

High Country

news

September 3, 1984

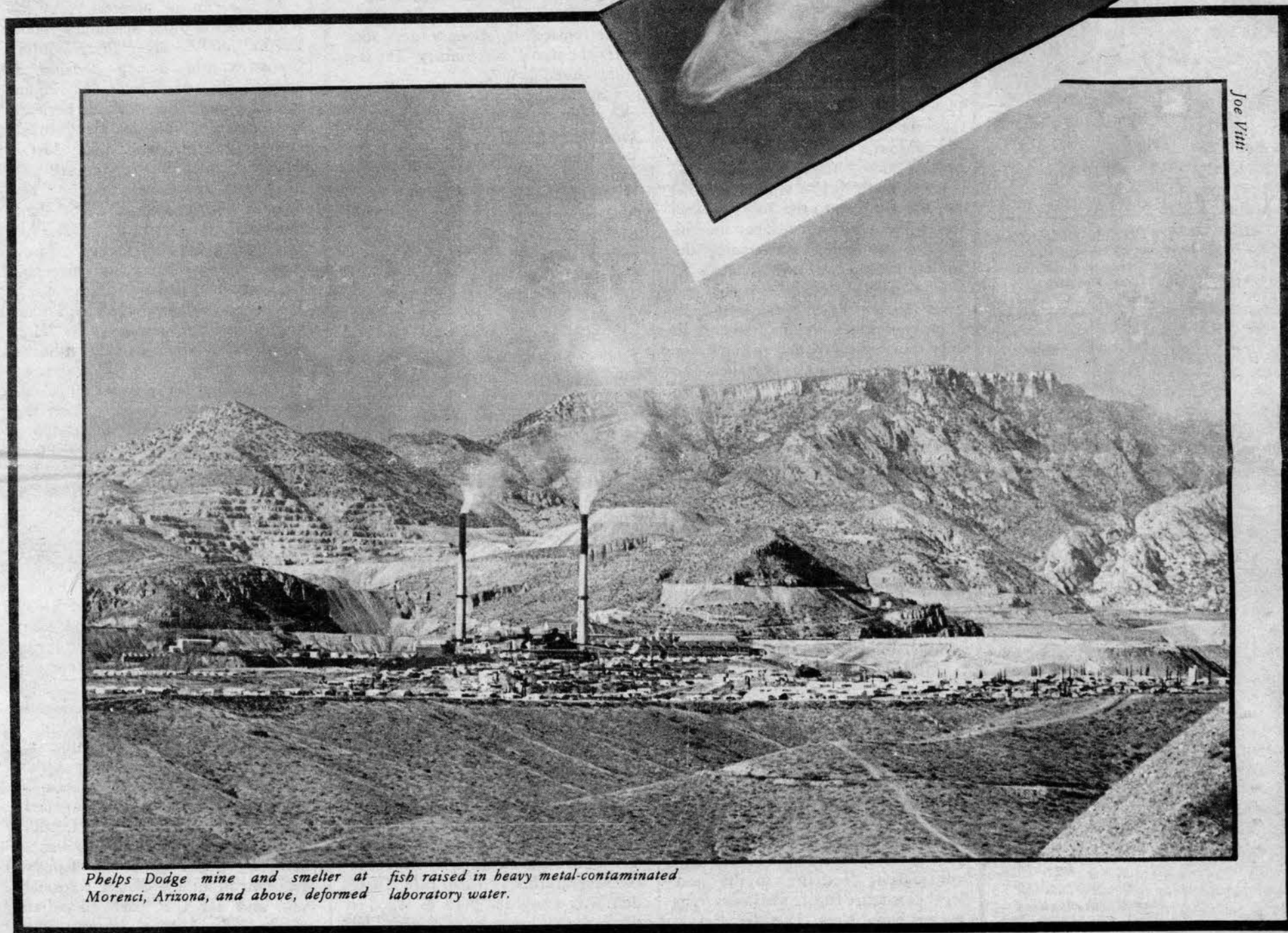
Vol. 16 No. 16

The Paper for People who Care about the West

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SPECIAL ISSUE

ACID RAIN



Phelps Dodge mine and smelter at fish raised in heavy metal-contaminated Morenci, Arizona, and above, deformed laboratory water.

Joe Vitti

The damage it does can be deadly

by Ed Marston

Like the shape and size of an iceberg, most of the acid rain problem is thus far unknown or out of sight. But what can be seen suggests that it could become an historic issue, comparable to slavery or colonialism. Like those past issues, acid rain has the potential to divide America internally, set one nation against another and radically alter national and international economies.

Acid rain, which is shorthand for a complex of gaseous and solid pollutants scientists prefer to call wet and dry acid deposition, may also be the granddaddy environmental issue --

the issue that moves environmentalism from the fringe, from something people are concerned about the way they worry about inflation or unemployment, to the center of life.

Those possibilities were on display for three days in late July at a conference in Gunnison, Colorado -- a small cattle and college mountain town best known for its bitter winters. Despite the remote location, more than 200 people from all over the world came to the Western State College/Rural Communities Institute's Ninth Annual Water Workshop -- a series which started out in the mid 1970s plumping for more dams, but

which has now evolved into sophisticated looks at resource problems.

What the conferees heard during those three days overcame the normal centrifugal force present at summer meetings in resort areas. The audience did not scatter to hike or fish. The 40 speakers and panelists welded the conferees into a single group, however different their perspectives.

The effects of the conference are still rippling outward. *Newsweek*, the *Denver Post*, the *Rocky Mountain News* and other media are carrying the conference message that acid rain effects may be far advanced in the West, and that beetle kills may be acid rain kills. The conference also inspired

creation of a task force to see if acid rain effects are present in the Rockies. (See Christopher's McLeod's accompanying story.)

Despite its location in the Rockies, the conference was not parochial. The Rocky Mountain emphasis on acid rain as a mechanism to market western coal was present, but not dominant. And the harbingers of alpine doom in the Rockies were almost afterthoughts to the main theme: that acid rain is not a short term affliction the nation will turn off by reducing the sulfur dioxide pouring out of power plant and industrial smokestacks.

Instead, acid rain damage is
[Continued on page 10]

WESTERN ROUNDUP

Sun Valley is worried about Exxon

A possible revival of mining around Idaho's Sun Valley resort is arousing concern about the fate of the area's recreation industry. At the heart of the revival is the mining division of Exxon Corporation, which has thus far accumulated 30,000 acres in mineral rights.

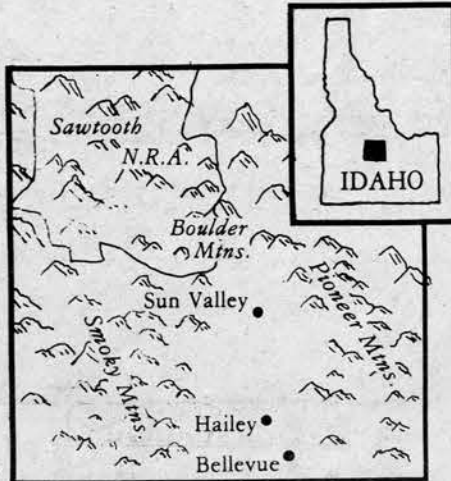
The acreage was gathered in just one year in Blaine County, where the firm says it is exploring for lead, zinc, gold and silver. Exxon says it has not yet made any discoveries sufficient to warrant production. But it will continue exploring through this fall and probably into next summer, says Wiley Bragg, Exxon Minerals' public affairs manager based in Houston.

Exxon's land gathering and exploration has attracted the attention of the Idaho Conservation League. Caryl Lindamood, chairman of the mining task force for the Wood River Chapter of the ICL, says, "We're a little concerned because we really don't know what's going on." She says the chapter is gathering data on the region's environment and the threats mining might pose.

Potentially at risk is the recreation industry built upon the Sun Valley ski resort, prime trout fishing and the rugged mountains surrounding the valley, Lindamood says. Exxon's 50 square miles of mineral claims extend from 15 miles south of Bellevue up to the city of Sun Valley in the north. In fact, the claims intrude into Sun Valley and about the city limits of Hailey. The rights, which are scattered, mainly surround old mines that were active in the 19th century.

An Exxon mine would represent a throwback to the area's founding economy. Its 50 square miles of claims lie in an area the U.S. Geological Survey says is the second most mineralized in Idaho. It was those minerals that first attracted miners, the area's first white inhabitants, to the Wood River Valley in 1881. There they found lead-silver and zinc-silver ores as well as some gold.

Mining thrived in the Pioneer,



Boulder and Smoky mountains surrounding the Wood River Valley for about 20 years before nearly dying out. Except for those working in a couple of the larger mines, the miners were replaced by shepherders soon after the turn of the century. The last mine closed in 1952.

By then, recreation was already on the scene. The Union Pacific Railroad built the Sun Valley ski resort in 1936, beginning the area's present era as a recreation center. It is in this recreation-dominated area that Exxon has chosen to stake its claims. Only 10 miles from Exxon's northernmost group of claims is the Sawtooth National Recreation Area, which includes the Sawtooth Wilderness Area.

The claims also extend into the Pioneer Mountains to the east and the Smoky Mountains to the west, ranges that contain proposed wilderness areas in the more comprehensive versions of the Idaho Wilderness bill now before the U.S. Congress.

Although recreation use is heavy, it does not provide an ideal economy. Recreation jobs are seasonal, plentiful only in the summer and winter. That problem has community leaders searching for industries to bring in year-round employment. The local cities are trying to attract high-tech industry, which they see as compatible with recreation. But some leaders also look forward to the return of mining to

balance the economy.

Conflict between the recreation and mining has already appeared in a small way. Unknown to many of the landowners, Exxon has acquired state and federal mineral rights beneath private land. One group of claims and leases falls beneath the site of a proposed European-style spa a few miles west of Hailey. The spa would contain natural hot baths and a trail and hut system for cross-country skiers.

However, because of Exxon, the developer, Tengersee Land and Cattle Company, is having difficulty securing financing and the project is now on hold. Negotiations between the Germany-based owners and Exxon have fallen through for the moment.

Adding to the uncertainty is the pack effect as other companies follow Exxon into the area. Getty Mining Company, the mining division of another gas and oil giant, is bringing in drill rigs to see what lies beneath the surface of the area's sagebrush and Douglas fir-covered hills. ARCo, Canorex, and Phelps Dodge are also interested in Blaine County. But Exxon's holdings dwarf all of them thus far.

The future of these mining activities may hinge on the direction the national economy takes. In a faltering economy, says Jeff Christian, a precious metals counsel for H.J. Aron's, an affiliate of Goldman-Sachs of New York, investors turn from stocks and bonds to precious metals. If the federal deficit continues and the nation sinks again into the economic trough of the early 1980s, the values of gold and silver could rise substantially, he predicts. And that would make Sun Valley silver far more attractive than it is today.

--David Lewis

David Lewis is a Sun Valley resident and reporter for the *Twin Falls Times*. This story was paid for by the High Country News Research Fund.



High Country News

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Dear friends,

If you are interested in the degradation of thought and principles in the United States, you will turn first to the opposite page; it describes how federal bureaucrats and contractors considered creating myths and legends to scare future man away from nuclear burial sites. The idea doesn't bother us. But we're floored that people who write and think in bureaucratese believe they could create ideas and images that would last for generations. The only thing which might last for 10,000 years is the record of their folly. Those who some day will have to clean up our various messes will talk of these "mythmakers" the way the Bible talks of the Tower of Babel, or legend talks of the tailor who swatted flies and thought he was a hero.

If you are interested in the uplifting of thought and principles, turn to the interview with writer Barry Lopez. Former *HCN* managing editor Dan Whipple has done a superb job of letting Lopez speak for himself on the subject of dignity -- dignity of landscape, of animals, of people. We are pleased with the article both because it's written by an alumnus, and because it is the first *High Country News* profile on people whose

thought and action make a difference in the West. Suggestions for future subjects are welcome.

Very different from the approach to the environment taken by Lopez are the several articles on acid rain. These deal with a nuts and bolts question of the kind that has been so familiar for the last 14 years. But acid rain may be more than another pollution problem. Its causes and effects appear so far-reaching that a technical fix may not be possible. This time, we may need to listen to the fundamental ideas expressed by thinkers like Lopez. The conference, by the way, was superbly organized by Theo Colborn, a University of Wisconsin biologist.

If you weren't on a vacation of your own, you may have noticed that this is the first *HCN* issue in a month. Staff took the opportunity provided by our semi-annual skipped issue to go in a variety of directions. Intern Lisa Lombardi, who will be heading back to graduate school and teaching duties at the University of Massachusetts this week, spent several days floating an Idaho River. We shall miss Lisa and the large amounts of copy she turned out each issue.

Staffer Mary Moran has just returned after a six week mountain

bike tour of Germany, Austria, Czechoslovakia and the Swiss Alps. (She has now used up her vacations through 1986.) The Marstons travelled through parts of Utah, Idaho, and Montana. High point of the trip was a Montana flight over the Rocky Mountain Front and Glacier National Park and its U.S. and Canadian environs with Michael Stewart, the founder and pilot of Project Lighthawk. Project Lighthawk gives environmentalists the same ability to get an overview of landscape that corporate and government planes give others.

HCN was especially fortunate to have Phil Tawney as a guide while in the air. Phil is the founder of the Montana Environmental Information Center, a publisher, and a newly-minted attorney. On the ground at Polebrige, Montana, several local residents, including John Frederick, were on hand. Stories about the area will be appearing soon.

To end on an up note, the story of an ancient pit dwelling near Jeffrey City, Wyoming, by former *HCN* editor Geoff O'Gara was written to the music provided by a new-born infant -- Nicholas Galliro. Congratulations to Berthenia and Geoff on the child and on a wonderful name.

--the staff

New science appears: voodoo nucleonics

If we accept that life in the twentieth century has sometimes become stranger than fiction, then perhaps it is not jarring to find that some solutions posed by today's academics for tomorrow contain the premises of science fantasy.

Consider the problem: How do you warn human beings 10,000 years from now not to dig up radioactive earth? One answer might be a bizarre blend of symbolism and superstitious rite orchestrated by an elite called the 'atomic priesthood.' Odd as this may sound, that is exactly what was suggested by contractors for the Department of Energy, the federal agency in charge of building the nation's first high level nuclear waste repository by the late 1990s. As DOE still studies where to bury highly radioactive debris, the agency has been also studying how to warn future generations about the hazards below ground.

The contractors, members of DOE's Human Interference Task Force, say that if a stable geologic setting is found for the nuclear wastes, man then becomes the hazard: "The human species itself, or how it survives over the next 100 centuries, will be the main potential intruder."

