

The Environmental Bi-Weekly



High Country News

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Friday, January 2, 1976



Toilets: a revolution from the bottom up

by Glen Dodge

Each year, Americans use an estimated 2,000,000,000 gallons of water to flush millions of tons of potentially valuable fertilizer into sewers and septic tanks. We then spend billions of dollars to clean — not always very well — this fouled water.

Asian farmers traditionally have used their own wastes as fertilizer. By doing that, they have reduced or eliminated fertilizer costs, saved water, and followed the natural waste cycle — from man to plant to animal to man. But that system has cost them dearly in outbreaks of dysentery and diptheria, typhoid and tapeworm.

The flush toilet was designed largely to prevent such outbreaks. But its cost in wasted water, wasted fertilizer, and sewage treatment plants has been astronomical. According to **Business Week**, farmers spend about \$4 billion annually on chemical fertilizers. The price of the fertilizer is reflected in the price of a radish at the grocery store. It is partly reflected, too, in the cost of water purification systems that try to clean the fertilizer — as well as the host of other pollutants — out of the lakes and streams it seeps into.

In 1973, the National Water Commission said the value of existing municipal sewage treatment plants alone was \$8.5 billion. In 1974, the Council on Environmental Quality estimated that it would cost \$36.6 billion to meet the secondary sewage treatment standards set for 1977.

And in May 1975, Russell B. Train, administrator of the Environmental Protection Agency (EPA), told the Fifth Annual Composting and Waste Recycling Conference that, "The use of organic waste in agriculture will become an economic necessity, rather than only an ecological nicety." He estimated that converting feedlot wastes and municipal sludge to fertilizer would save farmers \$400 million per year.

A waterless system — or at least one that uses less water — to dispose of human waste would solve part of the problem. Hygienically using the waste as fertilizer would solve the other part.

A variety of alternative toilets has been developed. Some use no water at all; others use a pint or less, compared with the five gallons the normal flush toilet swallows. Some use electricity or gas and convert the

(Continued on page 4)

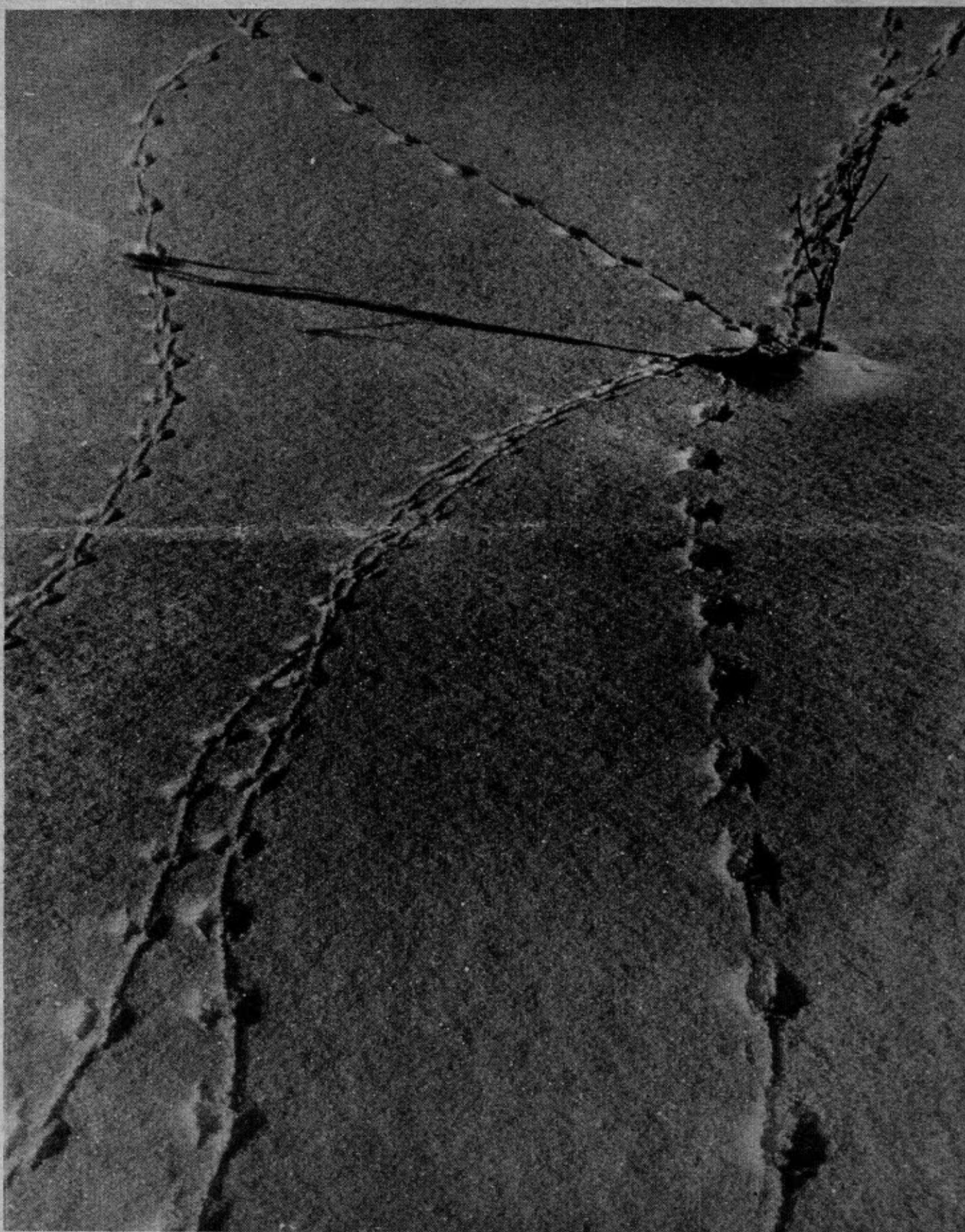


Photo by Dave Sumner

Wildlife — where does it go in the winter? (see page 8)

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HCN

Letters

CRITICISM RUNS RAMPANT

Dear High Country News:

We'd like to take this opportunity to tell you how much we enjoy HCN and the very fine job you do in reporting the wildlife and environmental issues. It seems that although many more people are becoming aware of these issues there is still much to be done in alerting the public of the problems.

We've lived in Montana for 20 years and have been closely involved with environmental and wildlife issues. My husband is a wildlife biologist, first with the Montana Fish and Game Dept., and now with the U.S. Forest Service. We've seen a lot of change in our state, some of it good, a lot of it not at all good. Wildlife have suffered from population pressure, our air and water quality standards have suffered in some cases from industries who haven't cared enough. The "get rich quick" developers have subdivided and raped our counties till it makes one want to "run for the hills." Of course, to do that would make one part of the problem and certainly not part of the solution.

It does seem very hopeless at times when you read of the plunder of such areas here in our state, the Flathead, Bitterroot, and Gallatin to name three, let alone to read of these same problems in other states. One wonders if you really can fight the powers that be, but we must fight for our wildlife and environmental heritage, we must preserve the quality of life we have here in the West.

Criticism runs rampant over those who speak out for environmental issues, especially from those interested only in making more of the almighty dollar. These same people though, when the pressures of their industrialized and developed lifestyles become too much for them, are more than happy to come to relax in the beauty and solitude of our mountains and forests and streams. Ah, progress, the wilderness has a message for you!

Keep up the good work HCN, we need people like you to help in the fight so that all men may have a place to go to rebuild their hearts and souls.

Sincerely,
Barbara and John Ormiston
Hamilton, Mont.

ABSURDITY OF HUMAN CONDITION

Dear HCN,

I have just read Edward Abbey's novel *The Monkey Wrench Gang*. I was disappointed.

I feel as if Abbey is still writing in the mentality of the late '60s. Promoting vandalism, extolling the virtues of off-road vehicles, and littering with beer cans is like promoting a war to "end all wars." Environmentalists must deal with people; many people with power (those who can vote and organize) are far too sophisticated to respond constructively to the frustration Abbey conveys through his characters.

Abbey showed a good knowledge of the geography of the area but apparently fails to understand people. Soon there will be no wide open spaces (we must be realists), and no longer will there be places for those who cannot escape from the sight of man and his

works. Perhaps then we will turn inward and begin to see the graceful relationships between man and his environment, hopefully like pre-industrial Japan. Having lived 20 years in New Mexico, I understand how Abbey can portray Albuquerque as a tinny, shallow town. This makes it appallingly evident, however, that Abbey is unaware of the native people and their culture. Unfortunately, transients remain the brash, tinny spectacle which out-glitzes the underlying quiet culture.

Occasionally, Abbey humorously portrays the absurdity of the human condition. For this, I am appreciative. But even at these times, I felt as if Abbey was only crudely transcribing the humor of Richard Brautigan (see *A Confederate General from Big Sur* and *The Hawkline Monster: a Gothic Western*). I agree with your recent review of the book by Abbey. There are better uses for eight dollars.

Sincerely,
Mark R. Stromberg
Madison, Wis.

