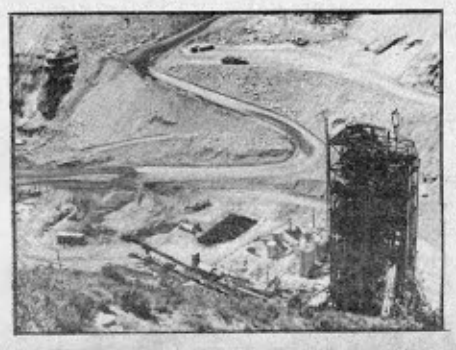
High Country news

Friday, April 15, 1983 Vol. 15, No.7 $1.00

Colorado's Western Slope

Life after oil shale

by Ed Marston



Kent & Donna Dannen

Thanks to enormous publicity, the Colorado public knows more about oil shale than it does about any other fossil fuel. One of the few things most do not know is that oil shale can be ground up and burned in a furnace, like coal. Or that chunks of it can be burned like logs in a fireplace.

Legend has it that oil shale was "discovered" — if one can use that word about a rock which is as common as dirt in parts of Colorado, Wyoming and Utah — when an early Colorado settler built a fireplace out of the rock and burned the cabin down with his first fire.

Despite its cabin-burning features, oil shale has a low energy content — about half that of coal. And, at the moment, there is zero demand for an inferior substitute for coal.

So the important thing about oil shale isn't that it will burn with a blue flame in a fireplace. The important thing is that when it is pulverized into small kernels of rock and heated under just the right oxygen-less conditions, oil shale gives shale oil. And shale oil can be purified and then refined into a fuel that will power autos, jet planes and tanks.

Because of that, the U.S. Department of Defense and the oil companies — having fully absorbed the lesson of 1973 by 1980 — set off a boom of sorts in the sparsely settled, sparsely watered western Colorado river valley between the tiny town of De Beque on the west and the larger community of Rifle on the east.

But, it was only a "boom of sorts." Before it began to really roll it stopped. It was more a boom-interruptus than a true boom-bust.

The boom was officially interrupted about a year ago when Exxon announced the closing of its Colony project, wiping out 2,000 existing jobs and cancelling the 2,000 it had been about to fill. Exxon's project had been preceded in death by those of four other companies: Gulf and Standard of Indiana, which jointly held federal oil shale lease C-a; and Occidental and Tenneco, which jointly held federal lease tract C-b.

These last four had wiped out 1,000 jobs just before Christmas of 1981, scooping Exxon and showing a dramatic sense of timing. Journalists assigned to the C-a and C-b closures found that stories wrote themselves: "With Christmas and cold weather here, and four children and an $800 mortgage at home, C-a oil shale worker John Jones "

Despite the cold weather/holiday closings and the job losses, the demise of the two projects had little impact on the region. People shrugged it off, saying, "Exxon is here. Oxy and the others are just waiting for Exxon to show the way. Then they'll come back." No one suggested that Oxy was showing the way.

The "Exxon is here" attitude was understandable. Both locally and nationally, Exxon's well-publicized presence in oil shale, combined with its eight million barrel per day national oil shale scenario, had overshadowed everyone else's efforts. Its size and enormous publicity had pushed other oil shale efforts aside. There was only Exxon, trailed by also-rans whose names few people outside of the region could remember.

Moreover, emotionally and financially, people in the Colorado River oil shale valley had too much at stake to objectively read the meaning of C-a and C-b. So most people — whether workers or businessmen or investors — simply shifted their eggs into the Exxon basket.

On May 2, 1982, — a Sunday — Exxon began smashing those eggs. It began by shutting down its Colony project and buying out partner Tosco. That caused desperation in the region. The desperation led to wishful rumors that were to sweep through the small communities for months.

The first rumors had it that Exxon was merely shedding an unwanted partner, Tosco, and an unwanted general contractor, Brown and Root. The rumor said Exxon would restart Colony in August. Everyone had the rumor on excellent authority from a close friend's brother-in-law in the Exxon hierarchy.

Despite the brothers-in-law, Exxon let August come and go without restarting Colony. Nor did it sell the project, as a second wave of rumors predicted, these based on brothers-in-law in the buying company.

To add insult to injury, another, less welcome set of rumors said the surviving Exxon employees were busy getting ready for a giant fall auction at which the company would sell everything but the topsoil it had scraped off 1,000 acres of Colorado hillside. That rumor turned out to be true.

Exxon hadn't picked a symbolic date. The best the journalists could do was label May 2 "Black Sunday." But Colony made up in real impact what it lacked in symbolism.

The impact was real because the Exxon closure said the demise of C-a and C-b hadn't been flukes. The oil glut, declining gasoline use, the natural gas surplus and predictions of flat petroleum use through the end of the century made it clear that 1982 was not 1973 or even 1979.

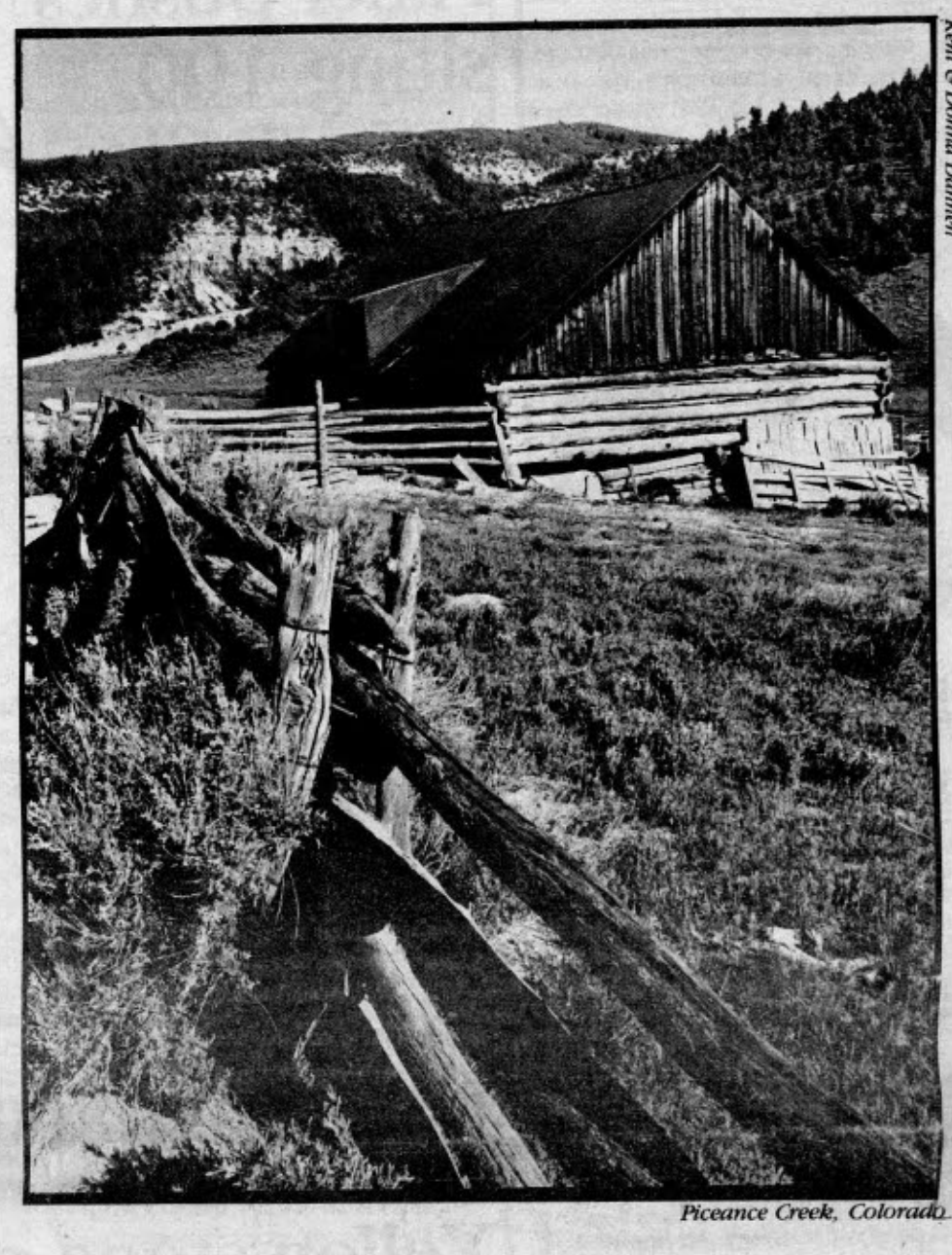
Moreover, despite T-shirts which read, "Exxon, the sign of the double cross," the company could not be laughed or mocked away. The Exxon executives had established a legitimate presence in the region. They had dug in and made their commitment to oil shale clear.

The decision had clearly been a painful one, made at the highest level of the company. And having made the decision, Exxon put on something of a class act, taking the resulting heat stoically, if not happily, and not running out on any of their commitments, except the one they had made to build Colony.

The effect on the region was expressed by Frank Cooley, an attorney in Meeker. Meeker, home to C-a and C-b, is located 40 miles north of the oil shale bust epicenter at Rifle and Parachute. He said, "May 2 shocked and sickened us. It made us realize that the injuries we had received were not temporary setbacks. They were part of an overall and dark downhill slide." Cooley's "dark downhill slide" referred to the overall state of western Colorado's mining industry, which had suffered numerous setbacks resulting from the nationwide recession.

The first reaction in the oil shale towns was profound emotional shock. According to hospital administrator Tom Nord, Rifle went into a Sleeping

(continued on page 12)



Kent & Donna Dannen

Piceance Creek, Colorado

WESTERN ROUNDUP

High Country News

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Panel pushes siting 100 MX missiles

President Ronald Reagan's Commission on Strategic Forces has recommended the placement of 100 MX missiles in existing Minuteman missile silos, probably in Wyoming and Nebraska. However, the rationale behind the decision reinforces the arguments of opponents of the missile system and, according to Bob Meriwether of the Federation of American Scientists, "The window of vulnerability is now revealed to be a Venetian blind."

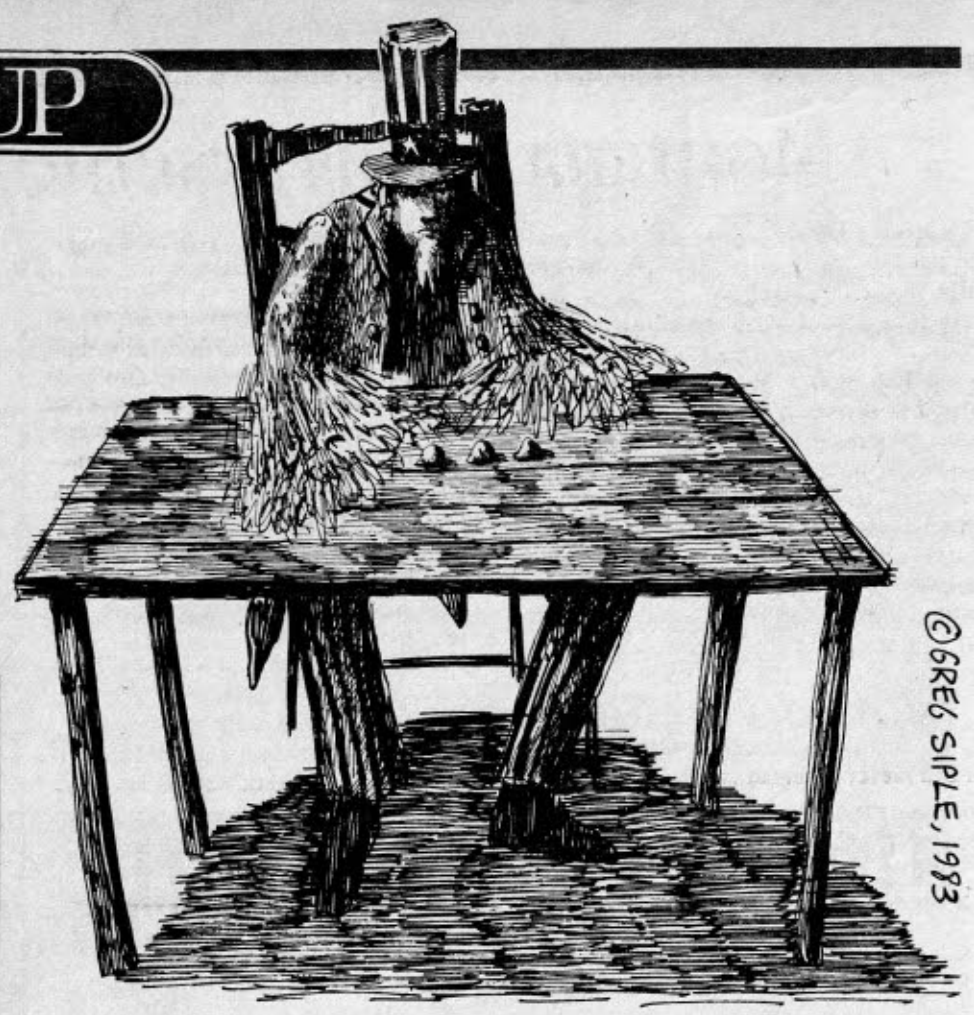
The commission, composed of six former cabinet members and two former Central Intelligence Agency directors, said that the MX would have a short-term role in the United States defense structure until the deployment of a smaller missile, often called "Midgetman," in the early 1990s. It also said that the missile would not be as vulnerable because the Soviet Union would be deterred from attacking because of fear of retaliation from the other two "legs" of the defense triad — submarine-based and manned bomber-based nuclear weapons.

The MX has been touted as a means for closing the "window of vulnerability" — the potential for destruction of U.S. land-based missiles by a preemptive enemy strike. However, by placing the missile in the same silos currently occupied by Minuteman missiles, the recommended deployment would seem to do little to solve that problem. According to retired Navy Captain James Bush, senior analyst for the Center for Defense Information, "The commission's justification that Soviets won't attack because they would expose themselves to retaliation from the other two legs of the triad is the argument that opponents of the missile system have been making in the first place. If this is so, the window of vulnerability doesn't exist." Bush also said that placing the missiles in existing silos, which are acknowledged to be vulnerable, is a destabilizing influence and "an invitation to attack."

The final basing proposal will not be forwarded to Congress until Reagan reviews it. There are indications in Congress that the president is in for a long fight over the missile. Congress rejected virtually this same basing mode about a year ago. One western Republican senator, usually a strong Reagan supporter, told *HCN*, "I have some very real concerns about this. The outcome in Congress is very uncertain."

There will be additional irony if the president wholeheartedly embraces the commission report. He has repeatedly criticized the "decade of neglect" of past administrations for allowing the U.S. defense posture to weaken. However, virtually every secretary of defense and secretary of state of the past 10 years was on the commission which issued the MX basing report.

— Dan Whipple



THE NUCLEAR SHELL GAME

Yellowstone moves to protect grizzly

Human beings will be asked to bow to the needs of grizzly bears this spring and summer in Yellowstone National Park. At the end of March, park officials announced that new areas will be closed to backcountry visitors to preserve solitude for the bears. The expanded program includes about 10 percent of the park's 2.2 million acres.

New areas that will be closed in 1983 are all high-density grizzly habitat used for feeding, foraging, resting or breeding, said park spokeswoman Joan Anzelmo. Closures include parts of the Washburn River, Firehole River, Riddle Lake, Grayling Creek, Clear Creek and Yellowstone Lake areas. In addition, some trails will be closed, temporarily or permanently, and other areas will be limited to horse parties or foot parties of four or more, or to on-trail travel. Visitors planning trips in the park should contact park authorities, because the dates and locations of the closures will be "fluid," Anzelmo said.

These changes in the park's "human use adjustment program" are part of the agency's "positive, aggressive commitment" to the survival of the grizzly bear, Anzelmo said. Data from the Interagency Grizzly Bear Study Team indicate that as few as 29 adult females may be left in the Yellowstone area, and that overall numbers may be declining. "Unless some change occurs to reduce the grizzly's mortality rate soon, the probability of retaining this wildland species in Yellowstone Park is minimal," according to Roland Wauer, the National Park Service's director of natural resources management.

— Joan Nice

Dear friends,

Observant — and even not so observant — readers will notice something unusual about this paper. At 20 pages, it's bigger than usual, and starting on page 14 you'll find the reason why. Yup, we finally sold some advertising.

The first annual "Outdoor Education Directory" that begins on that page is designed as a sort of "matchmaking" service, making it easy for readers, with your avowed interest in education and the outdoors, to find out about some of the best offerings in the region. The copy makes absolutely mouth-watering reading and the reader service coupon on page 16 makes it easy to request further information on any of the programs listed. We hope you'll use that coupon — or write on your own, mentioning *High Country News* — since a good response to this first directory will help us sell additional advertising, boosting that much-needed source of revenue.

■

And speaking of revenue, donations have started to come in for our two new news bureaus. In Montana, 19 people have contributed a total of $340 to date, leaving us "only" $4,660 short of our $5,000 goal (oh well, you gotta start somewhere). In Colorado, four "early bird" donors contributed a total of $1,300 before our campaign officially began and another 23 people contributed a total of $640 during the last two weeks, bringing us to within $3,060 of our $5,000 goal for that state.

Now that the tax deadline is past, we're hoping that all of you who have made up your minds to give less money to Uncle Sam next year will have also decided to give more money to us and our public interest colleagues.

■

The annual *High Country News* five-mile footrace has been scheduled for June 11 here in Lander. As always, the race will begin in City Park, but the time of the event has yet to be determined. We will also have a fundraising dance that evening.

We'd like to invite all of our athletically inclined fans to run (and dance later). Last year, a reader who was on vacation in Colorado remembered the footrace was being held during his trip west, so he made a side journey to Lander to run.

This year the race will be organized by Betsy Schimelpfenig, our finance manager.

— the staff

CLARIFICATION

For the record, we'd like to correct and clarify two statistics published in our March 18 cover story on grizzlies.

First, of 17 known grizzly deaths in the Yellowstone Park are last year, five were within park boundaries, not one, as was stated in the article.

Second, the figures given for grizzly mortalities in the Yellowstone area in the six years after the park dumps were closed, 189, should have been attributed to independent grizzly researcher Frank Craighead. National Park Service officials say the Craighead figure is too high, though precisely parallel data is not available for comparison.

ference Target LRT-BE4-V2

Montana funds arsenic cleanup

Under a bill passed by the Montana legislature, the state will be able to tap the federal Superfund to clean up arsenic contamination at Milltown, near Missoula, Montana. Sponsored by freshman Rep. Robert Ream (D-Missoula), the bill diverts funds from the state's sale of junked vehicles and from the resource indemnity trust fund, a mineral tax, to provide the 10 percent of state funds required to match the Superfund monies. Superfund is the federal financial pool administered by the Environmental Protection Agency available for cleaning up toxic and hazardous waste.

Ream is being credited with inventing a clever financial solution during a legislative session that has been fraught with budgetary problems.

The Milltown arsenic problem is believed to be a leftover from the days when the Anaconda Company dumped raw smelter wastes into the headwaters of the Clark Fork River, 100 miles upstream from Milltown. The arsenic-laden waste migrated downstream, eventually settling on the bottom of the Milltown dam, a small hydropower facility owned by Montana Power Company.

Last summer, researchers from the University of Montana discovered high arsenic levels in the reservoir silts. It is likely — though unproven — that the arsenic migrated from the reservoir into aquifers that provide many Milltown residents with domestic water. Currently, students and faculty from the University of Montana geology department are drilling and sampling deposits between the dam and the contaminated wells to determine whether the arsenic did in fact migrate.

The contamination was discovered two years ago when the Montana Department of Health and Environmental Sciences discovered alarming levels of arsenic in wells that serve 30 Milltown families. EPA investigations confirmed the contamination and EPA officials eventually included the site on a list of 200 sites nationwide eligible for Superfund money.

Under Ream's bill, cleanup funds will be available in July.

— Don Snow

Kent and Donna Dannen

Teton National Park

Park Service changes inholder policy

The National Park Service is reversing its policy of buying private lands within national parks and is developing plans to manage those lands without direct federal ownership. The new policy, which replaces the Carter administration's plan of purchasing inholdings whenever possible, will utilize methods like zoning ordinances, easements and cooperative agreements with state and local governments.

Critics of the new "land protection plan" are skeptical of the government's ability to protect resources without direct federal ownership. However, Interior said the acquisition plan was costly and the change in policy reflects the agency's adaptation to recent budget cuts at the department.

The impact of the policy change will vary from park to park. Grand Teton National Park, for example, has over 5,000 acres of private land within its boundaries, while Glacier National Park has less than 900 acres. The new plan will establish suitable uses for those lands at the lowest cost possible to the federal government. "The formation of a land protection plan will allow us to define the compatible and incompatible uses of private land within the park," said Jack Stark, superintendent of Grand Teton.

However there is some concern that the policy change will result in increased development within the parks. Story Clark, spokeswoman for the Jackson Hole Alliance for Responsible Planning, said, "The parks were established for resource protections, and I don't think that short-term budgetary restraints should jeopardize the future."

Two national environmental groups are criticizing the Interior Department's change in policy. The Wilderness Society and the National Parks and Conservation Society are accusing the Department of Interior of using the land protection plan as a device to keep from spending a congressional appropriation of $96 million currently available for acquisitions. They have charged Interior Secretary James Watt with "effectively impounding and refusing to spend" funds approved by Congress, thereby violating the Budget Impoundment Act.

Park officials are distributing questionnaires to inholders and local residents about the proposed land protection plan. Citizen input will be incorporated into the draft plan, due to be published this summer. An additional review process is scheduled before the final version is approved.

— Dan Gorham

Denver hopefuls take aim at EPA

Members of the Colorado Air Quality Control Commission watched with some bemusement as television crews and reporters prepared to cover the commission's public hearing on what to do about the Environmental Protection Agency's rejection of the Denver plan for achieving compliance with federal carbon monoxide standards by 1987. Seated in the audience were Denver Mayor William McNichols, and three of the strongest challengers for his seat in the mayoral election slated for May. McNichols has been accused of failing to take an active role in resolving the controversy, and his challengers have been quick to stake out their own positions.

Following the January 31 announcement that EPA had decided to disapprove the Denver plan, there have been charges by state and local politicians, environmentalists and major newspaper editors that the action was taken to garner support for the Reagan administration's proposal for weakening the Clean Air Act. While EPA regional administrator Steve Durham denies this, the charges have continued to fly.