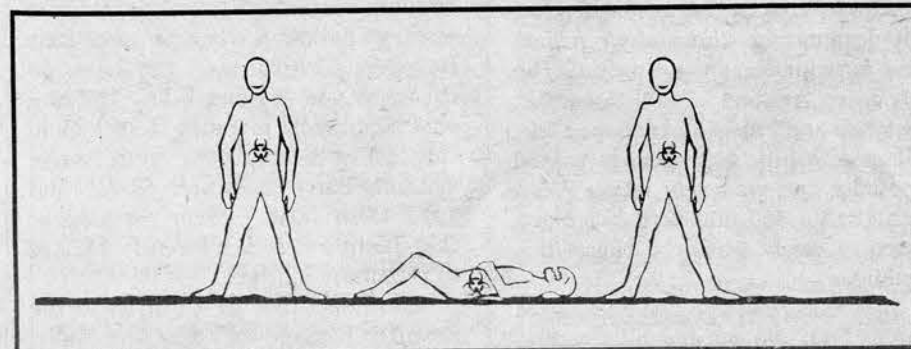
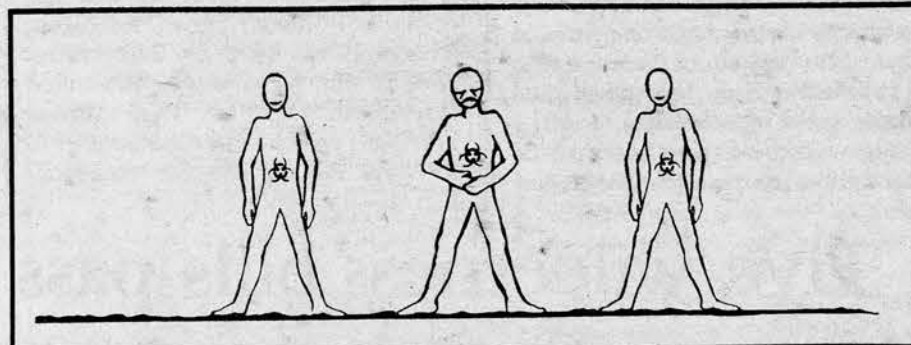
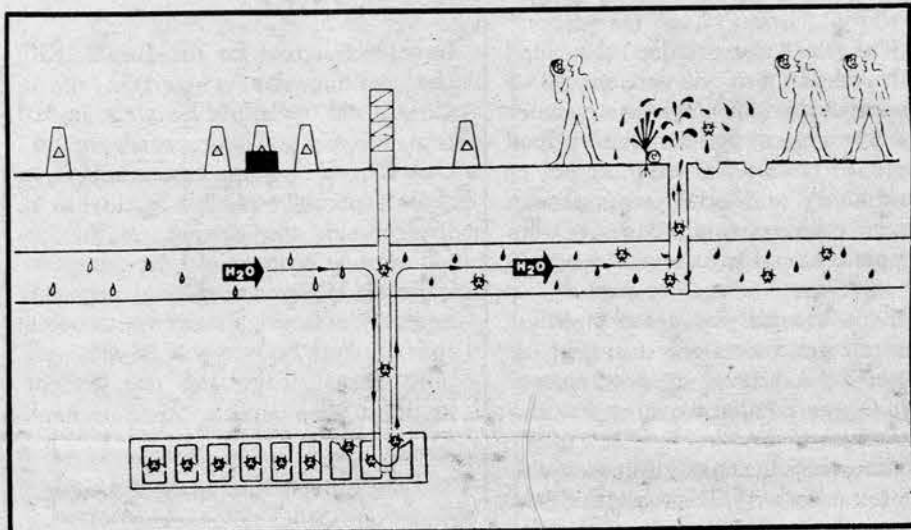
The contractors, assisted by academics from many disciplines, agree that the problem is how to warn mankind -- to the point of redundancy -- how to stay clear of the waste dump. Solutions were first unveiled in 1981 in two documents commissioned by DOE: *Communications Across 300 Generations: Detering Human Interference with Waste Deposit Sites*, and *Communications Measures to Bridge Ten Millennia*. Both technical reports begin with a disclaimer: "Neither the United States Government, nor any agency thereof, ...assumes any legal responsibility for the accuracy, completeness or usefulness of any information, ...herein." After this the going gets rougher.

"Risk reduction," explains one of the texts, "is not easy to accomplish in the here and now. Accepting the responsibility of insuring protection from peril for a virtual posterity may be totally unrealistic. Nevertheless there are circumstances when something on that order is called for."

The circumstance is, of course, the disposal of the radwastes in question. Based on thermal properties and the 24,000 year half-life for plutonium, estimates for necessary isolation range from 10,000 to a quarter of a million years. The 240,000 year discrepancy between these two estimates would appear significant, but this difference becomes moot when weighed against the fact that the oldest known language has been in existence for only a few thousand years, a fraction of even the conservative 10,000 year estimate.

If warning by the written word is not reliable, what is the answer for the DOE contractors? After a speculative voyage through such chapters as "Future Social Alternatives," "Changes in the Species" and "Gestalt Principles," the recommendation is that "information be passed on with the aid of an artificially-created and nurtured ritual-legend that need not be tied to any one language or culture. ...The actual 'truth' would be entrusted to ...an 'atomic priesthood'."

Communication Across 300 Generations tells us: "The 'atomic priesthood' would be charged with the added responsibility of seeing to it



Warning pictographs from the technical report, *Reducing the Likelihood of Future Human Activities that Could Affect Geologic High-Level Waste Repositories*.

The progression of drawings shows that drilling into buried nuclear wastes can result in contaminated groundwater and death.

that our behest, as embodied in the cumulative sequence of metamessages, is to be heeded -- if not for legal reasons, then for moral reasons, with perhaps the veiled threat that to ignore the mandate would be tantamount to inviting some sort of supernatural retribution."

A familiar and convenient bio-hazardous chemical warning sign, similar to those affixed to trucks currently hauling various wastes around the nation's highways, is also suggested -- with the warning arrow pointed down towards the murky depths of the repository.

But another DOE document rebukes the first two documents. *Reducing the Likelihood of Future Human Activities That Could Affect Geologic High Level Waste Repositories* was published in May, 1984 and presents the final thinking of the Human Interference Task Force.

Using a 'can do' approach, the

rituals and legends originally envisioned have been toned down to, "it can be expected that stories, poems, and legends will develop about the (repository) site." The atomic priesthood has apparently disappeared, and a plan for leaving detailed technical writings to our progeny in various languages at various locations has taken its place.

The elaborate on-site warning scheme includes a system of symbolic earthworks carved into the landscape, a paved central monument plaza replete with pictographs, and a 60-foot-tall central pyramid.

These proposals are prefaced by the same DOE denial of responsibility for accuracy, completeness or usefulness: The technical reports were prepared by the Office of Nuclear Waste Isolation, Battelle Memorial Institute, 505 King Avenue, Columbus OH, 43201 for the Department of Energy.

--the staff, Boulder O'Rourke

BARBED WIRE

A new definition of rescue.

When two students who worked for the Louisiana Department of Wildlife were asked to rescue three baby raccoons, the young men responded by clubbing them to death. The two, a high school senior and a student at Louisiana State University, were sent to a suburban shopping mall July 30 after shop owners reported that baby raccoons were stuck in a trash dumpster. The shop workers hoped the raccoons would be freed. Instead the students removed the animals, and with a piece of lumber beat them to death, reports UPI. Louisiana's

Wildlife chief said the two workers have been dismissed.

How to bite the hand that feeds you.

Anne Burford demonstrated last month how to handle President Reagan. When he offers a job as head of an Advisory Commission, call the job a "joke" and a "nothing-burger." Burford withdrew after both the House and Senate passed resolutions urging Reagan to reconsider appointing Burford, the former EPA administrator who resigned last year during six investigations into charges of mismanagement at the agency.

HOTLINE

Wild horse lawsuit

The Mountain States Legal Foundation, a conservative legal group based in Denver, won a partial victory for ranchers before the 10th U.S. Circuit Court of Appeals this summer. The Foundation and a Rock Springs, Wyoming grazing association argued successfully that government agencies failed to control grazing by wild horses, allowing them to move onto private land sensitive to overuse. The appeals court ruled that although federal agencies had not "taken" private land, a factual determination was necessary to see if forage was taken by the continued failure of the BLM to manage the horses. Wild horses and burros, which have been under protection of the federal government since 1971, have rapidly increased their populations in western states. In Wyoming, for example, there are 9,446 wild horses compared to 4,325 13 years ago.

Preying on farmers

Several farmers' groups are concerned about a limited partnership called Consolidated Family Farms, based in Illinois, which hopes to acquire 300,000 acres of farmland in western and mid-western states. The deal offered to farmers is that they turn over their title to a farm or ranch in exchange for publicly-traded shares in the partnership. The partnership assumes the producer's debt and issues shares in the remaining equity of the farm. Farmers then may -- there is no guarantee -- lease the land back by paying rent and agreeing to a lien placed on crops to assure payment. In August, Montana, Kansas and Nebraska blocked Consolidated's activities. But John Stencil, president of the Rocky Mountain Farmers Union, said the partnership may now shift operations to Wyoming and Colorado, where a severely-depressed agricultural community is desperate for solutions. Stencil said when farmers are under stress they are always preyed upon by "unscrupulous promotions."

A-76 is set back

The controversial A-76 contracting program for the National Parks suffered a one-two punch in August. (HCN, 4/16/84). First, the House of Representatives amended and passed a bill which would ban A-76 in National Parks. The bill now goes to the Senate. Second, the *Jackson Hole Guide* in Wyoming says contractors are losing interest in A-76 because of high financial risk requirements built into the contracts the Parks are issuing. A-76 is meant to save money by contracting out jobs now done by government employees. National Park Service employees and administrators object; they say many park jobs require special skills and teamwork, and cannot be contracted out.

ETSI is derailed



Always on the edge of going under, a proposed \$3 billion coal slurry pipeline was canned August 1 when Energy Transportation Systems, Inc. (ETSI) cancelled the project. The pipeline would have moved coal 1,800 miles from Wyoming's Powder River Basin to the Gulf Coast. ETSI said the major problem was railroad opposition which caused costly delays.

HOTLINE

Glen Canyon Dam
made whole

August, 1983

Glen Canyon Dam's Achilles' heels are no more. Tests held in mid-August show the dam's two spillways can each now handle up to 138,000 cubic feet per second of water without damage. In spring and summer 1983, flows of 20,000 to 30,000 cfs caused severe damage to the spillways, eroding the tunnels and creating the possibility of a permanent, uncontrolled connection between Lake Powell and the canyon downstream of it.

In the wake of the damage, the Bureau of Reclamation spent \$33 million to repair the damaged spillway's tunnels and install airslots to prevent further damage (HCN, 12/12/83, 5/14/84). With construction completed, the Bureau in mid-August ran up to 50,000 cfs through the tunnels in a series of tests. According to engineer Clifford Pugh, the tests showed that the airslots mixed in the proper amount of air into the water. The air turned the water mushy soft, preventing the abrupt pressure changes, called cavitation, which damaged the tunnels last year.

Getty Oil loses again

In a victory for environmental groups and local elected officials in Teton County, Wyoming, the Interior Department's Board of Land Appeals rejected BLM and Getty Oil's move to reinstate a permit to drill in the Little Granite Creek area. In August, the Board reaffirmed its earlier ruling in May which called for the Bureau of Land Management to do a new Environmental Impact Statement that includes a no-drilling option on environmental grounds (HCN, 5/28/84).

Getty and BLM argued that the no-drilling option, attached in 1981 to an extension of Getty's permit, was not a mandate. But the Appeals Board called their defense "extremely hollow." Winners in the appeal included the Jackson Hole Alliance for Responsible Planning, the Sierra Club, Wilderness Society, Teton County Commissioners, and the Jackson Town Council. Getty, however, filed an appeal in federal district court in July before the Interior Board made its decision.

Toxic waste dispute

Idaho's toxic waste company, Enviro-safe, is locked in a battle with Owyhee County. Commissioners and the county's environmental safety officer subpoenaed all of Enviro-safe's written records for test holes in early August, fearing that groundwater had already been contaminated. Enviro-safe, however, was successful in convincing a district judge to quash the subpoenas on the grounds that the firm wasn't given enough time to comply. Owyhee County has also been critical of EPA officials for not being tougher on the toxic waste firm.

Grizzlies are losing Yellowstone to man

The grizzly (or grizzlies) that killed and ate all but 40 pounds of a 25-year-old Swiss camper this summer is still at large in Yellowstone National Park. A 125-square-mile section of backcountry and other areas remain closed, warnings to tourists have been stepped up, and bear traps have been set.

Even though the death of Brigit Fredenhagen was the first in the park caused by a grizzly in more than a decade, the trends are not encouraging. A hint of the Park Service's plight was provided by their reaction to the killing: a Park spokeswoman at first denied the victim had been partially consumed. The information was provided by the *Jackson Hole News* on August 22 based on an interview with Joel Scrafford, a U.S. Fish and Wildlife agent in Montana.

Although the Fredenhagen killing received the most attention, it may

have less portent for the future than the mauling by a grizzly of a 12-year-old boy while he slept in his tent at a Grant Village campground. Grant Village is being expanded into a major overnight tourist facility as a tradeoff for the closing of similar facilities at Fishing Bridge and Old Faithful. However, political pressure against the closings makes it possible that the Park Service will be left with both Grant Village and the present facilities. (See opinion piece on page 15.)

The situation would become even more serious if the mauling of Brian Lynip means the grizzlies are not about to willingly give up Grant Village. What happens when bears conflict with humans was illustrated last month when the Park Service killed one grizzly and exiled another to a North Dakota zoo for damaging

property and harassing hikers and campers.

In a less serious incident, on August 20 a Yellowstone Park naturalist ranger and her husband were attacked during the day by a grizzly sow while hiking in the Sulphur Springs backcountry. The sow, who was with her two cubs, charged Barbara and Robert Pettinga; they suffered cuts and puncture wounds.

The fact that Yellowstone is not a children's zoo filled with bunny rabbits was emphasized even before the bear attacks. An Indiana man was butted by a bison as he approached to take its photograph. Three days later, an Idaho resident was struck from behind as he backed up to have his picture taken with a bison. He suffered a deep puncture wound to his leg.

--the staff

Five wilderness bills pass the Senate

The wilderness logjam in the U.S. Senate was broken August 9 when five bills designating almost four million acres as wilderness were passed. The bills cover Arizona, Utah, Arkansas, California and Florida. Arizona, a 1.05 million acre bill, had already passed the House and was sent to the President. Utah's 750,000 acre bill is expected to easily pass the House this September.

The passage of the five bills makes it likely that wilderness bills acceptable to conservationists will be passed this year while those they oppose -- particularly Idaho, Montana and Wyoming -- will die.

It has been speculated that Senator James McClure (R-ID) was holding several of the liberal wilderness bills hostage in an attempt to put pressure on Congressman and subcommittee chairman John Seiberling (D-OH), who opposes passage of the Wyoming and Idaho bills. Michael Scott, regional representative for the

Wilderness Society in the Rocky Mountain states, said the McClure strategy backfired when Senator Dale Bumpers (D-Arkansas), put holds on the Utah and Arizona bills. McClure was supposedly planning to let them through in deference to conservative senators Barry Goldwater (R-AZ) and Jake Garn (R-UT). Scott speculates that Bumpers' action forced McClure to let all the bills go.

Scott said that in addition to the assured passage of the five bills, several million more acres of wilderness will be passed in the final five weeks of the Congress. But it is unlikely that Idaho, Wyoming, Montana or Colorado will be among them. Scott said the Wilderness Society is organizing a nation-wide coalition on the Idaho and Wyoming bills "because they are so bad and because the state delegations show no willingness to compromise. Our position is outright opposition." But, he said, it is unlikely that much can be done in five weeks.

While Idaho and Wyoming have become national issues, Montana remains an in-state question. The Montana delegation's bill was greeted by a storm of opposition and is probably dead for this year. Colorado is more complex. The House passed a 580,000-acre bill this spring, and Senator William Armstrong (R-CO) recently introduced a bill recommending 450,000 acres of wilderness for Forest Service and BLM land. Armstrong has said the acreage is negotiable, but he will not negotiate an absolute ban in his bill on the Forest Service seeking reserved water rights for wilderness purposes.

Scott said such a ban on instream flow protection would encourage transmountain diversions to the Denver area. He said that if Armstrong is determined to see that provision pass, then he predicted there would be no Colorado wilderness bill in 1983.

--the staff

The Great Salt Lake is rejoined

What man had put asunder he has now rejoined. The Southern Pacific Railway causeway across the Great Salt Lake of Utah now has a 300-foot gap in it, allowing the water from the higher southern arm of the lake to flow into the northern arm (HCN, 1/23/84).

The rock causeway had created a 3.5-foot height difference between the two arms because of the greater inflow into the south arm. Industries and towns on the south arm had called for the breaching to reduce their flooding. When the Utah state legislature appropriated \$3.3 million to breach the causeway, industries and towns on the north arm went into court to stop the action.

The courts refused to do so, however, and on August 1 Governor Scott Matheson (D) presided at the initial breaching of the causeway. Since then, the 300-foot-wide gap has led to a drop of about half a foot in the south arm and a comparable rise in the north arm. As of mid-August, there was still a 2.3 foot difference between the two arms.

Wally Gwynn, a geologist with the Utah Geological and Mineral Survey, said that even once equilibrium is reached, there will probably be a 6 to 10 inch height difference between the

two arms due to the partial barrier the railway causeway still represents.

Although the breaching will spread the pain, it is no cure for what ails the Great Salt Lake. The lake is now at a 105-year record high of 4,209 feet, and Gwynn said the summer evaporation season is producing essentially no drop in height. Some speculate that the Great Basin is in a wet cycle in which cool, cloudy summers combine with very high spring runoff to ratchet the lake level ever higher.

The Great Salt Lake is expected to climb another foot next spring, causing more damage. Thus far the two years of flooding has caused \$200 million in damage to highways, resorts, wildlife habitat and industry. Great Salt Lake Minerals and Chemicals Corporation on the north arm, for example, had to lay off several hundred workers due to the breaching of its salt evaporation pond dikes even before the causeway itself was breached.

--the staff

BARBS

They could have surrendered and lived happily ever after.