BADLANDS BAD DEAL

Dear HCN Friends,

A multiple use letter! First, a correction: in the article "Locking up the land?" (HCN, 12-19-75, p. 7) you have given the old address for the Wilderness Society. They're now at 1901 Pennsylvania Ave. N.W., Washington, D.C. 20006. I think the old address is on the handbook you mentioned.

Secondly, I appreciated your article about the Badlands Wilderness proposal in South Dakota (HCN, 12-19-75, p. 13). You might be interested in knowing a little follow-up on the wild and wonderful land of Washington, D.C.

Hearings on the Badlands Wilderness and five or six other wilderness proposals were scheduled for Nov. 6, 1975. At 5:30 p.m. on the 5th, Sen. Johnston, chairman of the Interior Committee's Subcommittee on Parks and Recreation, cancelled them!!! The energy bill conference was the excuse.

People had come from all over the country to testify. Two ranchers and I were there from South Dakota. When Sen. James Abourezk (D-S.D.), who was to testify, found out about the cancellation, he offered to chair the hearing to receive the testimony from out-of-town people, but they told him the court reporter had been reassigned and none was available! The staff of the subcommittee was there to receive copies of written testimony for the record, but that was the extent of public input.

It now looks as though the hearing will be rescheduled for late January or early February. I don't think too many people will be willing to make the trip again.

So much for citizen participation in government!

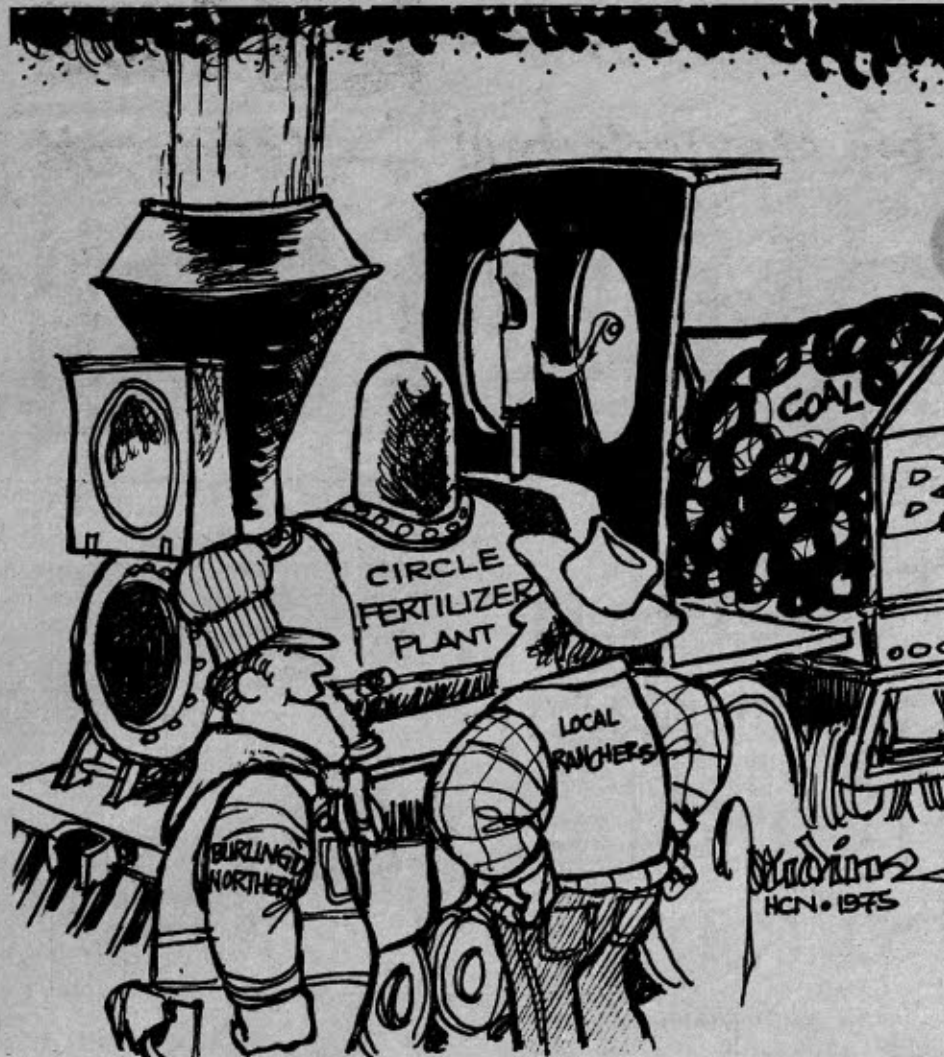
Yours,
Norman Nelson, Chairman
Dacotah Chapter, Sierra Club
Rapid City, S.D.

CAMPING REGS

Dear High Country News:

Camping and outdoor activities greatly benefit the youth we serve as an integral part of most youth oriented programs. Federal legislation is currently being proposed in House Bill 46 and Senate Bill 442 to strictly regulate youth camping unless such responsibility is assumed by the individual states.

Many of the proposed regulatory standards are already maintained by the Girl Scouts, The National Outdoor Leadership School, and most responsible organizations



"IT'S CALLED AN IRON HORSE. YOU'LL LIKE IT."

in their camping and training programs. We are concerned, however, that some of the regulations are unrealistically restrictive and impossible to enforce.

The statutes would set criteria for age and education that appear to have no direct relevancy to the safety of youth. To take a youth group camping, a leader would need to have a bachelors degree and-or be at least 23 years old. Each individual camping event, even a weekend campout, might require licensing. Any trip leader would be personally subject to a \$500.00 fine for any violations, an action which would hamper recruitment of volunteers to lead youth trips. The proposed laws would require previous backpacking experience of all youths even on an introductory trip. Is that possible? These are but a few examples of the sweeping restrictions of the federal laws.

We feel consideration should be given to local understanding rather than federal control.

Sincerely,
Wyoming Girl Scout Council
Lorna Wilkes
Field Executive
Lander, Wyo.

National Outdoor Leadership School
Peter Simer
Director
Lander, Wyo.

FIGHTING 400KV

Dear editors:

Your Dec. 5 issue on huge transmission lines was exceptionally well done, and will be helpful in our battle against the proposed United Power Authority-Central Power Authority 400 kilovolt line carrying 1,000 megawatts from Underwood, North Dakota, to the Twin Cities, Minn. — a distance of 450 miles over some of the nation's prime agricultural land.

HCN is my favorite environmental-energy newspaper. After recently completing four years as Executive Director of Minnesota's Pollution Control Agency, HCN helps keep me informed on the

emerging environmental issues facing us all whether in the High Country or here in Minnesota.

Please keep up the high quality, and I can't wait for your next issue.

Grant J. Merritt
Minneapolis, Minn.

THE RIVERMAN'S VIEW

Dear Editor,

Your recent issue of HCN dated Nov. 21, 1975 reached Kanab, Utah today. I look forward to reading the publication particularly because it usually is quite objective about its reports.

On page 7 a review of Verne Huser's book by Peter Wild gave me another impression that perhaps deserves comment.

In Grand Canyon, river operators initiated use of chemical toilets and carrying out of trash — the National Park Service later adopted those policies as operating rule.

The main reason for this letter, however, lies in the comment concerning a suit of outfitters in Grand Canyon against the National Park Service. We ARE NOT a party to that action but feel that a gross injustice was implied when Mr. Wild stated "Some commercial outfitters in the Grand Canyon, for example, have sued the Park Service in order to increase their use on an ALREADY OVERBURDENED RESOURCE."

I would like to point out the fact that over a half million dollars has been allocated toward studies in this area and all indications so far show that the resource is not physically overused and the management decisions are pending sociological investigations.

Thank you for your time. I trust that you won't weaken a strong paper by unresearched statements — this only hurts the cause of conservation.

Best regard,
Art Gallenson
Grand Canyon-Canyonlands Expeditions
Kanab, Utah

HCN Guest Editorials

Jan. 2, 1976 — High Country News-3

New Mexico's bull — Kennecott

by Dr. John Bartlit
New Mexico Citizens for Clean Air and Water

New Mexico's Big Bull, Kennecott Copper Corp., finally told a story even a grandmother couldn't swallow. Which is why the Environmental Improvement Board on Sept. 12 turned down Kennecott's request to reconsider one of New Mexico's pollution rules because of new information.

Gee whiz, it sounds reasonable enough just to hear a fellow's evidence. After all, that's what we like — lots of facts. But the story Kennecott told — whether out of intention, laziness, arrogance, or troubles with the New York office — was a story that simply did not hang together. It was an incredible, incoherent, inconsistent, self-contradictory story told by a very big and very important old bull. It was a shame.

It became apparent Kennecott had an extraordinarily sticky story to push when they arrived for the board meeting sporting an oil-tongued Washington lawyer in addition to their usual, pleasantly homey one from Silver City.