In various terms and amounts of emphasis, McNichols' rivals — Dale Tooley, former Denver District Attorney; Monte Pascoe, former head of Colorado's Department of Natural Resources; and Roberto Pena, former Colorado legislator — all labelled EPA's action a political ploy. Pascoe made headlines in Denver recently when he announced initiation of a campaign to secure documents from EPA to prove that the agency should have approved the Denver plan. He said he would take EPA to court if necessary to reverse the decision. Mayor McNichols and the other candidates have also said they support litigation if necessary to get the Denver plan approved.

In his testimony, McNichols said that if EPA does not change its mind he would consider a lawsuit alleging inconsistencies in EPA's action, and "arbitrary and capricious" decision-making. Pena said that he would fight EPA's use of Denver "as a pawn in the Clean Air Act debate." Tooley listed steps he would take to get the decision reversed, and called for the candidates to join together in opposition to EPA's "arbitrary, unwarranted, and unjustified action." Prior to his testimony, Pascoe distributed documents which showed that plans similar to Denver's had been approved in 30 other areas of the country, and that a majority of Denver motorists would volunteer to share rides during high-pollution days — the strategy that was the subject of EPA's criticism of the Denver plan.

— Hal Winslow

HOTLINE

Committee approves Metcalf Wilderness

Establishment of a Lee Metcalf Wilderness in Montana moved a step closer on February 17, when the Senate Energy and Natural Resources committee voted unanimously for its approval. The 244,000-acre wilderness would be made up of portions of the Beaverhead and Gallatin National Forests near Yellowstone National Park. The Montana Wilderness Association is pleased with the progress of the legislation, but hopes to make some improvements in the bill when it reaches the House of Representatives. MWA is specifically concerned about a 35,000 acre "management area" which under the existing bill would allow year-round motorized travel. They are currently lobbying to prevent vehicular use during the non-winter months.

Acid rain talks flop

A two-year study of acid rain has been discontinued because scientists from the United States and Canada could not agree on the causes and effects of acid rain nor on whether immediate steps should be taken to control the damage, the Wildlife Management Institute reports. Canadian officials claim that most of the pollutants that trigger acid rain in North America originate from coal-fired power plants in the midwestern United States. The U.S. scientists acknowledge that biological damage has occurred in many areas receiving acid rain, but they said that the "cause and effect relationships often have not been clearly established." Sen. Robert Stafford (R-Vt.), chairman of the Senate Environment and Public Works Committee and sponsor of the legislation to curtail acid rain, said, "Many politicians see acid rain control as an economic issue rather than as an environmental issue." He predicted his bill to reduce acid rain "faces an uncertain reception in Congress this year."

Jack McLellan

Bridger Power Plant

ISC okays PP&L's salty discharge

After receiving no formal protests from environmental groups, the Wyoming Industrial Siting Council decided April 7 to allow Pacific Power & Light Company to continue discharging salty waste water into Deadman Wash, which flows into Bitter Creek, a tributary of the Colorado River system. The State Department of Environmental Quality had issued a conditional permit in December to the utility for its Jim Bridger Power Plant in southwest Wyoming (*HCN*, 2/18/83). Some individual environmentalists are still concerned that the permit was issued under political pressure. It will be several weeks before it is clear whether the utility is meeting the conditions of the permit. The PP&L consultants' predictions that the salt would not reach the Green River were based on the assumption that Deadman Wash and Bitter Creek would be dry. Last week canoeists were spotted in Bitter Creek, enjoying the spring runoff — and the discharge.

HOTLINE

A break in the ranks

Philip Habib, President Ronald Reagan's special envoy to the Middle East since 1981, told a forest resources policy class at the University of Idaho that Interior Secretary James Watt "is a disaster from the standpoint of environmentalism." Habib, who graduated from UI in 1942, said the United States' stand on environmentalism overseas is still very strong and that Watt has very little influence in international relations and diplomacy. Habib said, "There's no question that environmental matters have become of international importance. In some places, it has become the essence of political activity." He noted the success of environmental groups in Germany and Australia in recent elections.

Watt denies purge of advisers

Interior Secretary James Watt denied that political affiliation was the reason 10 scientists were dropped from the Interior Department's non-partisan advisory committee on offshore oil leasing. Watt responded to charges that he sent a list of 14 potential candidates to the Republican National Committee for approval. Ten of those were not approved although seven were members who had asked for reappointment at the end of their term. Sen. Dale Bumpers (D-Ark.) has asked for a congressional hearing on the matter. "What it is is a blatant effort on the part of the Department of Interior to make sure the scientists put on that committee make some kind of ideological test," Bumpers said.

USFWS

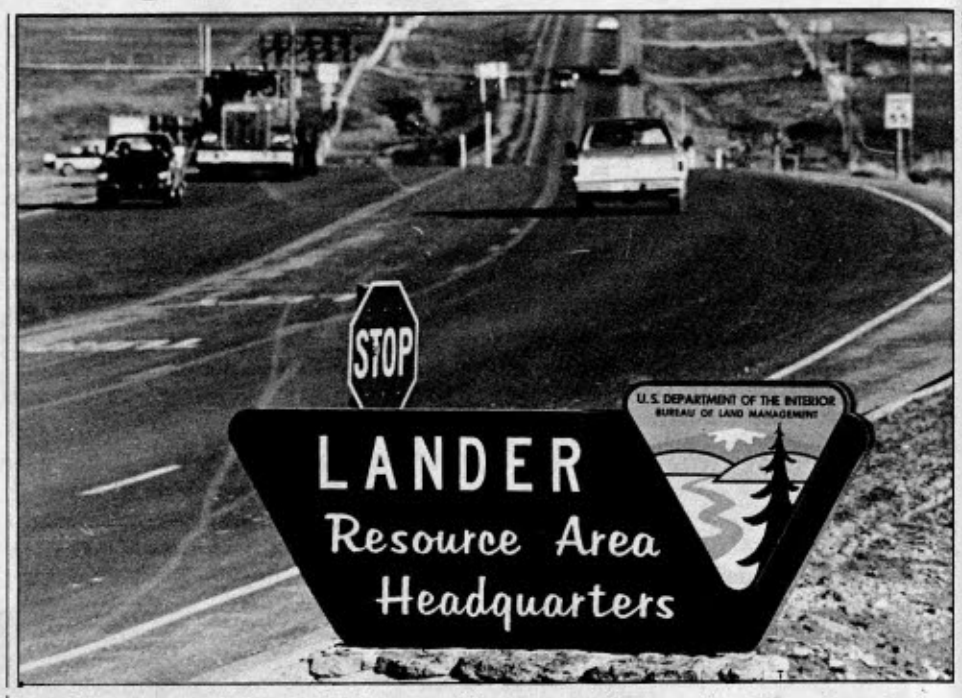
Whooping cranes spark protest

Rio Blanco Oil Shale Co. is running into opposition to its plans for disposing spent oil shale on a mesa in western Colorado's Piceance Basin. Environmentalists claim the proposed site is used by the endangered whooping cranes during the birds' semi-annual migration. An environmental report completed in 1976 by Rio Blanco acknowledges that the cranes are "passers-by" in the Piceance Basin. Connie Albrecht, staff member for Friends of the Earth, voiced objections to using 84 Mesa as a disposal site for spent shale. "We don't think 84 Mesa is a good place. It's a poor choice if an endangered species is using it."

Collaring Idaho caribou

An Idaho Fish and Game wildlife research biologist is radio-collaring Selkirk Mountain caribou as part of a project aimed at saving the endangered animals from oblivion. The biologist, Mike Scott, captures the caribou with a net, attaches a radio collar transmitter which sends out a signal, then traces the small herd that roams along the Idaho-Canadian border. The caribou herd, the only one known to exist in the lower 48 states, is thought to number less than 30 and was recently added to the nation's endangered species list (*HCN*, 10/29/82). Scott hopes to collar at least three caribou for about three years, the time span established for the research project sponsored by Idaho, Washington and British Columbia.

BLM targets land sales



Mike McClure

The Bureau of Land Management state offices around the Rocky Mountains are in various stages of identifying lands that may be offered for sale under the Reagan administration's asset management program. However, with the exception of Idaho, relatively little land under BLM jurisdiction is scheduled for sale soon.

The Wyoming BLM has identified 50,000 acres for possible sale, but only 750 acres are scheduled for the auction block in fiscal year 1983, which ends October 1. In Colorado, the agency has identified about 140,000 acres for potential sale, but only 600 are definitely scheduled, probably in August or early September. Only two district offices in Montana have even completed their inventories, and they have identified about 24,000 acres for potential sale, but none has been scheduled for sale this year or next. Utah has identified 52,400 acres for the program, but no sales are scheduled.

All of these states are studying the lands for sale and have not definitely decided to sell any of them, except the relatively small acreages scheduled for fiscal 1983. BLM has the authority to dispose of excess lands without further congressional approval under the Federal Land Policy and Management Act of 1976.

None of the land sale proposals in the states listed above has attracted much controversy. In Idaho, however, both ranchers and conservationists let out a loud howl when that state's sale lands were listed. BLM has identified 14,300 acres for possible sale this year and next. The Idaho Conservation League asked BLM to remove 6,349 acres from the list — 45 percent of the total. Because of the short time allotted for review — only about three weeks — ICL did not make a complete review, but even a cursory check revealed a substantial portion of land the group felt should be retained in federal hands.

ICL's objections to sales were based on a number of factors, including recreation, wildlife, public access and aesthetic values of the properties. One or two tracts apparently have plants recommended for endangered species listing.

In addition, a number of ranchers in southern Idaho have objected that the sales would disrupt their operations and that they could not currently afford to buy the land.

ICL director Pat Ford said that his group has written to Sen. James McClure (R-Idaho) asking him to hold field hearings in Idaho on the asset management program. Ford said that ICL's objections go beyond the immediate problems. He said, "We're trying to get the whole land sale thing stopped. We'd like to eliminate the whole asset management review board and have the responsibility for the program placed in the hands of the responsible agencies. Right now, the board in Washington is setting quotas for the agencies." Revenues from land sales under the asset management program are intended to help reduce the budget deficit.

— Dan Whipple

Colorado inhibits open space purchases

"Colorado cities ought to retain their ability to condemn property for park lands as away of preserving the natural beauty of our state," said Sam Mamet, legal affairs coordinator for the Colorado Municipal League. "Still, when you argue in favor of condemnation powers for municipalities, it's like cheering when the landlord throws the widow out the door." The Colorado Municipal League, along with the Wildlife Federation, the League of Women Voters and the Colorado Open Space Council oppose a bill now before the legislature which would severely restrict the condemnation process as a means to acquire property for parks, open space and recreational purposes. As passed in the House, the bill, sponsored by Rep. Walt Younglund (R-New Raymer) and Sen. Dick Soash (D-Steamboat Springs), makes governmental units using condemnation ineligible to share in state lottery proceeds. If passed into law, the bill would hinder successful, large-scale open space acquisition programs such as those in Boulder and Jefferson Counties, even though Front Range cities use condemnation infrequently. Supporters of the bill include rural agriculture and development interests such as the Colorado Association of Realtors, the Colorado Cattlemen's Association and the Farmer's Union.

Also passing the House recently is another Younglund bill which seeks a legislative go-ahead for several water projects put forth by the Colorado Water Resources and Power Development Authority. While the Stagecoach Reservoir project near Steamboat Springs remains a component of the bill, a successful amendment by Rep. Peggy Reeves (D-Fort Collins) removed funding for additional study of the Cache La Poudre River. However, when the bill goes to the Senate, the $15,000 originally slated for Poudre studies could be reinstated.

Since 1981, Colorado Water Conservation Board has studied a half dozen proposals for the upper Poudre basin. After completing these studies and encountering massive public opposition to the proposals, particularly from residents of Fort Collins, the board concluded that the targeted projects were not feasible. According to Chris Johnson, Fort Collins resident and Rocky Mountain chapter president for the Sierra Club, "All the study proved is that the six or eight sites looked at in the past are not feasible now. It doesn't exlude the possibility of some smaller projects being developed." Groups opposing projects on the Cache la Poudre will continue to push for Wild and Scenic River designation and to oppose any additional upper basin study.

Another bill failed at the end of March which would have increased Colorado park and recreational facility user fees. Rep. Leo Lucero (D-Pueblo) argued successfully against the fee hikes noting that difficult economic conditions made this a poor time to increase recreational costs. The bill, which would have gone into effect January 1, 1984, would have increased the annual parks pass to $30, doubled the daily state pass, and increased camping and boating permit fees. Supporters claimed that the state's parks department needed funds to meet rising operational costs. Opponents countered that the bill was not necessary because Colorado's successful lottery monies can adequately make up the difference.

The Colorado legislature is also seeking to effectively raise the state's speed limit from 55 miles per hour without loss of federal highway funds. Sen. Don MacManus (D-Denver) proposed a bill which would reduce to $5 the fine for speeding up to 65 mph and levy a $20 fine for speeds up to 70. No points would be counted against the driver. The bill passed the Senate and may pass the House as well. However, Wyoming Gov. Ed Herschler (D) vetoed a similar bill in Wyoming and Gov. Dick Lamm (D) promises to veto this one, too. Opponents feel the 55 mph limit saves both lives and fuel.

— Deidre Duncan

In-stream flow reincarnated

Angered by the legislative defeat of in-stream flow standards, the Wyoming Wildlife Federation is attempting to revive the issue in the form of a petition drive to put the question up to the voters in November. The federation is currently organizing environmental and sportsmen's groups from around the state to help with the financial aspect of the project. They hope to begin circulating petitions later this spring to gain the approximately 31,000 signatures needed for the initiative to be placed on the ballot.

"In-stream flow is one of the much needed protective measures in the state of Wyoming, not only for the hunters and fishermen but also for our important tourist economy," said Tom Dougherty, WWF president. The establishment of a minimum stream flow law has been supported by sportsmen and wildlife managers who see the issue as critical to protecting fish and game habitats. Legislation was approved by the Wyoming Senate during the last general session, but died in the House Agriculture Committee.

A previous attempt at an in-stream flow initiative failed by 2,000 signatures. This time the organization is targeting for a minimum of 50,000 signatures, to guarantee a place on the ballot in 1984.

— Dan Gorham

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Idaho legislature wraps up session

In the closing days of the 47th Session, the Idaho Legislature wrestled with the same issue it started with — the state budget. The Idaho Conservation League had targeted the funding —

Gov. John Evans

or rather the underfunding — of the state's resource agencies as the most critical environmental issue of the session.

The Joint Finance and Appropriations Committee's proposed cuts in the departments of Parks and Recreation, Lands, and Water Resources will eliminate as many as 28 positions, according to the departments. The staff cuts would include: four and a half in Parks and Recreation; 14 in the Department of Lands; and at least nine in the Department of Water Resources. In addition, proposed cuts in the Water Quality Bureau may close that agency's Twin Falls office. ICL director Pat Ford said the loss of the Twin Falls office would be critical because it monitors the numerous fish farms along the Snake River in the Hagerman area.

The reduced budget passed the legislature and at *HCN* press time was awaiting action by Gov. John Evans (D).

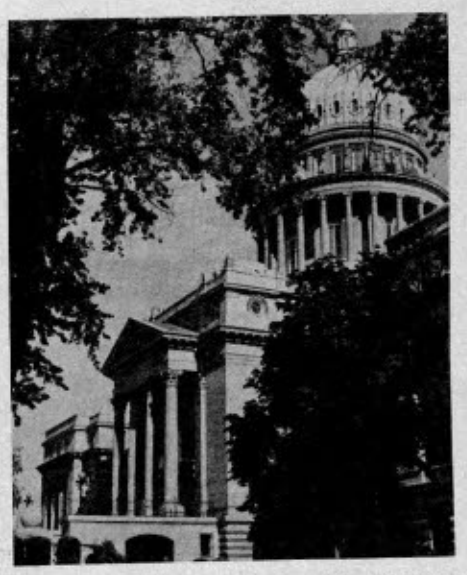
Ford said he is urging Evans to veto the budget reductions. The governor has already promised to veto proposed reductions in the state education budget.

The major conflicts over who owns the water in the Snake River were divided into two bills in the Senate Resources and Conservation Committee. The conflicts arose from a November, 1982 Idaho Supreme Court decision which ruled Idaho Power Company had a right to 8,400 cubic feet per second at its archaic Swan Falls Dam south of Boise.

The committee took an earlier bill and split it into two parts. The Senate passed bill 1180, sponsored by Idaho Power Company, which protects existing water users from having their water cut off by IPC. It also protects the utility from being penalized for not defending its water rights. ICL's Ford said, "We're not sure it's necessary, but we support it." ICL did not support the other half — Senate bill 1189, which died. It would have placed a higher priority on other water uses, such as irrigation, over hydropower. This subordination, as it is called, would have allowed the state to grant water owned by Idaho Power to irrigators and other users, without paying the utility for that water.

Evans is expected to sign bill 1180.

The governor has vetoed a bill earlier passed by the legislature which restricted the Air Quality Bureau from halting the burning of grass fields in northern Idaho. The bill, backed by the grass and grain growers, was opposed by the tourist industry, particularly in the Coeur D'Alene region where smoke from the burning hangs in a pall, driving away tourists and their dollars. ICL also opposed the bill. The veto was overridden in the House, but survived in the Senate on an almost straight party line vote — Democrats for the veto, Republicans against.



Passage of the state's first hazardous waste bill was finalized when the governor signed the bill into law. But while conservationists supported the bill, they did so with a tinge of dismay. Before the bill was approved in the legislature, it was weakened by provisions making it more difficult for citizens to use the law themselves. Tacked onto the bill were clauses requiring citizens filing suit against violators of the law to post bond and prove they were directly affected by the violations. Ford said the ICL pushed for strong public involvement. "We failed on that and ended up reluctantly supporting it. But I think we'll be back next session to strengthen it."

A bill allowing the closure of logging roads for the protection of elk herds finally passed the Senate after addition of an amendment to allay fears of southern ranchers. The bill, as amended, applies only to Forest Service lands and Bureau of Land Management lands when they are contiguous. The bill now goes to the House.

— *Glenn Oakley*

Mining politics split Crow tribe

The Crow Tribal Council took several major steps to expedite strip mining and coal conversion on the reservation in southern Montana at a meeting April 9. However, an opposition faction, motivated by concerns about the environment and misuse of funds, plans to challenge the entire meeting.

Unlike most other Indian tribes, the Crow conduct business at quarterly council meetings where all adult tribal members comprise the council. The current tribal administration, controlled primarily by tribal secretary Ted Hogan, took firm control of the meeting during the first vote — 412 of the 658 votes present.

The opposition had hoped to impeach the chairman, Donald Stewart, as well as Hogan, whom they charged with spending $31,000 on travel alone in three months.

Showing more strength at the January meeting, the opposition had succeeded in dissolving the Crow Development Council, which was led by a non-Indian board. The CDC was to have arranged for construction of a coal-fired power plant and synthetic fuels plant on the reservation (*HCN*, 9/3/83).

Most members of the opposition support the power plant but oppose the synfuels plant. Dale Kindness, one of the opposition leaders, oppposes any coal development during this century. "We won't be ready until we establish safeguards for our home base," he said. "We are fortunate to retain our culture to the degree we have. I don't think we can retain this with the impacts of development."

However, survival is the first concern of many people. The tribal members are reeling from unemployment, which jumped to 85 percent after President Reagan's budget cuts, according to Stewart. The tribe employs the vast majority of those who are able to work on the reservation since most of the businesses are owned by non-Indians.

Tribal members entered the meeting April 9 knowing that the tribal administration would distribute $2 million in per capita payments the following week from a contract recently approved with Shell Oil for strip mining in the southeast corner of the reservation.

The administration presented a resolution to authorize another strip mining contract, a joint venture with the Montana Group Finance Corporation and Wash-Mont Research Corporation, both of Seattle, Washington. While negotiations had not been completed, the council approved the resolution tying the parties to several specific terms, including a $2 million signature bonus, royalties of $1 a ton and 42.5 percent of gross profits. If the negotiations survive this move and a contract is approved, the new company, Crow Coal Company, could mine as much as 368 million tons of coal from land the tribe owns north of the reservation.

The council also voted to hire John O'Leary, former Department of Energy deputy secretary, and Ben Lusk of the National Coal Board as project officers for the Crow power plant and Crow synfuels plant, respectively. The tribal leaders hope to submit a bid for assistance from the federal Synthetic Fuels Corporation at the next solicitation.

— *Marjane Ambler*

BARBED WIRE

They have terrible accidents resulting from drinking and dancing. The Woods Cross, Utah, city council has passed an ordinance that prohibits dancing on Sunday in places that sell alcoholic beverages. It also prohibits drinking on Sundays in places that allow dancing.

Gourmet zoning notes from all over. Evanston, Wyoming town council member Arnie Morgan, upon hearing that the famous golden arches were seeking a location in his town: "I've always felt that a town or city wasn't really a town or city until it had a McDonald's."

Sticks and stones department. A supporter of locating a high-level nuclear waste dump near Canyonlands National Park in Utah said of the opposition, "If these environmentalists aren't Communists, they'll do until some come along."

Things we've always suspected dept. A Paonia, Colorado eighth grader prepared a science fair exhibit that surveyed her fellow students and discovered that they didn't learn anything from preparing exhibits for science fairs. Jessica Wheeler's project didn't win a prize at the fair, according to the *Western Colorado Report*.

HOTLINE

Clearing the air in Big Sky Country

The city of Missoula, Montana, facing possible government sanctions for failing to meet federal air pollution standards, has established a four-year plan to clear its air. Missoula's Air Pollution Control Board vowed last month to take whatever steps necessary to meet the strictest federal standards. Those regulations will likely include a crackdown on inefficient woodstoves, a mandatory alert on burning after air pollution levels reach 150 micrograms of particulates per cubic meter, and a possible permit system prioritizing owners of woodstoves which do meet emission standards and those stoves which are the sole source of heat in a household. The proposed regulations will now be reviewed by the board at a public hearing before they can be sent to the county commissioners and the State Department of Health and Environment for final approval.

