of New York's huge Adirondack State Park. He loved animals and, at a time when farmers were slaughtering birds as enemies, recognized them as insect controllers par excellence. "I have no doubt," he declared, "that our best allies...are the Birds." He urged stiff laws and formation of bird-protection associations, prefiguring the founding of the National Audubon Society and other organizations.

On a visit to England, Greeley expressed the emotive power behind his ecological view of the future. Pondering a land where wildness had long since vanished, he considered his own developing country and enjoined his fellow citizens: "Friends at home! I charge you to spare, preserve, and cherish some portion of your primitive forests; for when there are cut away I apprehend they will not easily be replaced."



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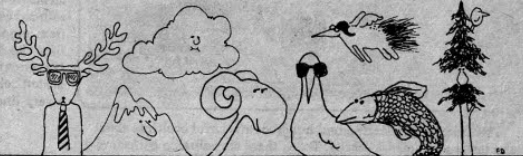
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8-High Country News — April 3, 1981

THREE DECADES OF TRAVEL IN POLISHED PULLMANS

by Mel McFarland

This essay is based on the author's book, *The Midland Route*, Pruett Publishing, Boulder, Colo.; 350 pages; \$44.95.

Imagine yourself on the platform of the Santa Fe station in Colorado Springs in 1908, the twentieth year of through-service on the Midland. A ticket in your hand will deliver you to Leadville, Aspen, Glenwood Springs or even Salt Lake City. A long train with heavily varnished maroon passenger cars, each trimmed in gold is waiting. Two large, brightly polished steam engines will pull the cars. A porter in a starched white uniform stands by to

help.

The interior of the car is cherry and white oak. The seats are large and comfortable. The upholstery is plush maroon, the carpet a heavy Wilton pattern. A room at the end of the car is set aside for those who wish to smoke.

The dining car, one of the railroad's recent additions, has been converted from a large first class coach. Until last year passengers had to leave the train and eat in railroad Eating Houses, strategically located along the route. Now, you can dine on lovely linen and heavy, sparkling china, with ornate silver. For dessert, the Pullman observation car opens a window on some of Colorado's finest scenery.

But the dream is shattered. The Colorado Midland died in 1918 and no longer makes its six daily westbound runs. Like most modern railroads, the Colorado Midland was standard gauge — four feet, eight-and-one-half inches between the rails. Its connections with eastern railroads allowed the Midland to run some of the finest Pullman cars available, pulled from large eastern cities through the Midland to Salt Lake City. The alternate routes were through Wyoming on the Union Pacific, or New Mexico on the Santa Fe.

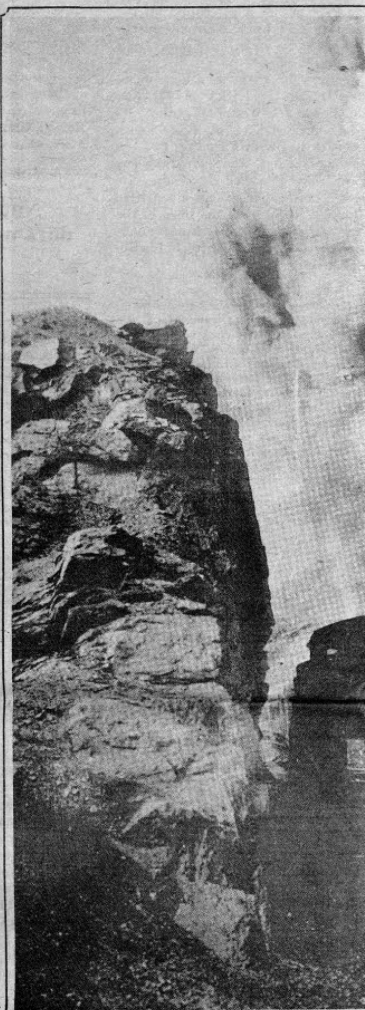
At its zenith, the Midland covered over 260 miles and served many of the state's early boom towns — Buena Vista, Arkansas Junction, Basalt, Sellar and Newett, Divide and Florissant, as well as a chain of tiny stops such as Peach Blow, Busk, Wild Horse, Pisgah and Sweet's Spur.

The remains of the railroad are scattered across Colorado. Three man-made lakes cover sections of the worn grade, as do dirt roads and four-lane highways. Old railroad buildings survive as barns, homes and even a bank.

The trail of the Midland is fading from the map every day. Both the workings of nature and the hand of man are erasing the route. Nature works slowly, eroding long fills and filling deep cuts, while Eleven Mile, Sugar Load and Ruedi dams have brought quick change.

The Colorado Midland is well remembered, however. Enthusiasts of the railroad can be found across the nation, from employees of modern railroads like the Union Pacific, to doctors, lawyers and the like. A few remnants are left behind to remind us of what was a very fine railroad.

Author's Collection



A passenger train climbs up Ute Pass, just west of fifteen years after the last train rolled through it.

THRU THE ROCKIES

COLORADO MIDLAND
RAILWAY



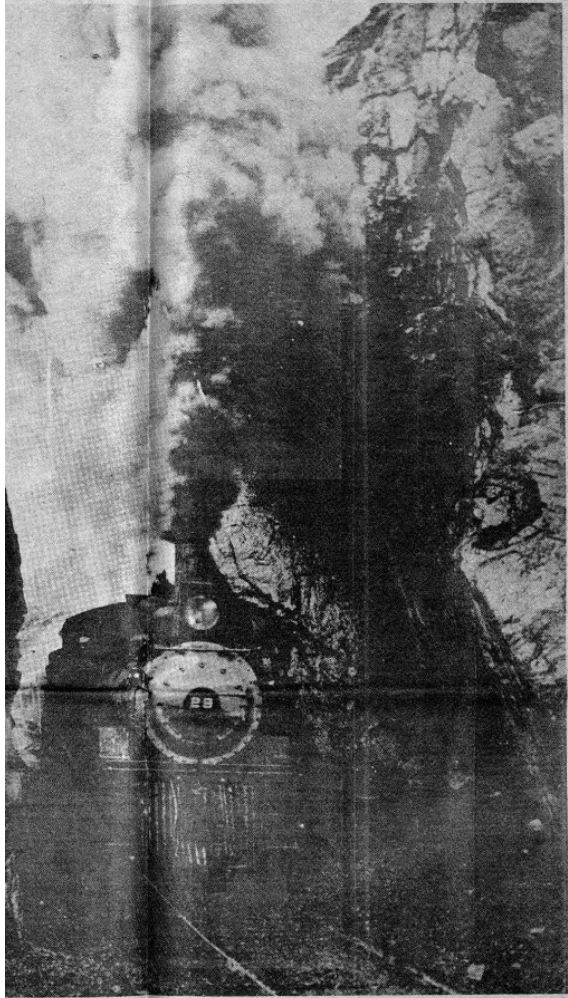
The Colorado Midland issued hundreds of colorful booklets about the towns and areas it served. Today these are valuable collectors' items.

"A cherry and white
trail is fading fast."

Basalt,
Aspen, T
Colora
Divide, c
helped c
In the
railroads
travel fi

Colorado Railroad Museum Collection

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Pass, just west of Colorado Springs. Hanging Rock Cut was still blackened with soot rolled through it.

ry and white oak dream, the Midland's
ading fast."

Basalt, Colo. (above right), was the Western headquarters and the connection to Aspen. Today the old depot is a bank, and the yards are a park.