U.S. Senator Steve Symms (R-ID) recently told a group of Idaho citizens that the deaths of 20 million Russians in World War II proves that the Soviets consider human lives expendable.

Electric company oysters, anyone?

Great Falls, Montana stockbroker James Bellessa recently mourned the Montana Power Company's failure to get a \$96.4 million rate increase from the Public Service Commission. The PSC, he said, is "crippling a virile company."

Out here, inconsistencies don't bother us.

A glossy South Dakota promotional brochure has a front page headline: "Out here, noise is unheard of." Inside is a two-page spread showing snowmobilers roaring their machines down a forest trail. (For a copy, call the S.D. tourism board at 800/843-1930.)

Why not call it the Charles M. Russell Cattle Range?

The Charles M. Russell National Wildlife Refuge in Montana is home to about 12,000 head of deer, antelope, elk and bighorn sheep. In addition, the refuge hosts 24,000 head of cattle.

An ancient dwelling is found in Wyoming

HOTLINE

Last month, enormous earthmovers regrading U.S. 287 not far from Jeffrey City, Wyoming, shoved tons of dirt over the small colony of red flags that until recently marked the location of a prehistoric dwelling.

Even when archeologists were still working, scraping the sunbaked dirt by the highway with hand-held trowels and sifting for pottery shards and points, it was easy to overlook the site. But the waving flags and stooped workers signified one of the most significant archeological finds in Wyoming history.

This summer, workers from the Wyoming Archeologist's Office worked 10-hour days here to uncover several small rooms that appear to have been inhabited by Indians anywhere from 2,000 to 6,000 years ago.

Experts are now awaiting lab results that will date more exactly when the site was used. For the moment archeologists can only speculate exactly what went on there in ages past. But Dave Eckles, the Director of Archeological Survey in the state Archeologist's Office, says the discovery may change long-held views about the early inhabitants of the Northwest Plains. "It's kind of a whole new ball game," said Eckles.

"If indeed it's a pit house," said Carolyn Buff, of Casper, the first vice-president of the Wyoming Archeological Society, "It will probably revolutionize Wyoming archeology."

Striving for accuracy, archeologists prefer to call what they've uncovered a stone's throw from the Sweetwater River a "subterranean living surface." They found four to six rooms, three larger-than-normal fire pits, and thousands of stone artifacts ranging from projectile points to bone awls to round stones probably used for grinding food.

The site had been buried for thousands of years beneath sediments until highway crews began blading off topsoil this summer for highway improvements... and now it's been covered again, this time by the widening highway. But the archeologists say they've been able to explore "90 to 95 percent" of the site, and Eckles said cooperation between his crew and the road builders has been excellent.

But highways take precedence over the leisurely excavation of archeological sites. Site supervisor Dan Eakin said it would have been preferable to excavate only a small amount, analyze early findings in the laboratory, and then return to the site next year "having raised the right questions." Asked if his department was underfunded, Eckles said they struggle every year simply to maintain the existing level of funding.

The location of the pit house makes for a fascinating concentration of history and prehistory in a very small area. Across the Sweetwater floodplain looms Split Rock, the cleft stone which was a landmark for travellers on the Oregon Trail. The trail itself is only a few yards north of the excavation site, and the Sweetwater River is only a stone's throw beyond.

Discovery of the site was, in the words of archeologist Eakin, "serendipitous." Archeological surveys are required by law on projects using federal funds, and when Eakin and his colleagues surveyed the area where the highway was to be widened, they found over 100 fire rings (relatively common in Wyoming) within a quarter of a mile. With no clear idea what they were looking for, they chose a spot to dig deeper.

Until this year, it was assumed that the early Indians of the Northwest Plains were nomads, hunters and

gatherers who never formed permanent settlements like their contemporaries in the Southwest. The discovery of this site, and another one found by an energy company near Hanna last year, may change that assumption.

The rooms, roughly twelve feet across, were dug approximately 60 centimeters (about knee-high) deep. The scientists are unsure what sort of shelter covered them, though skins or vegetation are considered likely.

To understand the significance of the find, one has to immerse briefly in archeological time scales and lingo. According to Eckles and Eakin, the dry era that followed the ice ages 10,000 years ago drove big game out of the arid basins of the plains and up into the foothills. During this "altathermal" period, humans either had to follow the game or congregate along surviving streams -- and these groupings were the precursors of villages, where, in the Southwest at least, hunters and gatherers first turned to agriculture.

The site could also have been "a prehistoric supermarket," said Eckles, where Indians gathered during certain seasons.

Archeologists who hazard such guesses are often attacked by their colleagues for prematurely drawing conclusions, and Eckles is quick to qualify such conjecture as speculation.

Work on U.S. 287 began in Muddy Gap in 1976, and will eventually extend past Jeffrey City to Ice Slough.

Eakin said there may be other sites in the area that simply won't be uncovered for lack of research funding. "The United States is not quite as developed as Europe in terms of the support structure or recognition of archeology," said Eckles. Added Buff: "I don't think there is enough concern by enough people."

--Geoff O'Gara

A grand climb



Skip Shourts, Wyoming State Journal

Paul Petzoldt

The weather was harsh and forbidding July 28, but Paul Petzoldt, 76, the founder of the National Outdoor Leadership School in Lander, Wyoming, achieved the 13,770-foot summit of Grand Teton, the highest peak in the Teton Range. The climb commemorated Petzoldt's first ascent of the mountain 60 years ago in 1924. Petzoldt told a reporter that he made the anniversary climb this year because if he waited for the 70th anniversary, most of his friends would be too old to accompany him. Petzoldt is the author of several books, including the *Wilderness Handbook* and *Teton Trails*. On his way up the mountain, Petzoldt met a climber coming down who promptly opened his pack and pulled out *Teton Trails* -- which Petzoldt autographed.

Sodbuster bill impasse

House and Senate conferees are at a stalemate over legislation designed to control soil erosion and benefit fish and wildlife, reports the Wildlife Management Institute. The House wants its bill adopted in order to establish a comprehensive erosion control program, but the Senate is holding out for its version, which would help abate erosion only in arid sections of the West. The House bill, H.R. 3457, contains three provisions. One is the sodbuster language, which would deny price supports and other subsidies to farmers for crops grown on highly erodible land in arid areas. Another would create a conservation reserve on erodible land nationwide, contracting with landowners to take land out of production and install a cover crop. The other provision, a voluntary set-aside, would allow farmers to periodically plant protective vegetation on crop acreage that is used also to qualify for subsidy payment. The Senate bill, S.663, contains only a sodbuster provision drafted by Senator Bill Armstrong (R-CO).

David Brower is back on FOE's board

David Brower, the "grand old man of the conservation movement," has wrested back control of the organization he founded, Friends of the Earth. He is once again a board member and expects to be its unpaid president.

Brower, 72, was forced off the board of directors July 2 (*HCN*, 7/23/84) after a six-hour meeting which centered on Brower's unsuccessful attempt to flout board policy on staff cuts. But on August 3, FOE's board met again in San Francisco and declared "null and void" their decisions of a month earlier. A day earlier, Brower had dropped his suit in California State Superior Court which challenged the legality of his dismissal on grounds that a quorum was not physically present.

Interviewed by telephone August 24, Brower said pressure on the board to reverse itself came from nine directors who supported him as well as many staffers and FOE members, 70 of whom sent letters of support. "And nobody wanted to go to court," he added.

To prepare for the next FOE board meeting September 14, Brower said directors have been talking informally about his proposals for direct election of the board by the membership, and for reducing board membership from 27 to 15. Brower said three directors had already resigned: "We have nine to go and we're trying to find out if some want to leave. We're hoping to work this out ahead of time."



David Brower

Since his board reinstatement, Brower has also been involved in discussions about what to do with the July-August issue of FOE's newspaper, *Not Man Apart*. The July board ordered 30,000 copies shredded because of Brower's secretly-inserted ad to "SAVE THE TEAM." Brower's

court case prevented the destruction of the copies, but Brower said it was not easy to devise a full-page replacement ad for the newspaper, which was finally mailed to members August 23.

"We had nine or ten drafts," Brower said. "Neither side is totally happy with what we've done, but at least it gets us out of the quagmire." The other side in the matter is Robert Chlopak and board members who support him. Chlopak, who was appointed FOE's interim chief executive officer (CEO) in July, is on vacation and could not be reached for comment.

Brower said a search committee is now looking for a chief executive officer. "We may decide a management council of staffers should be the CEO." By mid-September, he said, he will again become FOE's president, an unpaid position created when Brower stepped down as CEO in 1979.

Brower said the internal schism and resulting public disclosure had not been a crippling blow to FOE. "We still have a deficit and you could run a 'Wanted: \$750,000' ad, but we are alive and we want funders and members." He said what is dead is Chlopak's proposed merger with the Washington, D.C.-based group, Environmental Action. "The proponents backed away. So it's three cheers for diversity, all power to the environmental movement."

--Betsy Marston

A High Country News profile, the first in a series

by Dan Whipple

Since Barry Lopez writes gracefully about the intersection of landscape and language, it seems natural, when writing about him, to describe first his personal landscape, the place he has chosen to live. So.

Go to Oregon. Turn south along the crest of the Cascades, wondering as you go at the pines shooting skyward and wild irises in bloom. Turn east and follow the tumbling white-water and shadowed banks of the McKenzie River. When you've gone so far that you think you've passed it, there will be a rock in the middle of the river. A man is sitting on it, holding a notebook. He has a carefully kept beard and clear, dark, hazel-brown eyes. You stop to see if he needs some help. "Did you lose your boat?" you ask. "No," he says, "I like to work on the river."

There it is, a small house, tucked in a wild, tangled section of riverside, surrounded by neighbors who have spent their years on the river beating back the advances of nature and manicuring their lawns. Shaded by tall trees, nearby is a field of mint, growing in a low water pocket. Desert, a dog with a lot of golden retriever in him, checks you out carefully. If you pass his inspection, Barry Lopez stops building his woodshed and greets you. If you've timed your visit very carefully, you may be treated to a piece of Sandra Lopez's spectacular apple pie. And then you sit for an afternoon of talk.

Lopez is, of course, the Oregon-based writer of such marvelous books as *Desert Notes: Reflections in the Eye of a Raven*; *River Notes: The Dance of Herons*; *Winter Count*; *Of Wolves and Men*; and *Giving Birth to Thunder, Sleeping with his Daughter: Coyote Builds North America*. Lopez has won the John Burroughs Medal for distinguished natural history writing, the Christopher Medal for humanitarian writing, and the Pacific Northwest Booksellers award for excellence in non-fiction. *Of Wolves and Men* was nominated for the American Book Award in 1980 and Lopez won the Distinguished Recognition Award, Friends of American Writers in 1981 for *Winter Count*.

Lopez is an evocative and authoritative writer about the West and the natural world. He easily blends nature, language and myth to explore man's relation to nature and nature's own interrelations. He is also a thinker. Lopez takes ideas seriously and tries to find the truth and beauty in them. In the words of Sam Hamill in an article from *Pacific Northwest* magazine, Lopez is "a 'naturalist' without any of the adolescent awe or back-to-nature self-righteousness that flaws so much recent nature writing."

Lopez says of his place as a writer, "The depth of feeling I had for writing wasn't something that I chose, like you choose a profession and train for it. It occurred to me after the fact that that's what I was."

"I have a tremendous fondness for the language that we all share. And the place where I feel most comfortable is with natural history. The two are very close to me -- language and landscape."

"All the work originates with me and afterward people categorize it. They say, 'You're an environmental writer' or you get put in a category with Edward Abbey or somebody else. I think the person most often mentioned with my work is Peter Matthiessen. You get put in different categories."

"But it's a hard thing to get at. You just do your work and things from the outside categorize you. Someone says, 'You're a this' or 'You're a that' or 'You must be a biologist because of what you know about wolves.' But these things come from outside."

Lopez cheerfully admits that he is not a biologist, though he does say he went "excessively" to graduate school. He started out his academic career with an interest in aeronautical engineering, but soon changed his field of study to English. He graduated from Notre Dame University in 1966 and received a Master of Arts in teaching from Notre Dame in 1968.

The continuing theme of Lopez's work has been the inherent dignity of landscape, animals and the natural world apart from the values placed on them by humans. "There is the utilitarian notion that landscape has to do something before it is legitimate, when in fact it doesn't have to do anything at all. We got here by the grace of land... by the grace of God, if you prefer... in the Holocene, 10,000 years ago. We didn't get here because the land was doing what we wanted it to do and it had a job definition."

"This issue is similar to the difficulties that working people have, which is that their dignity is never something that is accorded to them just as a matter of course. Too many working people must every day earn their dignity."

"The same is true of land. The government says unless the land is productive -- and they mean if it produces corn, if it produces molybdenum, if it produces timber -- then it has a certain amount of worth or value. This is a deranged way of living, by assigning all these values to things and saying that the only lands we'll protect are lands that are productive."

"It's a wrong way of thinking to say that we should only be aware of what is conventionally beautiful. You don't have a list of the best-looking and then some cut-off point at which the not-so-good-looking don't make it. Everything has dignity. The land has dignity without any system of rank ordering."

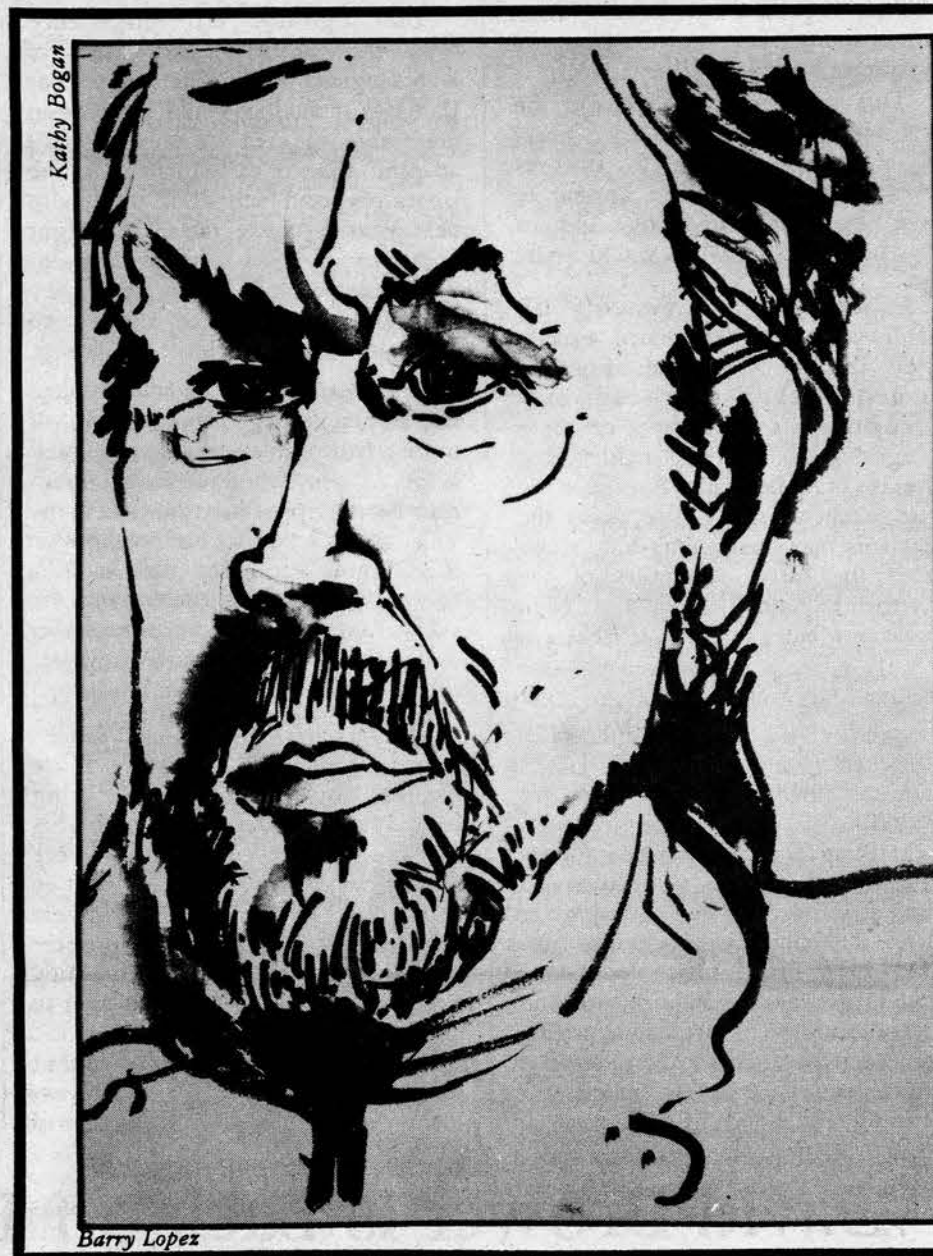
"We now live in a system where the state of the economy is taking precedence over the state of the biology. You can't get away with this kind of marginal thinking for a long period of time -- it blows up in your face."