Gas plants may threaten Wind River lakes

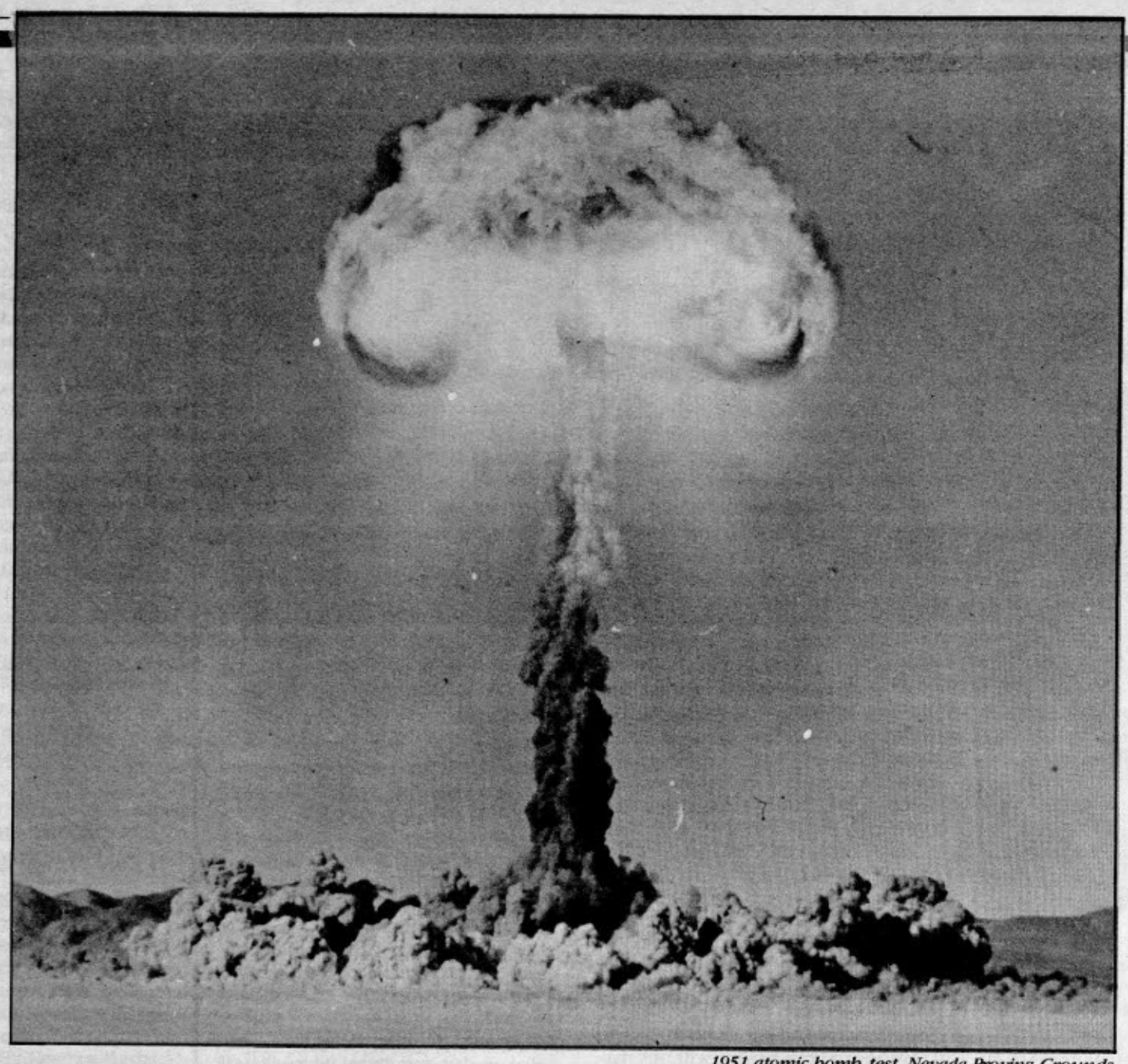
Officials of the Bridger-Teton National Forest are worried that the proposed natural gas sweetening plants in Lincoln and Sublette counties of western Wyoming will cause acid rain to accumulate in the lakes of the Wind River Range. Four gas sweetening plants in the Big Piney-La Barge area have been proposed for construction in 1984. The plants will be downwind from the Bridger and Fitzpatrick Wilderness areas which are in the Wind River Range. Janis Van Wyhe, a Bureau of Land Management employee who is directing the environmental impact study, said acid rain would fall on the mountain lakes but that it would not be harmful to the fish. However, Alan Galbraith, Forest Service hydrologist, said he is "quite concerned" over the prospect.

BLM wildlife program under attack

The Reagan administration has recommended to Congress that the Bureau of Land Management's wildlife budget be slashed by one third, according to the Wildlife Management Institute. The cut would reduce wildlife management programs on 327 million acres of public land. BLM lands provide more than 63 million days of public recreation annually, of which nearly half is related to fish and wildlife activities such as hunting, fishing and bird watching. The cuts come at a critical time as increased energy and mineral development on BLM land threatens various wildlife habitats. Conservationists are lobbying Congress to restore BLM's wildlife budget to at least the 1983 level and maintain wildlife personnel ceilings so that the increased energy developments can be planned and monitored with input from wildlife experts.

Montana residents oppose coal mine

Polebridge, Montana, with a year round population of about 100, has gathered 4,626 signatures from visitors to their tiny community who oppose the planned Cabin Creek Coal Mine. Sage Creek Coal, Ltd. has proposed construction of an open pit coal mine to be located in Canada, seven miles from the border of Glacier National Park. Residents are sending the signatures to Premier William Bennett in Victoria, British Columbia, asking for delay in approval of the mine until it can be proven that the project will not harm the Flathead River and the air quality of Waterton-Glacier International Peace Park.



U.S. Dept. of Energy photo/Courtesy of Center for Defense Information

1951 atomic bomb test, Nevada Proving Grounds

Nuclear weapons testing fallout — 30 YEARS LATER

by Ken Lastufka

"It was almost like having 50 flash bulbs go off in your eyes, followed almost immediately by an earthquake. We were told to get up, and as we did, we could see the fireball. It was like a tidal wave of flame coming toward us. Then they told us to get down and the actual blast hit us. It caved in the trench all over us. We felt nauseated almost immediately. We dug ourselves out and, before long, we had all gotten quite ill."

This account was presented to a congressional committee in 1978 by Martin Simonis, an ex-Marine who was less than five miles from a nuclear detonation in the Nevada desert in 1955. In all, hundreds of victims and their families have filed claims asking the United States government to investigate charges of misrepresentation, gross negligence and plain ignorance concerning the manner in which the Atomic Energy Commission and the Defense Department handled atomic weapons testing.

The handling of the testing by the AEC and the military has resulted in a series of lawsuits and legislative actions in recent years. A number of civilians who lived in southern Utah during the tests have sued the federal government, claiming that radioactive fallout caused cancer in several of them.

There are 24 plaintiffs in the case, asking a total of about $6 million for pain, suffering and psychic shock, in addition to actual damages from the loss of earnings and the like. The plaintiffs' attorney is former Interior Secretary Stewart Udall, who now practices law in Tucson.

U.S. Justice Department lawyer Henry Gill said, however, "It's overwhelmingly evident that the cancers and leukemias in these 24 plaintiffs were not caused by the activities of the government at the Nevada Test Site." The lawsuit has involved 6,600 pages of testimony transcripts and 700 documents entered as evidence. U.S. District Court Judge Bruce Jenkins is expected to reach a decision in mid-summer. The case ended in December of last year. It was heard in Salt Lake City.

On the congressional front, Sen. Orrin Hatch (R-Utah) is spearheading legislation to compensate civilian victims of the testing (see accompanying story on page 7). Since soldiers are prohibited by law from seeking damages from injuries suffered during their term of service, a group called the Association of Atomic Veterans is trying to establish a procedure for getting compensation for soldiers exposed to the tests, either through the Veterans Administration or legal remedies.

It all began in 1950, when the Tonopah Bombing and Gunnary Range, near Las Vegas, was approved as the official U.S. nuclear test site. The area was selected because of the belief that winds would blow the radioactive plume through many miles of "relatively unpopulated" countryside — across southern Nevada and southwestern Utah.

From 1951 to 1963, 93 atomic weapons were detonated at Tonopah, later known as the Nevada Proving Grounds. Of these, 31 were larger than the 13 kiloton bomb dropped on Hiroshima, Japan, at the end of World War II. The first test series, code named Operation Ranger, was approved by President Harry Truman on January 10, 1951 and carried out between January 27 and February 6. It consisted of five detonations, totalling 40 kilotons of explosive power. A kiloton is the amount of energy released from 1,000 tons of TNT.

The first blast to have actual troop participation was called Shot Dog, and was conducted on November 1, 1951. Soldiers were ordered to "sit down and face south" until 30 seconds after the explosion, at which time they were allowed to turn and observe the fireball created by the 21 kiloton weapon. In all, 883 soldiers, 2,786 observers and 1,587 Atomic Energy Commission personnel witnessed Shot Dog.

From then until 1962, the military conducted several series of atmospheric weapons tests in Nevada. Many of them used soldiers for one or more blasts in the series. And the military kept raising the stakes for the participants, like a poker player holding a strong hand. In the third test of an eight shot series known as Operation Tumbler-Snapper, conducted between April 1 and June 5, 1952, 2,000 soldiers observed the 31 kiloton blast from a distance of only about 7,000 yards, or four miles. Prior to this test, AEC policy required that troops be kept at a distance of at least seven miles from ground zero. The Pentagon complained, however, that the regulation was "tactically unrealistic," and the AEC's Division of Military Application reduced the distance to four miles so that the troops could more easily "exploit the enemy's position" following the drop.

The eighth test in the Tumbler-Snapper series was 15 kilotons and involved 300 soldiers and 500 observers. The troops were ordered to begin their advance toward the epicenter immediately after detonation.

By early 1953, the AEC virtually abrogated all its responsibility for atomic testing. As described by Howard Rosenberg in *Atomic Soldiers*, the AEC had succumbed to each of the military's demands. The then-head of the AEC said at the time, "The Department of Defense has assumed responsibility for the safety of troops participating in military exercises at ACT's Nevada Proving Grounds."

Shot Annie, the first of Operation Upshot-Knothole conducted between March 17 and June 6, 1953, was observed by troops from a distance of only 3,500 yards. Fifteen minutes after the 16 kiloton detonation, the soldiers proceeded to within 700 yards of ground zero. During the 43 kiloton Shot Simon in the same series, soldiers stood 4,000 yards away and volunteer researchers 2,000 yards.

Fourteen blasts were detonated in Operation Teapot between February 18 and April 15, 1955. In all, 8,185 soldiers participated, including Martin Simonis. The troops stood at distances ranging from five miles away to as close as 1.4 miles.

Probably the most important succession of tests was those of Operation Plumbbob, from May to October, 1957.

This series comprised 24 separate blasts of magnitudes between one-half and 73 kilotons, the highest yield ever to occur on U.S. soil. Known as Shot Hood, its plume rose over 49,000 feet into the air, "more than four times the height of its namesake mountain." Its flash was seen in Canada and over 800 miles to the west. It abruptly awoke sleeping Las Vegas. At the site some 200 Marines were left in trenches five and a half feet deep and 3.5 miles away.

After the seventh blast of the series, radiation levels over Salt Lake City, about 400 miles away, measured 10 times greater than in any previous recording.

Shot Smoky, the 15th test of the series, was probably the most crucial. At 43 kilotons, the Army decided that it would be an advantageous time to test their "pentomic division" theory — the use of five battle groups, dispersed over the battlefield.

A total of 3,224 personnel participated in the exercise. So intense was the blast that witnesses saw their own bones as they covered their eyes to shield themselves from the brilliant light. After the explosion, waves of radioactive dust, rocks and debris hit the soldiers at speeds of more than 80 miles an hour. Four miles away radiation readings were 50 rads per hour. (A rad is a commonly used unit for measuring the amount of radiation to which the whole body is exposed. The maximum permissible dose currently is .01r per week.) Decontamination efforts afterward consisted of shaking out field jackets and dusting boots off with a whiskbroom. This operation marked the last episode of large scale participation by troops at atomic bomb maneuvers.

In all, there were 235 atmospheric tests of nuclear weapons. The government estimates that about 250,000 military personnel were exposed to them.

During the congressional hearings, it was revealed that the AEC knew that exposure to atomic testing was dangerous to humans. Yet, at the time, they publicly denied any existence of the hazards and even proceeded to conceal the evidence. Said one member of the AEC to his colleagues, "We must not let anything interfere with this series of tests — nothing."

Nothing did. Innocent people were unknowingly exposed to a hazard they could not completely comprehend. For instance, parents were encouraged to wake their children to watch the bright light and massive cloud burst over the horizon. Although some felt uneasy about the plume that drifted over their homes, the AEC downplayed the danger.

Unprotected pilots, told to fly into the mushroom cloud for radiation measurements, were continually exposed to 20 to 25r. It was decided that protective clothing would "hamper the success of the mission," so none was worn.

The residents of St. George, Utah, were exposed to more radiation dropped by four tests in 1953 than any area received for the entire first eight years of testing. The AEC never warned them about the dangers of fallout.

The three most deadly radioisotopes produced by a nuclear explosion are iodine-131, strontium-90, and carbon-14. Each has the capacity to maim or kill humans.

Iodine-131 is believed to cause thyroid cancer because the radioactive isotope is easily trapped by the active portion of the thyroid gland. After a nuclear detonation, iodine-131 spreads over a large area. During the tests, some of the compound landed in pastures where grass was being consumed by cows. When the milk from these contaminated ruminants was drunk, iodine-131 passed through the drinkers' thyroid glands, increasing the possibility of cancer. Children are especially susceptible because the gland plays an important role in their development — it produces a hormone that controls metabolism. Total thyroid dosage for children in Utah between 1952 and 1955, according to scientist Arthur Tamplin, may have been 50r, with the average dosage for St. George as high as 120r.

Strontium-90 is a suspect in bone cancer. It usually moves through the environment with calcium, and since calcium is actively consumed by plants, both become incorporated into the food chain. Once eaten by humans, strontium-90 concentrates around the living cells of the bone. As the radioisotope begins to decay, it releases beta particles, which destroy surrounding tissue. The damage can be extensive. Linus Pauling, well-known scientist and researcher, noted that "the principal culprit in causing damage to human beings now living is the radioactive nucleus strontium-90." And according to radiation expert Dr. Earnest Sternglass, "Close to one out of 10 children born died before reaching age one as a result of the release of...some 200 million curies of strontium-90 in remote test sites."

Carbon-14 is considered the most menacing radioactive byproduct because it affects the whole body, it persists for a long period of time — over 8,000 years — and it's produced in large amounts, about 16 pounds per megaton of explosive energy. A megaton is the equivalent of one million tons of TNT.

In 1952, some 160,000 pounds of carbon-14 were found to be in the atmosphere, the oceans and the biosphere. After four years of atomic testing that amount increased 10 percent. A

(continued on page 17)

Congressional remedies

Since 1978, there has been a series of congressional hearings about the government's role in keeping the dangers of the weapons tests from the public. According to Ron Preston, a staffer for Sen. Orrin Hatch (R-Utah), "There is ample evidence of government negligence. The government wasn't on the up and up with either the military participants or the civilians nearby. There was a less than thorough effort to collect data on fallout."

However, there is less agreement on what to do about it. There has never been a follow-up study on the total number of veterans or civilians who got cancer after the tests.

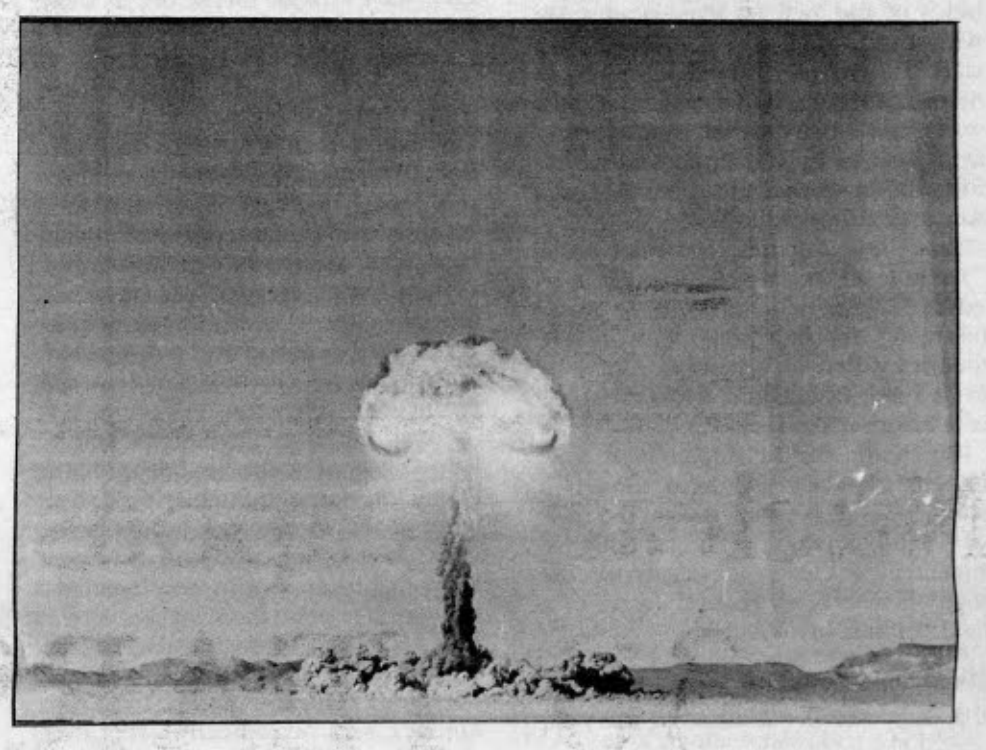
During the last Congress, Hatch introduced a two-phase bill to provide compensation to the civilian victims of the atmospheric testing. The first step of the legislation required the Department of Health and Human Services to develop tables that show the likelihood of a particular dose of radiation causing cancer. This section of the bill passed and the agency is supposed to complete its work by January, 1984.

The second phase, which did not pass and which Hatch reintroduced on March 2, 1983, would have established a legal basis for using those tables in court and a formula for providing compensation for victims from them. The Hatch bill covers only compensation for civilian victims, but the tables would also be used to determine compensation for soldiers when their cases went to court.

The legal remedies half of the bill got caught up in "political problems" last session, according to Preston, but, since the tables won't be ready until early next year anyway, "We're right on schedule." No timetable for congressional consideration has been established yet.

— Dan Whipple

One member of the Atomic Energy Commission told his colleagues, "We must not let anything interfere with this series of tests — nothing."



The soldiers' fate

Although the government concedes that 250,000 soldiers were exposed to atmospheric nuclear weapons tests, it is more reluctant to concede that it did them any harm. Veterans groups, led by the National Association of Atomic Veterans, are trying to assemble data to support their claims.

So far, the only thing that the government and the veterans agree on as evidence is a study by Glyn Caldwell of the Center for Disease Control completed in 1977. Caldwell's study found a substantially higher than average rate of cancer in about 2,800 weapons test veterans from Shot Smoky.

According to Glenn Alcaray, scientific advisor to the atomic veteran's association, a number of other studies corroborate his group's contention about the damage to those exposed to nuclear tests. These studies include the research done on the test conducted in the Pacific, after the Hiroshima and Nagasaki bombings, uranium mine workers and even the people who painted radium dials on watch faces.

Alcaray said, "We've looked at anyone who has been exposed to ionized radiation and we've found a threefold increase in leukemia."

According to Alcaray, "One additional problem that hasn't received much attention is that we've found a tenfold increase of polycythemia Vera — PV disease — among Shot Smoky participants. This is a malignant or premalignant bone marrow disease, similar to leukemia. In Japan they've found a clear correlation between PV disease and the distance of the victim from the epicenter of the blast. The closer to the blast, the better the chances of disease. It was a very neat, clean correlation."

The government has funded another study by the National Academy of Sciences which is expected to be released in about six months. Leaks from that study indicate that it will find no significant rise in cancer among the 40,000 men under study.

The National Academy of Sciences study is already coming under criticism. Alcaray said, "They are looking only at cancer and only at mortalities from cancer, not at living people who have cancer but haven't died from it. In addition, there are a host of other diseases caused by radiation — diabetes, cardiovascular illness, genetic and chromosomal damage and birth defects. People who have been exposed to large radiation dosages live an average of 10 years less than those who haven't."

The government, for its part, says that film badges worn by many of the participants showed that they received only 500 millirems of radiation. Alcaray said the film badges measure only gamma radiation, not alpha, beta or neutron radiation; that they don't measure internal dosages — "These men inhaled a lot of the radiation they received"; and that they don't measure damage to those organs which are particularly efficient in storing radiation, like the thyroid.

Nevertheless, Alcaray acknowledges that his group has an uphill fight. The Senate Veterans Committee will hold hearings on the issue in early April.

— Dan Whipple

Forest fire management

Smokey the Bear deposed

by C.L. Rawlins

0530 hours. We stand in squads in the darkness, waiting for the trucks. When they arrive — high-wheeled Army 6x6s — we clamber into the back and stack field packs amongst our booted feet. The air in the open bed of the truck is chilly as we ride to the airfield. We file out to the apron and give our names and weights to the loadmaster, who figures the people and equipment into helicopter loads. The sun comes up and pilots fire the turbines of the Bell Jet Rangers into life with a mounting roar. The loadmaster calls the names of the first squads as helmeted figures hunch under the rotor wash and board the ships. I take the front seat next to the pilot and we lift from the airstrip and head into the rising sun over timbered hills.

After 20 minutes, the pilot calls, "There it is." But we have already sighted the objective — a column of smoke billowing from a steep canyon. He touches down on a helispot contrived from a crib of logs laid across the spine of a razorback ridge.

We leave the helicopter bent low, clutching packs, and head toward a stack of gear. We look toward the base of the pillar of smoke, mixed anticipation and fear clutching our guts over the soggy scrambled eggs and bacon of a field-kitchen breakfast.

"Looks bad," someone says.

Vietnam? Korea? The details may give that impression, but the scene was California in the fall of 1977, during a declared state of emergency. The cause was not invasion, but fire. A season of drought had produced the worst fire hazard in many years and forest and range fires were burning out of control throughout the West. The battle was waged against an enemy with no terms to offer, no fear of death and no motive except to burn.