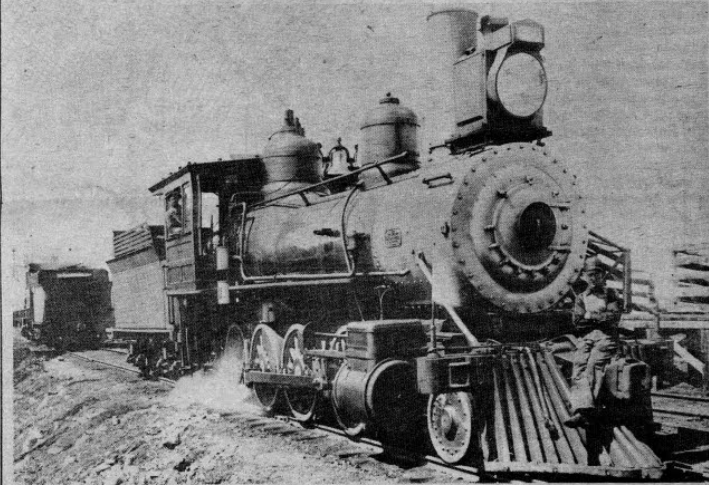
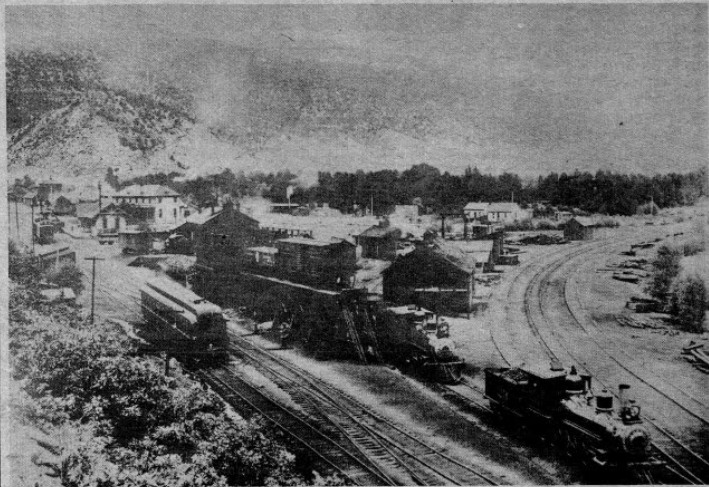
Colorado Midland engine 1 (above right center) at Ivanhoe, near the Continental Divide, often helped push heavy trains over the steep pass. A two mile tunnel helped cut down on the work at the turn of the century.

In the winter of 1899 a storm closed the Colorado Midland and other mountain railroads for nearly two months. This snow plow train took nearly two weeks to travel fifty miles.

Colorado Historical Society

Colorado Historical Society

Dail Gertner Collection



Oil shale

(continued from page 1)

fossils. These fish thrived in the fresher portions of the lake, near the incoming streams, and in the higher waters.

The bottom waters were putrifying ooze that lay there year after year, century after century. In Wilmot Bradley's 1929 geological report on the formation, he estimated it took over 8,000 years to accumulate a foot of oil shale. Multiplying by the number of feet of oil shale, and adjusting for the richness of each section, he calculated that the lake had existed in roughly the same state for 5 million to 8 million years.

Two lakes, and sometimes three, covered an estimated 30 percent of the larger basin. The southernmost lake, which contains the richest oil shale zone in the west, was sometimes divided into two parts, now called the Uinta and Piceance Creek Basins.

STAGNANT WATERS

The most widely accepted theory is that the lakes were very shallow, no more than 100 feet deep, but that they were strongly laminated, the upper waters not mixing with the lower. Plankton growing in the fresh upper water died and sank to the stagnant lower waters, forming fetid layers on the bottom. Stream sediments settled near the lake edges, and only the finest clays floated to the middle, where they sank to form embryonic marlstone.

Perhaps the most remarkable image is of sediments accumulating for millions of years in pervasive, putrifying stillness, a true geological feat that accounts for the uniqueness of the Green River Formation. In layers less than one-hundredth of an inch thick, the sediment layers, like tree rings, show seasonal variations.

Another unique aspect of the Green River Formation is the occurrence of commercial quantities of various saline minerals. These sodium-rich minerals arose from the chemical combination of sodium with other elements in the stagnant waters of the lakes, concentrated year after year by evaporation. The trona industry of Sweetwater County, Wyo., is today's prime example of such commercial potential.

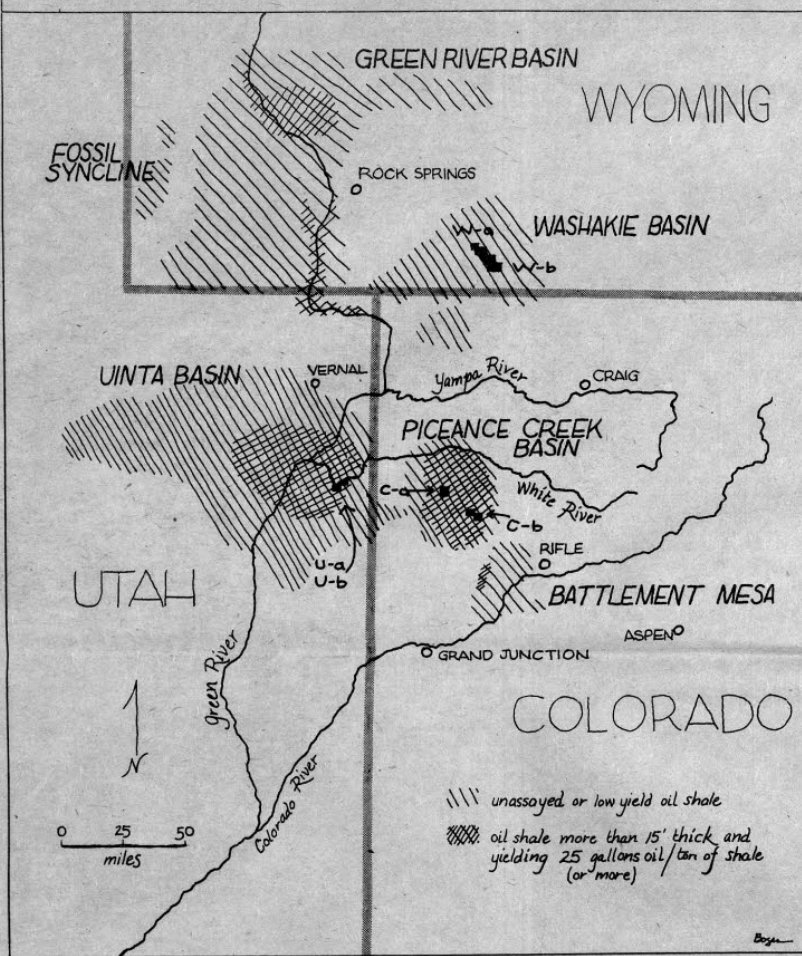
There are now plans to extract nahcolite, a mineral with a chemical formula identical to baking soda, from the Piceance Creek Basin of Colorado. And dawsonite, a sodium-aluminum carbonate, may yet prove to be a substitute for bauxite as a source of aluminum. Oddly, trona is restricted to Wyoming, while dawsonite and nahcolite are restricted to the southern lake — primarily the Piceance Creek Basin portion. This may reflect differing water chemistries or climatic conditions in the two lakes.

Though Wyoming to date has developed the only true industry based on the Green River Formation, it is the Piceance Creek Basin in Colorado which wins the prize for kerogenous wealth. Over 85 percent of the richest oil shale lies in Colorado, much of it in the Mahogany Zone, though there are many other recognized rich layers. The thickness of the oil shales may be 250 feet around the perimeter of the basin, but it increases to 2000 feet in the basin's interior.

UNTAPPED POTENTIAL?

Industry has been long aware of a po-

OIL SHALE DEPOSITS



tential bonanza in oil shale, but to date nothing has come of it.

When federal leases of oil shale lands were proposed in 1968, no one even bid for them. The government insisted on public access to research results, a demand which fueled a financial boom among government and industry lawyers. Perhaps the prime reason for the lack of interest, though, is stated by a government engineer quoted in Chris Welles' *The Elusive Bonanza* (1970):

Entering an experimental oil shale mine with high pillared ceilings, one reclamation official felt "kind of like a hobbit."

"Of course, the real interest of oil companies in shale is inversely proportional to their crude reserves..."

In 1966, 25 oil companies had paid \$603 million to lease over 360,000 acres of federal outer continental shelf in the Santa Barbara Channel; in 1969, the industry dropped \$900 million for leases on Alaska's North Slope and fi-

nanced a \$4-5 billion pipeline.