Their story went round about as follows: In January 1972, the state adopted a regulation to control particulate emissions from copper smelters. The regulation allowed 28 months, until April '74, to come into compliance. In April '74 Kennecott requested and was granted a four-year extension until 1978 to come into compliance, with the requirement they would, by April '75, file a schedule on how they planned to

comply. Throughout the 40 months which elapsed since 1972, Kennecott repeatedly had given assurances they could and would comply. Last June they requested and were granted another delay in filing their plan. Last August, they requested and were granted another delay in filing their plan.

On Sept. 12, three and one-half years after the reg had been duly adopted, Kennecott announced since August they had acquired new information — the regulation was unnecessary, unreasonable, could not be met either technically or economically, and would have to be eliminated. Except, they also said, their new converter smelt-

ing process for meeting the reg was "technically but not economically feasible," and their Washington lawyer when asked about economic data said, "Nobody is saying this is a matter of money." Or to summarize their case, "No, but yes, maybe I don't know."

The board, by a 3 to 2 vote, simply did not believe any company could work sincerely and competently on the problem for 45 months before suddenly producing this new and self-contradictory story.

The board's decision left Kennecott in violation of state law. The next step was for New Mexico to go to court to enforce its laws. And this is when the Big Bull really hit its fans. The law provides three possible enforcement options — a fine, a court order to comply, or an injunction to close the smelter. Even though all environmental in-

terests at the hearing made it abundantly clear nobody would seek a shut-down, the next day's headline in the **Silver City Press** emblazoned: "Chino Smelter Faces Forced Shut Down — Some 1,300 workers could be affected." The headline had its intended effect — Save Our Jobs ads were run, Save Our Jobs motorcades organized, and a Save Our Jobs investigation conducted by a N.M. legislative committee.

Gov. Jerry Apodaca summoned Kennecott President Frank Milliken from New York to discuss the issue. Milliken made a point of telling Apodaca the N.M. rule on particulates was stricter than other states required. Milliken also explained to the N.M. press, "Nobody's talking about closing down." And the board granted a rehearing.

Three points stand out:

1) NMCCA&W believes Gov. Apodaca spoke to the right man in President Milliken. Kennecott's pollution decisions are made in New York City, not Silver City.

2) NMCCA&W supports the board's decision to reopen the hearing on the limited issue of economics. If Kennecott can support their claim of undue economic burden, we will support Kennecott. To date, every time corporate officials have been asked to provide economic information, their refusal has been as mechanical as a myna bird: wheet "Kennecott does not divisionalize its profits" awww.

3) To minimize the use of unsupported shutdown threats to hatchet the environment, NMCCA&W believes the Environmental Improvement Board and Agency should have the power to subpoena corporate records in such cases.



New Year Dilemma

"It's hard to know when to respond to the 'seductiveness' of the world and when to respond to its challenge. If the world were merely seductive, that would be easy. If it were merely challenging, that would be no problem. But I arise in the morning torn between the desire to improve the world and a desire to enjoy the world. This makes it hard to plan the day."

E.B. White

Wilderness myths exploded

(A wilderness meeting held on U.S. Rep. Teno Roncalio's Cloud Peak Wilderness proposal in northwest Wyoming sparked a couple of angry anti-wilderness editorials in a local newspaper, **The Greybull Standard**. In a letter to the editor of the **Standard**, Bart Koehler, northern regional representative of the Wilderness Society, dispelled some of the myths which still surround wilderness classification. We are printing part of Koehler's letter as a guest editorial below. — ed.)

by Bart Koehler
Northern Regional Representative,
Wilderness Society

Randy King (editor of **The Greybull Standard**) stated that "no hunting is allowed in wilderness areas." This statement is absolutely false. There is positively no language in the Wilderness Act which prohibits hunting in wilderness areas. In fact many guides and outfitters in Wyoming depend on wilderness areas for their livelihood.

Mr. King also stated that "defecation (sic) on the land" has become a serious problem. He went on to say that the "real problem was that in these wilderness and primitive areas it is not legal to construct in the most primitive toilet facilities." I suggest that Mr. King read the Wilderness Act. The Wilderness Act would allow such facilities.

The Act, in Sec. 4 (a) 2(c) says that there shall be . . . "no structure or installation within any such area . . . except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act."

The purpose of the Act is to "secure for the American people of present and future

generations the benefits of an enduring resource of wilderness." In order to meet this purpose, these areas (the Act says) "shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, so as to provide for the protection of these areas."

This means that if an area is being used to the point where "defecation is a problem" and the area is being impaired (or made worse), then it is the legal responsibility of the managing agency to provide structures for sanitation purposes so as to meet administration requirements for the purposes of the Act.

I'm not proposing that the Forest Service build outhouses all over the wilderness, but the wilderness law says that the agency should provide outhouses in problem areas, and if this isn't enough then it should limit use in areas, or close them entirely.

This is called management.

If fact, the Forest Service has been neglecting its legal duty to put outhouses in wilderness areas, while at the same time turning around and saying that it can't manage an area because it is wilderness.

The truth is that the Forest Service is not managing wilderness areas in accordance with the law of the land.

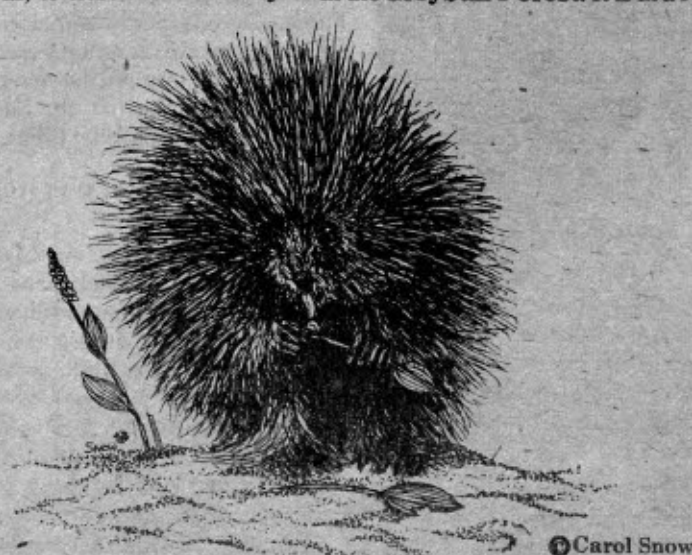
Mr. King also stated that virtually nobody supported the Cloud Peak Primitive Area "gone to wilderness." This may be true in Greybull, but according to the Forest Service's hearing record on Cloud Peak only 22% of the input from Wyoming citizens was in opposition to the wilderness concept for Cloud Peak. Seventy-five per cent of Wyoming's input supported a wilderness that was considerably larger than the existing primitive area. On a national scale, an overwhelming 91% of the input favored the wilderness concept for Cloud Peak.

In regards to King's comments on the "tyranny of Federal Control," I should state that (like it or not) Cloud Peak is not in the Greybull Forest. It is in a National

Forest — a National Forest which belongs to every citizen of the United States. Rep. Teno Roncalio's proposal is designed to "secure for the American people of present and future generations the benefits of an enduring resource of wilderness." The people of the Big Horn Basin may even grow to like the idea.

149 MILES OF BREAKS

In the Dec. 19, 1975, HCN we reported (page 5) that S. 1506 provided wild and scenic river protection status for 175 miles of the Missouri River. We have since learned that the Senate amended the bill to only cover 149 miles of the Missouri Breaks. Action is still pending in the House.



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Box K, Lander, Wyoming 82520

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Toilets . . .

(Continued from page 1)

waste to ash; others use air and soil and convert the waste to humus.

The price for these alternative toilets ranges from \$1,700 to a little scavenging expertise and a lot of sweat.

Here is a look at alternative toilets, together with a brief explanation of how they work and their chief advantages and disadvantages:

ROLLS ROYCE OF TOILETS

The Clivus Multrum. This is the Rolls Royce of alternative toilets. It uses no water, no energy, and no chemicals, has no moving parts, and produces humus. Pipes lead from the toilet and a kitchen garbage chute to a large, sloping fiberglass tank in the basement. (Clivus multrum means "inclining compost room.") The tank, its floor lined with a layer of peat mould, a layer of soil, and a layer of grass clippings or leaves, is divided into three compartments.

Excrement drops into the top compartment, garbage into the middle, and lowest is a storage chamber for the finished humus. Air circulates through ducts in the tank, and the combination of this and the action of bacteria decomposes the waste. Ninety-five per cent of the waste turns into water vapor and carbon dioxide and is released into the atmosphere by a vent going through the roof just like a chimney or a stovepipe.

What remains is a rich, lumpy humus. The multrum produces about two buckets of humus per year for each person using it. Six people can use the standard-sized multrum, and four more can use it for each mid-section added to the tank.

The air vent acts like a chimney, providing a prevailing down draft that leaves the system odor-free. The manufacturers say an exhaust fan normally is unnecessary, but one can be installed.

Most types of garbage can be thrown into the multrum. It will not, however, handle cans, glass, plastic, or chemicals. Disinfectants or an excess of water can halt the decomposition process.