Lopez carries his argument for the dignity of the land through to the impact that landscape has on language. By landscape, he refers not simply to landforms and vegetation, but also to the wildlife, climate, "the movement of time," and the spiritual relationship that the inhabitants maintain to this landscape mixture.

"When you look at the relationship between language and landscape, at least in the aboriginal languages that I'm familiar with, much of the metaphor, much of the idiom, much of the flavor of the language is the result of an intimate association with the land."

"Of course, when you look at an advertisement from the timber

Barry Lopez writes innate dignity beast and



industry, or something like that, you read the ad and say, 'Something here doesn't really make sense.' And when you try to put your finger on what is the level of cheating and lack of candor, you find you're reading a manipulated language. The same people that have an interest in manipulating that language have an interest in manipulating the land."

"If you want to monoculture a region, you say, 'Well, we just want the good-looking ones.' They want Douglas fir, cedar and hemlock, because they've already developed markets. Then they say, 'All the rest is garbage.' So they cut down what's there and in doing so they destroy all the subtle relationships. It's just like a bloodstream. When you look at a forest in a temperate zone, you see dominant trees, but you also see trace elements, the same way you see trace elements in blood. And without those trace elements, the blood is just a fluid that will not make the body run. When you go to a south-facing slope, you ask, 'Where is the madrone? Where is the white oak? Where are the trace elements that indicate that the truth is being told in this particular area?'"

"When you have a monoculture, the truth is not being told. You have developed some strange aberration. So, you develop a twisted language to say why it's best to do things like that."

This kind of holistic thinking influences Lopez's writing and his opinions about the future of the

environmental movement as a force for education and as a force for translating the lessons of the land into language to teach others. "If you're out there just to save a place to have a lot of whitewater runs or things like that, I'm not interested in that. But I am if somebody says, 'I'm concerned about my child's education, and some part of it seems to have gone haywire. My children don't seem to be learning a basis from which to make the important decisions of their lives.' Part of the reason they don't is because we live in a situation in which we have the defense of monocultures as the best system for doing anything, from raising chickens to growing Douglas fir."

"I'm encouraged the more I see the environmental movement looking across the table, for example, to labor, and saying, 'What do we have in common?' Of course, one of the things they have in common is these issues of dignity. This isn't something somebody has to earn. The little holly tree has a dignity all its own, because it is what it is. You don't make it what it is."

"When I hear environmental people saying, 'Yes, there is a relationship between what we're trying to do and what labor is trying to do,' this is what dignity is about."

"You look at a city budget and when they start to cut, the first things they cut are libraries and parks. The parks, in the sense that they are remnants of an original landscape, are the source of your culture, of your

of the of man, landscape

"People who want to cut the legs out from under the parks and libraries are attacking the two legs on which their culture stands."

organization of ideas. When you live in a certain area as you grow up, you have certain ideas about the world. It comes from looking at the way things are related to each other. So, you put those thoughts in stories and store them in libraries. People who want to cut the legs out from under parks and libraries are attacking the two legs on which their culture stands."

Of *Wolves and Men* is probably Lopez's most widely read work. It is a study of both species mentioned in the title and how their interaction has affected them. At one time, Lopez had two wolves himself on his McKenzie River place (or perhaps they had him). Both are dead now, one shot by an unknown gunman for no apparent reason other than a dislike for wolves. Their pen is no longer there, but the perimeter is almost visible near the telephone cable spool table at which you sit drinking coffee.

Of Wolves and Men is a thorough look at the biology and ecological niche of wolves, but it is also much more than that. It explores the myth and mystery surrounding wolves, discovering and examining questions of spirit. This acceptance of myth as part of the fiber of truth and a store of knowledge is a thread that runs through Lopez's writing.

"A story is a living entity and it comes out and defines itself. A story for me is a correct set of relationships that is pointed in a certain direction.

The wisdom is in the story, not in the storyteller.

"The scientific mind is a tremendous development in our culture. We have developed a rigorous way to look at land, to talk about relationships, say, in among the shading along the river down there, the temperature of the water, and the ability of the fish to raise their young in waters that aren't heated by the sun. Science has made those things clear to us, particularly in ecology.

"I think what is sometimes forgotten is that science is not the only voice of truth. I mean that in the most disciplined, intellectual way. I have sometimes been with scientists who are oblivious to other kinds of truth. What it means to me is that they are poorly educated. They have a metaphor for the description of the land and make the mistake of thinking that they speak the truth, instead of seeing that it's still metaphorical.

"Many people think that the mind uses narrative to clarify for itself what is going on outside. It tells itself stories. That may be how the mind works. So, if a tremendously observant novelist writes a novel about your culture, you can read that and have the same sense of exhilaration or a sense that you have touched something that is the wordless truth, the truth that almost cannot be articulated except obliquely.

"You can have the very same sense when you read a very good biologist writing about an ecosystem, one who is aware that there are other systems of science besides western science -- systems of meticulous and rigorous observation that exist outside the traditions of western science.

"There are other ways to look at reality. Only a fool would say that one system describes something completely. Actually, I'm not so sure that they are fools, so much as reductionists. When I was up in the Arctic, I asked scientists -- biologists -- what worried them most about their students. And they all said the same thing. The graduate students are able to develop reams of data, to quantify things to such a degree that they fool themselves into thinking that they have gotten hold of something. But the failure they have is the inability to create a coherent narrative. I had a cetacean biologist tell me once, 'You know, if you punish the data enough, it'll tell you anything.'

"This guy said, 'Ten years ago, I saw these students come in and they were able to dance circles around me with all the data they were able to develop. I thought that in ten years, I was going to be a dinosaur. I wouldn't be able to communicate. Now I find that ten years later, they're still coming to me asking how to make sense out of all these bits of information. And it's not just scientific sense, but moral sense, a philosophical sense.' They are saying, 'I have no philosophical basis, no religious basis for my life.'

"You turn people like that loose in science and let them testify in courts of law and you have chaos. And in some ways, that is part of the difficulty of bringing environmental issues into courts of law. You get people who say, 'Well, I can quantify all this. I can quantify beauty and stand up and make an argument for it in court.' Well, of course you can't, unless you debase it, or twist it, or turn it into something that it's not.

"And in those ways, science speaks with a dangerous arrogance, because it intimates that only it has the real answers to what is going to happen to animals living on the

benthos near Santa Barbara in the event of an oil spill, for instance. They're not the only people who know that. Scientific information is not the only kind of information that should be considered.

"We must consider other issues and some of them have to do with questions of mythology. Who are we? Where did we come from? All of the original sources from which we used to learn -- how to paint, how to dance, how to speak, how to think, how to behave in a marriage -- all of these things we used to learn from conversing with the landscape. Now we're hell-bent to tear it down. Of course, if you do that, if you have no final truths, you can make up whatever you want. Those are the things industrial states and totalitarian states want most."

Lopez believes that humans must examine the entire relationship with animals in terms of who we are today and where we've come from over the course of 10,000 years of our history. In an article for *Parabola* entitled "Renegotiating the Contracts," he wrote, "If we are to locate animals again at the complicated ethical and conceptual level of our ancestors, where they seem to have such a bearing on our state of mental health, we must decide what obligations and courtesies we will be bound by ... We will never find a way home until we find a way to look at the caribou, the lynx and the white-throated sparrow in the face, without guile, with no plan of betrayal. We have to decide again, after a long hiatus, how we are going to behave. We have to decide again to be impeccable in our dealings with the elements of our natural history."

Lopez tells you around the battered table at his house that you cannot delude yourself into thinking that, because you have captured a lot of data about an animal that you have captured the animal itself. You think to yourself that there is a parallel among humans. Data can be collected about cities -- the population, miles of streets, major employers, acres of parks. Maps can be drawn and tour books written. But to the people who live there, a city is a collection of neighborhoods, of familiar streets and smells, a favorite restaurant or the regular newsstand. Capturing the data doesn't capture the city, and even less the individuals in it.

Lopez is pursuing these questions of our moral relationships to animals and landscape in his current projects. He is at work on a book of non-fiction about the Arctic, and has been visiting and traveling with scientists, naturalists, natives and oil and mineral

developers over the past three years. Many of the questions he has been exploring are now most vivid to him from the Arctic setting.

"The first time I was up there was in '76 when I was working on the wolf book, and I fell in love with the place, with the quality of austerity there, and with the light, with the people.

"In the Arctic I was dealing a lot with polar bear biologists, musk oxen biologists and narwhal biologists. I wanted to get a very firm ground in the biology and ecology of Arctic animals. The rest of the time -- and most of what this book is about -- I examined the play between landscape and kinds of minds -- with archaeologists and historians and hunters. How do we see the land?

"The things I'm interested in as a writer have to do with the nature of prejudice. What is the nature of human dignity and how is that dignity compromised? How do we arrive at our prejudices toward landscape? Why do we call deserts 'wastelands'? Why do we develop this pin-up mentality so that the great waterfalls and Denali become parks, but the less conventionally attractive landscapes are set apart as wastelands?

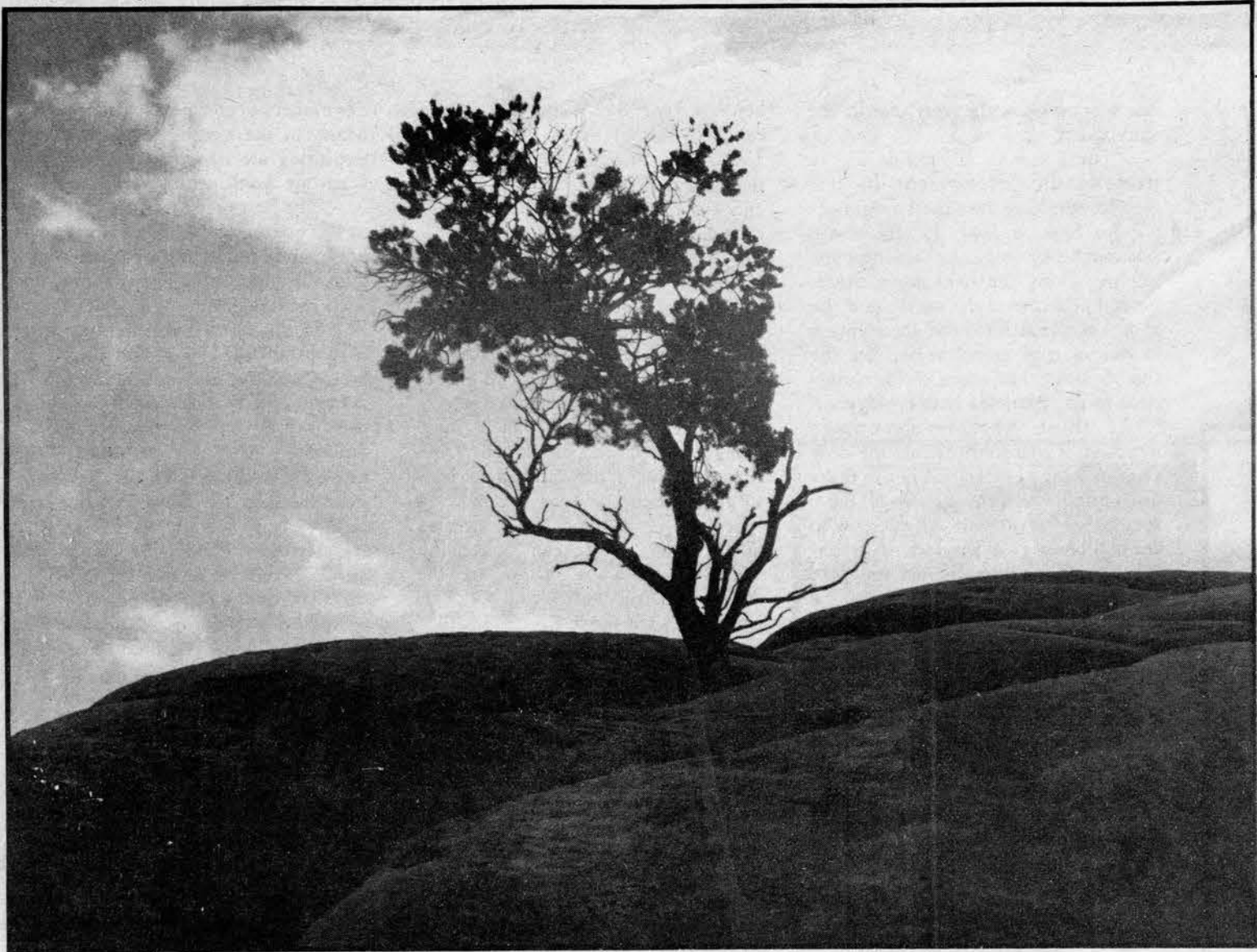
"Another reason the Arctic appealed to me was that so much of it appeared to be without feature, without any admirable qualities. But, as soon as you're there for a while, not for ten minutes or two weeks, but you go back year after year, you begin to appreciate the tremendous subtleties and qualities of the land in a place that serves for many people as a prime example of waste.

"The land has an innate dignity. It has an innate power. This is not something it receives from us. It is ludicrous to imagine that you can 'upgrade the land.' You can only achieve a better understanding of what is already before you, of its subtleties."

The afternoon is winding down now and much of the Sunday traffic is heading back downriver. You realize that you must join it. Lopez admires a drawing that you've completed and compliments it by saying it captures something "true" about his face. You thank him for a splendid afternoon and thank Sandy for her splendid pie. And, on the way home, you contemplate that some of your own dignity has been re-awakened.

Dan Whipple is well known to readers as a former managing editor of *High Country News*. He is now a free-lance writer in Eugene, Oregon.





Laurel Caspers

The meadow is washed by the sun, but the spruce are a dark wall ahead.



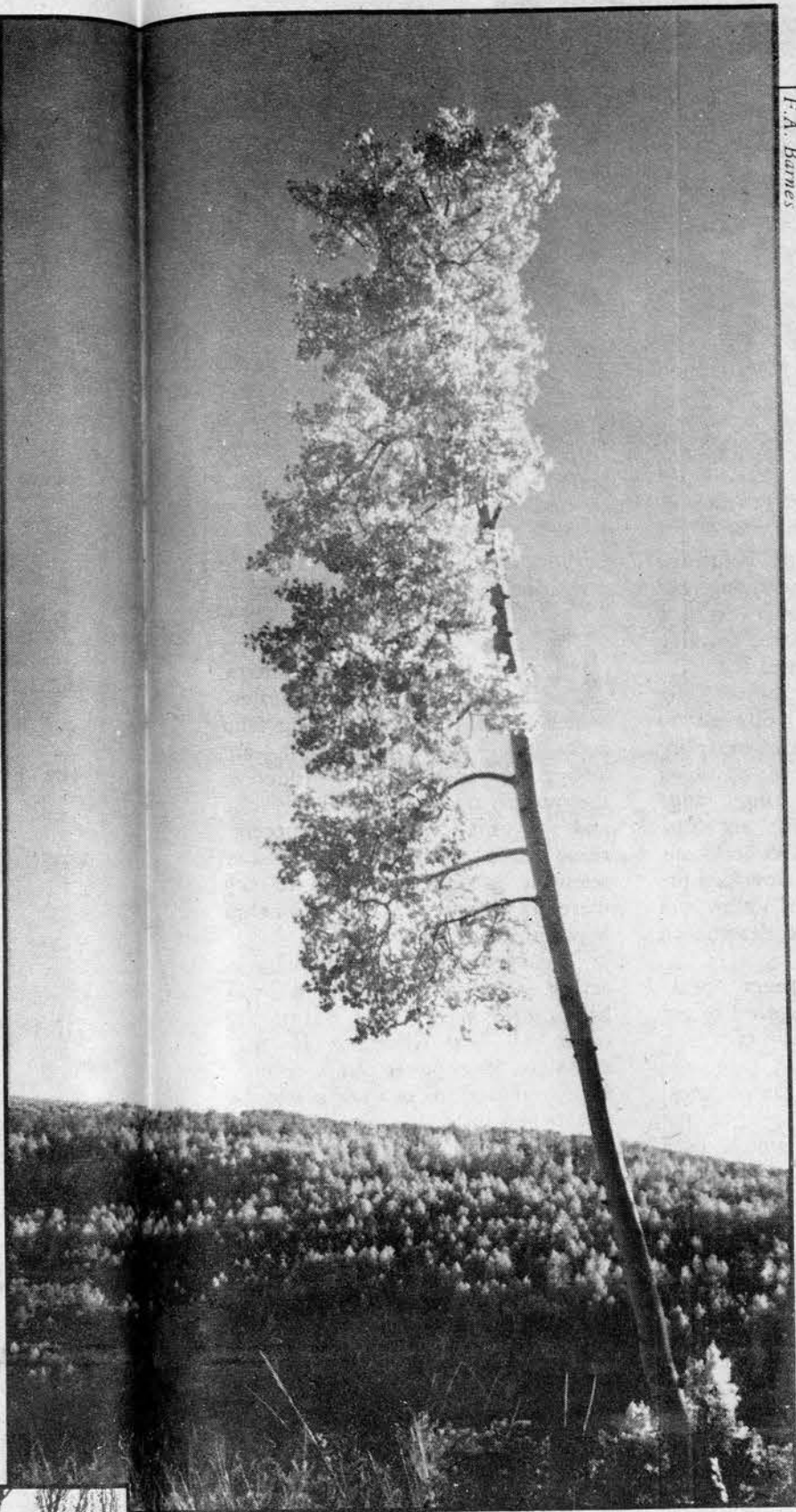
Charles Gallagher

Late winds in tall trees remind me why we fear gods or fear we are gods.