Back on the drawing board, the government drafted a more attractive package, involving local governments and industry in the site selection process. Then OPEC played its hand, the price of crude soared and available foreign oil declined. The 1974 lease sale was a roaring success — to the tune of \$447 million.

Two 5,000-acre tracts were nominated from each of the three oil shale

situ (underground) retorting.

Gulf and Standard of Indiana (Amoco) leased the C-a tract, calling their project the Rio Blanco Oil Shale Company. Ashland, ARCO, Shell, and The Oil Shale Company (Tosco) combined to lease tract C-b, calling their project Cathedral Bluffs Shale Oil Company. Phillips, Sohio, and Sunoco (actually Sunoco) formed the White River Shale Project on the Utah tracts. No one bid on the Wyoming shales. Wyoming's Green River Formation seems destined to remain only a producer of trona, and of excellent Eocene fish fossils.

PROBLEMS, PROBLEMS

But by 1976 all the federal lessees had applied for suspensions on their lease payments, which had been spread out over five years.

The Utah tracts were tied up in litigation between the feds and the state over jurisdiction of the lands.

C-b was running into serious geological problems. The shales proved to be so thoroughly fractured as to preclude the

economic use of a room and pillar mining method. To support the crumbling roof, the pillars would have to be too fat. The lessees of C-a wanted to surface mine its resource, a proposal which would make recovery five times more efficient. But the Department of Interior refused to grant the additional land the companies felt would be necessary for off-tract retorting, and waste disposal.

Everything was back in limbo in 1976. Rio Blanco changed its strategy to in situ. Cathedral Bluffs crumbled; of the original partners, only Ashland lasted out 1976. Occidental Oil signed on but then Ashland dropped out; its place has now been taken by Tenneco.

The Utah tracts remain snarled in litigious webs. The state issue was resolved in favor of federal control of the land, but now the Ute Indians claim rights to the land, and a good number of mining claims, filed before the 1920 federal leasing act took effect, may have been taken to patent; if so, it was not federal land.

Despite these problems, the various companies continued to develop their oil shale technologies on lab benches, then pilot plants, then semiworks plants.

Exxon entered the fray, purchasing ARCO's 60 percent interest in Colony Oil Shale, a development on private land in Parachute Creek, for \$300 million down, \$100 million later. ARCO explained that it had capital commitments elsewhere.

The "moral equivalent of war" also has had an explosive effect on the industry. The Department of Energy

An 8 million barrel-per-day oil shale industry would increase the population of Western Colorado from 75,000 to 1.5 million and require the disposal of a Panama Canal worth of spent shale every ten days.

granted the Union and Tosco portion of the Colony project \$3 billion worth of loan guarantees. Although the Reagan Administration is trying to cancel DOE's synfuel commercialization program, the Synthetic Fuels Corporation will continue.

CRESCENDO OF CHANGE

Colorado's Governor Dick Lamm (D), called it a crescendo of change, as he narrated a slide show put together by 12 states participating in the WESTPO coalition. He wondered about good versus cancerous growth. He was dismayed that the Reagan axe had not fallen as heavily on synfuels as the press had been led to believe. Economics, he said, ought to drive the system.

Shale Country, a publication funded by industry, but with a certain degree of editorial autonomy, is back on the press after a five year hiatus, saying the "on-again, off-again shale saga is very much on," and that the 1981 consensus "seems to be that this time around oil shale will 'go'."

Exxon, one of very few oil shale companies which did not apply for a share of

federal synfuels aid is vigorously at work on its 47,000 barrel-per-day Colony Project. Its Battlement Mesa community, sited across the Colorado River from the mouth of Parachute Creek, is being built with a projected 20,000 residents in mind. Massive concrete headframes for production and service shafts are now complete on the Cathedral Bluffs C-b tract, towering 313- and 178-feet respectively over the silence of the Piceance Creek Basin interior. The companies hope to be on their way toward a 30,000 barrels-per-day production goal by 1987.

On the other Colorado federal prototype lease tract, C-a, Rio Blanco (Gulf and Standard of Indiana) continues to test a modified in situ process. The company has applied for permission to demonstrate a combination of open pit mining and Lurgi-Ruhrgas surface retorting. The goal is 47,000 bpd.

Chevron, the largest private land holder in the oil shale country, with 43,000 acres in both Parachute and Roan creeks, is running experiments at its California labs, with a possible target of 50,000 bpd by 1990.

Union Oil is fully permitted on private land in Parachute Creek, and is currently developing the first of five 10,000 bpd modules, to be fired in 1983.

Tosco, on top of being a partner with Exxon on the Colony project, will be sinking a shaft later this year on its Utah Sand Wash holdings.

Paraho, with the longest record of shale oil production to date (most of which was sold to the US Navy), is now testing Israeli and Moroccan oil shales at the Anvil Points facility, which it leases from the government. Paraho may soon develop a Utah lease tract toward an eventual 10,000 bpd production.

600 BILLION BARRELS

Of the currently estimated 2 trillion barrels of oil shale crude oil equivalent, some 600 billion is considered commercially mineable. A "unit sized" plant would be 50,000 bpd, and would cost upward of \$1 billion. One such plant would be the largest industrial facility in the West to date.

Good oil shale will yield over 20 gallons to the ton, so it takes two tons of rock to get a barrel of oil (42 gallons). This means 50,000 bpd is equivalent to mining 100,000 tons of oil shale per day or 36.5 million tons a year — larger than the biggest coal strip mine in the West.

What would a mine look like? If underground, it would be an immense room-and-pillar mine; the roofs would be 60 feet high, the pillars 40 feet in diameter. Jim McArdle, who coordinated the review process for the Colorado Mined Land Reclamation division on the Colony proposal, said that entering even the experimental mine punched into the Roan cliffs made him feel "kind of like a hobbit." If the mine were one room, 60 feet high and 60 feet wide, it would have to be driven back the length of a football field every day to supply the needed raw shale.

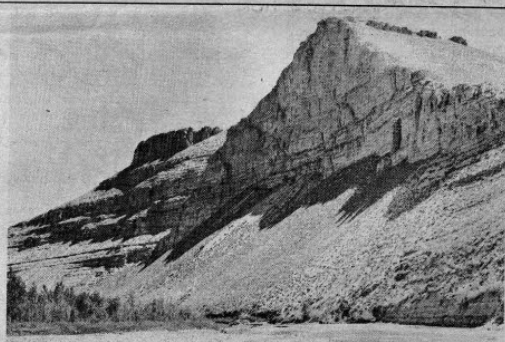
April 3, 1981 — High Country News-11

Spent shale will have to be stored somewhere after the oil is cooked out of it. Most present mine plans call for filling in draws and valleys near the mine.

Depending on who you talk to, the industry will produce between 200,000 bpd and 8 million bpd. This last estimate, considered high by most, is from Exxon's 1980 "white paper," a document that sent chills down planners' spines. An 8 million bpd industry would require 160 unit-sized oil shale plants, would increase the population of western Colorado from 75,000 to 1.5 million, and would require the disposal of a Panama Canal worth of spent shale every ten days. There would be air quality problems and a drain on water systems.

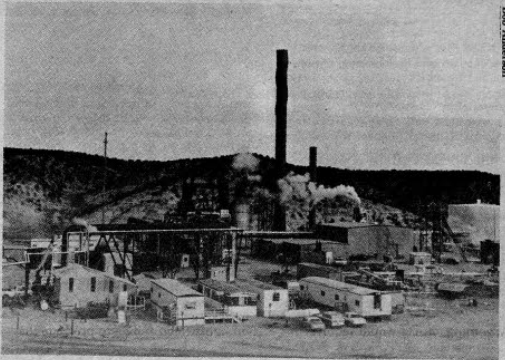
It takes on the order of four barrels of water for every single barrel produced by the plant. Says Steve Richardson, the Colorado Mined Land Reclamation division's oil shale expert: "There is probably enough water in unappropriated stream flows and underground aquifers to support a 400,000 bpd industry. Beyond that, I don't know..."