Its chief disadvantage is the price about \$1,300 for the small unit and \$300 more for the large one. Shirley Gerratt, office manager for Clivus Multrum, U.S.A., says the company does not sell plans for the system. But at least one person, Steve Radich, of Sacramento, Calif., toured the factory and then built his own

multrum. It cost Radich and his wife about \$300 for materials and took 75 hours.

Another disadvantage is that the multrum will not handle waste water. The company is working on a water filtration system that could be hooked up to the multrum. In addition, the chimney and possibly the tank itself may need to be insulated. Finally, it takes two to three years for any humus to form.

Rikart Lindstrom, a Swedish inventor, developed the system in 1939, and the company he founded, AB Clivus of Tyreso, Sweden, has been selling it throughout the Scandinavian countries for 10 years. Two years ago, Abby Rockefeller, a member of the Rockefeller family, bought the U.S. rights and established Clivus Multrum, U.S.A., in Cambridge, Mass.

Gerratt says 220 of the units have been sold so far in the U.S. and Canada, and the company has dealerships in 30 states. Health authorities in Maine, New Hampshire, and Ontario have given the clivus their official blessing, she says.

ELECTRIC POWERED

The Humus-Toilet. This looks like, and is about the same size as, the conventional flush toilet, acts like the clivus multrum, but uses electricity. The electricity powers a stirrer and keeps the temperature at between 85 degrees and 90 degrees F. A humidifier also is built into the unit so that the humidity can be kept at between 65% and 90%. It is necessary to keep the temperature and humidity at these levels so that bacteriological action can take place to convert the waste to humus.

A cellulose mat laid along the bottom starts the bacteriological process. Every hour, a pump circulates 15,000 gallons of air through the system to keep the process going. When it gets saturated, the air is vented out through a two-inch pipe that, again, is like a stovepipe. In a year, if used by an average family of four, the system produces about 55 pounds of dry humus.

Humumat, Ltd., of Delta, B.C., makes this toilet, and charges about \$770 for it.

Hawkeye Purification, Ltd., of Bettendorf, Iowa, makes a similar toilet. It differs from Humumat's in that the Hawkeye uses microorganisms that digest the waste, and a hand pump flushes the waste. The price of this ranges from about \$250 to around \$700.

BURN IT

The Destroilet. Manufactured by LaMere Industries, Inc., of Walworth, Wis.,



DOWN THE KITCHEN CHUTE. A garbage chute for the multrum can be mounted in a kitchen cabinet. The multrum turns kitchen refuse — including cooking liquids, paper towels, grease, dust, vegetable and meat scraps, bones, and eggshells — into useful compost. The manufacturer claims the set-up is odor-free.

this toilet has been in use for 15 years at factories, oil rigs, and in homes. It uses no water, but needs gas or electricity. If it is hooked up to gas — either natural or L.P. (liquid petroleum) — the gas burns the waste in a 2,100 degrees F. flame. If electricity, a 1,600 degree F. heating coil converts the waste to ash. It can work on 115 or 220-240 volt A.C. current, or 12 volt D.C. current.

When the lid is closed, the burning cycle begins and lasts between 12 and 16 minutes. It stops automatically if the lid is raised during the cycle. The manufacturers say the Destroilet can meet the needs of 12 people. It costs about \$700.

DEODORIZE AND DUMP

Chemical toilets. A variety of these is on the market, sold by retail empires such as Sears, Roebuck and Co. and Montgomery Ward and Co. In these toilets, the waste drops into a bucket that contains deodorizing chemicals. A major drawback of these toilets is that they frequently have to be dumped. (The waste, having been chemically treated — is worthless, even dangerous, as a fertilizer.) Ward's chemical toilet costs about \$20, and several companies make a recirculating model that costs more.

A variation on this is what Monogram Industries of Los Angeles calls Magic Flush. This is a white mineral oil that takes the waste to an underground tank that has to be pumped out annually. A filtering system purifies the oil, which is brought back to the toilet to be used again.

THE GENTLE FLUSH

Less-water toilets. Again, there are several models. A pedal opens a valve at the bottom of the tank and about a pint of water flushes the waste down the bowl. One major difficulty of these toilets, however, is that the weaker flush can cause clogged sewer lines.

If nothing else, it's also possible to buy a valve-type device that fits into the regular flush toilet and reduces water consumption by about 50%. Or put a brick or two into the water tank.

METHANE AND HUMUS

The dry storage toilet: This is a home-made system that can cost little more than a few hours' work periodically plus any expense for a heat source. It produces methane in addition to humus. Its basic component is a 55-gallon drum.

The drum is sunk into the bathroom or outhouse floor, with enough of it sticking above floor level to make for a comfortable seated position. A hole is cut in the drum, and a toilet seat fitted over it. Sawdust, ash, or dirt is kept handy, and some of it is sprinkled over the excrement after each use. When the drum is about a quarter full, it is replaced with another one.

The partially full drum is taken outside, and kitchen garbage, animal manure, grass clippings, and paper are added to it until it's about three-quarters full. The drum is then filled with water and covered with an airtight lid.

Care must be taken to maintain the correct temperature for the mixture since methane can be highly explosive. Get complete details before you start. After about a month, it will have produced between 500 and 1,000 cubic feet of methane and a sludge that can be used for fertilizer. Since the sludge would not smell quite as sweet as Chanel No. 5, it may be wise to dump it over some leaves or twigs and let it compost aerobically for a few weeks before using it on a garden.

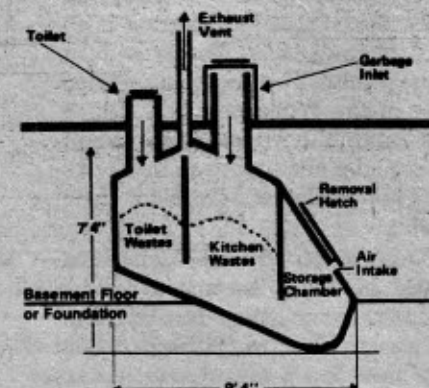
The chief drawback to this privy is that it may not meet the approval of the local health inspector, because virtually every health code forbids the handling of raw sewage.

LIKE ALICE'S

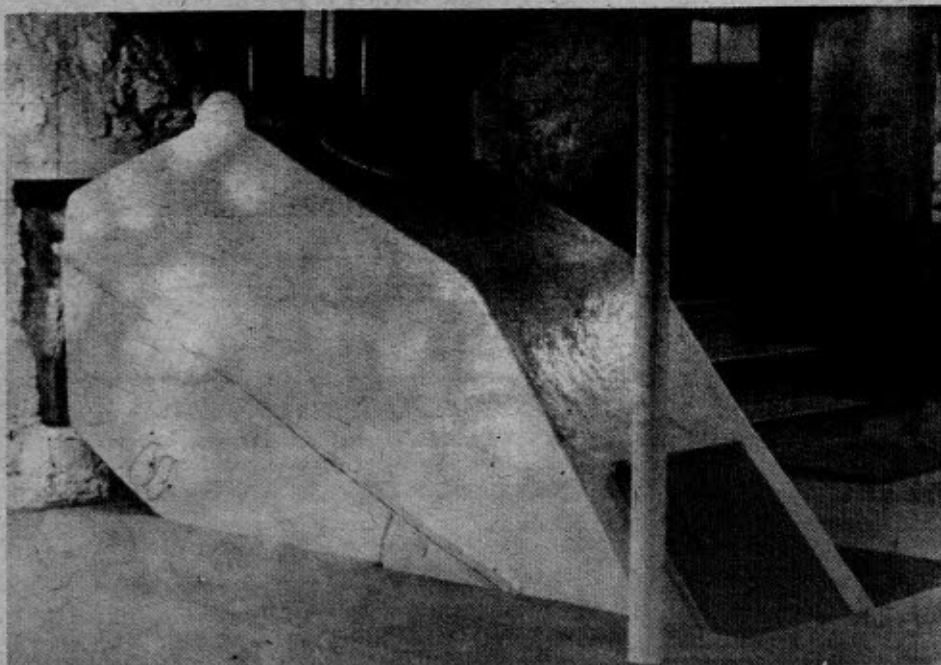
Some systems have been invented that almost make the act of voiding oneself a work of art. One system packages the waste into sausage links, another compresses it into frozen cubes. (Both these are made in Sweden and are not available in the U.S.) For those with the space and the money, there is even what amounts to a personal sewage treatment plant. This system, the Aquarobic, is made by Waltec Industries of Wallaceburg, Ont., and costs \$1,700.

It is hardly likely that the government or any substantial number of the people will soon forget their fascination with the swirling gurgles of the flush toilet. But individuals here and there could do so.

And, like Alice's Restaurant, if only one person does it, it likely would be viewed as an aberration; if two or three people do it, it could be called a conspiracy; if a hundred, or a thousand, do it, it would be called a movement.



INSIDE. The Clivus Multrum has three compartments as shown above: one for toilet wastes, one for kitchen wastes, and one for storage of the nutritive salts and humus which are the end products of the decomposing process. A layer of topsoil along the bottom of the multrum provides bacteria which aids in decomposition. Wastes are reduced by 95% in volume by the time they reach the storage chamber.