David Spear

That scarred-up aspen's so old even its bear is a hundred years dead.



F.A. Barnes



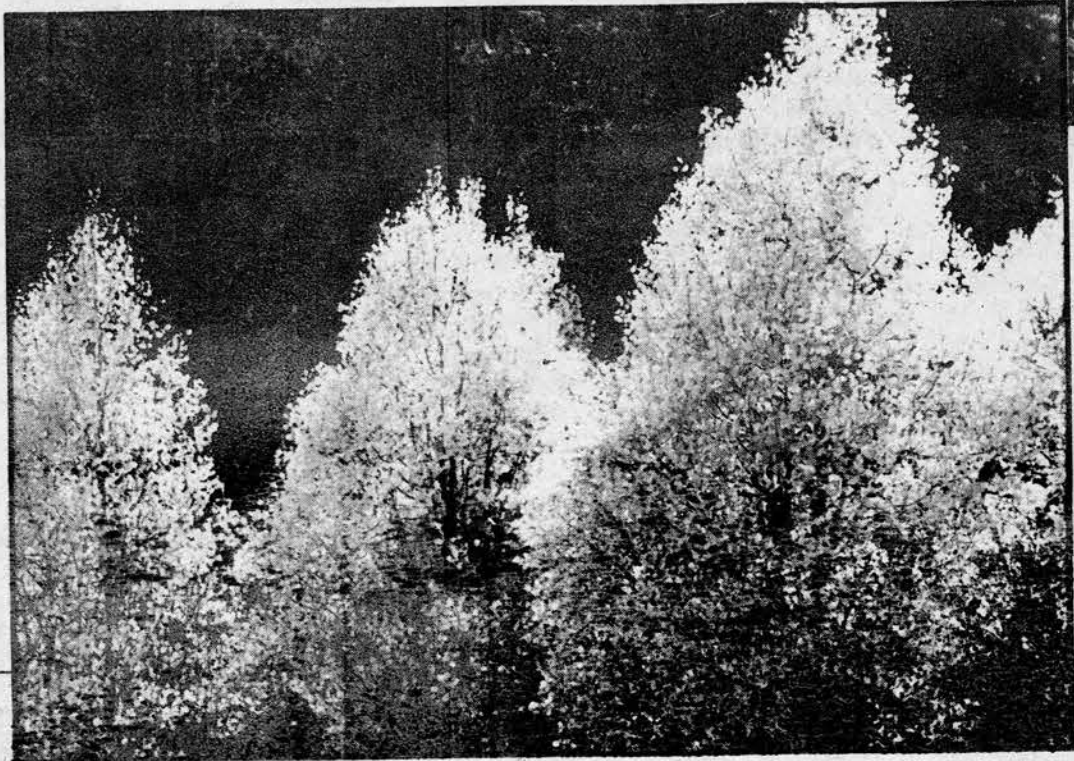
Dale Schicketanz

This tall quiet place
was the library, when all
the books were still trees.



David Spear

The trees in the lake
shimmer off -- don't know down like
the others know up.



Idaho Fish and Game Department

Haiku by George Sibley

Acid rain...

[Continued from page 1]

caused by a complex of gaseous pollutants produced by the central activities of industrialized life: electric power plants, including the famous Dirty Fifty Midwestern power plants, domestic and foreign copper smelters and the automobile and truck.

If the scientists at the conference are right, the scale of man's activities has become so overwhelming that we are now altering the landscape in large ways -- wiping out lake life in the Adirondacks and Canada, destroying or changing the species mix of forests in New England, and rolling eastward across Europe, leaving dead forests first in Germany and now in Eastern Europe. University of Vermont scientist Richard Klein told the group:

"The next generation will experience a different forest than we know. Some effects are irreversible. No one knows what will replace what has already been lost."

Perhaps the most chilling talk came from one of the most establishmentarian scientists at the conference: Dr. George Tomlinson, who works for DOMTAR, a Canadian forest products company. The stage was set for Tomlinson by talks about how corrosive air pollutants first strip the protective wax coatings off leaves and then penetrate the leaves' chemical factories, where they interfere with the production of carbohydrates by the chlorophyll molecules.

The result of this stripping and invasion is chlorosis -- leaves yellowed and curling, which either drop during the summer or give a dull color display before dropping in the fall. That is serious, but at least such damage is seasonal; the tree is still there, weakened perhaps, but ready to come back if the air becomes cleaner. Or, looking to the next generation, still capable of sending out seedlings which may live to see a cleaner day.

But Tomlinson had grimmer news than the destruction of leaves. He told the audience that acid rain is altering the forest soil in lasting ways. It is leaching out of the soil the calcium and magnesium which are a vital part of a tree's chlorophyll-based metabolism. He and other speakers said that the acidity in the soil is also freeing, or mobilizing, aluminum. When free to migrate chemically, the metal clogs the tiny feeder roots which trees depend on to take nutrients out of the soil. Tomlinson said acid rain is changing the soil in fundamental ways which could make it impossible for the Canadian soil he is studying to support tree life.

The theme of fundamental changes in forest ecosystems and therefore in tree species and landscape was echoed by others. In some places in New England, acid fog, by staying in long-term contact with forests, is killing large numbers of trees.

Dr. Richard Klein of the University of Vermont said, "As trees die, the canopy opens up. The ground becomes drier and warmer. That accelerates the deaths of trees that require a cool, moist climate. He said there is a vast difference in the ability of different tree species to adapt to acid rain. And those differences would change the make-up of forests.

Dr. Orie Loucks of Butler University in Indiana presented evidence of a different kind. He

showed slides of tree cross-sections in areas affected by acid rain. Starting with the 1950s, they showed a steady shrinkage in the width of tree rings. One interpretation, he said, is that human activity is stunting the growth of the trees.

The possible relationship between the width of tree rings and air quality, Loucks said, had been studied near a munitions plant operated during World War II, Korea and Vietnam but shut down in times of peace. The plant puts out gaseous pollution while operating and Loucks said trees neighboring the plant were found to have shrunken rings during the years the plant was operating, but normal-sized rings during peacetime.

Unfortunately, he continued, the same recovery is not being seen in the Ohio River Valley. Thanks to the Clean Air Act, sulfur dioxide emissions have dropped by 25 percent in the last decade. But tree ring widths have not come back.

"Despite the munitions data, the 15 years of insults means the tree rings won't come back quickly." Presumably, what he sees in the Ohio River Valley will hold for the entire nation. Recovery will lag cleanup by many years.

Loucks spoke mainly about trees he has observed on the East Coast and in the Ohio River Valley, where the nation's dirtiest power plants are believed to be polluting both the immediate area and New England and eastern Canada. But in addition to his tree ring slides, he offered anecdotal evidence. He said the nation's leaders don't have to go far to find acid rain damage:

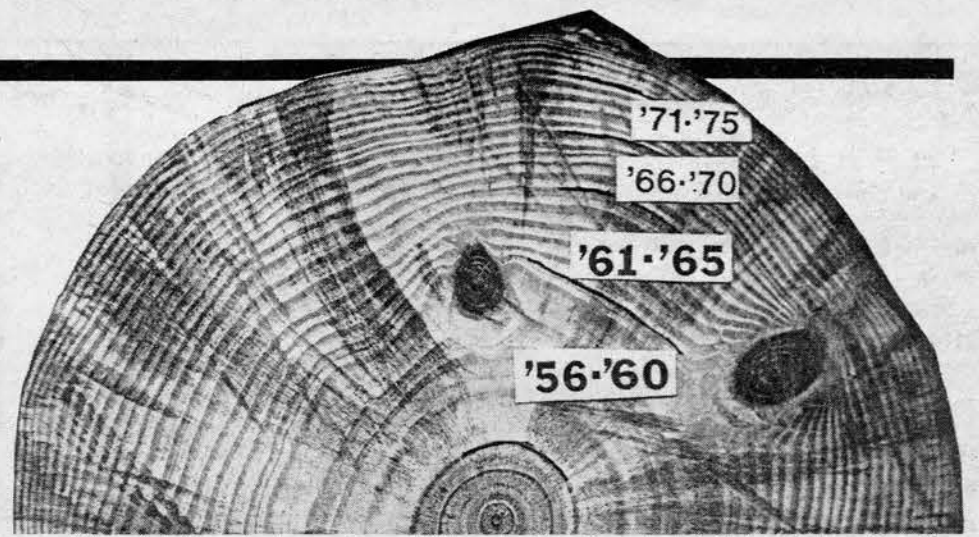
"The Linden trees at 1800 Pennsylvania Avenue in Washington, D.C. are shriveled around the edges" by a mix of NOx, SO2 and ozone. The magnolia, he said, are also impaired and the sycamore around Capitol Hill in August are "among the most dramatic examples" of damage. He also showed slides of damaged leaves found near the home of the brother of Environmental Protection Agency head Bill Ruckelshaus.

Almost no one in America, Loucks said, has to travel far to see trees suffering from acid rain damage. In the West, he said, it's not as severe as in the East, but it's still visible. He said acid rain damage is severe in the Ohio River Valley, but the corpses are hard to find. "Rapid removal of dead trees occurs in developed areas."

It's also hard to grasp the big picture. "Visibility is too impaired in Indiana to let me take color slides to show you the beauty and forest resources at risk." The limited visibility is related to acid rain: the haze is caused by particles formed when moisture is absorbed by the sulfate particles.

Loucks has written in a scientific paper: "In the Ohio River Valley, I have been observing and photographing damaged foliage and premature mortality in both deciduous and coniferous species since 1978. Indeed, the yellowed condition of the foliage, its premature drop in mid-summer, the muted intensity of fall colors, and the early decline of otherwise long-lived species lead, not to a sense of confidence in the longevity patterns of forest species, but to concern over how much is changing and how insecure may be the future of these species."

Although most of his talk was scientific, Loucks discussed the human dimension. Wherever he goes in America, but especially in his own Midwest, he sees the species man



The shrinkage in tree ring widths shown above is believed due to the cumulative effects of air pollution in Indianapolis, Indiana. According to Dr.

Orie Loucks of Butler University, the shrinkage started in the 1960s and ended in 1982 with the death of the tree.

most depends on for goods, landscape and beauty withering and dying. But his fellow citizens in the Midwest have been the main political force blocking action on the acid rain question.

Fearful of electric power rate increases, they have chosen to overlook the damage the power plant emissions are believed to be doing locally and, through long range atmospheric transport, in New England and Canada. He told his audience, "It's uncertain how long the public in the Ohio River Valley will remain indifferent to the destruction of forests."

Throughout the conference, speakers and participants struggled to put the new phenomenon of acid rain in an understandable context. One observer, David Skaggs of Los Alamos, New Mexico, compared it to the tuberculosis epidemics which once swept America's cities. TB infected and then killed people already weakened by harsh work, crowded living conditions, and malnutrition. TB is still around today, but a relatively well-fed, well-housed population is immune to it.

The American, German and Canadian researchers at the conference pointed out that trees are being carried off in a variety of ways once they have been weakened by foul air or leached soil.

Richard Klein of Vermont said, "Trees die of a variety of causes. It's interactive. A dead tree can't tell tales about its assassin. But one thing is clear: the correlations between human activity and trees is very high. And once a tree has been stressed, it becomes vulnerable to disease and insects."

That's especially true in the Rockies. "Trees in a montane environment in the best of conditions are always just hanging on. It doesn't take much to push them over."

There is no proof that they are being pushed over in the Rockies by acid rain. But there was speculation. Canada's George Tomlinson suggested that some of the spruce budworm, or beetle kill, infestations in the West are hitting trees weakened by acid rain.

Dr. Erich Elstner of the Technological University in Munich, Germany, suggested one mechanism: "Damaged trees give off more hydrocarbons," and the hydrocarbons then attract insects to trees that are already weak.

Observation of widespread damage, indications that the damage is getting worse and may be permanent, and the international nature of the acid rain problem appears to cry out for action such as the nation took on aerosol cans and DDT. But the very pervasiveness of the problem creates high barriers to quick action.

Dr. Chris Bernabo, head of the U.S. National Acid Precipitation Assessment Program, said the aerosol can threaten the ozone layer of the atmosphere was easy to eliminate

because the product affected relatively few firms, workers and consumers.

But the possible causes of acid rain, he said, involve many industries and most consumers -- electric power, metal smelting, and auto and truck transportation are among the possible sources. Added to the power of these sectors is the inability of scientists to be precise about cause and effect. No scientist or scientific group is prepared to say there is a one-to-one relationship between insult and injury.

The speakers were unanimous in saying that acid deposition was harming lakes and forests. But no one could tell how reductions in SO2 emissions from power plants or NOx from autos and trucks would affect the forests and lakes. In the words of one speaker, no one knows which knob to turn to shut off acid rain damage.

Most attention has focused on the sulfur dioxide coming out of smelters and power plants -- 24 million tons of it each year in the U.S. But in the eastern U.S., cars, trucks and other sources emit about half as much NOx as power plants produce SO2. And in the West, SO2 and NOx are produced in equal quantities. Indications are that both play a role in acid rain. But it is possible that only one must be cleaned up to control the problem. Or that some yet unguessed-at factor plays a crucial chemical role in the atmosphere where acidic compounds are brewed, and that acid rain could be stopped by controlling that element.

That leaves the way open for some to call for maintaining the status quo until there is more information, which is the position the Reagan Administration and some coal companies and utilities have taken. But others say the matter is too serious to wait for certainty. As in the Great Depression, they say, the nation must act, even if some of what it does turns out to be unneeded.

Bernabo, the conference's first speaker and the man who gave the scientific and political overview, urged an end to the ideological battle between mitigation and control. At least part of the environmental community opposes mitigation because they see it as an undesirable alternative to reducing pollution. But Bernabo said that "even if Congress decided to control emissions tomorrow, it will be a decade" before the results begin to show up. "So both control and mitigation are needed."

In the case of mountain lakes, mitigation means trucking or helicoptering in lime to provide them with the buffering they need to maintain their pH. But the conference also heard a suggestion for saving trees. Ulrich, who is studying the death of the coniferous forests of Europe, said that the spraying of a polymer on trees could help save those forests. The polymer would replace the needle's own wax, which is being dissolved by the acid rain.

In addition to calling for mitigation, Bernabo discussed why the U.S. was having trouble deciding on an acid rain policy. "Environmental policy is social policy. There is always something lost versus something gained. Are you more concerned with dead lakes or with unemployed miners?"

He said the tradeoffs could also pit the environment against itself. A scrubber which removes sulfur oxides from an average power plant produces a square mile of solid waste a foot thick each year. Someone else mentioned that the particulates now removed by power plants' electrostatic precipitators are alkaline, capable of neutralizing acid. Were they still emitted into the air, the air would be dirtier. But it would also be less acidic thanks to their neutralizing ability.

Bernabo also said, "The greater the action required, the more scientific

certainty needed." Acid rain control will affect Midwestern coal miners and companies, utilities, the copper industry and the auto and truck industries, at a minimum. To move such massive economic forces, he said, requires overwhelming scientific evidence that the movement is necessary.