Kent and Donna Dannen

This characterization of fire as an enemy comes easily to anyone who has ever seen a large forest fire at close range. To those involved in what federal agencies call "wildfire suppression" it comes easier still. Big fires are awesome, unpredictable natural forces that rank with avalanches, floods and tornadoes in potential for destruction. Given this aspect of fires, along with their recent history on this continent, it is not hard to see why the role of fire in regenerating forests escaped our attention, officially at least, until the last decade. Forest fires were bad and putting them out was good. A blissfully simple — and erroneous — equation.

Fossil charcoal from fires set by lightning or volcanoes has been dated to 80 million years ago. Such evolved adaptation as the aerotonous (heat-opened) cones of jack pines and lodgepole pine show that these species developed in a context of regular fires.

In a *Scientific American* article on the ecology of fire, Charles Cooper wrote, "Before Europeans came to North America, fires periodically swept over virtually every acre on the continent that had anything to burn." In addition, the native people of the continent regularly set fires, both by accident and on purpose, to influence the type of vegetation.

A history of the Massachusetts Bay Colony, dated 1632, said, "The Salvages are accustomed to set fire of the country in all places where they come; and to burn it twize a year ... at the Spring, and at the fall of the leafe. The reason that moves them to do so, is because it would otherwise be so overgrown with underweedes that it would all be a copice wood and the people would not be able in any wise to passe through the country . . ."

There is evidence that the use of fire by native people also served to maintain vegetation for favored species of game and food plants such as berries. Given the presence of these fires, added to the natural fires kindled by lightning, it might seem that there would be little forest left, but the accounts of early settlers testify to forests more extensive than we have today. To trace the changes in the forest and the attitudes and practices that caused them, we must look to the early period of colonization.

The colonists were a wood-hungry society. They made most of their cultural inventory, from homes to toys, out of wood and wood was their main source of energy aside from muscle power. Instead of using the food resources of the forest, they cut and burned it to clear land for European-style farming, sometimes denuding far more land than they could successfully work. Logging left slash — the debris left after marketable trunks were skidded out — piled over large areas. Dried, this slash provided a fuel bed for both intentional and accidental fires, which often burned for months until put out by rain, snow or lack of anything left to burn.

Fighting these fires was undertaken only when houses or crops were threatened. To the colonists, the smell of smoke was a mark of civilization's advance into the wooded hinterland.

The constantly burning slash and clearing fires combined with drought and windy weather to cause holocausts that devastated huge areas and killed wildlife along with the humans responsible for the fires. The Miramichi and Piscataquis fires raged through present-day Maine and New Brunswick, burning millions of acres and killing settlers. The Peshtigo Fire roared through Wisconsin in 1871, burning an estimated 1.3 million acres of forest and killing between 1,000 and 1,500 people in the logging towns. The newspapers of the time gave it second billing to the infamous, though much smaller, Chicago Fire.

Other fires that same year burned over two million acres in Michigan and blew over towns without even slowing down. The years 1881, 1891, and 1894 were years of fire disaster in the heavily-logged Great Lakes states, with extensive forest loss and many deaths.

In 1902, fires burned large tracts from Eugene, Oregon to Lyman, Washington, a distance equal to that between New York City and Norfolk, Virginia. 1910 saw 1,700 forest fires in Idaho, Montana and Washington consume three million acres and several logging and mining towns.

The founding of federal land management agencies at about this time was in part motivated by such disasters as fire and flood caused by the abuse of public lands through uncontrolled logging and overgrazing. The public demanded protection and the legacy of destructive forest and range fires made fire a prime villain in the public mind.

Given this beginning, as well as a lack

Fire policy changes — slowly

The present drive to produce long-term forest plans includes an effort to alter the past policy of suppressing all fires other than those started by the U.S. Forest Service to achieve specific objectives such as sagebrush reduction or timber slash treatment. *The National Fire Policy Workbook*, published in March 1982, explains changes in the fire management section of the USFS manual which aim at different ways of handling fire on public lands.

The major concept is that of "prescribed fire." Fire prescriptions are to be written based on the condition of an area and the management objectives arrived at through the planning process. A prescription might vary from allowing fires to burn within certain areas or under certain weather conditions to total suppression. In practice, this could mean allowing a fire to burn over grass and shrubland with observers on the scene, but calling for suppression before it reached an adjacent patch of timber.

The changeover is targeted for completion by 1985, with fire prescriptions included in the comprehensive forest plans. Until prescriptions have been made, the treatment of fires is to be determined by current area plans or by rapid suppression.

The workbook makes it clear that wildfires — fires not covered by a prescription or exceeding the prescription — are to be suppressed regardless of any management objectives they might help achieve, citing the unpredictability and difficulty of controlling fires in conditions not specified by a strict prescription.

In general, the new policy approaches the problems resulting from the years of total suppression in a cautious and conservative way. Even allowing fires to burn within prescriptions will probably generate adverse public reaction, since most people still consider fire a threat to the forest rather than a necessary part of its natural cycle.

While the combination of prescriptions and flow-charts for decision-making look good on paper, the primary difficulties with the new policy will lie in applying it under field conditions.

In the past, any USFS employee encountering a fire would report it and, if possible, begin fighting it immediately. The decisions to be made were how to best control the fire: how many firefighters to dispatch, whether to call in air support (helicopters or tankers), and how to locate control lines.

The new policy requires, following the initial report, a look at the area prescription and a decision on whether to start suppression or send qualified observers to the scene. Given the vagaries of radio contact and the possibility that the persons charged with making the necessary decisions might be unavailable, it seems that confusion could easily ensue.

Critical to the success of the new policy will be a thorough understanding of it at the district level and education of both permanent and temporary employees in the fire prescriptions for the areas they cover. The cost of this in money and time will be substantial, especially when added to that of the prescription process itself.

Even with these liabilities, the change in policy is a tentative step in the right direction. Ironically, its effectiveness is limited by the critical state of much of the forest after years of fire suppression. Many areas highly vulnerable to natural fire cannot be allowed to burn — the fires would be intense and uncontrollable.

Should the "prescribed fire" concept work out, it will allow a bolder and more effective use of fire to help regenerate areas where it played an essential role for thousands of years.

— CLR

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Kent & Donna Dannen

An executive of Georgia-Pacific wrote to a congressman, "I am certain you will be interested in the decision of the Forest Service to let northern Idaho burn since fire 'has always been part of the ecology.' This is incredible."

of knowledge about the role of regular fire in forest succession, it is not surprising that the Forest Service idea of fire management was, until recently, that fires should be put out without exception. The fact that firefighting, though often dirty and dull, is one of the most dramatic aspects of Forest Service employment gave the suppression of wildfire an importance in the mind of both the public and the agency that had more basis in sentiment than in fact. The figure of the dauntless ranger battling leaping flames to save trees and wildlife was highly appealing. A Forest Service pamphlet printed in the 1920s and titled "Forest Fires or Game?" condemns fire as a ruthless destroyer of wildlife and habitat. Another of the same era asserts that wildfires impoverish the soil, cause erosion of "immense quantities" of soil and "kill baby trees." These charges were based more on popular opinion than actual study, but they were doctrine at that time. No less a conservationist than Aldo Leopold was quoted in the former brochure.

Given the scientific knowledge that has painted a broader picture of fire as a factor in ecological relationships, it is easy to condemn the Forest Service for its past faults, but it is also somewhat of a cheap shot. The various campaigns aimed at educating the public to fire hazards and prevention fostered a genuine, though misinformed, concern for the forest. The creation of Smokey Bear gave us a much-loved folk hero that symbolized care for our wild lands.

The legacy of this century's policies of total suppression of wildfire presents today's better-informed managers with serious problems. Efforts to control fire have altered natural forest succession over vast areas, with effects that are currently seen as negative in many respects.

In a paper on the relationship between fire and game habitat on the Bridger-Teton National Forest in Wyoming, George Gruell summarized the effect of fire suppression by stating that "Reduced fire periodicity has resulted in widespread successional advances." Translated, this means that the protected land has been occupied by plants — mainly conifers — that would naturally be thinned by regular fires. Plants growing in recently-burned areas, such as aspen, grasses, and leafy shrubs, are vital to many animals. Further, the variation in plant cover caused by regular fires produced a "mosaic" of available habitats that had a larger carrying capacity for wildlife in general.

On the Bridger-Teton, this has meant

(continued on page 20)

Recolonizing the burns: biology at work

In natural cycles of succession, fire is a periodic event, like rain or drought. The process of succession is a complex interaction of soils, water, climate and living organisms which is usually analyzed with disturbance as a starting point.

When a site is disturbed by fire, the biological slate is wiped relatively clean. An intense fire leaves mineral soil and a layer of ash open to sunlight and precipitation. Seeds that have survivied the burn or have been deposited soon after will sprout and take advantage of the free water and minerals. Exposed to the brunt of sun, wind and frost, they must be hardy to survive.

The fast-growing species of plants that colonize burns are known as pioneers. In western Wyoming, grasses and herbs such as fireweed appear in the wake of intense fires. Exotics (non-native plants) such as Canadian thistle may also colonize disturbed sites. These pioneers stabilize the soil, capture water and nutrients, and contribute organic debris to the soil profile.

Next in the cycle are shrub-stage plants such as raspberry, blueberry elder and snowbush. These have deeper roots and provide shade, which allows the sprouting of shade-adapted species. The early colonizers of burns are often rich in protein and attract animals to feed on tender shoots, leaves and berries. Wildlife carry and deposit further seeds in a burn and contribute droppings, often seed-filled, to the soil.

Aspen is the pioneer among western trees, with a fast-spreading rootstock that yields thousands of sprouts, or suckers, per acre. These grow rapidly, increasing the shade and covering the soil with each fall's offering of bright leaves. They nurture a flourishing understory of grasses, herbs and shrubs which provide vital habitat for wildlife.

As the biomass, or total production of living organisms, increases on a site, the competition for sunlight, moisture and nutrients becomes more critical. Grasses and herbs adapted to full sunlight and disturbed soil disappear, their place taken by plants adapted to more stable conditions.

In the western United States, burns are often colonized by lodgepole pine, a species evolved to exist with regular fires. The cones of lodgepole are serotonous (heat-opened) and the seeds are resistant to the stress of disturbed areas. Mature lodgepole is fire-tolerant, since its crown seeks the sunlight and the bole of the tree is self-pruning, eliminating ladders of dead limbs. Surface fires burn through stands of lodgepole, cleansing them of deadfall, disease and parasites, without harming mature pines. Without periodic fire, lodgepole quickly degenerates into a deadfall-choked tangle with needle-covered, acid soil almost devoid of understory plants.

Conifers such as Douglas fir, white fir, subalpine fir, Engelmann spruce and blue spruce sprout in the shelter of aspen and lodgepole. As they grow, they rise above the crowns of the pioneer trees to absorb most of the sunlight, while their deeper root systems take in water and nutrients. Aspen and lodgepole are intolerant — they grow poorly under conditions of partial shade and increased competition. As longer-lived conifers dominate a site, the pioneer trees retreat to the fringes or disappear.

These long-lived, stable communities are termed climax and they persist until conditions cause further disturbance. Climax stage plants vary depending on conditions. Climax on a floodplain may be grasses and willow, while climax on a north-facing slope may be thick Engelmann spruce. The common factor is a relative state of equilibrium and a self-sustaining life cycle. Climax communities are usually less diverse, with longer cycles of energy, water and nutrient exchange.

One of the prime factors affecting the type of climax community is the frequency and severity of fire. Climax grasslands have regular fires. Without them, shrub-stage plants or timber may dominate. Frequent but light burns are necessary to climax communities of redwoods, since they clear understory vegetation and recycle nutrients back to the soil. Large areas of redwoods are threatened by thick understory which can carry fire to their lofty crowns.

It is a mistake to picture succession as a linear process, a straight line from anarchy to stability. A spider's web would be a better model: circles within circles, with innumerable connecting strands. The alternate binding and freeing of energy, water and nutrients is as basic to succession as birth and death are to human life.

Commercial forestry has tended, like commercial agriculture, to the production of monocultures. On a farm, this means 500 acres of wheat. In a forest, it means even-aged, regularly-spaced trees of one species. Monocultures are highly prone to failure because they lack the diversity and resilience of natural communities. Susceptible to parasites and disease, they require manipulation such as the application of pesticides. Clearcutting and fire suppression have produced the lodgepole monocultures of southeast Idaho, which are infested with beetles and dying of stagnation.

The timber industry has influenced management on public lands in the direction of commercially, but not biologically, viable monoculture. The role of natural fire is supposed to be taken by regular harvest, but economic cycles have not substituted well for biological cycles.

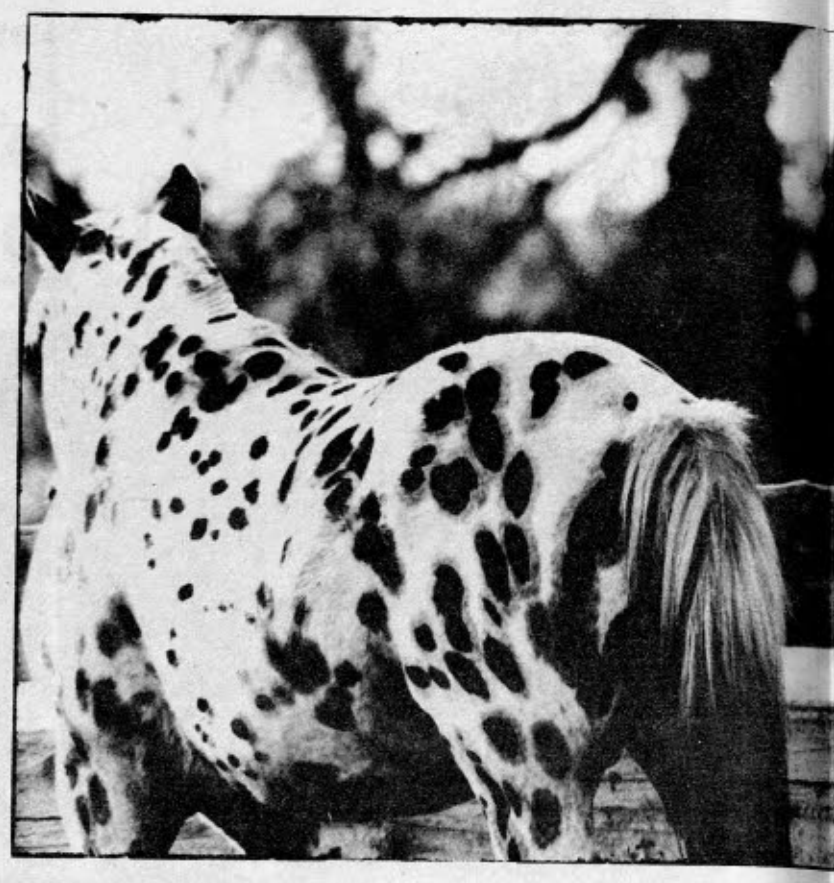
High demand has led to over-cutting, aptly called tree-mining. The current slack demand for timber means that millions of acres are reaching "overmature" stages, ripe for fire and disease. Natural fire burns where conditions permit and there is a source of ignition Clearcutting as a substitute depends on economics, access and a host of other factors which render it an unpredictable means of renewing succession.

The success of forestry techniques for regeneration varies widely. In the Southeast, commercial forests are in effect tree-farms; productive, manageable and predictable. In the arid West, regeneration can't be guaranteed. Some lodgepole clearcuts are broadcast burned — a dispersed technique — and are soon covered with a thick fur of seedlings. Others, such as those in the Union Pass area east of Jackson, Wyoming, have been burned, prepared for planting and heavily planted without much result.

By largely eliminating regular, light fires from the natural cycle, we have made vast changes in the forest which affect its health and its habitat capacity for wildlife. Management to remedy this is beyond the financial and personnel capabilities of federal and state agencies in a time of tight budgets. For the timber industry, which has fallen on hard times, it is simply unprofitable.

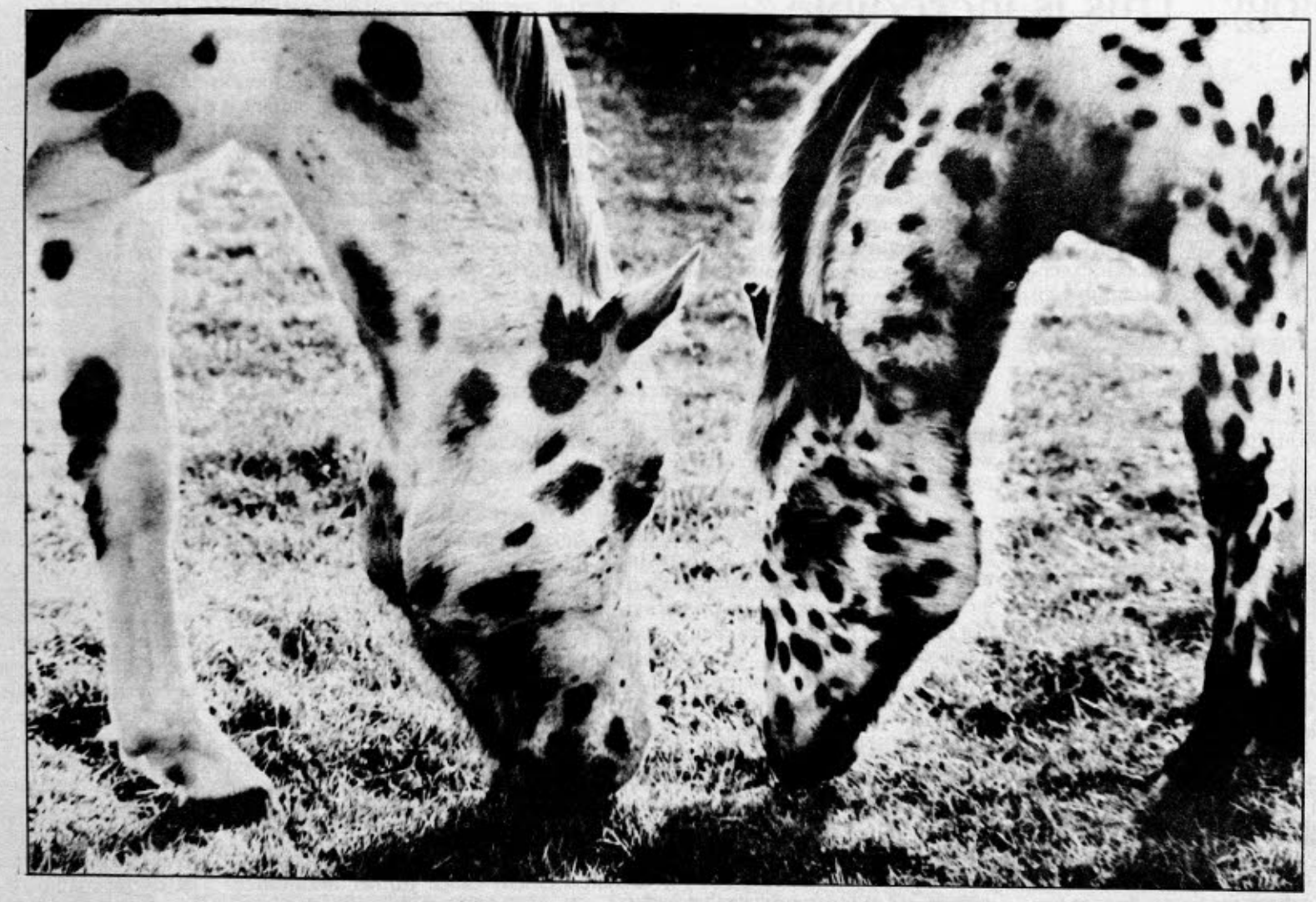
Clearly, commercial forestry in the West is in a tight bind. Of the alternatives — harvest, stagnation or fire — the latter two have been deemed undesirable, but the natural cycle of succession can't be forestalled indefinitely.

— CLR



APPALOOSA

Photos by Glenn Oakley



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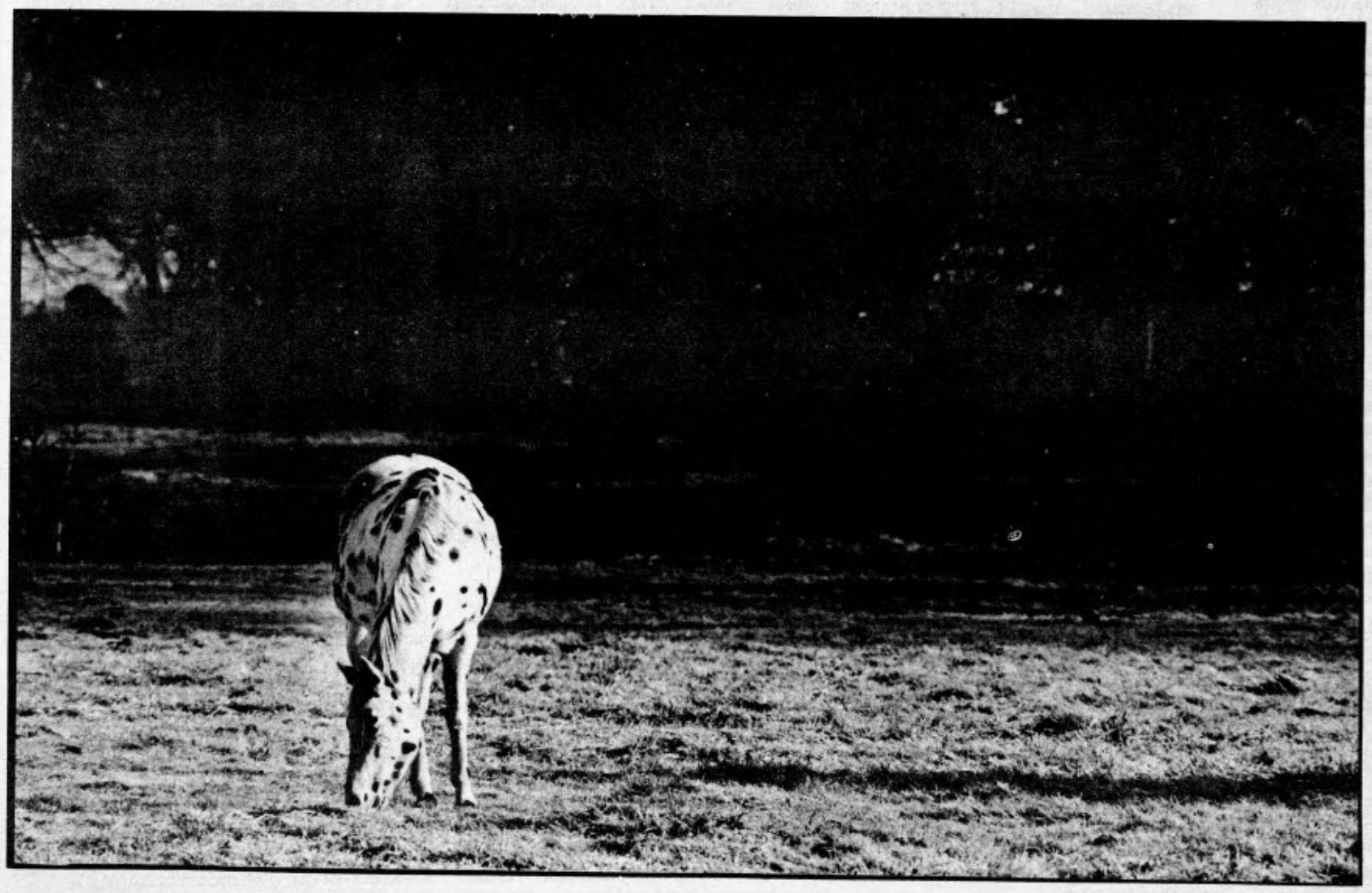
The Nez Perce Indians, who lived in the Palouse region of Idaho, Washington and Oregon, "out-ran, out-fought and out-maneuvered" the U.S. Army during the Indian Wars of the latter half of the 19th century. They accomplished this feat mounted on a spotted horse that was swift, sure-footed, intelligent and dependable. It was known at first as "a Palouse horse," later shortened to "a Palousie" and, finally, to the modern day pronunciation of appaloosa.