(Coming next issue in Part II: How oil shale retorting processes work; social impacts of oil shale development; and reclamation problems that lie ahead.)



OIL SHALE (above) stands up to the harshest weathering, resulting in stratified stone cliffs like these above the Colorado River.

PILOT-SIZE OIL SHALE PLANTS, like the one below on the federal C-a tract in Colorado, may pave the way for commercial-size operations that will rival the largest industrial facilities in the West.



Bob Anderson



NO PARKING

This space reserved for the High Country News Research Fund.

Without it, we couldn't pay reporters for stories like the ones on oil shale, budget cuts and geothermal energy in this issue.

If you think this is a waste of space, why don't you send a tax-deductible contribution to the HCN Research Fund? Then we could reserve this space for a story.

Please make checks payable to Wyoming Environmental Institute-HCNRF, and mail to WEI, Box 2497, Jackson WY 83001. Thank you.



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Jemez. . . .

(continued from page 5)

comparing the landmark status recommendation identified geothermal development activities as the major threat to the integrity of the landmark.

Valle Caldera was originally proposed as a National Park in 1911; in 1979 H.L. Ross, deputy secretary of the Department of Interior, informed DOE, "We regard this area as a potential future unit of the National Park System. Until the Congress acts, we cannot support any federal action which could compromise the existing value of area's natural ecosystems or its potential value for public use and enjoyment."

Two routes for the transmission line are under consideration. The northern corridor would traverse twice as much of the National Natural Landmark as the southern corridor, but the southern route would be 20 percent longer overall, crossing three times as much public land, including Bandelier National Monument.

The Baca Ranch is surrounded by the

Santa Fe National Forest except for a narrow strip of Santa Clara Pueblo land. It is very unlikely that the Santa Claras will grant a transmission line right-of-way. Therefore, such a right-of-way will have to cross national forest lands and be covered by a permit or easement issued by the U.S. Forest Service.

The Forest Service Regional Office argued that "the transmission line sys-

tem said the geothermal field can be fully developed "while protecting the visibility and the health and welfare of the citizens of the state of New Mexico," and he stressed PNM's "continuing obligation to see that the environment of New Mexico is protected."

Members of the Save the Jemez group question both PNM's assurances and the professed need for the project. In its brochures, STJ asks why the project is

ermal development at the Baca Location than from development of any of the other sites considered...Problems at the other alternative sites are largely technical and therefore are more readily solved than the general problem of industrial intrusion in the scenic and environmentally valuable location."

During testimony given at a state Public Service Commission hearing on September 20, 1980, Bedford acknowledged that the power to be generated is not necessary to meet the needs of New Mexico rate payers. The project would, however, reduce the state's reliance on oil and gas, and add diversity to the state's energy sources, Bedford said.

In spite of the controversy surrounding the issue, PNM and Union Oil are confident the power project will proceed as planned. "If PNM's plans are rejected, it will only put a bigger delay on getting this project on line," said Union representative Stephen Lipman.

Save the Jemez remains equally determined to stop the project.

"We favor geothermal development in general," said Theodore Davis, "but we believe that the unique cultural and environmental issues at stake in the Jemez preclude industrialization of that area...Too few places with the qualities of the Jemez are being preserved for the generations to follow."

"The situation is comparable to operating a jackhammer in the interior of a Catholic church."

— James M. Hecker

tem of the future will likely be an intolerable spiderweb in one of the state's most scenic areas."

PNM hopes to minimize the visual impact of the power lines by maintaining screens of timber, limiting right-of-way clearing to topping or removal of large trees, and reclamation of road building damage after construction.

C.D. Bedford, a PNM Vice President,

called a "demonstration" plant when in northern California's Imperial Valley, a similar government-sponsored 50-MW plant and smaller surrounding plants are currently under construction and should be complete — like the Baca project — by 1982.

The primary alternative sites examined by DOE are 6 locations in the Imperial Valley, Roosevelt Hot Springs in Utah and Beowawe in north central Nevada. The EIS stated, "More environmental conflicts arise from geoth-



Photo by Michael McClure

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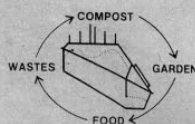
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Jack Kutz is a free-lance writer based in Albuquerque, N.M. This story was paid for by the HCN Research Fund.



MOVING?

Send us your new address (with your old one) in advance to: HCN, Box K, Lander, WY 82520. Thanks.

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Classified ads cost 10 cents a word. They must be prepaid.

BUSINESS MANAGER for High Country News. Job includes bookkeeping, administration and financial planning. Begins May 15 at latest. Salary \$650 per month plus health benefits. Opportunity to steer a growing business. Send resume to Geoffrey O'Gara, HCN, Box K, Lander WY 82520.

MY HISTORICAL BOOKS and novels about Wyoming. Send for list. Mae Urbanek, Lusk, Wyoming 82225.

SUMMER IN YELLOWSTONE. Join us in Yellowstone National Park this summer for field seminars on a wide variety of topics including large mammals, carnivores and raptors, geology, plants, watercolors, photography, fishing and history. Most courses may be taken for academic credit. Accommodations in a Park Service facility. Free catalog. The Yellowstone Institute, Box 515, Yellowstone National Park, Wyo. 82190.

2ND ANNUAL NAVAJO COUNTRY TRAILRIDE. Bring your horse and ride the Lukachukai Mountains and legendary Canyon de Chelly, June 1-5. Sponsored by Navajo Community College. "Master's Level" in difficulty. Limited openings. Marci Matlock, Box 295, Tsaile, Arizona 86556. 602-724-6227.

RURAL NETWORK: growing group for single, country-oriented people. "Going it alone" is easier with cooperative efforts: social support. Information and sample newsletter for \$1 (refundable with membership). Rural Network, Rt. 1, Box 49B, Dept. HC, Avalon, WI 53505.

FARM HAND seeks summer work in S. Montana — N. Wyoming. T. Robison, 4229 Clark, Great Falls, Montana 59405.

HIGH COUNTRY NEWS needs black-and-white photographers. Energy-related topics, resources, wildlife in the Rocky Mtn. region. Ability to do assignments on short notice and/or accompany reporters on stories helpful. Please send sample of work to Kathy Bogan, HCN, Box K, Lander, WY 82520.

Bulletin Board

RECREATING GRAY REEF

The Water and Power Resources Service wants your ideas on how to increase public outdoor recreation services at Wyoming's Alcova and Gray Reef reservoirs on the North Platte River. Contact the agency's Land Management Branch, P.O. Box 1630, Mills, Wyo. 82644.

MOVING COAL

Coal transportation is the subject of a May 4 and 5 conference in Washington, D.C. sponsored by Coal Week and the industry coalition, the Energy Bureau. Topics include moving synthetic fuels, the 1980 Staggers Rail Act, railroads, slurrries and coal export markets. The fee is \$550. Contact Nancy Jones, EB, 41 East 42nd St., New York 10017.

CONSERVING WATER

For a bibliography of publications dealing with water use, water conservation and planning, contact Wanda Phelan, U.S. Water Resources Council, 2120 L St., N.W., Washington, D.C. 20037.

STATE INVOLVEMENT

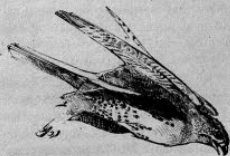
Congress should amend existing law to give state legislatures a greater voice in managing federal assistance programs, the U.S. General Accounting Office recommends. The agency's report, GGD-81-3, December 15, reviews the federal grant program as well as historical state involvement, and is available from GAO, Document Handling and Information Services Facility, P.O. Box 6015, Gaithersburg, Md. 20760.

TOXIC HELP

The Sierra Club, using Environmental Protection Agency funding, has produced a two volume 600-page tome covering the gamut of toxic substances issues. The publication is intended to equip citizens with the skills to design a comprehensive toxics control program in their community. To obtain a copy, contact Judith Kufosky, Sierra Club, 530 Bush Street, San Francisco, Calif. 94108.