Why then is Canada, a country less sensitive in many ways to environmental damage, united on the subject of acid rain? Canada, he said, has a great deal at risk -- a \$1 billion sport fishing industry, a \$10 billion tourist industry, and a \$14 billion timber industry. A Canadian speaker said 8 percent of Canada's gross national product is at risk. In addition, Ontario has already lost 1,000 lakes with another 48,000 endangered.

The U.S. has also lost lakes and forests in the Northeast, and part of

the nation is as determined as Canada to reduce sulfur emissions. New York state recently enacted a law to chop its sulfur emissions below what is required by federal law even though much of its problem is believed caused by the Midwest. But the U.S. is not united while Canada is. Bernabo said, "They have societal consensus. There is no New York versus Ohio."

Other speakers also addressed the question of scientific certainty and social consensus. Dr. Bruce Forster, an economist from the University of Wyoming and the University of Guelph in Canada, said: "I don't see why environmentalists should have to prove perfectly the impacts" without putting the same burden of proof on the coal companies. He argued that the issue is so

complex, there will always be uncertainty no matter how much research is done.

"If we wait for results, which may still not satisfy the utilities, then we may lose everything. By the time you figure it out, the forests could be gone."

Forster argued for caution. "I say caution means control now before you've lost what you can't get back." He compared acid rain control to a fire policy on a house. There's no certainty, he said, that you'll ever need the policy. But the consequences of not having it are so severe people are willing to pay for it.

In the same way, he said, society should be willing to pay for an insurance policy against acid rain. At the same time, he said, the control program should not come at the expense of the utilities or the miners of dirty coal.

Acid rain splits the coal industry

A deeply divided electric power industry put its differences on display on the second day of the acid rain conference held in Gunnison, Colorado this August.

Coal companies which mine and own high sulfur coal said they were against any legislation which goes beyond "further research." Opposing them were owners of low sulfur coal and the railroads which would haul the coal to market. They predicted that the Congress will pass major acid rain legislation within the next couple of years.

When that legislation comes, low sulfur coal interests want utilities to have "freedom of choice" -- the right to clean up emissions however they choose. The acid rain bill which came closest to passing in this session of Congress would have required many of the dirtiest Midwest utilities to install scrubbers, and barred them from cleaning up emissions by burning low-sulfur coal.

The organization which attempts to represent all of America's utilities lines up more or less with the high sulfur coal interests. It says that the Clean Air Act of 1970 and 1974 is doing the cleanup job, with no further legislation needed.

The West's utilities at the conference didn't dirty their hands in the argument. They declared that since they burn low sulfur coal, and often scrub as well, they have no responsibility for the problem.

While industry argued the virtues of fuel scrubbing versus fuel switching, one of the day's speakers declared a plague on both their solutions. He said the only realistic approach was to halve emissions by halving use of electricity through conservation.

The position of the high sulfur coal producers was presented by Richard Kerch of Consolidated Coal, which mines 5 percent of America's coal. "Consol supports more research. What gnaws at my management" is the possibility that utilities will switch to low sulfur coal and devastate Consol without helping the environment.

Kerch outlined the doomsday scenario he saw afflicting high sulfur coal producers. He said quick implementation of emissions reductions would not give his firm time to develop ways to clean its coal. Reductions beyond 12 million tons per year he said, would force switching

from coal to other fuels, and harm the entire coal industry.

He called for more research and suggested that special attention be paid to the role played by ozone and NOx produced by autos and trucks. He also had a message for the environmentalists in the audience:

"I challenge the environmental movement to come up with something that takes care of our needs. We're going to be a player whether you like it or not. We have clout. We have a labor contingent tracking right along with us."

The "labor contingent" is the United Mine Workers of America; it opposes any law which would allow the Midwest's 50 dirtiest power plants to solve their SO2 problem by switching to low sulfur coal. The fifty plants burn local high sulfur Midwest coal, and peabody Coal has estimated that 70,000 mining jobs and 225,000 dependent jobs in the Midwest would be lost to Appalachia and the West. (Midwest plants burning high sulfur coal commonly produce 5 to 7 pounds of SO2 per million BTUs of coal burned. The federal standard is 1.2 pounds; plants in the West typically produce less than half a pound.)

Kerch's challenge to environmentalists was puzzling since the Clean Air Coalition in this session of Congress has also "tracked" along by supporting the Waxman bill's mandatory use of scrubbers and its ban on fuel switching.

The conference heard about the virtues of fuel switching from Harry Storey, an Anaconda (ARCO) executive and the representative of the Alliance for Clean Energy (ACE), the coalition of low sulfur coal owners and some railroads. Storey said utilities should be free to switch or scrub. "We think that's the free enterprise American way."

He also said switching is the only way to quickly reduce acid rain. "If you switch 100 million tons of coal, you cut SO2 by 7 million tons per year." The U.S. currently produces 24 million tons of SO2 per year.

Not only would scrubbing take longer to implement, he said, but it would be more expensive. Kerch had said that fuel switching would save only \$300 million a year, and that it would lead to windfall profits for owners of low sulfur coal. Storey said switching would save utilities \$2 billion a year. And he denied that low

sulfur coal firms would have a sellers market. He said mines capable of producing 200 million tons a year of low sulfur coal are sitting idle. Many of them, he said, are in parts of Virginia suffering 45 percent unemployment.

Robert Beck of the utility's Edison Electric Institute agreed that fuel switching wouldn't devastate high sulfur coal mines. An EEI survey showed that 68 percent of the Midwest utilities would scrub, either because it would be cheaper, given the high cost of shipping in low sulfur coal, or to keep using local coal. "There's a lot of pressure on a utility to burn local coal."

But Beck said there was no need for a new law. "The National Forest Products Association goes on the record year after year saying we don't need additional SO2 controls." In fact, he said, the Clean Air Act has already cut SO2 by one third. Despite that, "We've seen lots of (tree) damage" that appeared after SO2 emissions dropped. That proves the need for more research, he said.

Dr. Steve Cardle of General Motors reacted to the acid rain spotlight shined on cars and trucks at the conference. He defended his industry against charges that its NOx emissions was a major player in the problem. He said SO2 and NOx should not be compared. "We don't feel NOx and SO2 are equivalent. We oppose efforts to trade them off." In the East, NOx emissions are dwarfed by SO2. But in the West the two are about the same magnitude.

Jack Cox, a Denver Post editorial

--Ed Marston

The politicizing of acid rain

Acid rain will almost certainly play a role in this year's presidential election. The general issue will be whether the Reagan Administration has moved quickly enough on acid rain. But initial questions may concern a study commissioned by the White House which is complete, but which has not been released.

Environmental Protection Agency administrator William Ruckelshaus said on television recently that the Nierenberg study exceeded its mandate by recommending immediate federal action to reduce acid-forming emissions. Ruckelshaus said the panel

writer and panelist at the conference, found fault with the high cost of scrubbing and with the disruption a boom in low sulfur coal could cause the West. "The only fundamental solution is to reduce the amount of burning. Burn half as much coal; use half as much electricity." Cox suggested that instead of spending billions on scrubbers or low sulfur coal, society should buy energy efficient appliances, reducing the need for electricity.

In an interview after the conference, Amory Lovins, the apostle of energy efficiency, estimated that America could cut electricity use by 75 percent, with the saved energy costing only 2 cents per kilowatt-hour.

According to Lovins, there are ample precedents for utilities to solve problems through conservation. He said that about 40 utilities are already buying saved kilowatt-hours from their customers. He cited as an example a customer who replaces a 1,500 kilowatt-hour refrigerator with one that used only 200 kilowatt-hours a year. Some utilities, he said, will buy the 1,300 kw-hrs savings. Such a step makes sense, he continued, because it can now sell the savings without building a new power plant.

He said that if a utility could also avoid putting scrubbers on existing plants through conservation, the incentive to conserve would be heightened. Lovins said his Rocky Mountain Institute is working with two senators on the concept for possible inclusion in an acid rain control bill.

was to confine itself to an analysis of risk, rather than to "jump in and start telling people what to do about it." Dr. William Nierenberg, director of the Scripps Institute of Oceanography in San Diego, said the White House told the board to make policy recommendations.

The usually mild-mannered Ruckelshaus, speaking on ABC-TV's "This Week with David Brinkley," also advised environmental groups to steer clear of the election. He said the groups made a big mistake by endorsing former President Jimmy Carter in the last election.

The West is not immune to acid rain

by Christopher McLeod

As we hiked through blue spruce and fir trees towards Rocky Mountain Biological Laboratory's acid rain research station near Crested Butte, Colorado, an afternoon thunderstorm darkened the sky. A refreshing, gentle rain began to fall.

"Acid rain research in an acid rain storm," I joked. But no one laughed. Unfortunately, it is no joke.

John Harte is a physicist at the University of California at Berkeley who has spent the past five summers studying acid rain in the Rockies. He collected a sample of the rain that had pelted us and measured its pH. At 4.75, it was acidic, with 5.6 considered normal.

"We've measured as low as 4.0," Harte says, and that reading is thirty times as acidic as unpolluted rain. If sustained over a long period of time, such low levels are cause for concern, he adds, because they will lead to the acidification of the high country's sensitive watersheds.

Recently, early warning signs of acid rain damage were observed at Rocky Mountain Biological Laboratory. In July, a visiting German scientist discovered symptoms of distress in Colorado blue spruce trees that he said were identical to those observed in the acidified forests of southern Germany. And in one of the high-elevation lakes that John Harte is studying, tiger salamanders have apparently not reproduced for two years. This may be due to recent heavy snowfalls, it may be a natural part of the salamander life cycle and it may be due to acid rain.

Acid rain is now widely recognized as a serious problem throughout the eastern United States, Canada and northern Europe, but it has not been acknowledged as a Western problem. Yet acid rain is falling in the West, particularly in the high country of the Rockies. Its sources range from copper smelters in southern Arizona and coal-fired power plants on the Colorado Plateau, to cars and trucks in Los Angeles.

In addition, current energy development in the West is adding more new sources of acid-forming air pollutants than any other area in the country. Sulphur dioxide emissions from planned oil shale and tar sands plants, a giant copper smelter in northern Mexico, coal-burning power plants and natural gas "sweetening" facilities will increase sulphur dioxide loading of the Western atmosphere by

as much as 50 percent over the next several decades.

"We're already beginning to see conflicts between new energy development and the maintenance of air quality in the region," said Larry Svoboda, the regional energy coordinator for the Environmental Protection Agency in Denver. "The total allowable amount of energy development in the region may be limited by the concentration of sulphur dioxide and nitrogen dioxide emissions that result from that development."

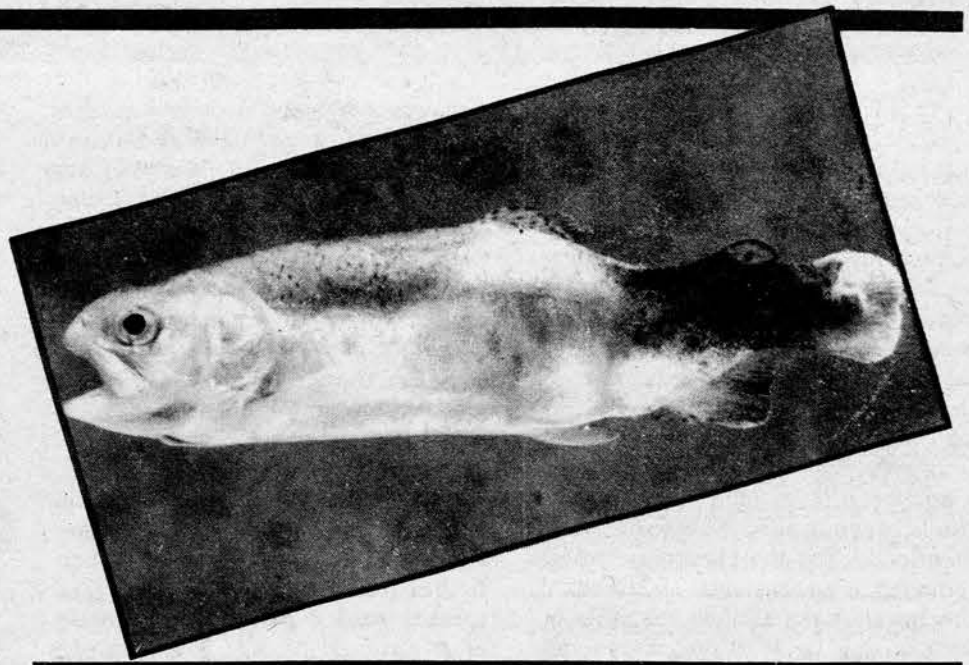
Possible adverse effects of acid rain in the West include damage to high mountain lakes, forests and fisheries, the leaching of toxic heavy metals from mine and mill wastes into public drinking water supplies, and the deterioration of archaeological ruins. Bad publicity about acid rain damage in the Rockies could even affect the multi-billion-dollar tourism industry that the West's economy has grown to depend on.

Evidence of acid rain in the West, and stimulating debate on its effects on mountain ecosystems, was presented in late July at a three-day conference at Western State College in Gunnison, Colorado. The conference drew more than 200 participants from government, industry, and the scientific and environmental communities.

The first thing conference participants learned was that "acid rain" is a misnomer, a convenient and catch phrase that describes only a portion of a bigger problem: Every day, rain or shine, man-made pollutants in the form of sulphur dioxide and oxides of nitrogen are descending through the air, and blanketing the American landscape, both East and West. Fully 50-80 percent of these "acid precursor" chemicals fall from the sky as "dry deposition," which is very difficult to scientifically quantify. (The dry deposition turns into acids after it has fallen to earth, when it mixes with rain, snowmelt or surface water.)

On the other hand, when these air-borne chemical emissions are intercepted by a rain storm, they are converted into sulphuric acid and nitric acid in the air, and they fall to earth as "wet deposition," or acid rain, a relatively easy thing to measure, and an easy name to remember.

Scientists now distinguish between wet and dry acid deposition, and refer to the combined phenomenon as



"atmospheric deposition," a harmless sounding euphemism. The problem, both wet and dry, might better be labeled acid fallout.

A region's potential for acid fallout damage depends on the intensity and quantity of the acids falling on it combined with the inherent ability of its soils, rocks and waters to neutralize increases in acidity.

According to the National Atmospheric Deposition Program, which was established in 1978 to monitor rainfall at 100 stations throughout the U.S., rainfall in the northeastern U.S. currently averages between pH 4.0 and 4.3 (20 to 40 times as acidic as unpolluted rain), with some storms producing rain as low as pH 2.5. Rainfall in the Western U.S. currently averages between pH 4.2 and 5.5 (up to 25 times as acidic as unpolluted rain). Acidification of sensitive watersheds in the northeast and Scandinavia has been observed to start when precipitation consistently measures below pH 4.6.

Low pH readings are now being recorded throughout the West:

•John Harte of the Rocky Mountain Biological Laboratory reports that areas of Wyoming and the Western Slope of Colorado are consistently receiving precipitation in the pH 4.6 to 4.8 range. The precipitation Harte has measured at Mexican Cut, near the Snowmass-Maroon Bells Wilderness Area, has averaged pH 4.7 over the past four years.

•NADP's six low-elevation monitoring stations in Colorado show Colorado's median rainwater pH to be 5.0. Acidity of precipitation is thought to increase at higher elevations in Colorado because alkaline soils of the Great Basin don't blow into the air and neutralize air-borne acids, as they do at lower elevations. Without these alkaline dusts, western Colorado rain would currently average pH 4.2 to 4.4, according to John Woodling of the Colorado Division of Wildlife.

•Average precipitation pH in Montana's Glacier National Park in 1980 was 4.9 (5 times as acidic as unpolluted rain). Average precipitation at Yellowstone National Park in 1980 was pH 5.2, with readings as low as pH 4.4.

•Downwind of the Four Corners power plant in New Mexico, acid rain with a pH of 3.0 (400 times as acidic as unpolluted rain) has been measured in the Tesuque watershed of the Santa Fe National Forest.

The effects of acid fallout in the eastern portion of North America and northern Europe have been well documented, though the precise causes are controversial. But acid fallout may be an even bigger danger in the Rocky Mountains because the thin soils of mountain slopes and valleys are unable to absorb acidity. Most Western high country lakes sit on granite bedrock and have low alkalinity levels, which means they have little natural capacity to neutralize, or buffer, incoming acids. As lakes and streams become more acidic, sensitive aquatic species begin to disappear, and the effect on the ecosystem can be rapid and dramatic:

Acidic waters interfere with the salt balance that must be maintained in the body tissue and blood of freshwater species. Fish populations may begin to decline when salt fluid levels in female fish are lowered to the point where they can no longer produce eggs. As a lake's pH falls to 5.5, bottom-dwelling bacterial decomposers begin to die. As organic debris accumulates on the lake bottom, plankton, a key food source for most aquatic species, begins to disappear. When pH falls below 5.0, baby trout die. If pH drops to about 4.5, full-grown trout, frogs, salamanders, newts and many insects can no longer survive, and fish eggs fail to develop normally.