The Nez Perce's Chief Joseph was a brilliant military commander, but he could have been a better geographer. He brought his victorious tribe to a spot within a few miles of the Canadian border and made camp, thinking he was safe in Canada. This error resulted in his tribe's capture and removal to a reservation.

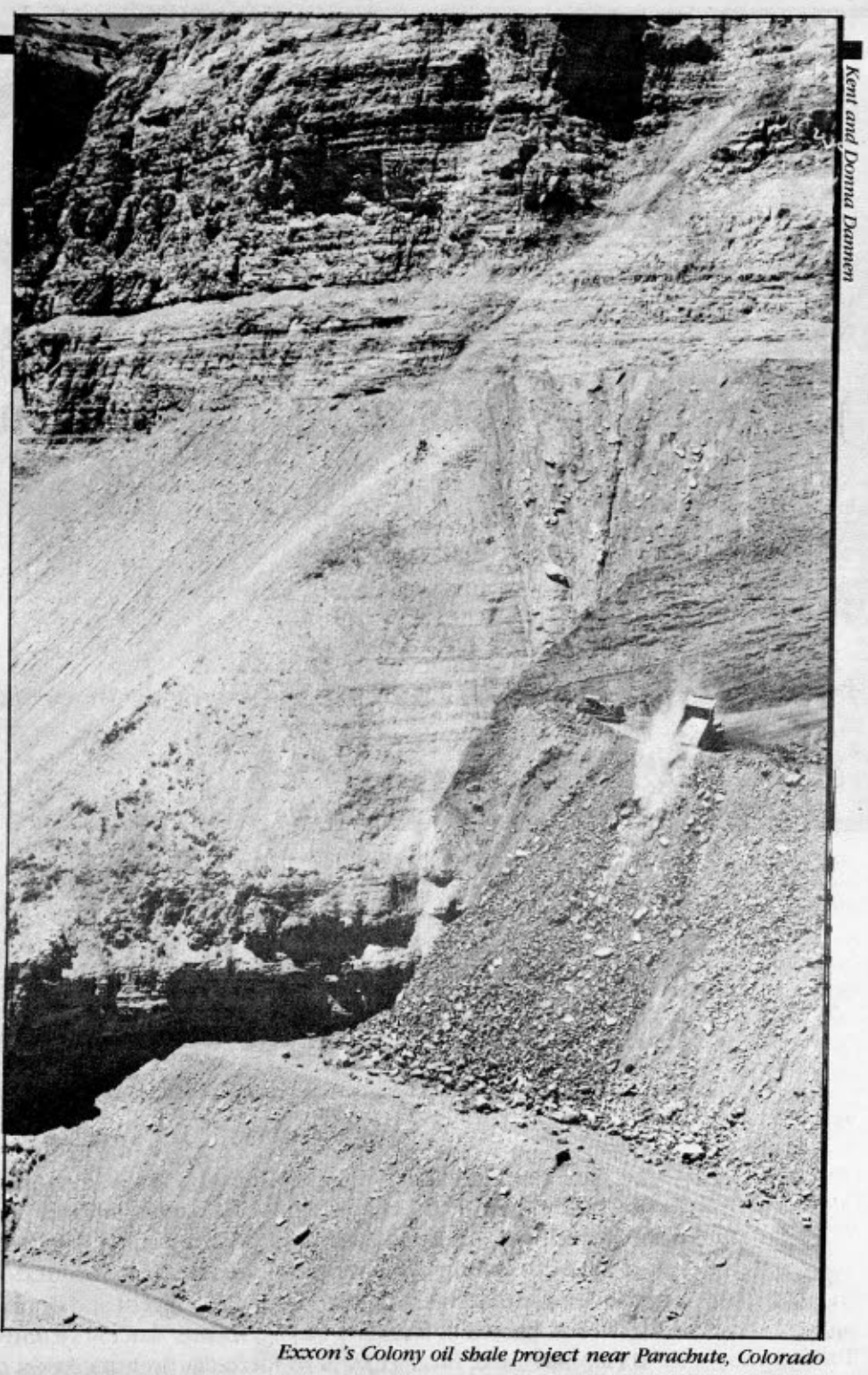
The Army, which felt much the same about humiliating defeats then as now, ordered the appaloosa breed destroyed. Thousands were slaughtered and most of the remainder were bred with draft horses so that the Indians couldn't build up their herds with high quality animals.

The most distinctive characteristic of the breed is its spotted skin. The spot pattern is unique to each horse — it may be speckled only over its rump, completely over its coat or something in between. The Appaloosa Horse Club requires two other characteristics before it will register an appaloosa. First, the white of the horse's eye — the sclera — must be exposed all around the iris. Second, the hoof wall must have a vertical striping. All other breeds have horizontal striping.

After the military's attempt at extermination, only a few hundred appaloosas survived. In 1937, Claude Thompson of Oregon undertook to re-establish the breed. He was spectacularly successful. By March of 1983, the Appaloosa Horse Club had registered over 382,800 appaloosas.



The rumor said Exxon would restart Colony in August. Everyone had it on good authority from a close friend's brother-in-law in the Exxon hierarchy.



Kent and Donna Dannen

Exxon's Colony oil shale project near Parachute, Colorado

Oil shale...

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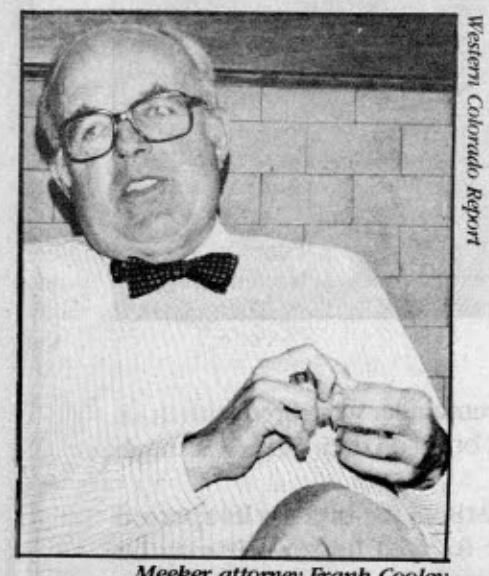


Western Colorado Report

Meeker attorney Frank Cooley

Beauty-like trance for almost two months.

Nord noticed the trance on Monday, May 3. He says people simply stopped coming to his Clagett Memorial Hospital; occupancy dropped almost to zero. Clagett was a good indicator for the rest of the region. Some people come to a hospital because they have to — they've broken an arm or they're about to have a baby or their child is running a 105-degree fever.

But most visits are not matters of life and death. They're matters of discretion — tests, respiratory therapy, optional surgery and so on. In that sense, a hospital is like any other business, and in May and June the Rifle hospital saw very little business.

Eventually, people started trickling back in again, but occupancy was down a full 50 percent or more during May and June. Part of the drop was caused by the fact that some people immediately loaded up and left town. When Nord left his nearly empty hospital to go home, he noticed that some of his neighbors weren't around. He saw that their lawns were dying and weeds were growing up in what had been well-kept yards. People had simply moved away.

After a couple of months, Nord said, the town began to come back to life, or to an appearance of life. Realtors began caretaking the vacant homes for sale or rent, and they saw that the grass was watered and the weeds pulled.

Hospitals are excellent economic indicators because they are more or less free market operations. But they are also public bodies, and their financial records are open to the public. Throughout the region, hospitals signalled that the impact of the Exxon closure had gone deep and wide.

For example, 30 miles east of Rifle, the Glenwood Springs hospital didn't expect any impact from Exxon. Administrator John Johnson said that, if anything, his hospital expected to be hurt by the boom, rather than by the bust. The boom would have allowed the Rifle hospital to expand its capabilities, and so Glenwood would have lost the specialty cases it gets from the Rifle area.

Johnson and his hospital didn't welcome Black Sunday, but objectively speaking it was good news for Valley View. The national bond market, however, wasn't in the mood for fine distinctions. So when the Glenwood hospital, coincidentally, went into that market on May 4, 1982 to sell $6 million in bonds for an expansion, the bonds just sat there, virtually untouched.

Glenwood came back the next day with a higher interest rate; this time there were no takers at all. The media had first made western Colorado a household word across the nation; then it made it a dirty word. The hospital finally sold its bonds, but weeks later and not in the national bond market.

In Grand Junction, located to the east of Parachute and Rifle, St. Mary's — a large regional hospital — pondered its $20 million expansion plans in the wake of the Exxon closure. Finally, nervously, it decided to go ahead, but in a phased and cautious way.

Throughout the region, in fact, everything was on hold. Construction shut down almost totally in the first few weeks as banks cut off construction loans on the homes, office buildings, and retail stores being built in the 100-mile-long Grand Junction to Glenwood Springs corridor.

Travelling salesman Mike Packo, who sells nailing guns and fasteners to the construction industry around western Colorado, recalled that in 1981 he was swamped. "I had guys call me Christmas Eve — they needed nails for the next day. They were working seven days a week to finish up jobs." That didn't mean there was easy money to be made. "Back then you had twenty construction crews looking for ten jobs. The general contractors made out like bandits. But carpenters were making only $5 to $6 an hour. So even when it was good, it was tough."

And even in the boom days, he recalled, not everyone had jobs. "People were camped out waiting for someone to quit or be late or absent at Brown and Root." Exxon's prime contractor was tough on lapses.

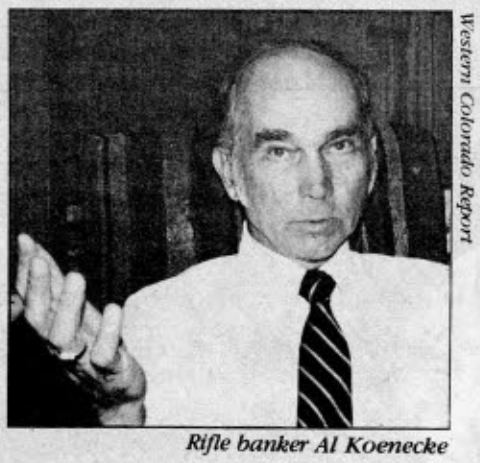
After May 2, Packo recalled, everyone was camped out. The construction business, like the hospital business, went to sleep. "The people building the projects didn't panic. But the money panicked. The banks pulled out of the middle of projects." It didn't just happen in the oil shale towns of Rifle, Parachute and Battlement Mesa. "It happened in Grand Junction, in Fruita — all the way out."

Like Nord, Packo said it stayed dead through May and June and only in July and August went "back to survivable — back to 40 percent of what it had been."

No one knows how many projects were cancelled. But most of the business that let Packo survive came from finishing projects that were well underway by Black Sunday. Bankers and developers were aware of how many homes, office buidings, motels and stores had been built in expectation of a ten-year-long accelerating boom. They were not eager to add new projects to the glut.

At first, government officials and the private sector joined together to make comforting sounds — to say things like "Rifle was here before Exxon and it will be here after Exxon." They suggested that hordes of alternative activities were just itching to move into the newly-built homes and offices.

They also leaned heavily on the presence of Union Oil, which then had 2,000 or so construction workers building its comparatively small (10,000 barrels-per-day against the 47,000 barrels-per-day Colony) oil shale project next to the Colony site.



Western Colorado Report

Rifle banker Al Koenecke

By September, it was time for reality. Al Koeneke, president of First National Bank of Rifle, said what Rifle needed was a pack of financial predators. "We'll work through the next 18 months by dumping real estate. I'm waiting for the sharks to come in. I'm churning the water like mad to try to attract them."

Koeneke said that for weeks after May 2 he had avoided such blunt talk. "As the local banker, if I'd said in May, 'This is really tough,' it would have been really tough. You don't want to create a panic. We had to finish up construction." Rifle couldn't let itself sit with half completed structures as symbols of economic ruin. But four months later, "It's time to face facts."

While the private sector, after May 2, was seeing how long it could hold its breath, the public sector was doing some heavy breathing. The towns and counties in the Grand Junction to Rifle region decided to spend money on public projects as if the U-Haul caravans were still rolling into town.

In the oil shale towns of Rifle and Parachute, the money came from the Oil Shale Trust Fund — a state and later locally-administered pot filled with money the oil companies paid to the federal government for the C-a and C-b leases back in 1974.

Everyone had predicted that the boom would be upon the towns before they could get ready — that the public works projects would lag the need. What no one had foreseen was that the need would come and go before much of the money could be spent.

The fact that the need had come and gone didn't stop the towns from spending money. Parachute, which had grown from a wide spot in the road with population 300 to a much wider spot with population 1,200 by May 2, immediately committed itself to spend $1.6 million to "complete the town," as Mayor Floyd McDaniel put it.

The completion consisted of paving the streets, building curbs and gutters and installing an underground irrigation system. The work was done with a $1.1 million oil shale grant and $500,000 out of Parachute's water fund.

Town manager Ralph Friedman said the town never considered banking the $1.1 million grant against a rainier day. The only question was whether the town would add some of its own money to do a first-rate job. "We're putting up $500,000 of our own money because it's a good morale booster. Everyone was so down and depressed after Colony. Also, it will give the town a positive image. It

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After the bust, the towns and counties in the region decided to spend money on public projects as if the U-Haul caravans were still rolling into town.

won't be a dusty town anymore. It will make a tremendous difference in the way people perceive Parachute."

Parachute is just across the Colorado River from Battlement Mesa — the built-from-scratch town Exxon was hurling up when the shutdown came. Between them, the two communities have lots of facilities. The 1,200 people in Parachute have a new $750,000 town hall, a new $300,000 riverside park, a $500,000 water treatment plant, new water and sewage pipes and a new sewage treatment plant.

If the financially force-fed Parachute had built the facilities by bonding itself, it would have had a 300-mill property tax levy. Instead, Parachute was funded with impact and oil shale trust fund money.

Exxon, however, built Battlement Mesa by itself. Intended to grow to 25,000, it is now stuck at 1,500. Both it and Parachute have been kept filled by Union's construction work force, now at roughly 3,000. But by August, 1983, the construction workers will be gone, replaced by 500 operating employees. No alternative activity has appeared or is on the horizon. The two towns' futures are uncertain.

Western Colorado Report

Parachute Plaza Motel

Parachute was not the only town to continue to expand after the bust. Fourteen miles to the east, Rifle — a better established community of 5,500 or so — also cushioned the Exxon departure by spending money.

During the boom, Rifle had expanded its water system to take care of 12,000 persons, expandable to 20,000. After the bust, in late summer and fall of 1982, it spent about $1 million in oil shale trust fund money to redo every major street in town.

Additional building efforts are planned for 1983, including $2 million to upgrade sewer and water lines in the old part of town. The new part is so new (the town went from 3,200 people in 1980 to 6,000 just before the bust), its utilities are fine.

The town also hopes to break ground on a $1.56 million city hall in the spring. And Garfield County plans to build a recreation center and a social service building. There is money for new schools, but the area already has plenty of school rooms.

The same post-bust spending pattern occurred in Grand Junction, which is western Colorado's regional urban center, with roughly 85,000 residents in its metropolitan area. The county had committed and nearly spent $23 million on new schools. In addition, a $36 million sales-tax-supported county bond issue passed during the boom. The public works projects hadn't started when the bust hit. But even in the face of declining sales tax revenue, the projects went forward.

In addition to county roads and bridges, a new airport terminal was built, the $20 million St. Mary's Hospital expansion stayed on the track, and the city of Grand Junction decided to spend several million dollars of its own on new roads.

It is possible to see this continued city building in a sinister light — communities wrongfully converting money intended to deal with a boom into pointless construction. Such a viewpoint misses the essence of the way the communities looked at oil shale.

The building of public structures, needed or not, should be seen in the context of western Colorado — made up of towns of 500 to a few thousand people which have survived 100 years or so of thin and thinner. Surrounding the survivors are ghost towns — communities built during a boom or general good times and abandoned somewhere in the last century.

The residents of the surviving communities — many of which are dependent on a single mine or on a handful of ranch families — are well aware that "there but for the grace of God goes Olathe, or Ouray, or Parachute." In fact, without oil shale, it is almost certain that Parachute would have been blown away by the next strong economic wind.

So, whatever the local booster rhetoric, western Colorado's fervor was not directed toward oil shale. The fervor was directed toward survival. The small communities in and around the thousand-foot-thick shale deposits were willing to host the mining and retorting activity in return for getting money to become more deeply rooted.

When oil shale collapsed, and the industry and its workers U-Hauled it out of town — just like the beaver trappers and silver miners and turn-of-the-century land promoters before them — those committed to their communities continued with their primary mission of making their towns more permanent.

Whatever the future brings, they figure a town with paved streets, a decent town hall and a community center will better meet that future.

Kent and Donna Dannen

If there is a casualty in all this, it is the countryside. The oil shale towns were originally creatures of the economic activity around them — they served the cattle ranching, sugar beets, fruit growing and national forest-based hunting and fishing.

Over the decades, agriculture has dwindled — the sugar beets, fruit and row crop farming disappeared, leaving only cattle. A series of oil shale booms, stretching back 70 years, hastened the conversion of the area from a rural outlook to one that stressed urbanization.

So it was natural and in character that when the latest burst of oil shale activity sent money into the communities, it was spent on the towns and on urban activity. Not a penny went to help agriculture or public lands recreation. Nothing was spent to strengthen or support the existing economic base. Instead, the towns established 24-hour emergency telephone numbers, urban-type riverside parks, indoor recreation centers and the like.

Even now, the suggestion that some of the money should have gone to help the ranchers cope with the urbanizing situation, or to subsidize a livestock sales year so they wouldn't have to drive over the Divide to sell their animals, or to plan or build recreation facilities in or near to national forests, is seen as silly.

The exception to this rule is Meeker. A community of about 2,500, Meeker is firmly and proudly a cattle and sheep town. And it — or at least its leadership — wanted no part of the boom and bust of the oil shale industry. The Rio Blanco County Commissioners, for example, told C-a and C-b that it did not want their construction worker dorms established in or near Meeker.

Commissioner Tim Schultz, a rancher, told the companies, "You bus them in and you bus them out." So Oxy-Tenneco and Gulf-Standard of Indiana bused them down to Parachute and Rifle, which were only too happy to have the mancamps.

Meeker's opposition to oil shale wasn't long-term. The area was willing to eventually be home to the permanent operating force. But it wanted no part of construction turmoil. Schultz said that 2,000 construction workers playing on public land with four-wheel-drive vehicles would quickly chase off the 100 or so ranch families the region depended on.

Rio Blanco County and Meeker were also different when it came to spending oil shale money. They expanded facilities slowly, grudgingly, even if the money was "free." And when the bust came, they put their share of the trust fund — $20 million — in the bank.

Again, according to Schultz, Meeker believes it already is "complete," and that a new town hall or a new shopping center would not make it a better community. In fact, all through the boom planning process, Meeker's main concern was to figure out how it could grow without changing.

Predicting an economic future is about like predicting Colorado mountain weather: it's impossible, and only fools and newcomers — which to some oldtimers are the same — try it.

So no one knows how, or if, the new schools, the paved streets, the vacant apartments and offices, the shopping centers and the many motels built during the boom will be used.

Before the national economy deflated, western Colorado received a stream of young immigrants and retirees from urban areas. The retirees brought their pension checks; the younger people generally had a bit of money — enough to buy a home and hold on until they found a job or started a small business in the expanding economy.

That stream has dried up now. And when, or if, it comes back, it is hard to see why the immigrants would be strongly attracted to Rifle, Parachute, De Beque or even Meeker.

The towns are in starkly attractive areas. But they are not in the mountains, and western Colorado has scores of towns in far more beautiful settings.

Mining will probably come back, to a lesser or greater extent, in step with Smokestack America. But with the exception of oil shale and some associated minerals, and gas, oil and coal in the Meeker area, there isn't much to mine in the oil shale region.

The most one can say about the futures of these towns is that it will be interesting to compare — five or 10 years from now — city builders such as Rifle and Parachute with Meeker, which tried to hang on to its rural and recreational economy.

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Ed Marston is the editor of *Western Colorado Report* in Paonia, Colorado. This article was paid for by the HCN Research Fund.

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For free brochure contact Veniture Travel, 365 W. Lincoln Highway, Chicago Heights, IL 60411, (312) 755-1100. Ask for Pat

Aspen Center for Environmental Studies

The Aspen Center for Environmental Studies is an environmental education center and wildlife sanctuary located in Aspen, Colorado. This summer the Center will sponsor a series of field courses that will explore the Rocky Mountain environment from the floor of the Roaring Fork Valley to the alpine tundra of the Continental Divide.