AUDUBON CONVENTION

"Pressures on the Land" is the all-encompassing theme for the National Audubon Society's 1981 convention July 3-5 in Estes Park, Colo. Registration is \$25, and there will be several conference field trips. Contact the convention organizers at P.O. Box 3557, Boulder, Colo. 80307.



IDAHO WASTE STATEMENT

The Department of Energy has decided to write an environmental impact statement on the radioactive waste stored at the Idaho National Engineering Laboratory, according to an announcement in the *Federal Register*. The Transuranic waste now stored in pits and barrels at the 144-acre site in southeastern Idaho has raised fears of groundwater contamination. Officials must decide how to dispose of the waste, and how and where to process it before moving it to a new storage site. Public comment is welcomed to help DOE decide on the scope of the EIS. Comments should be addressed to Idaho Operations Office, Department of Energy, 550 W. Second St., Idaho Falls, Idaho. A draft statement is scheduled for next fall, to be followed by public comment, and, a year later, a final statement.

COLO. GROWTH

Some 450 Coloradans met in Denver last September to formulate a growth strategy for the Front Range. The results of that caucus are now available in the Front Range Project's "Conference" and "First Year" reports. Addressing such issues as land use, housing, agricultural lands, public transit, water, energy, and roles of government, the conferees agreed on a vision for the future in which people control their lives in a "human scale," man-made environment, making decisions at the lowest level of government. Votes were tallied and positions taken on a wide variety of issues. The project now proceeds into its second year of policy development. For copies of the reports, contact the Front Range Project, Office of the Governor, State Capital, Suite 124, Denver 80203.

A.T. CAN DO

A variety of appropriate technology projects across the country hold the key to solving a number of problems, including the loss of farmland, waste management and energy supplies, according to a report by the Office of Technology. The agency examined a number of these innovative projects, such as farmers' market cooperatives, in both rural and urban settings. For a copy of "Technology for Local Development," contact OTA, Washington, D.C. 20510.

MINING WILDLANDS

The U.S. Geological Survey has found large deposits of ore in the Indian Peaks Wilderness near Boulder, Colo., that "merit further exploration." The agency has discovered copper, gold and silver in the 130 square mile area, which is dotted with 21 patented and 700 unpatented mining claims. The agency's report, titled "Mineral Resources of the Indian Peaks Study Area," USGS Bulletin 1463, can be purchased for \$5.50 from Branch of Distribution, U.S. Geological Survey, 604 South Pickett St., Alexandria, Va. 22304.

BARB BUYS

Antique barbed wire, to sell, buy or trade, is the feature of the Northern Rocky Mountain Barbed Wire Collectors Association's June 13 and 14 show in Gillette, Wyo. Contact: Clinton Gleason 908 Fir, Gillette, Wyo. 82716.

RECREATING IDAHO

Through a series of public forums this month, the Idaho Department of Parks and Recreation is soliciting public views on recreation in the state. The agency is looking for advice on what types of outdoor activities to spend its money on. It will incorporate comments in its state recreation plan. Contact the agency at the Statehouse, Boise, Idaho 83720.

GROUNDWATER

The National Water Well Association, a non-profit research and educational institute, is offering free information on its publications and courses. It publishes *Ground Water Monitoring Review*, lends books, and holds workshops, conferences, and courses covering groundwater problems. For information about membership, contact the National Water Well Association, Education Foundation, 500 W. Wilson Bridge Rd., Worthington, Ohio 43085.

MONT. ENERGY

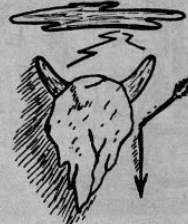
For a 200-page rundown of energy-related issues, legislation, agencies and organizations in Montana contact the Energy Division, DNRC, 32 S. Ewing, Helena, Mont., 59620 and ask for the "Montana Energy Almanac." It's free. The agency also has available copies of the fourth edition, 1980, of "Historical Energy Statistics."

ENERGIZED SPEAKERS

Need to fill a hole in your group meeting agenda? The Solar Energy Research Institute wants to help, offering some 270 experts in solar and other renewable energy topics. Call toll free, 1-800-525-5000; in Colorado, 1-800-332-8339. An introductory videotape, 30 minutes, is also available.

MESSING WITH MOTHER

Over two dozen Indian tribes from the northern Rockies are gathering for an April 13-15 seminar in Billings, Mont., on environmental health. Both tribal decision-makers and numerous federal agency representatives will discuss environmental and health impacts of resource development, and non-tribal observers are invited to participate. Contact Regis Pecos, Americans for Indian Opportunity, Albuquerque, N.M.: 505-842-0962, for more information on, "Messing with Mother Nature Can Be Hazardous To Your Health."



COUNTY HELP

The National Association of Counties says it has a number of services to help local leaders cope with energy problems, including a clearinghouse with a library (450 available publications), a bi-monthly newsletter, and a hotline (800-424-9040). For more information contact the President's Clearinghouse for Community Energy Efficiency, 400 North Capital Steet, N.W., Suite 185, Washington, D.C. 20001.

BEFORE THE WYOMING INDUSTRIAL SITING COUNCIL

NOTICE OF NORTH ANTELOPE COAL COMPANY APPLICATION FOR PERMIT TO CONSTRUCT THE NORTH ANTELOPE COAL MINE

DOCKET NO. WISA-81-1

Pursuant to provisions of the Wyoming Industrial Development Information and Siting Act (W.S. 35-12-101 through 35-12-131; Wyo. Stat. Ann., 1977), NOTICE IS HEREBY GIVEN THAT NORTH ANTELOPE COAL COMPANY, A JOINT VENTURE BETWEEN POWDER RIVER COAL COMPANY AND PANEAERSTERN COAL COMPANY, HAS FILED AN APPLICATION WITH THE INDUSTRIAL SITING COUNCIL FOR A PERMIT AUTHORIZING CONSTRUCTION OF THE NORTH ANTELOPE COAL MINE, CAMPBELL COUNTY, WYOMING. The Powder River Coal Company is a wholly owned subsidiary of Peabody Coal Company, and Paneastern Coal Company is a wholly owned subsidiary of Panhandle Eastern Pipeline Company. The coal mine and processing facilities described in the application filed on March 6, 1981, will have a capacity of 5 million tons of coal per year. The North Antelope Mine will be a conventional surface mine operation utilizing draglines and trucks and shovels. The coal processing facility will consist of crushing facilities, storage and loadout facilities, and other ancillary facilities. The proposed North Antelope Mine will be located entirely within Campbell County approximately 68 miles south of the City of Gillette, Wyoming. The estimated total capital cost for the North Antelope mine is \$82,737,700.00. The estimated cost of the proposed North Antelope Mine exceeds the cost criterion under W.S. 35-12-102(a)(iii)(B), thereby requiring that the permit application be filed.

The North Antelope Coal Company will begin construction of the mine early in 1982 and should complete the primary operating portions by the end of 1983. The mine is expected to have an average of 169 construction workers in 1982 and an average of 207 construction workers in 1983. Production will begin in January, 1984 with a workforce of 60 employees during the first quarter of 1984. The mine will employ an average of 104 workers in 1986 and an annual average of 140 workers in years 1987 and 1988. The mine will have an annual workforce of 159 people for the years 1989 and 1990. By the end of 1991, the mine will reach a peak average of 165 production personnel. This is the expected average workforce size for the life of the mine.

The North Antelope Coal Company considers that the local governments primarily affected by the proposed facility will include Campbell County, Campbell County School District No. 1, and the City of Gillette. The unincorporated community of Wright, Wyoming will also be affected primarily by the facility. Weston County and the Town of Newcastle will also be secondarily influenced by construction of the North Antelope Mine.

Copies of the Application have been filed with the County Clerks of Converse County, Campbell County, and Weston County. Copies have also been forwarded to the Converse County Library, 300 Walnut, Douglas, WY 82633; Campbell County Library, 412 S. Gillette Ave., Gillette, WY 82716; and Weston County Library, 23 W. Main St., Newcastle, WY 82701, and are available for public inspection.