Though these impacts have not been observed in the West, there are an estimated 10,000 lakes above 9,000 feet in the Rockies,

Kathy Hopkins, Delta County Independent



Richard Klein, Dena Klein and Ulrich Elstner (left to right) examine a tree branch near Crested Butte, Colorado during the acid rain conference.

Sierras and Cascades, and many are highly sensitive to acid deposition. According to John Harte, these mountain ranges "have regions where alkalinity is in short supply, and where it will not take many years to use up their buffering capacity."

John Woodling of the Colorado Division of Wildlife estimates that "one third of the high mountain lakes in Colorado are susceptible to acid rain." These include 300 to 400 vulnerable lakes in the Flattops Wilderness Area, 50 in Mt. Zirkel Wilderness Area and several hundred more in the San Juans, the Elk Mountains and along the Front Range. "Some Colorado lakes would lose fish populations in one or two years if the precipitation pH were the same as now found in the northeast U.S.," says Woodling. Other sensitive areas in the region include the Bridger and Fitzpatrick Wilderness Areas in Wyoming, where the EPA estimates that 600 of 2,000 lakes between 7,000 and 11,000 feet show "extreme sensitivity... to increased acidity."

Growing concern about these sensitive watersheds and the effects of increasingly acidic rainfall prompted the EPA and the Forest Service to start monitoring programs last summer in the Zirkel, Bridger and Fitzpatrick Wilderness Areas, and this summer in the San Juan Mountains. These programs join ongoing efforts by USGS in the Flattops, the National Park Service in Rocky Mountain National Park, and John Harte and associates at Rocky Mountain Biological Laboratory. EPA Regional Director John Welles has also created a Western Atmospheric Deposition Task Force to coordinate and guide the research efforts.

The normal cycling of metals through an ecosystem is also altered by acid fallout. Acidic waters can leach aluminum and other toxic metals from soil and lake bottom sediments. High levels of aluminum clog the delicate gill tissue of fish and cause respiratory failure. Springtime, the season of plant regeneration and fish reproduction, is also the time of year when land and water resources receive their greatest acid input. Concentrated doses of acid pollutants and heavy metals accumulate with snowfall, and are released over a short period of time during spring snowmelt. The resultant pulse of high acidity causes "acid shock," which can have a profound impact on fish and plant life.

Compounding this problem in Colorado are 30,000 active and inactive mines, typically located at the headwaters of low alkaline watersheds. Patrick Davies is an aquatic toxicologist and chemist for the Colorado Division of Wildlife. Davies has studied the ability of acidic rainwater to leach toxic heavy metals from the thousands of acres of abandoned mines and exposed ore piles and tailings dumps that litter the Colorado high country.

According to Davies, 450 miles of streams in Colorado are now devoid of aquatic life as a direct result of mining and the leaching of mine wastes. Exposed tailings contain 10,000 times higher concentrations of toxic heavy metals (arsenic, cadmium, lead, mercury, zinc, molybdenum, copper, aluminum, etc.) than normal soil and rocks, and acid rain leaches out these toxic metals at a faster rate than normal rain water. For example, Davies' research shows that for every unit change in the pH of rainwater, there is a ten-fold increase in the mobilization of cadmium and lead, and

a hundred-fold increase in the leaching of copper.

Davies showed the Gunnison acid rain conferees some dramatic slides depicting the effects of heavy metals on trout in the laboratory: lead paralyzes the tail, selenium causes eye lesions and turns rainbow trout black, silver stunts growth. At the close of his presentation, Davies reminded the audience that fishing enthusiasts pump \$600 million each year into the Colorado economy. In addition, the waters into which these metals are being leached are the waters used for drinking and irrigation by millions of people in the West.

So where is acid fallout in the West coming from?

No single source is responsible for the problem. Cars, trucks and energy facilities that emit oxides of nitrogen are contributing factors, as are coal-fired power plants that emit sulphur dioxide.

Bob Yuhnke, of the Environmental Defense Fund, links copper smelters in southern Arizona with the bulk of the acid deposition falling on the central Rockies. Copper smelters are the largest emitters of sulphur dioxide (SO₂) in the intermountain region (1.3 million tons/year vs. 400,000 tons/year emitted by coal power plants). Yuhnke estimates that copper smelters emit 70 percent of the SO₂ generated in the region.

Yuhnke and Dr. Michael Oppenheimer, an atmospheric physicist with EDF, have compared acid rain measurements at national monitoring stations in the West with data on copper smelter output from 1980 to 1983. They found that as copper smelter output increased, so did acid rain. When smelter output dropped sharply in 1982, so did the acidity of rain water. Additional data on prevailing wind patterns support EDF's conclusions, with upper airstream winds generally moving north through Arizona and Utah, and then east through Colorado and Wyoming.

Even with the smelters, the amount of sulfur dioxide is relatively low and the alkaline dust in the West's lowlands provides enormous buffering. But Yuhnke points out that nature has played a cruel trick on the West. Weather patterns carry the smelter emissions northward, to the Colorado and Wyoming mountains. Rain, Yuhnke says, is nature's scrubber, but it doesn't rain over the alkalai deserts. It only rains or snows when the air mass hits the mountains.

"Nature is concentrating a smaller (than in the East) volume of pollutants into a small, sensitive area," he says.

There are seven copper smelters in southern Arizona and one more just over the border in Mexico. Together, these smelters emit more than 1 million tons of SO₂ per year. Though five of the southern Arizona smelters have added scrubbers in recent years to limit SO₂ emissions to comply with the Clean Air Act, two are uncontrolled, as is the one in Mexico. The Phelps Dodge smelter in Douglas, Arizona, which has been operating since 1913, emits over 300,000 tons of SO₂ a year, making it the fourth largest source of SO₂ in North America. A few miles away, the Magma smelter, site of a Greenpeace protest a few years ago, pumps over 200,000 tons of SO₂ into the air each year. The copper industry, with the support of New Mexico Senator Pete Domenici, is currently seeking a second five-year extension of its exemption from the Clean Air Act.



Nymph Lake and Long's Peak, Rocky Mountain National Park, Colorado

Acid shock can have a profound impact on fish and plant life.

This would delay clean-up of emissions from Phelps Dodge and Magma until 1993.

Failure to control copper smelter emissions in Arizona, says EDF's Yuhnke, will result in acid damage in the Rockies, and it could also block development of oil shale projects, coal-fired power plants and natural gas processing plants if EPA concludes that smelter emissions already exceed the region's sulphur tolerance levels.

To make matters worse, a Mexican copper smelter with no emission controls is scheduled to come on line in early 1985 just 20 miles south of the Arizona border. It will emit 500,000 tons of SO₂ a year, making it the second biggest source of SO₂ pollution on the continent, and causing a 50 percent increase in regional SO₂ smelter emissions. At that point, says Yuhnke, "It is highly probable that we're going to exceed the tolerance capacity of the sensitive high altitude watersheds."

The Mexican smelter may provide an interesting twist in U.S. foreign diplomacy: While the U.S. denies responsibility for causing acid damage to Canadian lakes, and stalls acid rain legislation that would reduce SO₂ emissions in the Midwest, we may be compelled to pressure Mexico to clean up its acid emitting smelters because of the acid fallout they contribute in the Rocky Mountains.

Perhaps the best hope for early documentation of acid fallout damage to high altitude watersheds resides at John Harte's outdoor laboratory at the Rocky Mountain lab. For the last five years Harte and his students have developed 20 research sites in the alpine and sub-alpine ecosystems above the old mining town of Gothic.

In June, Harte snowshoed into Mexican Cut to measure the "acid pulse" that occurs when temperatures rise and spring snowmelt floods high mountain lakes and streams. Along the edge of one pond where salamanders lay eggs and trout feed in the spring, Harte measured a pH of 4.9, which is dangerously acidic.

"Even a brief period of acid pulse at a critical point in the biological life cycle can be extremely serious," says Harte. Subsequently, Harte observed

that the salamanders in that pond have apparently failed to reproduce for the past two years. This may prove to be the first evidence of serious ecosystem damage from acid fallout in the West.

The need for further research into the effects of acid deposition in the high country was dramatically illustrated on the second day of the three-day acid rain conference. It began when two scientists, Dr. Erich Elstner, a biochemist from the Technological Institute of Munich, and Dr. Richard Klein, a botanist from the University of Vermont, went for a hike with John Harte. During their walk, Elstner found several dozen blue spruce that showed symptoms "identical" to those he documented in forests of southern Germany that have been damaged by air pollution.

"I was surprised to see symptoms typical of forests under stress in Germany," said Elstner. "These are the starting symptoms for more extensive forest damage." The symptoms Elstner observed include small white dots and brown tips on blue spruce needles, bleaching and loss of needles, drooping limbs and abnormal new shoots on side branches. Elstner said that the cause of these symptoms in Germany is excess ozone combined with sub-toxic levels of sulphur dioxide, and he predicted that overall weakening of the spruce trees will make them vulnerable to fungal infection.

Dr. Klein, an expert on forest damage in New England, said it would be "grossly premature" to attribute the symptoms observed at RMBL to man-made air pollution. "But this starts something. We were astounded to see this here in the West."

Responding to Elstner and Klein's discovery, EPA and the Forest Service will send a team of experts to the Rocky Mountain lab in mid-September to investigate the tree damage.

□

Christopher "Toby" McLeod wrote and directed the film *The Four Corners: A National Sacrifice Area?* and is currently producing a film on threats to water quality in the Rocky Mountains. This article was paid for by the High Country News Research Fund.

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LAND PLAN FOR GRAND TETON

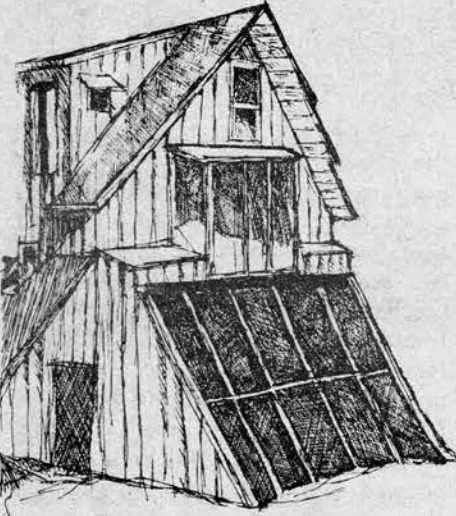
The new Land Protection Plan for Grand Teton National Park is now available from the Park Service. The plan replaces the existing Land Acquisition Plan of 1980 and covers the 3,651 acres of private and non-federal land within the park boundaries, identifying priorities for acquisition and uses of private lands which are compatible with the park. All current landowners will receive a copy of the plan; others are available by request from Grand Teton National Park, P.O. Drawer 170, Moose, WY 83012.

EPA OMBUDSMAN

The EPA has a Small Business Ombudsman to answer questions and keep small businesses informed about regulations and laws and to act as an advocate during the development of new regulations. The Ombudsman office does casework for lawyers, trade associations, universities and private individuals as well as small businesses. It can be contacted through their toll-free hotline, 1/800/368-5888, or write Marc D. Jones, Small Business Ombudsman, Environmental Protection Agency, 401 M Street S.W. (A-149C), Washington, D.C. 20460.

CATLEMEN LOOK FOR A VICE PRESIDENT

The Colorado Cattlemen's Association is accepting applications for the position of Executive Vice President until September 15. Application forms and job descriptions are available from the Colorado Cattlemen's Association, 220 Livestock Exchange Building, Denver, CO 80216 (303/296-1112).



MONTANA CONSERVATION WORKSHOPS

The Montana Department of Natural Resources and Conservation will hold a series of workshops this fall on buying solar water heaters, solar hot air systems and wood heating systems. The workshops will give general background on the workings of each technology, the applications of each system, and tips on contracts, warranties and quality. Twenty-two conferences are scheduled in ten cities between September 10 and October 2. For a schedule, contact Tom Livers, Energy Division, Department of Natural Resources and Conservation, 32 S. Ewing, Helena, MT 59601 (406/444-6696).

WESTERN PLANNER CONFERENCE

The fourth annual Western Planner Regional Conference will be held September 11-14 in Jackson, Wyoming. The agenda includes all-day workshops on site design and review, downtown revitalization, management skills and other workshops on conservation easements, sign codes and other topics. Registration is \$95, with additional fees for some of the workshops. Contact Sue Enger, Town Planner, Jackson, WY 83001 (307/733-3732).

JACKSON LAKE TRANSCRIPTS

A transcript of the July public hearings on the Jackson Lake Safety of Dams Project is available for perusal at the following locations in Idaho: The BLM regional office in Boise, the Minidoka Project Office in Burley, and the county courthouses and public libraries in Burley and Twin Falls. In Wyoming, it is at Grand Teton National Park in Moose and the Teton County courthouse and library in Jackson. The transcripts can also be read at the National Park Service Regional Headquarters in Denver, Colorado.

OIL AND GAS GET TOGETHER

The BLM and the Rocky Mountain Oil and Gas Association are sponsoring an information-sharing session September 5-6 in Denver, Colorado. The Bureau of Land Management will discuss regulatory and procedural changes and solicit ideas related to oil and gas development in Colorado. A separate program of workshops on unitization, the Natural Gas Policy Act, mineral leasing adjudication, and a tour is set for September 7 at the BLM Colorado State Office in Denver. For more information on the conference or the workshops contact Catherine Robertson, BLM, State Director's Office, 2000 Arapahoe St., Denver, CO 80205 (303/844-5238).

MONTANA SKI AREA EXPANSION

The Flathead National Forest in Montana has approved a special use permit which will allow expansion of the Big Mountain Ski Resort Area. Alternative D of the Environmental Assessment was chosen, which will allow development in all areas requested by Winter Sports, Inc., except in Hell Roaring Creek. The decision is subject to a 45-day review and appeal period which began on August 3. Comments and inquiries should be sent to Ed Brannon, Forest Supervisor, Flathead National Forest, P.O. Box 147, Kalispell, MT 59901 (406/755-5401).

COLORADO PAC ENDORSEMENTS

Political Action for Conservation, the political arm of Colorado's environmental movement, has endorsed a number of candidates for the state General Assembly. The PAC newsletter is available free from Marilyn Stokes at 303/544-7455.

DUCK STAMP CONTEST

The U.S. Fish and Wildlife Service's 1984 federal duck stamp contest to select the winning design for the 1985-86 Migratory Bird Hunting and Conservation Stamp is open for entries. Judging will be held November 6 and 7 in Washington, D.C. as part of commemorative activities celebrating the duck stamp's 50th anniversary. The revenue stamp, required of all migratory waterfowl hunters 16 years and older, was created in 1934 to generate funds to acquire land for the National Wildlife Refuge System. During the past half-century, more than 3.5 million acres have been bought with \$285 million in revenues. Copies of the rules and regulations for entering the contest are available from the U.S. Fish and Wildlife Service, Department of Interior, Washington, D.C. 20240.

NUCLEAR WASTE BIBLIOGRAPHY

The DOE has published a bibliography on the Nevada Nuclear Waste Storage Investigations. It contains information about 588 documents by DOE, the USGS, Los Alamos National Laboratory, Lawrence Livermore National Laboratory, Sandia National Laboratories, and Westinghouse Electric Corporation. It is available as DOE report NVO-196-24 (Revision 4) at libraries in Las Vegas, Carson City, Reno, Elko, Tonopah, Amargosa, and Beatty. Copies can be purchased for \$11.50 as publication No. DE84013381 from the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

FATE OF THE EARTH CONFERENCE

The Second Biennial Conference on the Fate of the Earth will be held September 19-23 in Washington, D.C. Sponsored by the Conference on the Fate of the Earth and the Global Tomorrow Coalition, the conference brings together activists from peace, environmental, labor and social justice movements to address and emphasize the mutual dependence of their concerns. Speakers include Dr. Helen Caldicott, Paul Ehrlich, Coretta Scott King, Senator George McGovern, and David Brower, with workshop topics ranging from *Pesticides: here and abroad* to *Networking for peace with computers*. Registration is \$175 before September 15, \$200 after, with discounts for seniors and students and some work scholarships available. Registration is \$50 per day before September 15 and \$75 after. Contact Conference on the Fate of the Earth, 1045 Sansome St., Suite 402, San Francisco, CA 94111 (415/788-0383).