College credit will be available for six of the courses. Nine courses offer teacher recertification credit and two courses offer teacher inservice credit.

20% discount on courses for members of A.C.E.S. and 25% discount on courses for teachers and students. A.C.E.S.' summer session runs from June 27 through August. Individual courses run 1-6 days.

Cloud Ridge Naturalists

Cloud Ridge Naturalists offers field seminars that explore all aspects of Southern Rocky Mountain natural history, from archeology and geology to birds, mammals, botany, and general ecology. Special art workshops are also offered. Our goal is to help you to see, understand, and enjoy the natural world more fully. Seminars are typically intensive, but are conducted at a resonable pace, without neglecting creature comforts. Our instructors are some of the leading naturalists in the Rocky Mountain region. For a brochure describing 1983 seminar offerings, contact Cloud Ridge Naturalists, Overland Star Route, Ward, Colorado 80481.

Colorado Mountain College

Colorado Mountain College — the name itself hints at the excitement and potential for learning adventure at this unusual community college located in the central mountains of Colorado. During the regular school year, students come from around the country to study basic arts and science transfer programs and vocational job training programs. But, summer in the Rockies is special. Writers, photographers, artists and educators come from around the world to teach and attend special summer workshops. For special information, please send in the coupon on the Colorado Mountain College ad on page 16 of this issue of *High Country News*.

Colorado Outward Bound School

Surrounded by the rugged peaks of the Rocky Mountains, your course takes you from the first day's backpackng to major peak ascents. In the spring and fall, canyon backpacking and rock climbing are offered in the Utah Canyonlands, and in winter, cross-country skiing and ski-mountaineering in the Colorado Rockies. White-water

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Teton Science School

GRAND TETON SUMMER SEMINARS

Field Courses in Natural History for the serious amateur

College Credit available

5-DAY SEMINARS · NON-RESIDENTIAL · $125 ·

June 20-24
THE RIVER RESOURCE
Verne Huser

June 27-July 1
GEOLOGY OF JACKSON HOLE
Dr. Ronald Bruhn

June 28-July 2
NATURE PHOTOGRAPHY TECHNIQUES
D.J. Bassett

July 4-8
SMALL MAMMALS OF THE TETON AREA
Dr. Aelita Pinter

July 11-15
VASCULAR FLORA OF GRAND TETON
Dr. Arthur H. Holmgren

July 18-22
ANIMAL BEHAVIOR
Dr. Allen Stokes

July 25-29
STALKING THE WILD ARTHROPOD: FIELD INSECT ECOLOGY AND IDENTIFICATION
Dr. Stanley Williams

July 26-30
BOTANICAL ILLUSTRATION TECHNIQUES
Andrea Moyer, M.A.

August 1-5
ALPINE FLORA OF THE TETON RANGE
Dr. Gregory Kunkel
Backpack traverse of the Teton Range.

August 1-5
INTERPRETING THE NIGHT SKY
Robert C. Hoyle

August 8-12
TECHNIQUES OF ENVIRONMENTAL EDUCATION
Dr. Ronald Beiswenger

August 15-19
FIELD ARCHAEOLOGY/HUMAN ECOLOGY OF JACKSON HOLE
Dr. Gary Wright

August 15-19
WILDERNESS VENTURE
Sandy Pew
Backpacking course in Teton Wilderness cover basic outdoor skills.

8-DAY SEMINAR · RESIDENTIAL · $375 ·

August 9-16
THE YELLOWSTONE/TETON CONNECTION: TWO PARKS, ONE ECOSYSTEM
Explore the natural history, geology and human history of these two special areas. Participants spend four days in Yellowstone at the Yellowstone Institute followed by four days in the heart of Jackson Hole at the Teton Science School. $375 includes lodging, meals and transportation while taking the course.

3-DAY SEMINARS · NON-RESIDENTIAL · $75 ·

June 24-26
FOREST ECOLOGY AND MANAGEMENT
John Weaver, M.A.

August 5-7
RAPTOR ECOLOGY AND MANAGEMENT
Robert Oakleaf, M.A.

September 30-October 2
FALL PHOTOGRAPHY: FOR LOVE, NOT MONEY
Ed Riddell, John Telford, Jon Stuart

Teton Science School is a private, non-profit organization operating in cooperation with Grand Teton National Park to offer year-round field ecology programs.

Participants in the non-residential seminars stay at Grand Teton National Park's Gros Ventre Campground where fees are waived. For back-country seminars, participants provide their own food and equipment.

College credit is available for most courses for an additional fee of $28/semester hour.

Each non-residential course involves 3 or 5 eight-hour days in the field with an experienced instructor. All classes are largely field studies with informal lectures.

Teton Science School, Box 68, Kelly, Wyoming 83011

Cloud Ridge Naturalists

FIELD DISCOVERY SEMINARS 1983

Summer and Fall Offerings:

Birds of the Colorado Chaparral (June 4)
Amphibians and Reptiles of the Colorado Plains (June 10-12)
Breeding Birds of Colorado (June 17-20)
Rocky Mountain Plants (July 9)
Rocky Mountain Wildflowers and Trees (July 15-17)
Alpine Tundra Ecology: A Llama Pack Trip (July 25-28)
Drawing the Detail (July 29-31)
Thru An Artist's Eye I (August 4-7)
Thru An Artist's Eye II (September 24)
Native Dye and Basketry Plants of the Southwest (September 4-10)
Big Game Ecology and Behavior (September 16-18)

For brochure contact: ***Cloud Ridge Naturalists, Overland Star Route, Ward, Colorado 80481***

ence Target LRT-BE4-V2

Education Directory

rafting courses on the Green, Yampa, and Colorado rivers take place May through September. Longer courses offering college credit include Western Wilderness Quarter and Leadership Development Semester. For a free catalog contact: Colorado Outward Bound School, 945 Pennsylvania, Dept. HCN, Denver, CO 80203-3118.

Feathered Pipe Ranch

The Feathered Pipe Ranch, near Helena, Montana, offers six to ten-day intensive seminars in yoga and body work, holistic health, astrology and personal growth. Its 1983 schedule includes seminars with Indra Devi Mataji, Dr. Bernard Jensen, Brooke Medicine Eagle and others. The high quality of its programs is matched by the physical beauty of the ranch, which features a private lake, log lodges, a bathhouse with sauna and hot tub, and adjacent National Forest. The food is simply great. For more information, contact Holistic Life Seminars, Box 1682, Helena, Montana 59624. (406) 442-8196.

Keystone Science School

The Keystone Science School, a non-profit educational organization, offers year-round programs in field science to school and adult groups from all parts of the United States since 1976. In 1982 alone, the School taught over 2,000 students from twenty states. The School is headquartered at the Old Keystone Village, a collection of 1880's log cabins seventy miles west of Denver and lying at 9300 feet in the Arapaho National Forest. Inquiries should be addressed to the Keystone Science School, Box 70, Montezuma Route, Dillon, Colorado 80435 (303) 468-5824.

Sierra Institute

The Sierra Institute is an interdisciplinary field school providing university-level programs in ecology, natural history, environmental philosophy, and related subjects. All courses are taught in backcountry areas primarily in the western U.S. They are designed for undergraduates who are able to devote from three weeks to a full quarter studying in a unique classroom: the wild world of deserts and mountains, forests and meadows. Programs are offered year-round and provide from five to fifteen units of credit (quarter system).

Offerings for Summer 1983 include the following: *Sierra Nevada Natural History* (10 units), field ecology of the Yosemite region; *Wilderness Solitaire*, (5 units), exploring the evolution of human attitudes towards wildlands; and *Wilderness Journal*, (10 units) studies in the work of nature philosophers and writers.

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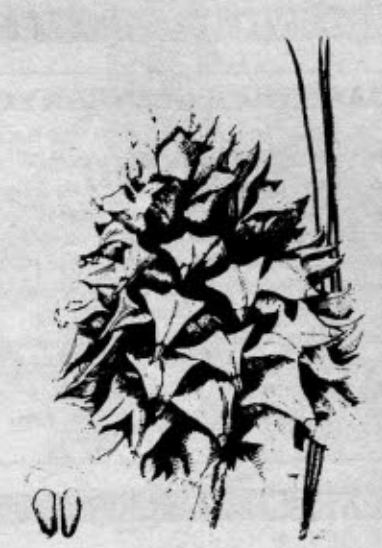
The Sierra Institute
1983
Wilderness Field Studies

•California High Sierra
•Pacific Northwest

University of California Extension
Santa Cruz



Summer

Nature and Renewal:
Women in the Natural World
June 24 - June 28, 2 units

Sierra Nevada Natural History
July 25 - August 25, 10 units

Wilderness Solitaire: The High Sierra
August 8-27, 5 units

Wilderness Journal:
The High Sierra
July 25-August 25, 10 units

Fall

Wild Coast, Wild Mountains:
The Olympic Peninsula
September 12-November 4, 15 units

John Muir Wilderness
August 31-October 25, 15 units

Wilderness Image:
Backcountry Yosemite
August 31-October 25, 15 units

The Sierra Institute

The Sierra Institute is an interdisciplinary field school providing seminar and tutorial study programs in ecology, natural history, environmental philosophy, nature writing, and nature photography. The program is designed for undergraduates who are able to devote a quarter to reflect and study in one of the many wilderness areas in the Western United States.

The courses are designed primarily to satisfy general education requirements for liberal arts students.

General Information

- Students must be physically capable of extended backpacking in mountain terrain. A certificate of health is required.
- Students must provide their own backpacking equipment.
- Costs of food and transportation to study sites will be shared among group members; an estimate of costs is provided for each program.
- The University of California is on the quarter system and academic credit is given in quarter units. (1½ quarter units equals 1 semester unit.)
- There are no out-of-state fees.
- In order to transfer units students should plan on contacting their advisor well in advance. The initial information you receive will contain the academic course information your advisor will require.

For Course Information
Indicate the course title, the school quarter and subject you are interested in.
Phone (408) 429-2761 or write:
Sierra Institute
Box AA
University Extension, Carriage House
University of California, Santa Cruz
Santa Cruz, CA 95064

Summer in Yellowstone

Join the Yellowstone Institute for over 40 field seminars in Yellowstone National Park. Courses vary from 2 to 5 days, and many may be taken for college credit.

1983 courses include:

- *Rocky Mountain Wildflowers*
- *Birds of Yellowstone*
- *Small Mammals*
- *Night Skies over Yellowstone*
- *On the Trail of the Nez Perce*
- *Yellowstone's Historic Photographers*
- *Getting into Yellowstone: An Introduction to the Animals, Plants and Geology of the Park*
- *The Yellowstone-Teton Connection*
- *Volcanoes and Fossil Forests*
- *Large Mammals*
- *Grizzly Bear Biology and Management*
- *Outdoor and Wildlife Photography*
- *Canoeing*
- *Backpacking*
- *Fly Fishing*
- *Biking Yellowstone*
- *Wilderness Horsepacking*
- ***Plus many other courses on history, art and environmental education. Also a 3-day camp for children at the historic Buffalo Ranch.***

The Yellowstone Institute is a non-profit, tax-exempt organization. For a free catalog, write:

The Yellowstone Institute Box 515
Yellowstone National Park, Wyo. 82190
(406) 443-0861

JOIN US ON THE SUMMIT.

WHO ARE WE? We're Outward Bound—an opportunity for you to experience personal growth through adventure. We'll give you the unique opportunity to push your limits while enjoying the grandeur of the Colorado Rockies in the summertime.

Sooner than you think, the mountains will become your second home. You'll gain a new perspective on your environment and yourself. As your journey unfolds, the strangers in your group will become friends. Together, and by yourself, you'll learn new ways to solve problems and skills applicable to your everyday life.

These courses are tough. They're meant to be—but not beyond the reach of anyone who tries. They're fun. And as safe as human ingenuity and experience can make them.

WHERE? Few places on earth can match the beauty of the Rocky Mountains. You'll be surrounded by rugged peaks, fragile alpine tundra, fragrant sub-alpine meadows, clear lakes, and the magic of forests, wildflowers, rocks and streams. On a ten-day or 23-day mountaineering course, you'll learn how to backpack, mountain climb, rock climb and innumerable other skills. You'll feel the challenge of an alpine peak ascent, the tranquility of a mountain dawn.

WHEN? Our summer program runs from May through September, spanning the variety of conditions and environments from late spring to early fall. If the summer course doesn't suit your schedule, consider our other experiences. Glide through the pristine wilderness of the winter mountains on cross-country skis, thrill to the fast-moving pace of a whitewater raft trip, or explore the mystery of the Canyonlands of southeastern Utah.

WHY YOU? We all need a change of pace, an opportunity to live up to our own potential. You can stay in your home forever. Comfortable. Secure. Untested in the rich waters ahead. Or you can choose to explore the unknown.

Write for a free four-color catalog today. No experience necessary. Outward Bound is a non-profit educational organization.

JOIN US.
Send a free catalog on the year-round courses offered to:

Name

Address

City/State/Zip

Age

Mail coupon to:
Colorado Outward Bound School
945 Pennsylvania St., Dept. HCN
Denver, CO 80203
(303) 837-0880

COLORADO
Established 1964

EXPERIENCE SUMMER IN ASPEN!

FIELD COURSES IN NATURAL HISTORY

Rocky Mountain Birds
Field Ornithology
6/27-7/1
Philosophy of the Green World
7/4-7/8 & 8/15-8/19
Ecology of the Roaring Fork Valley
7/11-7/15
Alpine Tundra Ecology
7/20-7/24
Advanced Alpine Ecology
7/27-7/29 & 8/3-8/5
Rocky Mountain Mammals and Wildlife Photography
8/1-8/5
Wildlife Ecology and Management
7/8-7/10
Mountain Wildflowers
7/16-1/17, 8/11-8/12 & 8/15-8/16
Nature Writing
8/6-8/10
Grass Identification
8/13-8/14
Tundra Walk
8/1 & 8/18
Mountain Ecology
7/18-7/19
Wildflower Walk
8/19
Geology of Aspen
7/25-7/29
Basic Botany
8/22-8/26

Teacher recertification credit, college credit and tuition discounts for teachers are available. Write:
Aspen Center for Environmental Studies
P.O. Box 8777B
Aspen, Colorado 81612
(303) 925-5756

CLASSIFIED

ADVENTURE

BACKPACK GLEN CANYON

The Sierra Club movie GLEN CANYON: THE PLACE NO ONE KNEW describes tributary canyons of Glen as "Truly spectacular ... Among the finest in the world ... Canyons rivaling those anywhere ... Some have no rivals."

Explore these Glen side canyons with knowledgeable guides — including a visit to Rainbow Bridge if desired. Leisurely and highly enjoyable 5, 8 and 10 day trips March thru May (last spring trip is May 29) and Sept. - Dec. Unexcelled photographic opportunities. Delicious food. Reasonable rates start at $157. Family and group rates. Write for free brochure. Glen Canyon Backpack Expeditions, P.O. Box 162-A, Boulder CO 80306. (303) 443-3371.

CONSERVATION

A non-polluting toilet that works. Naturally.

Clivus Multrum composting toilet is waterless, chemical-less and odor-free. The process is aerobic, the end product valuable and useful. Our system converts toilet and kitchen waste to organic fertilizer with no contribution to groundwater or air pollution. Clivus Multrum: a handsome and sensible solution. May we send you a complete description and installation requirements?

Teton Tinkers and Traders
Box 91, Victor, ID 83455
(208) 787-2495

PASSIVE SOLAR/LOG HOUSE BUILDING WORKSHOP. Learn basics of solar design plus an introduction to alternative energy technology. Participate in building a solar cabin. May 11 to 15, June 15 to 20. Tuition, $100. Tinkers and Traders, Box 91, Victor, Idaho 83455. 208/787-2495.

REPAIR IT YOURSELF

Polyester Resins & fiberglass to repair kayaks, canoes, cars and just about everything else. Free catalog.

PLASTICRAFTS, INC.
600 WEST BAYAUD
DENVER, CO 80223
phone (303) 744-3701

LEARNING

COLORADO OUTWARD BOUND SCHOOL offers college credit 9-week course on land use issues. Send for free catalog. 945 Pennsylvania, Dept. WWP-3, Denver, CO 80203.

COLORADO ROCKIES. Exciting field classes in natural history conducted by area experts. One-day, three-day and week-long sessions. Excellent vacation alternative. For 1983 brochure contact: Cloud Ridge Naturalists, Ward, CO 80481.

Summer in Yellowstone

Join the Yellowstone Institute for over 40 field seminars in Yellowstone National Park. A wide variety of courses on wildlife, geology, botany, outdoor recreation, art, photography, fishing and history. Most may be taken for academic credit.

For a free catalog write

The Yellowstone Institute Box 515
Yellowstone National Park, Wyo. 82190
(406) 443-0861

HELP

Environmentally sensitive Wyoming real estate broker will help you find Wyoming property suitable to *your* needs. Also available for ski-tours, backpacking, etc.

Contact Vernon J. Scharp, Century 21 Roundup Realty, P.O. Box 2161, Jackson Hole, Wyoming 83001; (307) 733-2900 (Office); (307) 733-5008.

NEAT STUFF

SAVE THE CASE and protect your instrument. Custom case covers from MAIN STREET CASE COMPANY. Waterproof. Guaranteed fit. Write MSCC, P.O. Box 8, Tetonia, ID 84352.

HCN T-SHIRT SPECIAL! $7 postpaid gets you the last of our 1982 100% cotton t-shirts. Hurry! The only sizes left are small (brown or blue), medium (blue) and extra large (blue). HCN T-shirts, Box K, Lander, Wyoming 82520.

SPORTSTUFF

LARSEN'S BICYCLES
255 E. Second
Powell, Wyoming 82435
SCHWINN ..... TREK
STUMPJUMPER MOUNTAIN BIKES

GROUPS

ALMOST ALL OF OUR READERS consider themselves environmentalists — 89 percent, in fact. But they may not belong to *your* environmental group. If not, you're missing some awfully good prospects. Broaden your membership base: Advertise in *HCN*. Rate card and demographics available upon request. *HCN* Advertising, Box K, Lander, Wyoming 82520.

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Programs for Fall 1983 are all eight weeks long and provide 15 units. They include: *Wild Coast, Wild Mountains: The Olympic Peninsula*, field ecology and wilderness management; *Wilderness Image: Backcountry Yosemite*, exploring the idea of wild nature throughout different cultures, art forms, and religions; and *John Muir Wilderness*, field ecology of the Sierra from Yosemite to Kings Canyon.

Programs are popular and have enrollment deadlines. For more information write to the Sierra Institute, Box D, UCSC Extension/Carriage House, Santa Cruz, CA 95064, (408) 429-2761.

National Audubon Society Expedition Institute
A one-room schoolhouse on wheels

The Audubon Expedition Institute is a small group of inquiring college, high school, graduate students and staff members who travel across the country as a learning community. As they camp out September through May and summers, hiking, canoeing and skiing, the expedition visits people and places to observe, discover, question and develop practical awareness of America's ecosystems, cultures and history. We teach you practical skills in ecology, community development, conservation, human relationships, energy use, nutrition, as well as the academics of the natural and social sciences, music and art. Education and mental hygiene. Twenty-five accredited courses are offered.

For further information write The National Audubon Society Expedition Institute, 950 Third Ave., New York, New York 10022; (212)546-9126.

Teton Science School

Jackson Hole and Grand Teton National Park are one of the world's most outstanding natural outdoor classrooms. Teton Science School, now in its sixteenth exciting year, is a private, non-profit school offering a spectrum of natural history and field ecology courses for all ages.

Instructors are highly qualified specialists in their fields who, while investigating their topic in depth, will also relate it to the broader web of life in this spectacular area. All classes are field studies with informal lectures. Some involve laboratory follow-up, others are conducted while backpacking in the high country. Grand Teton National Park and its excellent staff cooperate in providing the facility and other assistance to make these programs possible. As an in-depth supplement to the Park's regular interpretive programs, these year-round classes put Grand Teton National Park and TSS at the forefront of environmental education.

Yellowstone Institute

The Yellowstone Institute is one of the region's unique educational programs, providing field seminars in a classroom that includes all of the natural wonders of our nation's oldest national park — Yellowstone. The Yellowstone Institute offers 50 courses this year covering a broad range of topics, including wildife, geology, botany, history, photography, astronomy, horsepacking, fishing, biking, backpacking and canoeing.

The Yellowstone Institute, a non-profit, tax-exempt organization, was created eight years ago to enhance public understanding of Yellowstone National Park. Most of the field seminars are based at a National Park Service facility in the seldom visited Lamar Valley of northeast Yellowstone.

Learning Vacations in the Rockies

Colorado Mountain College
Box 10001
Glenwood Springs, Colorado
81602

Please send me information on:

- ☐ ***SummerVail Workshop for Art and Critical Studies***
  June 20 - August 5
  Series of one-week sessions in glass, ceramics, metalsmithing, painting, fibers, photography and lithography. Vail, Colorado.
- ☐ ***Colorado Mountain College Summer Program in Photography***
  July 6 - August 13
  Series of one-week workshops in various technical aspects of photography. Breckenridge, Colorado.
- ☐ ***Colorado Mountain College Writers' Workshop***
  July 18 - 22
  One-week workshop featuring well-known authors in the areas of fiction, science fiction, poetry and nonfiction. Glenwood Springs, Colorado.
- ☐ ***Colorado Mountain College Wellness Conference***
  August 8 - 10
  Comprehensive three-day workshop on improving mental and physical well-being. Leadville, Colorado.
- ☐ *General information on degree and certificate programs at Colorado Mountain College.*

Name _____

Address _____

City, State, Zip _____

READER SERVICE COUPON

Use this handy coupon to request further information on programs that interest you. Send it and $1 to High Country News, Box K, Lander, Wyoming 82520. We'll take care of the rest.