Persons desiring to be come parties to the permit proceedings may do so pursuant to W.S. 35-12-112, by notifying the Office of Industrial Siting Administration in writing of their intent to become a party.

Limited appearance statements will be received in the matter in accordance with provisions at W.S. 35-12-112(c). These should be mailed to the Director, Office of Industrial Siting Administration, Suite 500 Boyd Building, Cheyenne, WY 82002.

Dated this 26th day of March, 1981.

Office of Industrial Siting Administration
Suite 500 Boyd Building
Cheyenne, WY 82002
(307) 777-7368



BLM IN COLO.

April 8-16, from Fort Collins to Colorado Springs, the Bureau of Land Management will hold informal meetings to solicit ideas on how to best manage public lands and minerals in northeastern Colorado. Contact Dave Hallock, BLM, 303-275-0631.

ALBUQUERQUE COAL

In an ongoing series of public involvement exercises, the BLM is holding two brainstorming sessions April 10 and 11 in Farmington, N.M., to discuss whether and how to lease for coal development in the Chaco-San Juan planning area. Contact Jeff Radford, BLM, 505-766-2890.

ROCK SPRINGS OIL

The BLM has begun an environmental assessment of oil and gas leasing activities in the Rock Springs District's Big Sandy and Salt Wells area, Sweetwater County, Wyo. Comments are being solicited. Contact Chuck Reed, BLM, Box 1869, Rock Springs, Wyo. 82901.

INVESTIGATE YELLOWSTONE

The Yellowstone Institute's new 1981 catalog is out and promises a series of low-cost, natural history and recreation seminars in the national park. Contact: Rick Reese, Director, Box 515, Yellowstone National Park, Wyo. 82190. The first course begins June 14.

14-High Country News — April 3, 1981

Opinion

by Thomas N. Bethell

Most of the people on Capitol Hill seem to have been bowled over by President Reagan's State of the Union speech. After describing his plan, he challenged his critics.

"Have they an alternative," he asked, "which offers a greater chance of balancing the budget, reducing and eliminating inflation, stimulating the creation of jobs and reducing the tax burden?"

There are three striking things about that question.

It's reasonable.

It's provocative: a simple straightforward challenge.

And it seems to have terrified his opposition. The response has been a series of muttered incantations evoking the dimly-remembered spirit of the New Deal or the Great Society.

We think it's time to answer the President's challenge. And we don't think it's all that hard. That's because we think the President's "program" is a cruel deception that happens to have been extremely well packaged. It sounds good, tastes fine so far and goes down well. But an elixir is an elixir. The reality behind the program is that it's a bum deal for a great many people. So why aren't more people saying so?

We don't know, but we thought we'd try to give them a hand. We're glad to accept the President's challenge. So here goes.

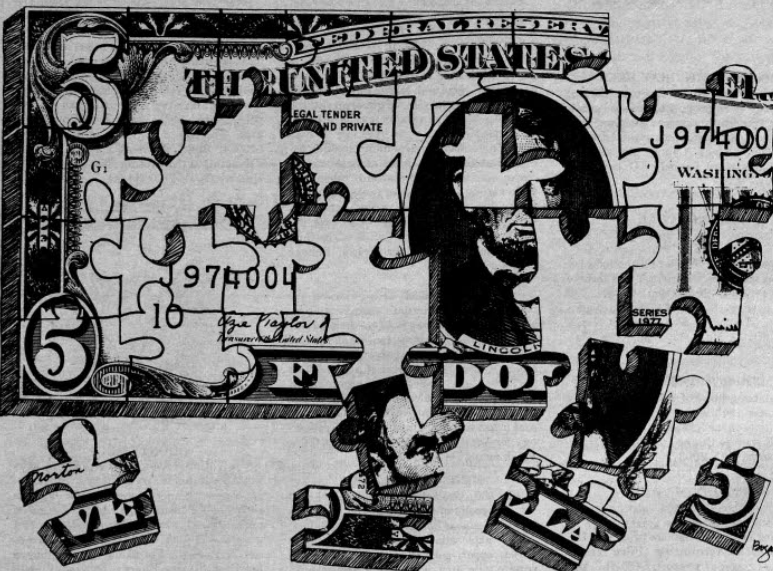
OK, LET'S BALANCE THE BUDGET

If you get three economists together, you'll hear at least four views on whether budget-balancing is even a good idea. Reagan, however, hammers away at an old appealing theme: "Families have to live within their means — why shouldn't the government?" It sounds right, but...when you take out a mortgage (or any kind of loan) you're deficit spending...just like the government.

But, let's admit it — Reagan has won this round, with or without logic. So let's meet him on his own territory. Let's see if we can't cut down the deficit without gouging poor and middle-income people.

— **Abandon the MX missile system,** saving Utah and Nevada for some other use. Let's assume that we all want Uncle Sam armed to the teeth and ready for a fight. If we really need all those nukes, put them aboard small submarines. We could deploy 60 of them with much greater effectiveness than the MX (you don't have to build race tracks in the ocean) and the cost of such a system has been estimated to be at least \$10 billion less than the \$40 billion MX program. That saves...\$10 billion.

— **Exxon owes us all some money.** You probably remember that former President Nixon imposed price regulations on the oil industry after the 1973 OPEC embargo, and you may remember that the government has identified \$11 billion worth of overcharges by companies that took the regulations lightly. It's costing the taxpayers \$60 million a year to underwrite the government's efforts to recover this money from Exxon, Texaco, Gulf and the 31



other companies that stand accused. Now we learn that President Reagan plans to cut 70 percent of the funds for this project, a move that could guarantee that the culprits escape with the loot. The President, a dedicated foe of malefactors, should instead double the prosecutors' funds on the reasonable theory that they would find considerably more than \$11 billion missing from the Treasury and have a better chance of getting it back. But let's not be vengeful. Let's just recover...\$11 billion.

— **Shut down the Strategic Petroleum Reserve.** The idea never made any sense to begin with — pumping oil out of the ground and then dumping it back, to sit there until who knows when. To fill the reserve at the rate of 180,000 barrels a day will cost us more than \$20 billion over the next five years, according to the Congressional Budget Office. And then, if we actually have to pump the oil up again, it's a few billion more. As Everett Dirksen used to say: "A billion here, a billion there — before you know it, you're talking about real money." Instead of operating this grandiose petropiggysbank, we could use the Energy Policy and Conservation Act of 1975, which gives the Secretary of Energy the right to direct oil refineries to hold excess inventories that can't be drawn down without government approval. To meet the equivalent of the current SPR fill rate, refineries would only have to maintain an excess inventory of one percent. That shouldn't be a ghastly hardship and it would save...\$4.1 billion.

— **Give synfuels a shot of free enterprise.** Reagan started out proclaiming his intention to get the government out of the synfuel subsidy business, a worthy objective which he promptly abandoned. This president, who is so fond of asking for recissions — cuts in programs that have already been appropriated — should be willing to crusade for the dismantling of the Synthetic Fuels Corporation, a federal

corporation which does nothing more than sluice money from the Treasury to the energy companies. They want federal help only because their synfuels processes are too financially cumbersome to compete in the marketplace unassisted. But if you're a true Republican, you're supposed to believe in the marketplace and its ability to weed out the things we don't need. Stick to your guns, Mr. President, and save...\$4 billion.

OK, LET'S REDUCE INFLATION

— **Pump gas.** Natural gas, that is. We've got much more of it than we used to think. Mainly, this is because we didn't do much deep drilling until high fuel prices made it profitable. Now, we're discovering enormous volumes of this relatively clean, versatile fuel. Let's use it. We can bring it into the market quickly, use it to stabilize energy prices and give OPEC a big Bronx cheer.

The big oil-energy companies think this is a terrible idea, because gas can be produced efficiently by mom-and-pop wildcatting operations: all it takes is a few people, a couple of trucks, a drill rig and a hook-up to an existing pipeline. Guess what we used to call this kind of thing. You're right — free enterprise.