MINERAL RIGHTS ARE EXPIRING

In the late 1930s, the U.S. purchased two million acres of private land, either to promote conservation or to take marginal land out of agricultural production. In many cases the sales, which were transferred to the BLM in 1958, included a mineral rights clause in which the seller retains rights for 50 years, after which they revert to the government. Those grandfather clauses are almost due, and beginning in 1985 many of those mineral estates will revert to the government. Owners can extend their rights under a program called "future interest" leasing, and should contact their local BLM office before the rights transfer to the government.

MINERAL REVENUES

The Minerals Management Service of the Department of the Interior has published *Mineral Revenues*, a 1983 report on receipts from federal and Indian lands. In 1983, for example, \$10 billion was garnered from the mineral resources on those lands -- an intake exceeded only by the IRS. Copies are free from the U.S. Department of the Interior, Minerals Management Service, Public Affairs Officer, P.O. Box 25165, Mail Stop 651, Denver, CO 80225 (303/231-3162).

WATER AND COAL DEVELOPMENT

Water for the Energy Market, the second book in a series by the nonprofit organization Western Network, spells out conflicts in six western states stemming from a tripling in coal production during the last decade. The writers are John A. Folk-Williams and James S. Cannon; the 162-page book can be ordered for \$20 by government, individuals and nonprofit groups. Western Network is at 214 McKenzie, Santa Fe, NM 87501.

JACKSON HOLE LAND TRUST

The Jackson Hole Land Trust tells us in their summer newsletter that a change in tax law now allows land owners to make tax-deductible easement donations even if mineral rights are reserved by the government. The new provision says that surface and mineral rights must have been separated before June 13, 1976, and the probability of surface mining must be "so remote as to be negligible." Senator Malcolm Wallop (R-WY) introduced the provision in this year's Deficit Reduction Act. The Land Trust says it had been working on the problem for a year with the Treasury Department and Internal Revenue Service. For more information, write the Jackson Hole Land Trust at Box 2897, Jackson, WY 83001.

TILTH JAMBOREE

Tilth, the nationwide network of sustainable agriculturists, is having a jamboree to celebrate its 10th anniversary, September 28 - October 1, near Ellensburg, Washington. There will be sessions on sustainable agriculture, a barter fair, and a producers exposition, as well as a lot of informal "how did you grow that?" Fees are \$15 for Tilth members, \$25 for couples; \$5 for day passes. Contact: Tilth Jamboree, P.O. Box 1064, Tonasket, WA 98855.



Canyonlands - Utah
V. Kaminski 1977

CANYONLANDS ORGANIZATION

The Canyonlands Natural History Association produces a newsletter, *From the Canyons*, which is full of history, geology, hiking tips and places to see in and around the national parks and monuments of Utah. The organization also provides books, maps, research assistance, and exhibits to supplement both National Park Service and Bureau of Land Management services in the canyonlands. CNHA is non-profit; membership is \$7.50 for the first year, \$5 thereafter. They can be reached at 446 S. Main, Moab, UT 84532.



THERE'S GOLD IN THAT DUMP

"Gold and Silver Leaching Practices in the United States," a new circular by the Bureau of Mines, covers the mining of old tailings and dumps for silver and gold. Reworked tailings, which accounted for 5 percent of the silver and one quarter of the gold mined in 1983, are profitable because of new methods of recovery, low overhead and the high price of precious metals. To help you get started, order Circular 8969, Branch of Publications Distribution, Bureau of Mines, 4800 Forbes Ave., Pittsburgh, PA 15213 (412/621-4500, ext. 342).

WESTERN COLORADO POLITICAL DEBATES

Western Colorado's promotional organization, Club 20, hosts a day of political debates Sept. 15 in Grand Junction at the Hilton Hotel. The candidates for legislative office square off at 9 A.M. followed by a U.S. Senate debate at 11:20 A.M. and Third Congressional debate at 2 P.M. A registration fee of \$18 can be sent to Club 20 at Box 550, Grand Junction, CO 81502 or call 303/242-3264 for more information.

BUSINESS CONFERENCE

A conference on "Business: Planning and Financial Opportunities" will be held September 14-15 in Laramie, Wyoming. Sponsored by several state and local economic and planning groups, the conference will focus on introducing alternative methods of finance to businessmen and their counselors. Topics include venture capital, insurance asset financing, and government financing. For more information contact the Wyoming Department of Economic Planning & Development, Barrett Building, Cheyenne, WY 82002 (307/777-7284).

GLACIER BAY HANDBOOK

The National Park Service has published a handbook on Glacier Bay National Park and Preserve in Alaska. *Glacier Bay*, by Ruth Kirk, describes the park as it is today, the process of glaciation which formed it, exploration and settlement and the natural history of the area. It also includes tips on gear and weather, points of interest, and related reading. Single copies cost \$3, plus \$1 for postage, from Alaska Natural History Association, Glacier Bay National Park, Gustavus, AK 99826. Bulk orders can be purchased in lots of 100 copies for \$156 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 024-005-00856-0.

INDIANS TO FOCUS ON MEDIA

The National Indian Communications Conference will be held October 3-6 in Tulsa, Oklahoma. Sponsored by the Native American Public Broadcasting Consortium, the conference will focus on "The business of media," with workshops on operation of tribal media, interviewing techniques, profit-making ventures, and independent producing as well as technical aspects of media production. Registration is \$80; student scholarships to the conference are available. Contact Stefanie Hare, Native American Public Broadcasting Consortium, P.O. Box 83111, Lincoln, NE 68501 (402/472-3522).

OPINION

Development has grizzlies in a bear hug

by Lawrence Wright

A convention of campers and hikers cheered the President lustily last month in Kentucky's Mammoth Cave National Park. While donning a ranger's hat, Mr. Reagan emphasized his commitment to keeping America's wilderness open to those who enjoy traveling to parks in mobile apartments.

The recreational-vehicle constituency had good reason to celebrate Mr. Reagan's declaration that, "Make no mistake, the American land belongs to the American people, and we intend to keep it open for the American people."

In Yellowstone, that philosophy has caused a tragic breach of the park's Master Plan -- one which has seriously compromised efforts to sustain and reclaim a fragile and deteriorating clan of grizzly bears in order to please mobile-home aficionados.

In 1974, the 10 authors of the Master Plan questioned the legitimacy of the "mobile apartment" camping experience. They declared that the National Park Service had to back away from the traditional resort complex providing ever-increasing creature-comfort facilities in Yellowstone. Their plan called for the shifting of that burden to the private sector outside the park, after the completion of a controversial food-and-lodging complex on the West Thumb of Yellowstone Lake, in a region commonly used by grizzlies.

The construction of Grant Village, financed by former Interior Secretary James Watt with a loan from primary concessioner TW Services Inc., meant: the Old Faithful complex would become a day-use region; and the 656 campsites at the north tip of the lake, at a settlement known as Fishing Bridge, would be removed so that the "choice" grizzly bear habitat could be restored to wilderness. The NPS targeted 1985 for removing 25 percent of the park sites that offer RV drivers full water, electrical and sewer hookups -- in order to provide bears with a vast tract of habitat free of man.

But in the summer of 1983, during public hearings on the removal of Fishing Bridge, the mobile-home constituency mounted a "firestorm" of protests including an intense mail-in campaign directed at him, says Superintendent Robert Barbee. "When you get this kind of crescendo of activity and opposition," he said in May, "in our society, those people are listened to."

The campers had a powerful ally in Trevor Povah, the president of the Hamilton Stores, Inc. His Fishing Bridge business generates \$13 million in annual revenues from the sale of gas, groceries and gifts. Fishing Bridge is the first stop inside the West Gate, after a 79-mile trip from Cody, Wyoming, to the lake.

Not only do his facilities provide goods for the 378,000 RVs vying for the Fishing Bridge hookups, but they are a welcome stopover for others seeking fuel, lunch and restrooms. Povah, who feels "profit (from Yellowstone) is not a dirty word," says, "We'd hate to see our (main) store taken down; it's a historic structure. If it would save the grizzly bear, we'd relocate, at our expense. But it'd be a tremendous injustice to the visitor to take Fishing Bridge out without some other area coming on line. You're looking at megabucks to replace this facility -- and for what? Six bears?"

The question of how many of Yellowstone's 187 grizzlies use the region is a heated one. Povah recalls "locking horns" with Yellowstone's bear expert, Gary Brown, during a public hearing in which he asked how many animals a \$20 million complex was being sacrificed for. Brown recalls saying eight radio-collared bears, and that not all bears are collared. Povah recalls the Assistant Chief Ranger saying six -- as do others. According to data supplied by Bear Management Officer Sandi Fowler, a significant number of grizzlies congregate about the lake in summer months to feed and breed in the Pelican Valley. She calls Fishing Bridge the bears' kitchen.

But Brown's figure has been used as a cudgel by Povah, who insists: "If six bears can't fish and mate someplace else, there's something wrong with the bears." To him, the issue is one of "economics and common sense. You can't tell me that if a boar is going to jump a sow, a sewer drainpipe is going to stand in its way."

At the turn of the year, NPS Director Russell Dickenson summoned Barbee to Washington to ask for the data needed to substantiate the Master Plan's biologic rationale for the removal of Fishing Bridge. Barbee had only Brown's opinion to offer. Dickenson told Barbee to table the issue for study, indefinitely. Barbee in February made the announcement and cited the political pressures which caused the recanting of the Master Plan's edict. In private, he cited the pressure as being applied by Povah on the Interior Department.

Povah was elated by the decision. "I sat in Russ's (Dickenson) office in March, and he

assured me it'd take three to five years to complete the study." It may take a decade, others in the NPS administration say -- and maybe Fishing Bridge will never be removed.

The Yellowstone clan is deteriorating, mainly in the female segment. There are perhaps 30 adult sows contributing 22 cubs yearly -- barely offsetting the number of adult animals lost annually to poaching, natural causes, and killings by park rangers to eliminate animals coming in contact with man while seeking food. The grizzlies today are starving -- they are smaller, leaner, and producing fewer cubs, according to an ad hoc committee studying whether they should again be fed garbage.

There may be only 800 grizzlies in the lower 48 states, in two loose clans along the Continental Divide. And still, Mr. Reagan's Interior Department refuses to consider *Ursus arctos horribilis* to be an endangered species, only a threatened one.

Though grizzlies are Yellowstone's rightful inhabitants, its lands are being "nickel-and-dimed out of existence," according to the Interagency Grizzly Bear Steering Committee. During Mr. Reagan's administration, the Fishing Bridge promise has been recanted; 300 units of Grant Village's proposed 700 guest rooms are in place; and a \$20 million facelift has been proposed for Old Faithful -- which after all, will not be turned into a day-use facility in spite of the Master Plan's edict.

Also, since a visit in the winter of 1981-82 by James Watt, the NPS and TW Services have rapidly begun expansion of overnight facilities and services for winter use. They are planning to offer hot tubs and saunas, room service, groomed ski trails, and game rooms. They justify that by citing the "For the Benefit and Enjoyment of the People" edict atop the Roosevelt Arch at the park's North Gate.

Make no mistake about it: America's island of irreplaceable wilderness serenity is becoming little more than a shopping-mall experience for the 2.4 million who this year will spend \$50 million inside the park. And Mr. Reagan is insensitive to the plight of Yellowstone and its grizzly bears. The cheerings of mobile-home drivers demonstrate that clearly.

Lawrence Wright is a freelance writer from Mystic, Connecticut who has spent months traveling through and learning about Yellowstone National Park.

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WHAT DO ENVIRONMENTALISTS REALLY WANT?

The chance to pay a fair share

by Jim Baker

Over the past two decades, conservationists have earned a formidable reputation for political sophistication and just plain know-how in dealing with Congress. On the twentieth anniversary of the Wilderness Act, for instance, designations of wilderness areas are running tenfold beyond what the law's framers ever imagined possible in their wildest dreams. Moreover, if current bills before Congress pan out as expected, millions more acres of new wilderness will be designated this year during the most anti-wilderness administration in modern American history. That's success, and conservationists can feel justifiably proud about these achievements.

Where we have far less cause for pride is in administrative processes such as wilderness reviews and land-use plans conducted by the U.S. Forest Service (USFS) or the Bureau of Land Management (BLM). For example, Congress has consistently been willing to designate much more wilderness than the administrative agencies have been willing to just recommend for preservation. That strikes me as ironic. After all, the forester lives (or has lived) in (or near) the wilderness, while the greenest thing that a member of Congress sees most of the year is the Mall.

Why does the USFS and BLM tend to ignore our concerns? It's not due to any lack of hard work on conservationists' part. Throughout RARE II, we all wrote letters, attended public hearings, talked to USFS officials; still in most cases, we got chopped liver for recommendations.

The steak and potatoes went to industry: lumbermen, miners, drillers, graziers, and so forth. These people buy timber sales, pay royalties on coal, write checks for grazing allotment fees. And they send all that cash to the federal government, i.e., the administrative agency. In my view, the USFS and the BLM listen, and listen carefully, to their pro-development constituents because those folks put their money where their mouths are.

Conservationists do not. Generally we do not

pay to walk a backcountry trail, canoe a lake, or watch a sunset. We particularly do not pay for good wilderness recommendations, while the USFS potentially loses receipts from timber sales, or whatever.

I believe that conservationists -- and other public lands users -- can and should pay their fair share. My proposal is this: The federal government should establish a public lands license, renewed annually for an appropriate fee. To enter a national park, to spend the night at a USFS campground, to backpack in a BLM wilderness, in short, to be on the public lands, you would have to own and carry your public lands license. Failure to produce same to a law enforcement officer would result in a fine (hopefully a stiff one), and immediate removal from the public lands.

That may sound radical. But hunting and fishing licenses have been around for some time now; only a few misfits complain anymore. In fact, the vast majority of citizens today feel that licenses are completely appropriate and even necessary to maintain the highest possible quality in these sports.

Over the years, state and federal wildlife agencies have worked hard and successfully to protect game species. They have been able to do so for one reason. Hunters and fishermen fund those agencies through their licenses. Similarly under my proposal, land management agencies would receive hard cash incentives to attend to our needs if we paid for public lands licenses. In future wilderness and other land-use decisions, conservationists could offer land managers what industry currently does -- money, to put it crassly.

Another advantage is fairness. Traditionally in American politics, those who benefit from a government program are expected to pay for it. Users and only users of the public lands -- not every American taxpayer -- should pay for that benefit. Moreover, a license system would bill all public lands users, not just backpackers or rafters, but dirtbikers and Winnebago campers, too.

Finally, a public lands license would give us a

handle on what promises to become a major crisis in the next few years: recreation management. At the same time that America is running out of natural lands, recreation is virtually exploding on those lands. People are loving the public lands to death.

Writing on this topic in the summer, 1984 issue of *Wilderness* magazine, Dyan Zaslowsky concludes: "By managing people as much as possible before they enter a wilderness, the wilderness itself will require much less managing -- as will the people themselves once they are in it." The same could be said of all public lands, not just wilderness areas.

Public lands licenses could provide the needed "before entry" management. In addition to paying the fee, license applicants might be required to pass a simple test. This could serve to educate recreationists that you pack every scrap out, that you drive your dirtbike in designated zones at designated times, that you don't wash dishes or hair with soap (even the biodegradable kind) in lakes and streams, that you don't carve your initials in aspens or sandstone, that you don't feed the bears. Violators could have their licenses suspended or revoked. When the rules must be changed from time to time, land managers would have a list of whom to notify.

Critics will probably worry that a public lands license would infringe on personal liberties. Maybe it does, but given the pressures and politics on the public lands, I suspect that my proposal will be adopted sooner or later. As a society, we cannot and do not let everyone do whatever he or she likes wherever and whenever. We require a license of every user of the public roads. We ought to do the same for something so precious as the public lands.

□

A free-lance writer in Salt Lake City, Utah, Jim Baker serves as BLM Wilderness Chair on the National Public Lands Committee of the Sierra Club.

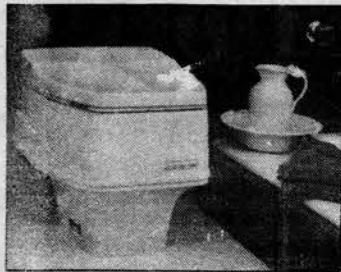


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