Name _____

Address _____

City, State, Zip _____

Please send me more information on:

- ☐ ***Aspen Center for Environmental Studies***
- ☐ ***Audubon Expedition Institute***
- ☐ ***Cloud Ridge Naturalists***
- ☐ ***Colorado Mountain College***
- ☐ ***Colorado Outward Bound School***
- ☐ ***Feathered Pipe Ranch***
- ☐ ***Keystone Science School***
- ☐ ***Sierra Institute***
- ☐ ***Teton Science School***
- ☐ ***Yellowstone Institute***

nce Target LRT-BE4-V2

BULLETIN BOARD

BUILDING A PLANETARY VILLAGE

The Chinook Learning Community is holding a major conference "Building a Planetary Village — A North American Perspective," May 10-15 in Clinton on the south end of Whidbey Island in Washington. The conference will address three critical areas: land, design and building, and village community life and will feature participatory learning experiences through lectures, small group discussion, design projects, demonstrations, meditations and a festival all aimed at learning how a village scale lifestyle can be applied to everyday life. For more information contact the CLC, P.O. Box 57, Clinton, Wash. 98236, 206/321-1884.

U.S.A. WILDLIFE DIRECTORY AVAILABLE

The National Wildlife Federation's 1983 Conservation Directory is available for purchase. Its 300 pages list key contacts and addresses for organizations involved with resource management in the United States and 113 other countries. The 1983 directory can be obtained for $9 plus $1.55 for shipping from NWF, 1412 16th Street, N.W., Washington, D.C. 20036.

NWPS MANAGEMENT REPORT

The Intermountain Forest and Range Experiment Station has published a summary report on the management problems and practices within the National Wilderness Preservation System. The report is based on a survey of 269 wilderness area managers and is organized by managing agency, area status and geographic region. It should prove a valuable reference for wilderness managers and planners, the research community and interested wilderness users. Single, free copies of the report, "Problems and Practices in Wilderness Management: A Survey of Managers," are available from Intermountain Forest and Range Experiment Station, 507 25th St., Ogden, Utah 84401.

WATER AND AIR POLLUTION STUDY

The fourth American Law Institute-American Bar Association course of study, "Water and Air Pollution," will be offered May 5-7 at the Vista International Hotel in Washington, D.C. The course is co-sponsored by the Environmental Law Institute and will feature the Clean Air and Water Acts, the Resource Conservation and Recovery Act and Superfund. The course is intended for those with advanced experience in the subject. For more information contact D. Maclay, ALI-ABA, 4025 Chestnut St., Philadelphia, Penn. 19104, 215/243-1630.

MINING MANAGEMENT

The Colorado School of Mines is offering continuing education programs in management skills and mining economics this spring. "Management Skills for the Mineral and Energy Industry" will be offered April 20-22 and "Mining Economics and Feasibility Analysis" is scheduled on May 2-4. For further information about either program contact Space Office at 303/273-3321.

THE BEAR FACTS

The Great Bear Foundation, a non-profit, tax-exempt foundation dedicated to bears and their preservation, is trying to raise money for bear research, habitat acquisition, and public education on bears. The Foundation's initial emphasis is on survival of the grizzly in the "lower 48." For more information contact the Great Bear Foundation, Box 2699, Missoula, Mont. 59806.

SAN JUAN COUNTY

The U.S. Bureau of Land Management's Moab District is seeking public comment on the formation of its Resource Management Plan. The RMP is a comprehensive land-use plan which will govern resource allocation decisions for the next 10 to 20 years under multiple use guidelines. The area under consideration includes most of San Juan County in southeastern Utah. Written comments will be accepted until May 15, 1983. For further information contact BLM, San Juan Resource Area Office, P.O. Box 7, Monticello, Utah 84535, 801/587-2201.

ACID RAIN

The Colorado Department of Health will sponsor a conference on "Acid Rain in the Rocky Mountain West" on June 2-3 at the Colorado School of Mines in Golden. The conference is open to anyone and carries a registration fee of $50. Topics will include the federal role, areas particularly sensitive to acid deposition, atmospheric chemistry of acid rain, acid deposition monitoring networks, transport and deposition modeling, and issues, perspectives and directions for the future. To register or obtain further information contact Paul Nezaryk, Acid Rain Conference, Colo. Dept. of Health, 4210 East 11th Ave., Denver, Colorado 80220, or 303/320-8333.

ECONOMICS AND THE ENVIRONMENT

The Conservation Foundation is sponsoring a conference on "Siting New Industry: Economic Development and Environmental Protection" in San Franciso on May 23-24, 1983. The conference will explore environmental issues and their consequences during the drive for economic recovery. Guest speakers will discuss how environmental regulations are affecting industrial location decisions here and abroad. Case histories of site disputes and of innovative plant siting efforts already in use will provide conference participants with a practical understanding of the consequences of environmental regulation for new industry. For more information contact Conference Manager, The Conservation Foundation, 1717 Massachusetts Ave., N.W., Washington, D.C. 20036.

BOW HUNTING CONFERENCE

A bow hunting conference and workshop are scheduled for June 9-12 at the University of Wisconsin-LaCrosse. For further information contact Dr. Robert Jackson, 227 Main Hall, UW-LaCrosse, LaCrosse, Wisc. 54601.

NATIVE AMERICAN STUDENTS UNITE

The Native American Students of Colorado State Universtiy in Fort Collins are hosting their third annual Pow Wow, April 23, at 12:00 p.m. on the CSU campus. For more information on the events of the day, contact Greg Ortiz, Box 312, CSU, Fort Collins, Colo. 80521, 303/491-7689 or 482-8637.

WILDERNESS CAMPS

The National Wildlife Federation is conducting three environmental education programs this summer for boys and girls between the ages of 9 and 17. The Ranger Rick Wildlife Camp is located in the Blue Ridge Mountains of North Carolina and offers campers between the ages of 9 and 13 a program emphasizing nature study, folklore, outdoor living skills, recreation and cultural exchange. Four sessions will be held this summer beginning June 12. Two separate programs offer high mountain backpacking to teenagers 13 to 17 years of age. One is based in the Blue Ridge Mountains and the other in the Colorado Rockies. Both offer 12-day backpacking experiences designed to teach outdoor living skills, forest management practices, wildlife ecology, fresh water biology and Indian history. The first session begins June 19. For more information about these programs contact NWF, 1412 16th Street, N.W., Washington, D.C. 20036.

COLORADO WILDERNESS TRIPS

The Audubon Society of Western Colorado, the Montelores Citizens Resource Forum and the Colorado Open Space Council are working together to sponsor spring trips into the wildland areas of western Colorado which are presently under review by the Bureau of Land Management for wilderness designation. The two-day trips are free and open to all: April 16-17, Sewemup Mesa, contact Dave Purcell at 303/243-9065 (Grand Junction); April 23-24, Cross Canyon, contact Steve Williams at 887-4913 (Dolores); April 30-May 1, Cahone Canyon, contact Gary Duncan at 882-7513 (Dolores).

HIROSHIMA/NAGASAKI PEACE PILGRIMAGE

Americans concerned about peace and nuclear issues will visit Japan this summer on a two-week peace pilgrimage. The group will join the World Conference Against A & H Bombs sponsored by the Japanese peace and anti-nuclear movement in Hiroshima and Nagasaki on August 6-9 and will hold special seminars and discussions with Japanese activists. The pilgrimage will be July 31 to August 13 with an extended stay possible. Some scholarships are available. Reservations should be made by May 31. For application or information contact Grassroots Tours, 1346 Connecticut Avenue N.W., Washington, D.C. 20036; phone (202) 293-6949.

RAFTING ON THE GREEN RIVER

The Utah Wilderness Association, in cooperation with the College of Eastern Utah's Canyonlands Institute, is offering a five-day, four-night excursion down the Green River. The raft trip costs $300 which includes all meals, rafting equipment and transportation. The expedition is limited to 25 participants, on a first-come, first-served basis. For more information visit or write the UWA, 325 Judge Bldg., Salt Lake City, Utah 84111, 801/359-1337.

EXPLORING WESTERN ART

A one-day program "Exploring Western Art" is scheduled for April 23 at the Buffalo Bill Historical Center in Cody, Wyoming. The program features six major presentations from contemporary artists in the region and will explore western art in terms of artistic elements, historical perspective and a broad range of current themes. The program begins at 9:00 a.m. Admission is $7. For more information contact Gene Ball, Buffalo Bill Historical Center, 720 Sheridan Ave., P.O. Box 1000, Cody, Wyo. 82414; phone (307) 587-4771.

SOLAR WORKSHOPS

The Sun Power Consumer Association of Denver is offering a do-it-yourself workshop on solar domestic hot water heaters and a free consumer seminar on active and passive solar space heating systems. For more information call 303/973-8207.

NATIONAL AUDUBON ACTIVIST SEMINAR

The National Audubon Society is offering a seminar for environmental activists August 21-28, at Pingree Park, Colorado. The seminar precedes the National Audubon Convention the next week in nearby Estes Park. Sessions will include strategies for citizen action as well as discussions of specific issues such as clean air, clean water, and protection of wildlife and public lands. Cost for the week is $550. For further information write or call NAS, 4150 Darley Ave., Boulder, Colo. 80303, 303/499-4509.

Fallout...

(continued from page 7)

few years later, the amount in the atmosphere had doubled, with most of the increase in the Northern Hemisphere. "It will hence increase the number of defective children born by 0.01 or 0.02 percent, which is about 150 to 300 per year," said Pauling. "But the carbon-14 released in the period 1952 to 1958 will continue to act for thousands of years."

Cancer has been the most evident health problem associated with nuclear weapons testing. The national cancer rate is one in 500. Dr. Glyn Caldwell, an official of the Center for Disease Control in 1977 discovered that out of 2,887 soldiers exposed to the testing, 111 had some form of cancer — about one in 26. Most of these victims received doses of radiation below 3r (one experienced radiation as low as 1.25r). In the towns of Baker, Nevada, and Garrison, Utah, with a combined population of 150, resident LaVon Rowley discovered 16 living and 21 deceased victims of cancer since 1951. In St. George, population 7,000, 85 people have cancer and another 78 have died from it in recent years.

Leukemia, a disease in which an abnormal production of white blood cells, called leucocytes, occurs in the blood, is always fatal, although death may be slow and painful. In St. George, the leukemia rate among people growing up during the tests was double that before or after. One resident, Elmer Picket, testified during the congressional hearings that his wife and nine relatives died of the disease during the years after Operation Upshot-Knothole. In the same region, the likelihood that children would die of leukemia was 2.4 times higher than normal (normal being one death per 1000). And because of exposure to Shot Smoky — the test that used five divisions in fake battlefield maneuvers — leukemia has been discovered in nine of the participants, an incidence three times the normal rate.

Cancer of the thyroid gland is associated with excessive exposure to iodine-131. Since the thyroid gland has a special affinity to iodine, it accumulates much more of a dosage than any other part of the body. And, of course, this gland receives more damage from radioactive iodine than any other area. According to Harold Knapp, of the AEC Fallout Studies Branch, one test on July 14, 1962, might have given children thyroid doses of 10 to 20r, 20 to 40 times the AEC limit. He also suspects that the children of St. George received 120 to 140r from a single 1953 test.

Other areas show similar results: Elgin, Nevada — 145r; Reed, Nevada — 119r; Washington, Utah — 62r. The Committee for Nuclear Information estimates that one in 286 children may develop thyroid cancer if exposed to 100 rads of radiation or more. These estimates are all for external dosage. Because thyroid cancer is connected with the consumption of milk, total dosage is much larger, possibly five to 10 times the external amount alone.

Cancer is not the only disorder associated with nuclear testing. According to the U.N. Scientific Committee on the Effects of Atomic Radiation, between 2,500 and 100,000 serious genetic defects, world-wide, are attributed to testing up to 1958. A study conducted by K.G. Luning in 1963 said that "strontium-90, aside from concentrating in the bone, also appears to produce genetic damage, which expresses itself in excess fetal deaths when injected into the male parent animal prior to reproduction. Furthermore, the doubling dosage for chromosomal damage to human cells may be as low as one rad."

Another effect of fallout is the rise of infant mortality. Sternglass noted that "especially for the sensitive embryo, fetus and infant, even relatively low-level doses from peacetime fallout may lead to detectable increases in death rates when data on very large population groups are examined."

One hypothesis has been developed to explain why there was a sharp drop in Scholastic Aptitude Test scores in 1975. Lower scores were not due to the existing school system, said Sternglass, but rather to radiation children were exposed to in 1957, during their fetal stage: "Iodine-131 seeks out the thyroid, leading to a slowing down...of the (development of) the baby in the mother's womb." Sternglass believes this developmental slowdown affects intelligence. Sternglass discovered that test scores fell sharply between 1973 and 1976 among students born between 1956-58. The sharpest drop, 26 points, occurred in Utah.

Radiation released through the use of nuclear weapons testing is very suspect in its effects on the human species. It seems that diseases and abnormalities can be directly connected with the exposure of even the lowest levels of radiation. With the passage of the limited Nuclear Test Ban Treaty on November 4, 1963, this was at least partially understood. Yet although the above-ground nuclear testing programs in the United States and the Soviet Union have been stopped, other nations continue to test. And the treaty does not prevent countries from testing underground. In 1970, the venting of an underground nuclear test at the Baneberry test site in Nevada exposed workers and civilians downwind. As a result, at least four cases of leukemia have been reported.

However, in a recent court decision, a Nevada judge refused to grant the victims of this incident compensation because they could not "prove" that their diseases resulted from their exposure. The question of compensation of nuclear test victims is a complex one, as is the next stage of the weapons testing saga (see accompanying stories).

###

Ken Lastufka is a freelance writer in Sacramento, California. This article was paid for by the HCN Research Fund.

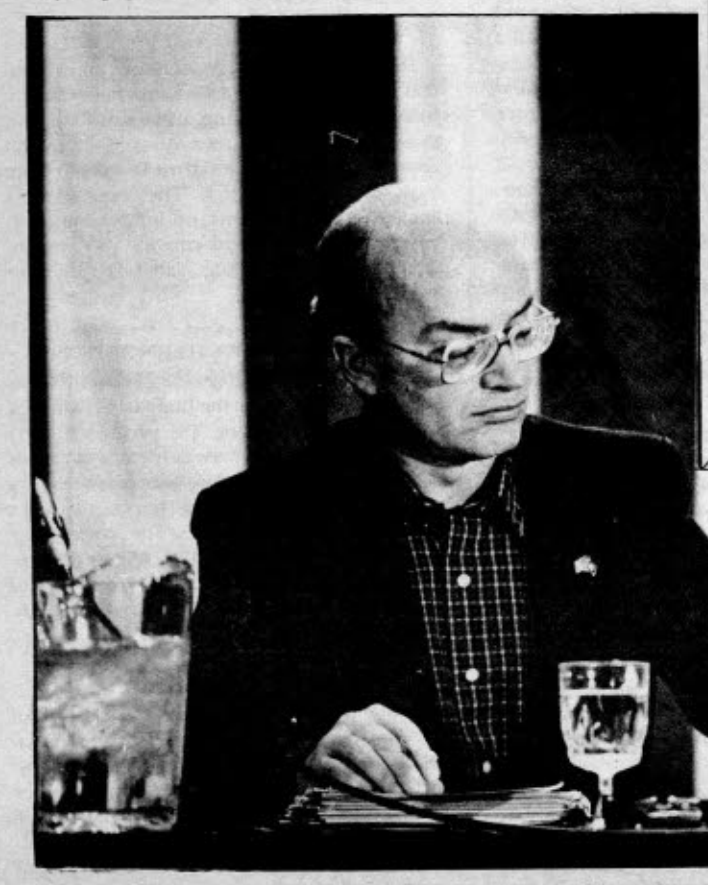
OPINION

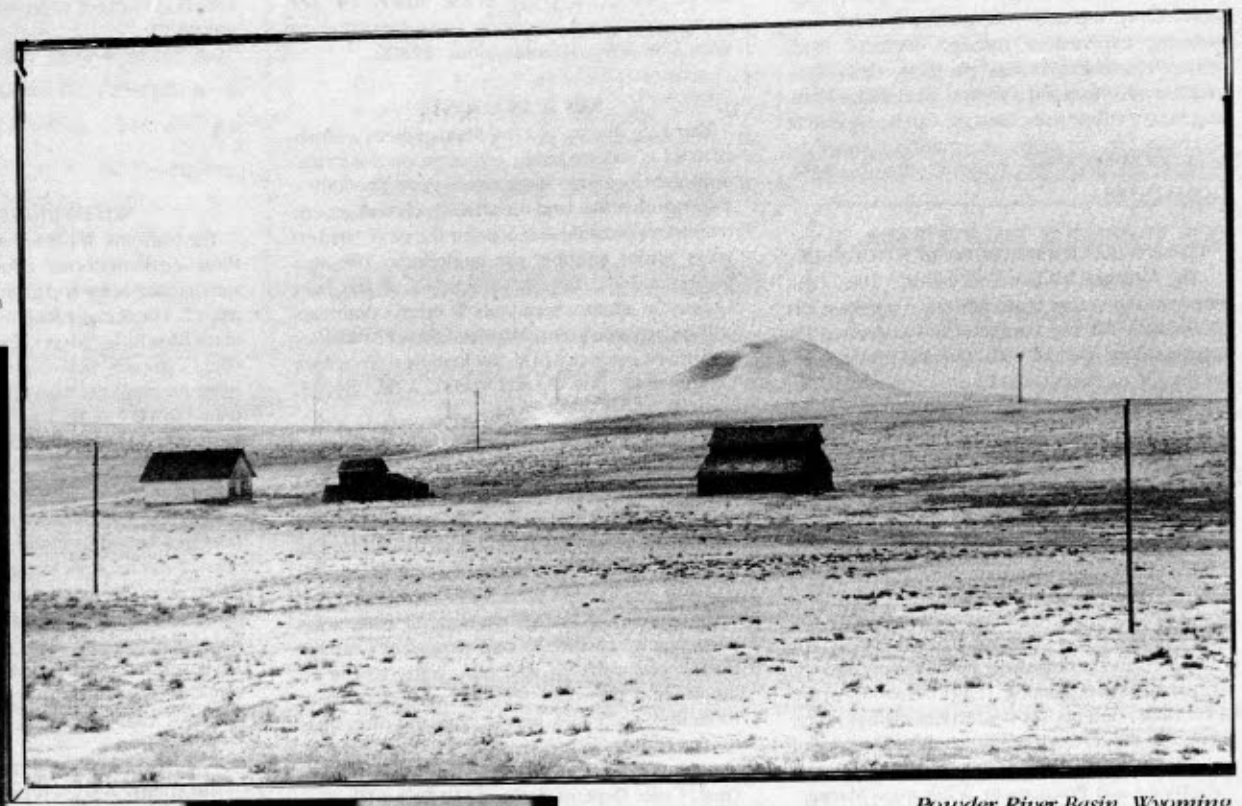
Watt and Wister — westernism unchained

by John Soisson

Poor James Watt

may be the most unappreciated person in Washington. The polls show that a large majority of Americans think the interior secretary's elaborate plans for the exploitation of America's resources are outrageous. But James Watt is actually engaged in preservation. He's preserving a great, enduring American myth. What he's doing is as American as . . . as Powder River Country.





Bob Anderson

Powder River Basin, Wyoming

Powder River country is a dry Wyoming basin bound by the Platte River on the south, the Big Horn Mountains and the Black Hills on the west and east. It's a forbidding land that yawns north into Montana, towards Canada. It's a land that rejects habitation. The names that mark its heart tell its story: Dead Horse Creek, Dry Creek, Crazy Woman Creek, Recluse, Powder River.

GUEST EDITORIAL

Like all of Wyoming, it is too bold, dramatic and flagrant, too high, dry and cold for most people. Its vast rolling hills challenge people. And those who respond thrive in a state of arrested development. It's a place for western fantasy.

James Watt was born in Wyoming — at Lusk. As a boy he lived for several years in Wheatland. He calls Chugwater home. All three towns — Lusk, Wheatland, Chugwater, sit in the southern reaches of Powder River Country. It was this land and its myths that were Watt's mold and anyone who would understand him must first look there. Although he's spent years in Washington, Watt acts like he never left home.

"Those of us who have lived in the West have a different ethic," Watt has said. "A different approach to things."

The "different ethic" is a product of the marriage of the 19th century and Powder River Country. Those who settled there were children of a frontier that had heaved westward from New England, through the Mid-Atlantic, into the South and the Midwest. The world was boundless to them. They swarmed across the continent believing they could take what was immediately available and move on to new treasures when it was gone. Into Powder River Country, along with their many virtues, those pioneers brought an innocent ethic of exploitation.

It was into this tradition that James Watt was born.

His grandmother came to Wyoming in a covered wagon. His grandparents homesteaded where blizzards and drought and harsh land made home a place to be tamed, not lived in.

His father and his seven uncles and aunts homesteaded parcels of land adjacent to his grandfather's. As a boy, Watt cut hay and irrigated on the family ranch, and his experiences, he says, made him a "man of the land."

"I know the land of the West," he says. "I know it with the bitter coldness and the winds and the driving rains. I know the land, and it's important to me because the wealth of a nation springs from its land." It was this knowledge that helped him develop his "different approach to things."

"We are the intruders in a hostile environment," he says. "We're building an environment within an environment."

It has always been easy to regard Powder River Country as an environment to be tamed and exploited.

Fur trappers saw it that way when they cleaned its streams of beaver in the early part of the 19th century.

Gold prospectors saw it that way when they rushed to the El Dorado of Wyoming in the Big Horn Mountains — and left as soon as the thin gold ran out.

The loggers saw it that way when they stripped the mountains of trees to cut ties for the new railroad. And left as soon as the tracks moved beyond the range of their operations.

It was the home of cut-and-run. Until the cattle came to stay.

The rangeland of parts of Powder River Country was called the Bluegrass Region of the West and it was free for the taking. Huge herds of cattle were driven up from Texas to fatten on Wyoming grasses.

In 1870, there were 8000 cattle on the state rolls. By 1871, there were 20,000. By 1885, two million cattle roamed the territory's fenceless plains. Drovers brought the cattle in and turned them loose. In spring, cowboys gathered them, divided them according to brand, shipped them off to market and cattlemen counted their money. Wyoming fast became a Cattlemen's Commonwealth.

To moneyed interests far from the Powder River Country, it became apparent that ranchland in Wyoming was a good investment, with free grazing on public lands and cheap labor to do the work. Wealthy Europeans joined the rush of investors from the big cities of the East and Midwest. In Powder River Country, they could ranch on a grandiose scale, enjoy manorial residences, hunting lodges, servants, dinner dress and elaborate wine cellars. Many directors of the cattle companies lived in London, Glasgow and New York and were far more interested in hunting facilities and thoroughbred horses than in cattle. If any of them came West at all, they lived in nearby towns and sent their children away to school. By the time Owen Wister arrived, Wyoming had become a Cattleman's Paradise.