— **Outlaw fuel adjustment clauses.** Those are the devices that allow utilities to pass through (to you) whatever increases they have to pay for the fuel they buy. Is this fair? Do you have a fuel adjustment clause that allows you to bill Safeway for the gasoline you used getting to their store? No, you don't. That forces you to plan ahead before you get into your car. We can impose the same discipline on utilities by making them shop around for cheaper fuel. Nothing would act faster to control the cost of energy.

— **Make tracks.** Instead of crippling Amtrak and mass transit, we ought to be increasing their funds and accelerating their construction schedules, since

delays are inherently inflationary. The biggest single reason for supporting them, of course, is that they offer us relief from dependence on oil.

In its first dismal decade, Amtrak gave passenger railroading a bad name, not because people didn't want to ride trains, but because Amtrak's trains were such rolling *Gong Shows*. This may have reflected the fact that Amtrak's management knew as much about trains as a pig knows about Sunday. But the sad paradox is that Reagan wants to jettison a program that is finally beginning to work. The only thing government needs to do now is acknowledge that every other advanced country subsidizes its railroads liberally, recognizing that the goal of immediate profit is less important than the notion of long-term stability of transportation costs.

— **Fight farms with farms.** A government that wanted to do something about food prices would start by encouraging, rather than discouraging, family farms, farming cooperatives and other alternatives to agribusiness.

Instead of knocking 25 percent out of the Farmers Home Administration, the White House would be looking for ways to stimulate more FmHA programs. Instead of subsidizing highways at the expense of railroads, the government would be encouraging efficient ways of moving produce to markets. Instead of crippling the new National Consumer Cooperative Bank, the government would be lending start-up money to food-marketing co-ops. And instead of subsidizing agribusiness by paying giant food conglomerates to maintain crop shortages, the government could be subsidizing the anti-trust efforts of the Justice Department and Federal Trade Commission.

OK, LET'S CREATE JOBS

— **Spend money on R&D NOT M&A.** One way to create jobs would be

to devote more time and money to anti-trust action. Why? Because businessmen spend more money each year on mergers and acquisitions — some \$40 billion in 1979, according to *Business Week* — than they do on research and development. The money spent on mergers can be shielded from the Internal Revenue Service, and it can be used to give management more Learjets and stock options, but it doesn't create jobs. Research and development does create jobs. Therefore, it would be logical to encourage R&D and discourage M&A. This is not the type of logic likely to be embraced by this Administration, but remember, the President challenged us to produce alternatives. We have them. It's not our fault if he doesn't like them. The point is, they would work.

— Let in the sun. And some coal. And maybe some water. If we want cheaper energy, we're going to have to spend some energy breaking up the energy companies. It shouldn't be any harder than unlocking the secrets of the atom and the benefits would be much greater. When prices aren't fixed by cartels, coal is cheaper than oil. When coal's markets expand, coal miners have jobs. A greater degree of genuine competition would spur the development of alternative sources. If they couldn't undercut the existing fuels, so be it; bid them farewell. But if full-scale solar systems (or hydro, or geothermal, or whatever) could compete, think of the jobs they'd create. And it wouldn't be such a terrible world if Mobil didn't have enough surplus money to run all those political ads.

OK, LET'S REDUCE THE TAX BURDEN

In the final analysis, a fair tax burden is a little hard to describe. Reagan will give business the right to depreciate its equipment faster, for instance. This will encourage companies to put up new buildings, which sounds good, but if a company in Buffalo decides to build its building in Phoenix — because the tax write-off is more favorable than rehabilitating its existing plant — the workers in Buffalo might not think this is fair at all.

However you cut it, somebody carries a disproportionate share of the tax burden. You won't find that mysterious somebody lurking in the corporate world, which has done better than you have at sheltering income from the IRS. Under the Reagan plan, corporate taxes will account for less than 16 percent of total federal tax revenues. This is down from 35 percent in 1960. Those figures suggest that if Reagan really wanted an alternative, we would know where to start looking.

If he wants an alternative, in short, we're ready.

(Ed. note: This article was adapted from a much longer "alternative plan" first published in the March 10, 1981 issue of *Rural Coalition Report*, published by the Rural Coalition, 1035 30th Street, N.W., Washington D.C. 20007. The coalition is a national non-profit organization striving to influence public policy decisions affecting low-income and minority rural Americans and their communities. Author Thomas N. Bethell was an editor for the *Washington Monthly*. He is currently working on a book about coal miners and coal mining.)

letters

DEBATING BADEN

Dear HCN,

Your article on John Baden's quest for a natural resources policy based on the rights and incentives of private property raises some interesting questions. But consider our case here on the rural north coast of California.

Two dams, one owned by Pacific Gas and Electric (PG&E), a private utility, and the other by the Bureau of Reclamation (Ed. note: The BOR is now the Water and Power Resources Service), sit astride the Eel and Trinity Rivers. PG&E's dam was constructed in 1922; the Bureau's Trinity Dam was built in 1964. Both dams divert water from North Coast rivers to irrigate out-of-county farmlands and to produce power for urban and agricultural customers. Both were opposed by coastal residents at the time of their construction because both caused the near total decimation of their rivers' commercial salmon runs.

In the last three years, instream releases from both dams have been increased in a belated attempt to restore salmon resources. The restoration of the Trinity River's flows by the Bureau of Reclamation took 16 years from the time of the dam's construction. The restoration of flows from PG&E's Eel River dam took 54 years, and even then was accomplished only through the intervention of the Federal Power Commission. Which has better protected the environment, the private or public property owner?

Neither public nor private resource ownership ensures wise use. The two systems do, however, provide very different opportunities for individuals to affect decisions about their management. As one local fisherman told a legislative committee discussing coastal fisheries, "If you want to build a facility, you come here and ask my opinion, and if you don't listen to me, I'll try to vote you out. But the stockholders have never invited me to their boardroom yet."

Dan Ray
Eureka, California

Dear HCN,

I read with interest "Put Public Lands in Private Hands (HCN 3-6-81). I wonder how much of our public lands would be retained as national parks, forest, wilderness and recreational areas if all the public property had been placed in private ownership? I agree that the government has increasingly acted irresponsibly, in discharging their mandated responsibilities to protect public lands. But then I think of what has happened in my own home county, which is almost 100 percent privately owned.

As long as human greed remains what it is, in respect to environmental concerns, neither capitalism, communism, private enterprise, or schemes to make land owners more sensitive to natural preservation will work. How can the land, if it is looked upon as a commodity by the vast majority of the population, to be bought and sold for a profit, have the right kind of protection, for present and future generations?

If Mr. Baden can convince this huge tide of humanity, which is insensitive to environmental concerns, that it is to their best interest to be good stewards of the land, I say more power to him.

We still need the power of the government to arbitrate the disputes over public lands, even if it isn't doing the kind of job some of us would like to see it do in protecting them from destructive exploitation. It still listens to both sides of disputes concerning public lands management...

Van Shipp
Versailles, Ky.

Dear HCN,

I'm not quite sure how much of John Baden's utterance (HCN 3-6-81, p. 1) is really serious. I have an impression that he simply enjoys being outrageous.

But if he is indeed to be taken seriously, there are a couple of points that should be made. One is that intellectual games enjoyed by professors may have real effects on people. I'm thinking especially of poor people, who may suffer when Baden's heroic entrepreneurs go into action.

Secondly, the basic vision of Baden and company seems to be that nature is a set of commodities. Thus, wilderness advocates should buy some wilderness, if that's what they want. The world is a



market; nature is goods on a shelf — go get some for yourself. But the fact is, nature is not "natural resources"; it is the totality and we are part of it. Any theories that ignore this unity are bound to be partial, half-theories at best.

If a revival of primitive capitalism is becoming intellectually respectable, we may be in for interesting times. Perhaps the mentality now is to try and re-live the frontier era, the great 400-year boom that has made us what we are. The problem with the nostalgists' scenario is, there's no more frontier. Their heroes pretty well stripped the shelves.