THE CORE OF THE MULTRUM. The multrum's fiber glass compost box holds up to 10 years' worth of compost. After two years in operation humus begins to accumulate and may be removed through the hatch at the lower end of the box and used as fertilizer.

A field guide to the toilets

Jan. 2, 1976 — High Country News-5

Reprinted from March 15, 1974, MAINE TIMES, 13 Main St., Topsham, Maine 04086.

	Manufacturer or Distributor	Principle of Operation	Approximate Initial Cost 1973	Advantages	Disadvantages
Outhouse	Homemade	Wastes biodegrade in pit and seep into soil. Pit gradually fills and outhouse must be moved.	\$0 - \$75	Easy, inexpensive, no pipes, no water required, no moving parts.	Unpleasant odors, cold in winter, inconvenient of access, can contaminate water sources.
Conventional flush toilet	Ubiquitous	Wastes are siphoned through a trap by a sudden rush of water.	\$25 and up	Clean, odorless, relatively easy to repair, relatively cheap to buy.	Uses enormous quantities of water to dilute small quantities of wastes. Ultimate disposal of sewage is a problem.
Sliding valve toilet (fixed)	Thetford Mansfield	Pedal opens valve in bottom of bowl and actuates swirl of fresh water to rinse bowl.	\$100 - \$125	Fresh-water flush but very low water use. No chemicals or recirculating. Can be used as mobile unit with holding tank.	More expensive and more complicated than flush toilet. Sewer lines clog more easily due to weaker flush.
Sliding valve toilet (portable)	Thetford Corlon Sears	Same as above, but carries own water supply. Detachable holding tank with handle for dumping of waste.	\$100 - \$120	Ditto, but is compact and portable. Holding tank can be carried into public rest room for dumping.	Must be emptied and refilled periodically.
Marine toilet	Any marine supply house.	Hand pump brings water to bowl. Valve is turned, same pump ejects wastes. Can pump wastes uphill.	\$75 - \$200	Relatively low water usage. Can pump its waste uphill. Pumps its own water.	Clogs relatively easily. Relatively complicated to use. Pollutes water ways in marine use.
Chemical toilet	Sears Wards	Wastes drop directly into bucket of deodorizing chemical. Bucket is dumped and recharged periodically.	\$30 - \$40	Cheap, simple.	Little more than in indoor outhouse. Disposal of wastes is problematical.
Recirculating chemical toilet	Mansfield Monogram Sears Thetford	Pump swirls filtered, treated wastes thru bowl. Unit fills up, must be dumped and recharged with chemical.	\$200 - \$250	Uses little water and generates little sewage. Can be used as mobile unit.	Relatively complex, relatively costly to buy and use, requires frequent dumping and recharging.
Digesting toilet	Hawkeye	Microorganisms digest wastes aerobically. Hand pump uses effluent for flush. Small outflow of harmless, clear effluent.	\$230 - \$695 depending on level of expected use.	Uses no water, produces little effluent. Relatively easy hookup. Some models can be used as mobile units.	Requires weekly addition of microorganism cultures.
Incinerator toilet	LaMere Research Products	Wastes are incinerated in timed cycle after each use. Ash must be removed periodically.	\$650 - \$750	No liquid wastes generated, and very little solid waste.	Uses energy. Some models require use of paper bowl liner with each use. Relatively complex mechanism.
Composting toilet	Multrum Clivus	Garbage and human wastes are digested by microorganisms, producing fertilizer.	About \$1000	Puts the nutrients back on the land. No moving part. Little maintenance. No water or sewer hookups.	High initial investment. Unit is very large, requiring considerable basement space.

For a list of addresses of manufacturers and distributors of some of the toilets mentioned, see page 14.

6-High Country News — Jan. 2, 1976

Indians, environmentalists, agriculturalists meet

Dialog opens for protecting common 'water hole'

by Marjane Ambler

Indians, environmentalists, and agriculturalists sat down together in Billings, Mont., recently to discuss their concerns about energy development in the Northern Plains region. They did not develop a joint Indian and environmental policy for energy development, as the conference organizers optimistically proposed that they might. But they did gingerly broach some of the issues which have caused confusion and, in the case of the water rights suits, hard feelings among the three groups.

The meeting was called by the mineral-rich tribes of the region and by the Northern Rockies Action Group (NRAG). Participants came to the three-day meeting because "we all have to share the same water hole," as Gary Sprecher of the United Plainsmen of North Dakota expresses it. The federal government seemed to be viewed as a mutual foe by the participants, as they groped for common ground.

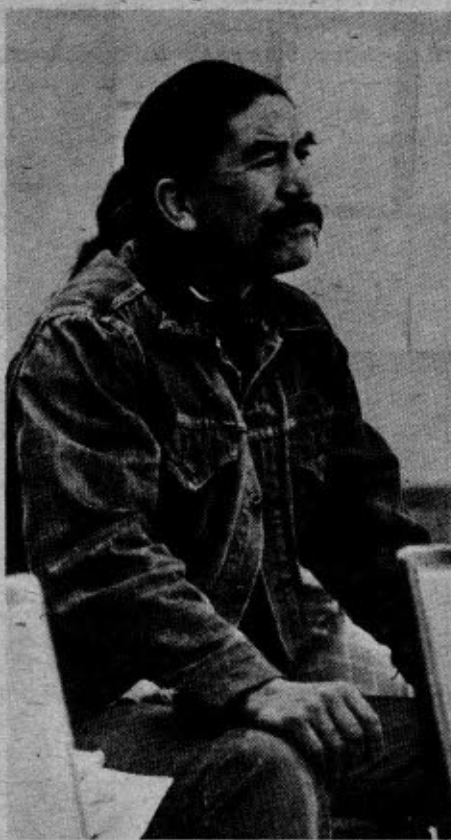
The potential strength of an alliance of the three groups was great enough that representatives of the Montana Coal Council apparently felt threatened by it and created a furor over not being allowed to attend. (The meeting was funded by a grant from the federal government with the knowledge that participation would be limited in order to facilitate discussion, according to Bill Bryan of NRAG. NRAG is an organization which provides expertise to Indian, environmental, and social groups in Montana, Wyoming, and Idaho.)

Prior to the conference, representatives of each of the three interest groups had separately challenged coal development to some extent. For example, the Northern Cheyenne and the Crow tribes in Montana and the Three Affiliated Tribes (Mandan, Hidatsa, and Arikara) of the Fort Berthold Reservation in North Dakota have each taken action to void coal exploration permits and leases on their reservations.

The groups have also occasionally worked together in the past. The Northern Cheyenne joined with the agriculturally-based Northern Plains Resource Council of Billings, Mont., to fight Colstrip units 3 and 4. Colstrip is near the reservation and may pose danger to ranchers and Indians



GARY SPECHER: "We all have to share the same water hole."



COYOTE: "If someone in Florida wants some coal, send him up and we'll give him all he can carry."

from air pollution and loss of agricultural land. The Environmental Information Center of Helena, Mont., has worked with the Blackfoot Tribe on a subdivision affecting that reservation.

The Center for the Public Interest of Bozeman, Mont., is meeting with the Crow tribe to be sure that Indian historical concerns as well as environmental concerns are considered on the proposed Transpark Road in Bighorn Canyon National Recreation Area. Rick Applegate of the center also announced at the conference that they will be seeking Indian supervision of a study on the BIA.

A Washington-based national group, the Environmental Policy Center, met with several tribes to draft a section on Indian lands to be included in the proposed federal strip mining bill.

OFF RESERVATION CONCERN

These coordinated efforts, however, are rare and only recent. In general, there has been little coordination, considering how interrelated the resources can be. Reservation boundaries don't stop the passage of air or water pollutants or of social impact just because one side is covered by stricter regulations than the other. Off reservation development is consequently a prime area of concern for Indians.

Clark Madison of the Fort Peck Reservation in Montana pointed out that his reservation, for example, is only about 14 miles from the planned Glasgow Energy Park, 50 miles from the Circle West coal-fueled fertilizer plant, and downstream from the proposed Poplar River coal development in Canada. The Fort Peck Reservation is home to Assiniboine, Sioux, and mixed-bloods. Madison's research office is now meeting with Canadian officials and researching the proposals and their possible effects on his reservation's air and water.

Environmentalists could be working with the Indians on such research to share information, one participant suggested. Depending upon the results of the studies, it is possible that Fort Peck would want to

form a coalition with environmentalists and agriculturalists to assure proper regulation of these developments.

However, an Indian in one of the workshops pointed out that it is possible that in this case as well as others, the tribe may determine that it would be in its best interest to support a development project. For example, one of the tribes with coal resources may decide that, with its own mining and reclamation requirements, it would want mining and a gasification plant because of the needed economic boost. "Would you as environmentalists still fight development on our reservation?" he asked.

In many ways, the toughest questions of the conference — of the whole relationship between environmentalists and Indians — seemed to revolve around this issue.

Do environmentalists care more about "parks and playgrounds" than about people? Are Indians willing to trade short-term monetary gains without guarantees of long-term viability of their resources? Do the tribes have enough clout with the federal government to be able to refuse energy development even if they choose to? Or will the federal government overrule them when the time comes?