The Powder River Country was Wister's favorite place in all the West. Under doctor's orders to leave Philadelphia and come West for his health, he traveled to the ranch of family friends near Buffalo, in the heart of the country, where, he wrote, "the foothills rose through the rain, indefinite and mystic." It was a land made for myth.

While he was in Powder River Country, Wister had a chance to observe what was called, with great Western irony, the Johnson County War. In 1892, nine big-time ranchers lead a force of 15 ranch foremen, five stock detectives, 22 mercenaries from Texas, two reporters and four observers north into the country.

The cattlemen were upset with the intrusion of small operators — homesteaders and settlers — who took up claim to parcels of public land that the cattlemen had been using to graze their cattle. The amount of open land decreased. Herds had to be reduced. Profits declined. So the "war" took place. A couple of the invaders hired by the big cattlemen were killed before the army intervened.

Taking the lessons of the Johnson County War and breeding them to the romance and the mystique of Powder River Country, Wister wrote his novel, *The Virginian*, and played midwife to a myth. He formalized a new sect of the American religion. Those with a "different approach to things" would forever be indebted.

Wister's novel is the American Dream, asaddle and armed. A nameless man rides in from out of state, works hard and lives honorably, respects women and children, and rises in the grace of his employer, a man of property and wealth — in this case, a judge. When the property of his boss is threatened, the nameless man does what he must to protect it: He hangs his best friend without benefit of a trial. He shows that he possesses the violent skills of the enemy. His boss approves of the murder. The hero wins the hand of a fair lady and they live happily ever after. And just as this model western hero had slipped his hobbles and drifted onto the unfenced range of myth, so did the romantic notion that you can do whatever is good for business.

There's an interesting footnote to Wister's story. The hero lives out his life not just as a rancher but as a coal baron, as well. Besides giving us a glimpse of the past, *The Virginian* gave us a prophetic look at the future. Cattle and coal — empires built on the dubious ethic that the end does, after all, justify the means. It's one of the coincidences of literary history that Wister found his novel in Powder River Country, heart of the cattle kingdom, repository of the largest coal deposits in the world, and future home of James Watt.

As secretary of the interior, Watt watches over those Powder River coal beds and others — a total of 50 percent of the nation's coal, 63 percent of its oil shale, 35 percent of its uranium, 15 percent of its oil. He watches over those resources as only a westerner could watch over them. He watches over them with the vigilance and the ethos of the Virginian.

When his family moved from the homestead to Wheatland, Wyoming, when he was in the eighth grade, James Watt lost no time learning the skills he would later need.

An all-around student in high school, he went on to the College of Commerce and Industry at the University of Wyoming, from which he graduated with honors.

When he graduated from the univer-

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sity's law school, where he was editor of the law journal, he joined the staff of Milward Simpson, a longtime Republican leader in the state who was then candidate for U.S. Senator. When Simpson won, he took Watt to Washington as his administrative assistant.

For the next 15 years, Watt served faithfully and fully in Washington: as Simpson's aide, as a lobbyist for the U.S. Chamber of Commerce, as deputy assistant secretary of interior, as director of the Bureau of Outdoor Recreation, as a member of the Federal Power Commission. Like the Virginian, Watt rose in the grace of his employer.

And then, in 1977, Joseph Coors founded the Mountain States Legal Foundation and tapped Watt to be its first president and chief legal officer. Watt returned to the West — to Denver — where he defended the hegemony of the propertied interests of the West, fighting in the courts those "who create a challenge to individual liberty and economic freedoms," as the foundation charter declared. "I believe strongly in market forces," Watt said.

When his saddle partner in the White House plucked him from Denver and appointed him secretary of the interior, it was clear that he had earned his spurs.

Whatever the judgment of his performance by the country at large, it isn't unusual that he has the strong support of his fellow Wyomingites, with whom he shares both land and myth.

Sen. Malcolm Wallop (R-Wyo.), the one-time darling of Wyoming's environmentalists, called Watt "the first real secretary of the interior that the country has had in a couple of decades."

Sen. Alan Simpson (R-Wyo.), son of the man who took Watt to Washington, supports him, as does Rep. Dick Cheney (R-Wyo.).

He has been endorsed and praised by a variety of statewide organizations, including the Wyoming Rural Electric Association, the Wyoming Farm Bureau, the Jackson Hole Chamber of Commerce, the Wyoming Mining Association and Outdoors Unlimited, an alliance of mining, timber, livestock, fourwheel drive and snowmobile interests.

Even Democratic Gov. Ed Herschler said he's "pleased with some of his (Watt's) policies. I think Watt should be given a chance."

Wyomingites love their part of the country. But they are also ever watchful for the main chance. That was what brought most of their ancestors West and it has been a preoccupation ever since. This is more true in Powder River Country than anywhere else in the state. And James Watt, son of Powder River, is only the current, most visible expression of that obsession. He's trying to keep a myth alive.

###

John Soisson is a freelance writer in Portland, Oregon, and a frequent contributor to *High Country News*. Before moving to Portland, he operated a book store in Sheridan, Wyoming, on the edge of the Powder River Basin.

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Phil Burton: 1926-1983

by Sally Reid

Environmentalists mourned the sudden death April 10 of one of the foremost leaders in the U.S. House of

GUEST EDITORIAL

Representatives for the preservation of land. Rep. Phillip Burton (D-Calif.) died at the age of 56 of circulatory failure.

Burton was best known for his support of environmental issues. He was also a leader in labor legislation.

The book *Politics in America* characterized Burton as "brilliant, passionate, obsessive." He was known for effective legislative strategy, particularly in pursuit of pro-environmental goals.

As chairman of the House Interior Committee's Subcommittee on Public Lands and National Parks in the 95th and 96th Congresses, Burton has left behind a legacy of parks and public lands protection virtually unequaled. He maneuvered through the so-called "Parks Barrel" bill, which authorized $1.2 billion for the creation of 100 parks and preservation projects in 44 states.

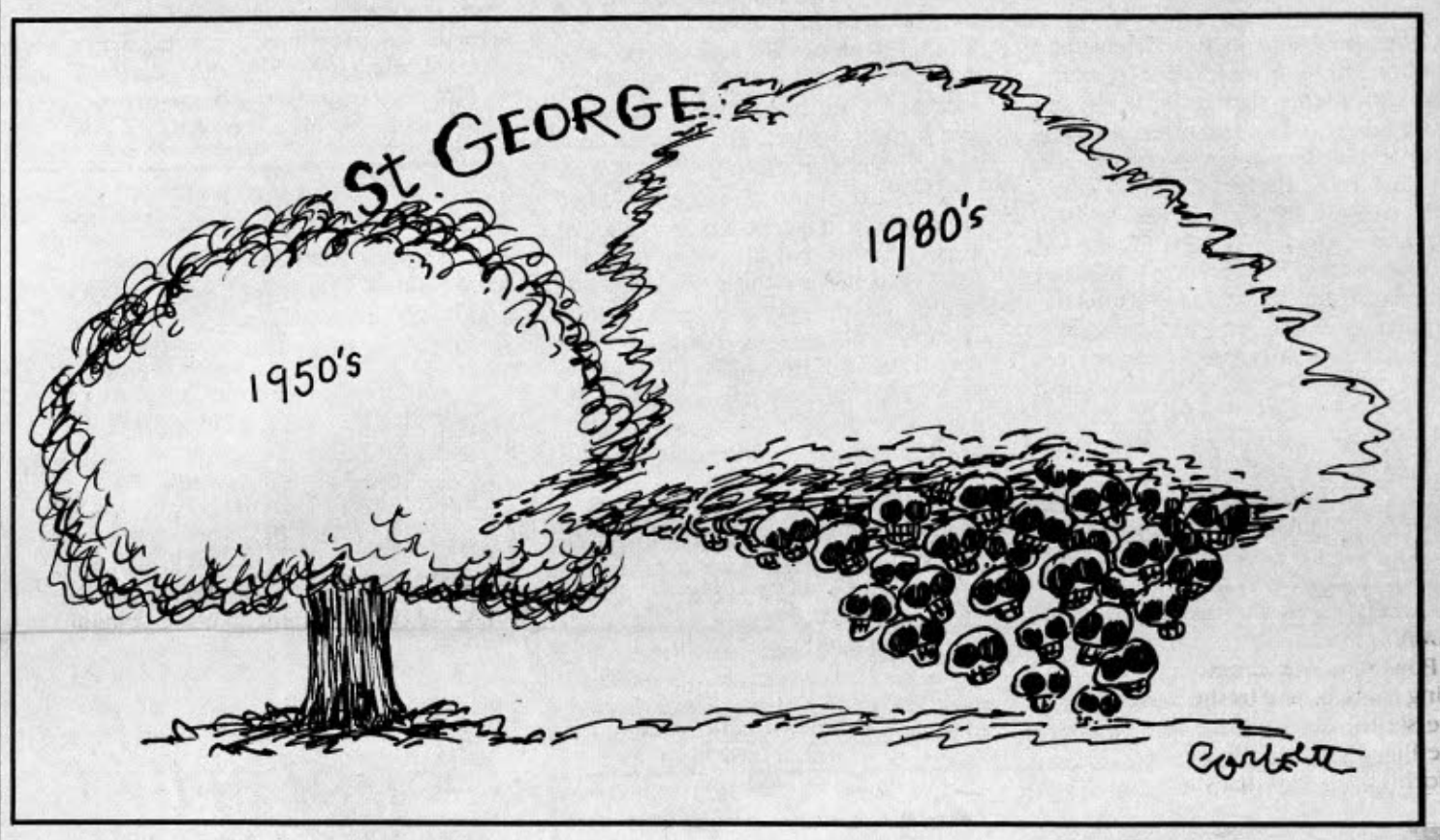
The list of Burton's conservation achievements is long. He helped create a number of new parks and wilderness areas in his home state of California, including Redwoods National Park, Channel Islands National Monument and Golden Gate and Santa Monica Mountains National Recreation Areas. Dale Crane of the subcommittee staff said, "It is a great irony of current politics that Phil was convinced that as the country grew and developed and more pressure was put on resources, that the National Park Service would be placed in a siege position if they were not visible to the urban centers. So he strongly favored urban parks like Santa Monica Mountains and Golden Gate."

Outside of California, Burton was largely responsible for the creation of the Boundary Waters Canoe Area, War in the Pacific National Historical Park in Guam, Kalaupapa National Historical Park in Hawaii, the wild and scenic rivers system and the national trails system.

Our highest tribute to Phil Burton will be the redoubling of our efforts to preserve wildlands.

###

Sally Reid is a volunteer wilderness coordinator with the Sierra Club in Los Angeles.



LETTERS

FOREST LAND

Dear *HCN*,

Thanks for letting us know what is happening to the forest lands in Utah (*HCN*, 4/1/83). We are having a very difficult time getting any information here and our papers do not report sufficient details to the public, needed to understand the impact of the pending sales. Deals have already been made here to sell *our* lands for the special few with money and influence.

Hermaine Jex
Salt Lake City

GRIZZLY CRISIS

Dear *HCN*,

Many thanks to Joan Nice and *High Country News* for the excellent article on the Yellowstone grizzly bear situation (*HCN*, 3/18/82) — or perhaps "crisis" would be a better word. The Yellowstone crisis has been brewing for 15 years, ever since the Park Service's controversial dump closure policy was first implemented. While the goal of that policy — to wean bears away from dependence on the dumps as a food source — was admirable, the "cold turkey" manner in which the policy was implemented almost surely contributed to an increase in bear mortality in and around the park at a rate which that island grizzly population could not offset.

It has long been said that in man/bear encounters, the bear almost always loses. The disputes, recriminations, bruised egos and hardening of policies involving the bear by the Park Service and others are sad examples of ongoing man/man encounters in which the bear is *still* the loser.

If Roland Wauer's population estimate of 30 breeding females in the Yellowstone ecosystem is even close to accurate, we may be too late to save the grizzly without resorting to the extreme "manipulative" measures opposed by some. Even if one is more optimistic, we still have precious little time left for additional research before the Yellowstone grizzly is "researched" and "managed" into extinction.

Let us hope that the involved parties can pause and realize the extreme seriousness of the Yellowstone grizzly's plight, put aside their differences, and then begin to work *for the bear* before it is too late.

Michael L. Smith
Boulder, Colorado

REALLY SUPERB

Dear *HCN*,

We would like to take the time to tell you that we feel that your newspaper is really superb. There is always something of interest to us, and we always learn something that we need to know. Your special issue on "Discovering the Rockies" (12/24/82) was really dynamite. It is a wonderful idea to let your writers have free rein to do something like that issue. We really enjoyed it.

I work for the Gardner Community Corporation, a non-profit community development corporation. We found "Boom, Bust and Beyond" by Jill Bamburg to be right on. The information on the Montana economic development plan is really interesting. The article on the Northern Lights Institute (*HCN*, 1/21/83) is also both interesting and encouraging.

As you can see, your paper gets pretty wide distribution here in the Huerfano Valley, and we hope that you will keep up the good work. Your paper is really invaluable. And the writing is great. We are glad you are there.

Rosalyn McCain, Vice-President
Huerfano Valley Citizens Alliance
Redwing, Colorado

FINE WORK

Dear *HCN*,

It took me over a month to get up the owlishness to study your "forest planning" issue (*HCN*, 3/4/83). I finally did. I don't claim to have read the whole thing, but I've read enough to learn something and go back for another look at some of the forest plan drafts that insulate my north wall.

As an environmental courier without portfolio, *HCN*'s identity often wavers between hot news items and textbook-like compilations like the forest planning issue. Continue to waver. If we can read John Soisson's investigative piece on weak welds in nuclear reactors one week (*HCN*, 12/10/82), it's fine another week to lay back with a forest planning hornbook and learn how the bureaucracy works (or doesn't).

It's fine work in either case and shows an admirable range.

Geoff O'Gara
Lander, Wyoming

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Fires...

(continued from page nine)

a decline in aspen cover vital to elk, beaver and other valued species. The climax forests of conifers — mostly lodgepole pine, Douglas Fir or Englemann spruce — provide less food to most animals.

Other problems include disease and insect infestation. An increase in mountain pine beetles during the 1950s and 1960s killed millions of conifers on the Targhee National Forest, west of Teton National Park. Beetle attacks continue in the present and, in a past issue of *High Country News*, (3/1/82), the Forest Supervisor's Office reported that 90 percent of the lodgepole pine on the Targhee Forest were dead, providing increased potential for large fires.

In a naturally occurring cycle of fire, trees killed by diseases or insects provide fuel for fires which cleanse the forest and may help to control the epidemic. In the case of pine beetles, there is evidence that older trees are more vulnerable, pointing to past fire suppression as a culprit in the current beetle kill of lodgepole.

The predominance of old forest — or "overmature" forest, as it is called by the Forest Service — poses a problem with increased fuel loads that can feed large fires. Suppression of all fires has led to a situation that has federal forest managers worried. An article prepared by the USFS Division of Fire Management stated, "In our quest for total dominance over wildfires, we have set up conditions which greatly favor destructive conflagrations. We have paid too little attention to the benefits of fires."

Various factors have prevented a rapid change in fire policies based on state-of-the-art studies on fires and their effects. One is complexity: research has arrived at few working generalizations about the role of fire except that it is a necessity for healthy forest.

Another problem is bureaucratic inertia. People trained in wildfire suppression often have difficulty in accepting the new awareness of fire as an important and worthwhile factor in proper ecological balance.

A third problem is pressure from the public and timber industry to continue programs of fire suppression. When changes in fire policy allowed selected fires to burn in the White Cap Wilderness Area in Idaho, an executive of Georgia-Pacific, a timber company, wrote to a congressman, "In case you have not seen the enclosed (newspaper article), I am certain you will be interested in the decision of the Forest Service to let northern Idaho burn since fire 'has always been part of the ecology.' This is incredible."

A retired Forest Service employee wrote, "Since it is true that any match or cigarette in the woods can start a holocaust and since it is the avowed purpose of the U.S. Forest Service to burn up the country, as citizens we should unite and take all matches or fire starting material away from all Forest Service people, male or female. We can't trust them. We love our Idaho and don't want it burned up."

The Forest Service has been a favorite scapegoat for groups that range from Friends of the Earth to the Sagebrush Rebellion and the agency has become cautious to the point of paranoia about inflaming public opinion, but the role of the service as manager of America's forest means there are some tough decisions ahead.

The acreage of old forest, choked with deadfall and bug-killed trees, grows each year and the traditional remedy of clearcutting is made difficult by political opposition and a depressed timber market. The biological clock of forest succession is ticking away and the possibility of large, uncontrollable fires is increasing.

Burning has been used for decades to dispose of logging slash and prepare for natural regeneration or planting as well as a means of thinning sagebrush, but its use in mature forests poses a problem. As Robert Martin observed in a paper on prescribed burning, the manager is in the position of a quarterback considering a pass. "Passing is hazardous because three things can happen and two of them are bad. With prescribed burning, two of three possible outcomes are also bad. First, you may succeed and have accomplished a lot for little cost — a successful pass play. Second, you may fiddle away your time on a wet day and accomplish nothing but still incur expenses — the pass is incomplete and you've expended resources (downs). Third, you may burn and have fire escape problems — the interception."

Fire prescriptions have been incorporated in forest plans, but enough has gone wrong — such as a controlled burn for bird habitat improvement in the state of Michigan that escaped and devastated thousands of acres — that managers are wary of prescribed fire, especially in situations where risks are high.

The reduced funding of land management agencies also has placed prescribed fire programs at a lower priority than would be the case if biology and forest health were the only issues. But the need is clear: Without wide-ranging efforts to address the conditions resulting from fire suppression on public lands, there will be more years like 1977's drought and fire emergency: larger fires that damage resources due to the stopping of numerous smaller fires which help to sustain them.

The forests of America are in danger. If we are to preserve them in the future, it must be through management that recognizes fire as an integral part of the ecosystem and allows it to do its part. If fire remains our enemy, the results will be dire.

###

C.L. Rawlins is a freelance writer in Boulder, Wyoming and a contributing editor of *High Country News*. This article was paid for by the HCN Research Fund.

On the Verge

After hauling hay all morning,
after wrestling and tumbling from
the high piled bales on the trailer,
after spinning Blake's straw hat
under the tractor wheels,
after rocking thru pine-hidden fields
toward the barn
after unloading and reloading the bales
to get the axles free from the soggy earth,
after chasing the kids
after shaking out their small fistfuls of hay
out of the back of my shirt,
after piling bales in the barn,
after brushing sweat and haycrumbs
from my eyes a thousand times,
after sitting like blackbirds in the rafters
laughing, feet brushing the hay,
after everyone else has gone off
to sit in the house, fix lunch
or lie down in the quonset,
I sit alone, pleased and peaceful on the corral gate
watching a blind calf nurse
as dust settles on the road to the high Uintas.

—Jose'
Salt Lake City

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Salt Lake City

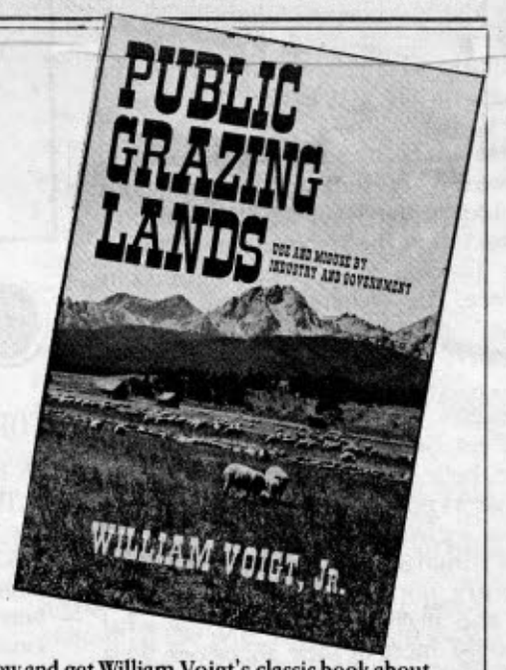
LEGAL NOTICE

The Lander Valley Regional Medical Center, Inc., has advised the Certificate of Need Office in the Department of Health and Social Services of a change in ownership of the facility in Lander, through a merger agreement. The hospital in Lander, currently owned by Qualicare of Louisiana, will transfer that portion of ownership to United Health Services through its various subsidiaries.

This change in nearly one-half of the ownership of the hospital requires approval by the Certificate of Need Board. Potentially affected parties are notified of this proposed change in ownership and are invited to provide comments to the CON Office in Cheyenne.

Those wishing to provide comments may address them to the Department of Health and Social Services, Division of Health and Medical Services, Hathaway Building, Cheyenne, Wyoming 82002.

A DOUBLE BARGAIN TO PROTECT OUR PUBLIC LANDS



Join the Public Lands Institute (PLI) now and get William Voigt's classic book about the great land grab attempt of the 1940s and '50s, precursor of the "sagebrush rebellion" and of the Reagan Administration's plan to "privatize" the National Forests and BLM lands.

Mr. Voigt wrote his vivid historical account out of personal involvement in the public land struggles of four decades ago. A former Executive Director of the Isaak Walton League of America, he served as field general for the conservation forces when Western livestock associations, having subdued the Bureau of Land Management, set out to emasculate the Forest Service and almost succeeded.

Through special arrangement with Mr. Voigt and his publisher, PLI is able to offer the 359-page illustrated, hardcover volume as a bonus to new members. It is essential background for today's defenders of the public lands. Priced at $19.95 when it first appeared in 1976, Voigt's *Public Grazing Lands* is now listed in bookstores at $32.50.

The Public Lands Institute, founded in Denver in 1978, is a division of the Natural Resources Defense Council. Non-profit and tax-exempt, its purpose is to work for efficient management and conservation of government-owned lands. Members are kept informed of current public land issues and legislation through the monthly *PLI Newsletter* and special bulletins.

Make your check payable to PLI, Natural Resources Defense Council, for $15 or more, and request the FREE bonus book, Voigt's* Public Grazing Lands. *Mail to Charles Callison, PLI Director, Dept. Dept. 1-B, 1725 I Street, N.W., Suite 600, Washington, D.C. 20006.