Tom Lyon
Logan, Utah

Dear HCN,

John Baden certainly appears to be an interesting individual with many innovative and thought-provoking ideas. As with all "thinkers," there appears to be a chasm between intellectual exercise and the application of the thought process to the world at large. If everyone were as conscientious as Baden, entrepreneurial activity could well be a solution to resource management. However, Baden makes the assumption which innumerable economists have made — economics will require and insure management yielding the highest returns. He equates this with proper management. Unfortunately, resource management based on economic criteria maximized, but not optimized, the return. Economics has led to the "rape and ruin" syndrome; develop a resource, exhaust it, move on to new and virgin territory.

There are "loopholes" in Baden's thesis. Baden assumes that public lands are free. According to Baden "Most people are resistant to the idea of paying for what they now have for free." I always understood it that all Americans have an interest in public lands. My taxes are partial payment on my interest held in common with millions of others.

Greg Nelson
Troy, Idaho

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books

Rural and Small Town Planning

Judith Getzels and Charles Thurow, editors, *American Planning Association*; Chicago, 1980; 326 pages.

Review by Michael Moss

So you want to be a town planner. Here's some advice from those who've survived.

If you're aiming for the Rockies, the first smart move, after taking those California plates off your vehicle, is to hide this book. Walk into your first town hall meeting carrying this work and you're sure to lose the fight before it begins.

Second, forget about fighting. You'll lose. Calling yourself a planner has already earned you a room full of amused stares from citizens anticipating the slaughter.

Now you're ready, in the safety of your home, to read *Rural and Small Town Planning*. Prepared by a group of Chicago-based planners for the Old West Regional Commission in Billings, Mont., this government-funded text focuses on the rural Dakotas, Montana, Nebraska and Wyoming, with a case study in Colorado thrown in for its visionary value.

An eight page appendix to the first chapter puts the whole issue in perspective: four of the five states do not require local planning, and in the hold one, Wyoming, confusion and hostility have kept most efforts on the draftsman's table. The rest of the book is devoted to helping you, the planner, do what is politically feasible.

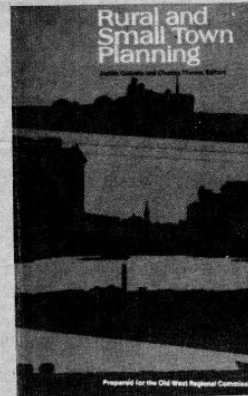
All is not hopeless, by any means. At least the book offers sharp, practical advice on shaping subdivisions, ensuring sound water supplies and waste management, providing community housing and services, and taking a stab at rural public transportation. There are diagrammed instructions for testing soil percolation, charts charting

daily water use, and a map explaining the virtues of cul de sacs.

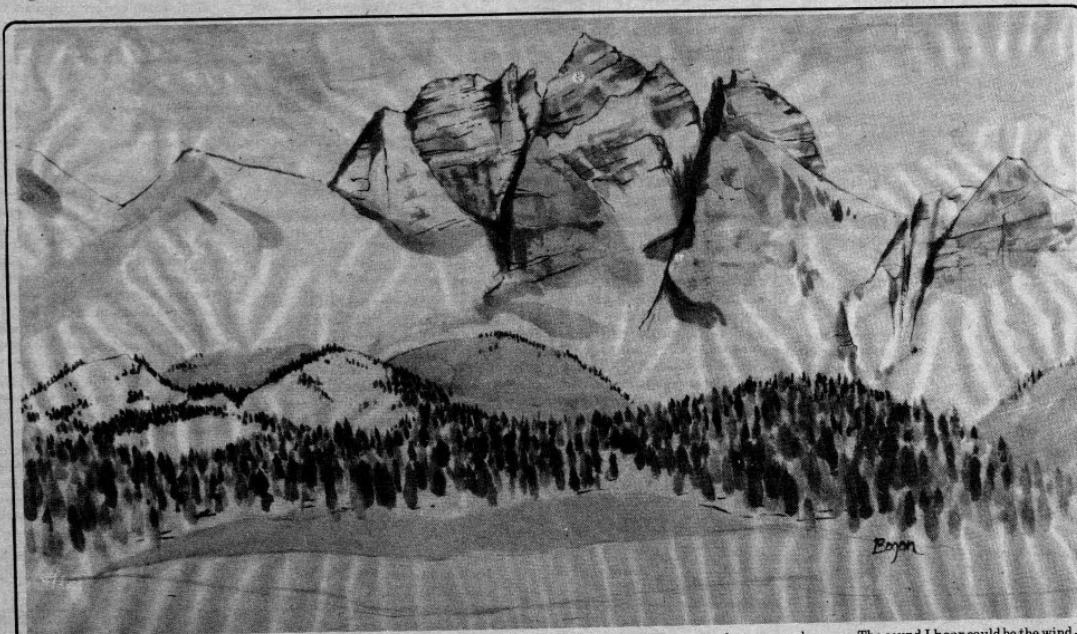
The most refreshing counsel in *Rural and Small Town Planning* is in the first chapter, "Getting to know the people and the place." The editors advise against stormtroop tactics, but rather, encourage you to slip into town quietly, begin a few, simple projects that you can realistically accomplish (within your lifetime), and, listen to the local folk. It is, after all, their home and they do, for the most part, care about their future.

Above all, the editors advise, be flexible. In the case of zoning (a word, incidentally, that should not be prominent in your vocabulary), such flexibility cannot be overstated. The new buzz word in planning is "development permit systems," in which deals are cut with developers to trade off certain factors, such as housing density for public open space. "Be crafty or be creative," they suggest.

The problem for the rest of us, however, is figuring out when you, the planner, are just pretending to play



along with the developer and when your flexibility has turned you into spineless jelly. This book will help you stay honest.



by Louisa Willcox

I listen for the sound of water, but hear only wind. It roils the white undulating expanse of the Sheep Desert, kicking up snow devils and feathering with rime the willows that grow in the gullies. Ahead of me, where the high peaks of the Wind River rise suddenly like a dorsal fin out of water, the wind knocks down spindrift, scours ridges, and carves out cornices. In the al-

penglow, the shoulders of the highest ones — Lionshead, Pronghorn, Bonnevile and Raid — are a bright peach color.

There is a Shoshone tale of an Indian boy who, crossing the mountains alone in search of his grandfather, burned his feet in the fire that blanketed the steep ground.

Despite the light that lingers up high, I know that darkness and temperatures will drop quickly now. With only one sweater and a windshirt, I am still warm from knee-deep trail breaking. The heavy snow gives my skis little glide. I have to plod down the steep bank to Boulder Creek.

I'm looking for running water. The search is part of my evening ritual after making camp. Empty waterbottles gathered in a rucksack, ice ax and spade slung over my shoulder, I feel like an old prospector as I head out.

Some of the creases in the topography mark drainages that are frozen solid or capped with more ice than my ax can penetrate. The stream has to be moving fast so that beneath four feet of insulating snow there will be only a little ice to chop for a drink. I try to read the landscape under the snow cover, weigh chances and guess the depth of ice.

Boulder Creek is a leg-freezing torrent in the spring time, the only other time I've seen it. In winter you can cross it thinking that solid ground lies under your skis.

Though a quarter-mile from camp, I can hear voices, stretched by the wind into a wordless croon. There is no other party within miles of us, and as far as we can tell, no one else has been here in over a month. Two ravens and a spider are the only other creatures I have seen today. Most have moved down or buried themselves in for the season.

The sound I hear could be the wind — but it is too deep. There again — hoarse and insistent, like a growl. It is water, working its way downslope, beneath ice and gravel. Standing my skis up in the snow, I dig down through nearly four feet of snow to boulders and ice, then start to chip. In the near dark, sparks fly up from a rock. There is a slight burning smell. As I chop the rumble rises in pitch. Then the ax punches through an air pocket near a boulder. A loud roar from the hole, and gleaming.

Mars can be seen rising red to the east as I retrace my tracks back to camp, all bottles filled. Skiing along, the feeling begins to flow painfully back to stiff fingers. For a moment, I look back toward the high peaks, which have faded to an ashy grey. Their profile is ragged, like the edge of a broken bone.