ENVIRONMENTAL ELITISM?

Part of the trouble between national environmental organizations and Indians stems from "an outworn pristine brand of preservationism that is essentially concerned with the protection of nature and seems contemptuous of people and oblivious to their needs," according to Alvin M. Josephy, in an article preceding the conference which appeared in the *New York Times*. Josephy, who is a senior editor of



URBAN BEAR DON'T WALK: "Can your involvement be meaningful if you don't take into consideration all the other problems of the Indian?"

American Heritage and has written extensively about Indians, served as a speaker at the conference.

When asked about this accusation at the conference, Kathy Bjerke, of the national Sierra Club board, and Stewart Brandborg, Wilderness Society executive director, answered frankly. They said this is true of some members of environmental groups. However, both Bjerke and Brandborg said other members realize that human issues cannot be separated from environmental issues. Another conference participant said she thought the atten-

dance at the meeting was a demonstration of concern for Indian people as well as for how their coal will be used.

"Can your involvement be meaningful if you don't take into consideration all the other problems of the Indian?" Urban Bear Don't Walk, a member of the Crow tribe, asked. Some of the other problems mentioned at the conference include a lack of jobs on the reservation, poor roads, inability to get loans, high suicide rates, lack of



THOMAS LYNAUGH: "The tribes have learned that the trust responsibilities (of the BIA) are secondary when energy exploitation is the alternative."

adequate sanitary facilities, and shortage of hospital spaces.

"We're told, 'You Indians won't like middle class life.' How in hell do we know when we never had the chance to try it?" Urban Bear Don't Walk asked.

Presently, the primary sources of income for many of the tribes are surface leases, oil and gas royalties, and timber sales, as well as limited coal royalties.

In the past, coal leases were signed by some of the tribes. Since they had never experienced strip mining, some tribal members — just like many white ranchers at the time — were not especially worried. Gas and oil wells are much less destructive.

In addition, the tribes were relying upon the Bureau of Indian Affairs (BIA) to make sure the agreements conformed with federal regulations and didn't endanger the tribe. By law, the BIA has the responsibility as trustee of Indian resources, but the BIA is under the Department of Interior, which also has responsibility for developing energy resources.

The tribes have learned that the trust responsibilities are secondary when energy exploitation is the alternative, according to Thomas Lynaugh, Crow tribal attorney. The Cheyenne tribe, for example, found dozens of discrepancies between the leases approved by the BIA and the Code of Federal Regulations. Three tribes have taken action to void their permits and leases and are using the interim period to study possible effects of proposed coal development.

EDUCATION KEY TO ATTITUDES

Education of the people of the tribes is the key to how coal development might be

allowed to proceed in the future, according to Ellis Knows' Gun of the Crow Coal Research Office.

When his office recently conducted a survey of Crow tribe members, about half said they wanted strip mines on the reservation. However, when asked, "Are you willing to have pollution and a non-Crow population increase as a result of coal development on the reservation?" 75% said no. After several similar questions, 81% of the respondents were ready to say by the end of the questionnaire that they would favor a moratorium on further coal development until more facts are known.

On the neighboring Cheyenne reservation, the tribal council, which is delaying coal development, is being opposed by the Rosebud Society, which is waging an "educational" campaign of its own. The Rosebud Society is now brandishing offers of school clothes for children and coal to keep homes warm for this winter in an effort to entice members of the tribe to push for coal development, according to Dave Robinson of the Northern Cheyenne Landowners Association.

On the Fort Berthold reservation, tribal members have been "educated" to distrust the federal government. The Garrison Dam displaced 90% of the population on the reservation when it was built on their reservation in the 1940s and 1950s, and benefits to the tribe were misrepresented. The tribal councils of the Three Affiliated Tribes there recently voted unanimous support for the BIA superintendent voiding the one coal exploration permit.

ENOUGH CLOUT?

So far, the federal government has not taken any definitive action which indicates whether it would uphold the tribes' rights to protect their own resources by passing their own ordinances. When the Northern Cheyennes petitioned the Secretary of Interior in January 1974 to void all its coal leases, then-Secretary Rogers C.B. Morton offered limited reassurances of tribal authority. He said that the conditions upon which mineral development may proceed on the reservation will require the joint agreement and support of both the tribe and the coal companies prior to any further approval by him.

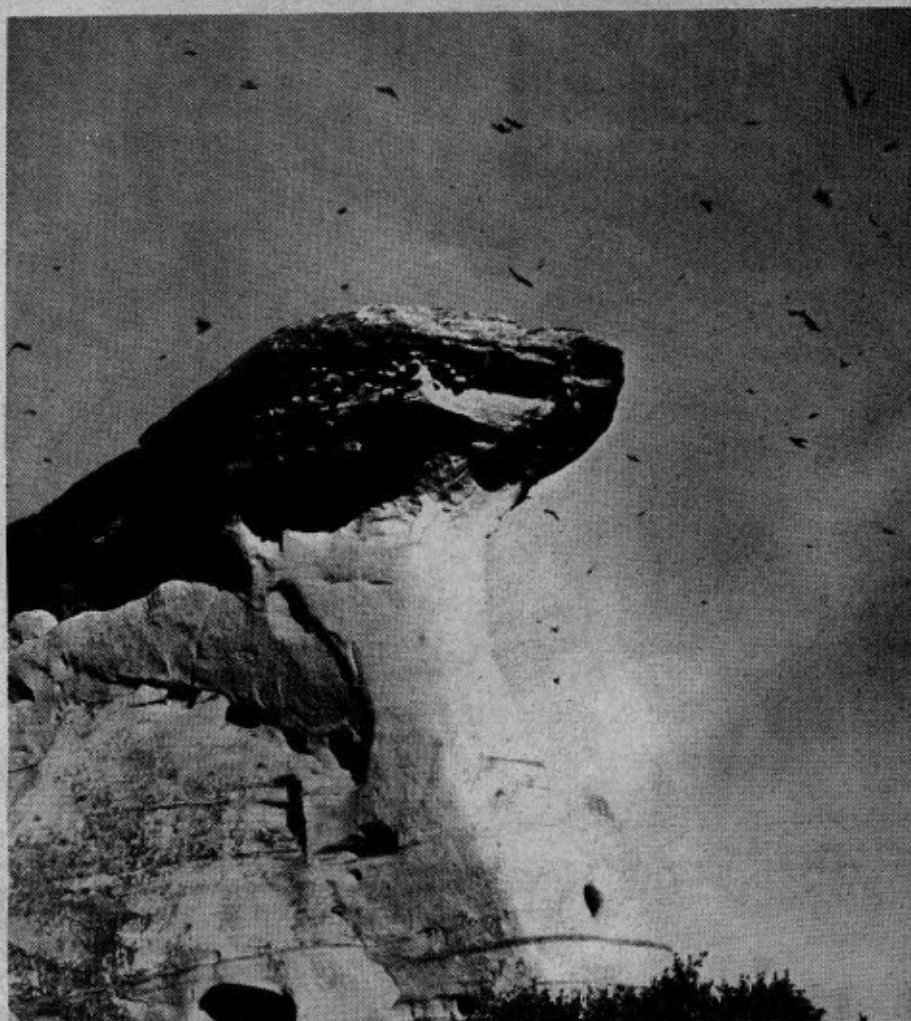
On the Fort Berthold Reservation, the BIA superintendent, Anson Baker, responded to the request of the three tribes and voided the coal permit there. Baker is an unusual BIA superintendent, earning a reputation for his tough scrutiny of Indian resource issues on both the Crow reservation, where he was previously employed, and at Fort Berthold. A decision from the area BIA director reviewing his decision is expected soon.

These are isolated incidents, however, and give no clear indication of how the Interior Department might rule on tribal authority over resource issues in the future. Gary Kimble, an Indian attorney and a state legislator, says the BIA has "assumed authority" to approve tribal ordinances. But if in any case the BIA would refuse to approve an ordinance proposed by the tribal council, "then the tribe could tell them to go to hell," Kimble says, based upon his understanding of the law.

Lynaugh is not so optimistic. He says the BIA approves all budgets, and he questions whether the BIA would approve a budget for spending \$30,000-\$40,000 for a lawyer to fight the government. He does believe,

however, that the tribal councils have enough clout to say there should be no coal leasing in particular areas of the reservations. The Crow tribe, for example, will have an approval right on the final environmental impact statements for the mining permits which the tribe challenged.

Josephy also is not optimistic about the federal government granting sovereignty to the tribes, despite all of its rhetoric on the subject. "It's only lip service," he said. "The control of the Indians will and must (in the government's eyes) continue as long as Indians own water." Josephy was refer-



SARPY CREEK CONFRONTATION SCENE. The surface of the ceded strip at Sarpy Creek, Mont., is owned by non-Indian ranchers, but the coal is owned by the Crow tribe. When a suit involving the ranchers v. the federal government and the tribe was brought up at the conference, two Crow tribe representatives said they thought the outcome of the suit had been to the benefit of the tribe even though the ranchers won.

Sarpy sandstone bluffs photo by E.L. Frost

ring to the fact that water is the key to energy development in the region.

TRIBES FORM FEDERATION

To assert their sovereignty and to gain more clout, 22 tribes have formed the Native American Natural Resources Development Federation of the Northern Great Plains. At its formation in 1974, the federation, with very little fanfare, called for a moratorium on the allocation of waters until the Indian rights are fully recognized and protected. The recommendation seemed to be virtually ignored by the federal government.

Instead, the Northern Cheyenne and the Crow tribes have filed suit to secure water rights. The suits have, in effect, brought a moratorium on new permits on the affected rivers until a ruling is made, probably in the U.S. Supreme Court.

Many of the ranchers who were served with court summonses interpreted the action as a direct threat to their ranching water. But Leland Pond, an attorney with

Part of the trouble stems from "an outworn pristine brand of preservationism that is essentially concerned with the protection of nature and seems contemptuous of people and oblivious to their needs," according to Alvin M. Josephy.

the Northern Cheyenne tribe, said the tribe was worried about competition with industry — not with ranchers. He cited a state study on the Yellowstone River Basin which projected future water demands on the river that surpassed its annual flow in

ernment would be using Indians to get water for industry."

The confusion over the relationship between the Indians and the federal government leads to other problems, too. Indian conference participants mentioned their frustration with environmentalists who seem to think that reservations are public lands just because they are federal lands. Instead, the reservations are the same as private land, which is held individually or communally. Environmentalists, according to Josephy, have antagonized tribes by telling the government and the courts what to do with land that belongs to the Indians.

A court decision in 1972 determined that the National Environmental Policy Act (NEPA) applies to the reservations. "This doesn't make the tribes or the tribal attorneys very happy," according to Lynaugh. "It lumps the reservation with the public lands." From outward appearances, the decision seems to be based on the premise that tribal decisions are BIA decisions rather than actually the tribes' since NEPA requires impact statements for federal actions which significantly affect the environment.

Cady v. Morton is likely the case involving NEPA and an Indian reservation which has gained the most publicity in this region. Bruce Cady and the John Redding family of Sarpy Creek, Mont., filed a NEPA suit against the federal government and the Crow tribe. The Crow tribe was included in the suit because the ranchers' land overlies Crow coal in what is known as the "ceded strip."

Although from outward appearances it was another example of a confrontation between Indians and rancher-environmentalists, Crow representatives at the conference said the suit was to the tribe's benefit. Lynaugh said the appeals court ruling benefited the tribe because it allowed limited mining to go on, it gave the tribe the opportunity to step backward and look at the possible impact from the total plan, and it gave the tribe an opening for challenging the remaining leases on the reservation.

LONG-TERM VIABILITY

There were several indications at the conference that Indians would be seeking support for their sovereignty because they wanted stronger environmental protection than the state or the federal government could offer. This would be expected if one accepts the concept of the Indian as the original conservationist.

Urban Bear Don't Walk said he thinks it is a mistake to think that there is an overall philosophy of how an Indian views natural resources.

Ellis Knows' Gun isn't ready to reject that stereotype. He says the conference did make him reject some of his stereotypes of bureaucratic environmentalists. "Now I see them as real people who are willing to learn... It's helpful for me to see that environmentalists and agriculturalists want to move away from the non-Indian concept of exploitation," he said.

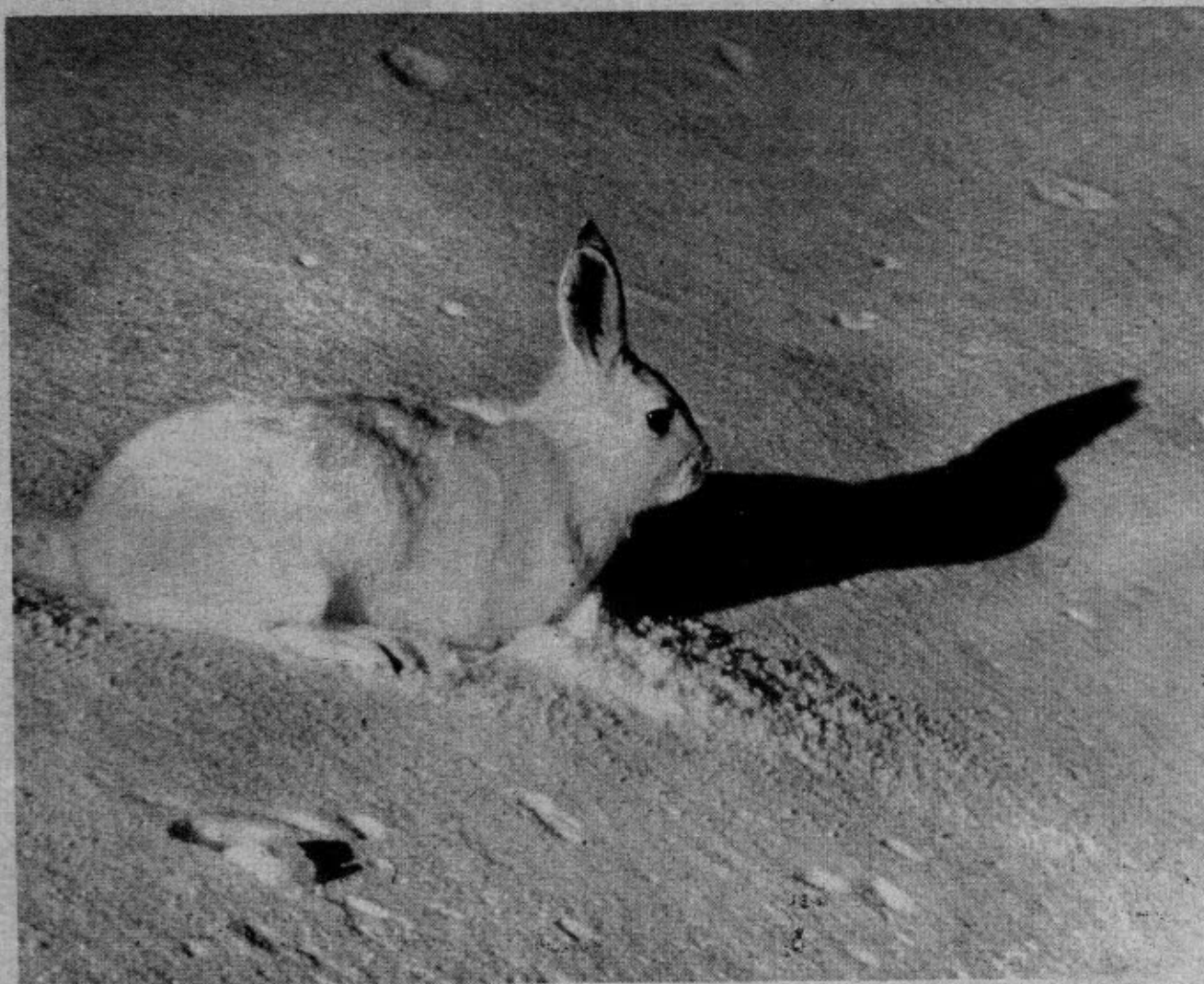
Coyote, a conference speaker from a northern California tribe, also discussed the Indian's orientation toward non-exploitation and toward sharing. "If someone in Florida wants some coal, send him up and we'll give him all he can carry," he said.

FEDS USE INDIANS?

One of the ranchers who received the court summons, Ellen Cotton, said she was worried about the connections between the tribe and the federal government. "This water suit bothered me terribly. I didn't want to sign the papers. I would be happy as a lark to have the Northern Cheyenne have the water — even if they claim all of it. What bothers me is that the federal gov-

"I would be happy as a lark to have the Northern Cheyennes have the water — even if they claim all of it. What bothers me is that the federal government would be using Indians to get water for industry." — Ellen Cotton, rancher.

8-High Country News — Jan. 2, 1976



Some rabbits, weasels, and ptarmigan change color to adapt to the winter environment.
Photo by Jack McLellan



This bird, the gray jay or camp robber, is one that does not migrate in the winter.
Photo by Chris Cassett

Adaptations abound

Wildlife in winter: a struggle for survival



Moose and other large game animals will eat willows and tree branches when grass becomes scarce.
Photo credit National Park Service

by Sarah Doll

Winter descends. Skiers and snowmobilers pray for snow. City dwellers pray for no snow. For people, winter means little more than a new recreational possibility or a nuisance, depending on point of view. For wildlife, however, winter is the year's extreme test of survival, and invariably takes its toll. The ways in which various species adapt to it represent some of the most remarkable and least understood mechanisms of wildlife.

A deep snow cover makes finding food difficult for many of our large grazing-browsing big game animals. It also makes travel difficult, in spite of their long legs, and tends to bring the disturbance of snowmobiles into their range. Many of these animals undertake migrations to winter range where there is less snow and more plentiful food. The migrations of the caribou are extensive. Deer, elk, bighorn sheep and moose simply move down out of the mountains. Long, hard winters are often disastrous for them, especially if their population is larger than their winter habitat can support. Often critical habitat — mountain valleys and south-facing slopes — are the first areas to be developed by highways, mountain subdivisions, reservoirs and other projects.

Predatory animals are also hindered by snow. The smaller prey, such as mice, are hard to find under the snow cover, and they face difficulties chasing larger game in deep snow.

To the smaller animals, deep snow is a necessity. Not only does it provide protection against predators, it provides an insulating cover that keeps ground temperature as much as 50 degrees higher than surface temperature, seldom dropping below 20 degrees Fahrenheit. It provides a warm retreat for the active animals, and keeps soil from freezing around the sleeping chambers of the hibernators.

Red or gray squirrels are the smallest mammal that can remain active above the

snow in cold weather, and these usually seek shelter when the temperature drops to around -25 degrees. Small animals have a large body surface area in relation to mass, and so lose more heat. They will often counter this by curling up together in groups, effectively making a more favorable surface-to-mass ratio.

The pika, a small, tailless cousin of the rabbit that lives in the mountains, works all summer preparing for the winter. It harvests grass, spreads it on rocks to cure, and stores it as hay.

Some insects and spiders produce glycerol, a sort of alcohol, in their bodies, that acts as an antifreeze and enables them to survive the cold.

THE HIBERNATORS

The deep winter sleep known as hibernation has long been a source of fascination and the subject of much study. Woodchucks, some species of chipmunks and ground squirrels, and some bats are among true hibernators. This is a defense against cold in which the animal's metabolism is slowed so that his accumulated fat will last him through the coldest months of the winter.

Most, but not all, hibernators prepare for the winter by putting on a layer of fat. They then find an appropriate place — bats, a cave; burrowers, a hole deep enough to avoid freezing. As they curl up, or in the case of bats, hang from the cave, the body temperature falls, and heart and respiration slacken. In the case of the woodchuck, temperature tumbles to about 45 degrees F., or the temperature of the burrow, from a normal 98.6 degrees F.; pulse falls to 3-10 beats per minute from a normal of 80-120; and respiration slows from normal 25-35 breaths per minute to as slow as one breath every five minutes. The sleep is so sound the hibernator is impervious to disturbance, but if the temperature becomes too cold, a special defense

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mechanism wakes the animal before it freezes to death. Bats differ in that they remain sensitive to external stimuli, and are able to keep their body temperature warmer than the surrounding air.

There are all degrees of hibernation, but most winter sleepers wake occasionally for a snack. Some animals, such as bears, sleep a lot during the winter, but as their body temperature stays close to normal, they are not considered true hibernators.

We usually think of hibernators as being mammals, but other animals hibernate, also. Cold-climate snakes enter dens and form hibernating balls, or clusters of any number, into the hundreds. This helps them conserve moisture and keep a uniform temperature. There is also one bird known to hibernate, the Poor Will, and hummingbirds are able to lower their metabolism when necessary for survival.

THE MIGRATORS

Most birds migrate rather than hibernate to escape winter's depredations. This is remarkable, but when we consider all the advantages of migration, it is more remarkable that some birds don't migrate. Migrators are able to breed and raise their young in a northern location where snakes and other predators on eggs and young are few, and disease organisms less in abundance. They spend winter in an area where sunlight, warmth, and food are plentiful, and summer in a cool area where insects abound. More birds can exist, as two habitats are utilized alternately. The migration also tends to genetically toughen bird species, as only the fittest birds survive the journey.

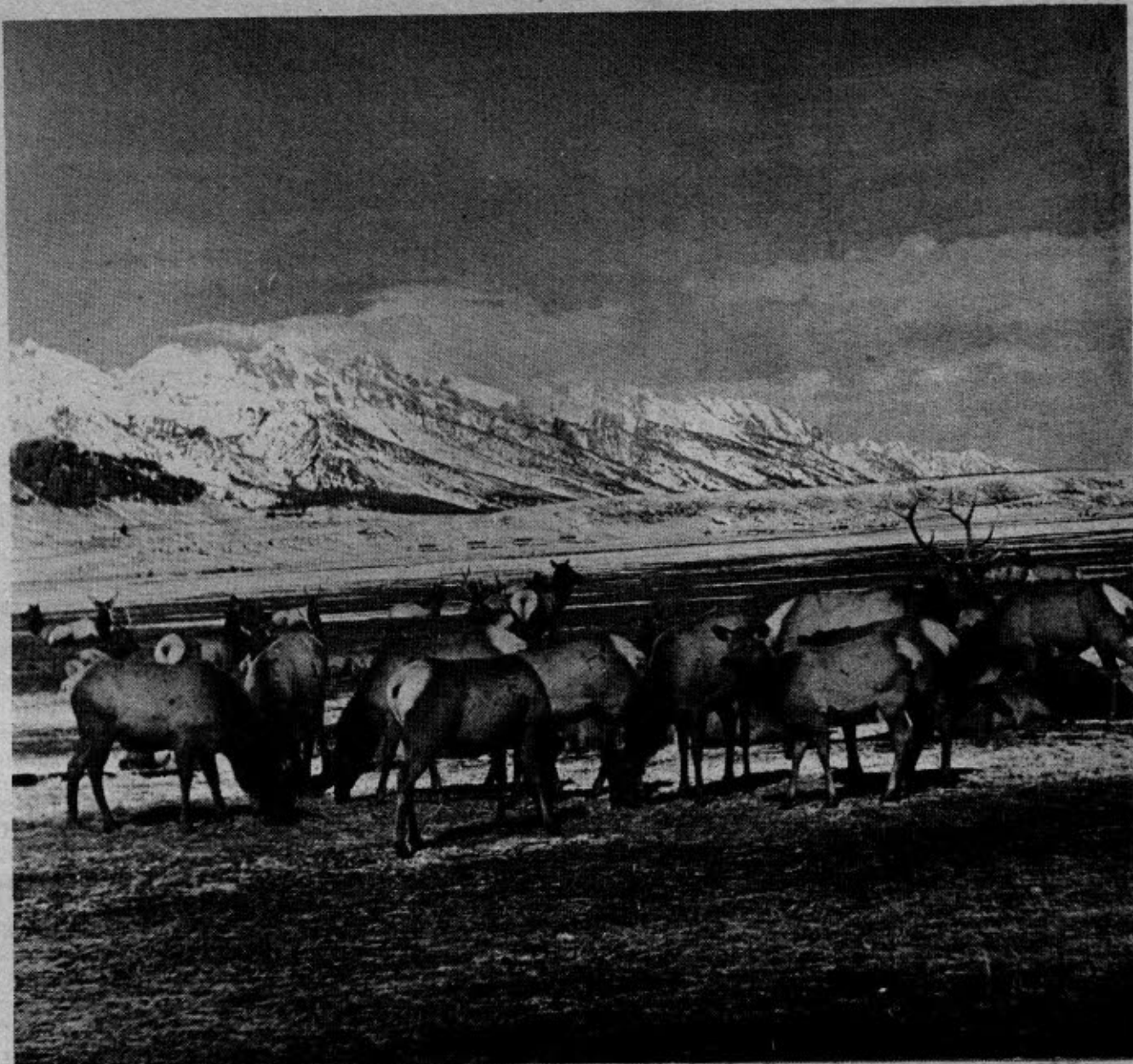
Migration is difficult, but a bird's life is almost always difficult. Some species fly little further on an average day of migration than they do on an average day of food-gathering. Some birds migrate from one polar region to the other. Other birds have a vertical migration dropping down a mountainside for the winter.

How the birds navigate between winter and summer homes is still poorly understood, but hereditary instinct seems to play a large role. Some of the current flight patterns presently seem illogical, but make sense in terms of former topography. For instance, a flight may still pass over an inhospitable desert that was once green pasture.

TRIGGERS MYSTERIOUS

Possibly the least understood mechanism in winter adaptation is what triggers the responses of preparing for hibernation and migration. Various theories involving the length of day, temperature, and position of stars don't hold up well in laboratory experiments, as animals show seasonal changes and restlessness even when held in a constant environment and photoperiod. One interesting but as yet unexplainable theory is that animals simply have an internal clock that runs on a yearly basis, similar to the daily internal clock that influences most higher forms of life, including man. Research is also being done to determine if humans have an annual cycle, similar to the daily one.

Whether an animal responds to cold by leaving it, burrowing under it, or facing it, winter is a time of trial. We humans have learned to control our environment and ignore winter, if we so desire. We can be most helpful to wildlife if we'll preserve as much good winter habitat as we can for them, and then leave them undisturbed.



Elk leave the mountains to find food in the valleys in the winter. These are grazing on the National Elk Refuge near Jackson, Wyo.
Photo by Charles W. Smith



Coyotes are among the predators that have difficulty finding food during the winter.
Photo courtesy Wyoming Game and Fish Dept.

10-High Country News — Jan. 2, 1976

Reckoning from Washington

by Lee Catterall

J. W. Komes felt bruised, maligned and slandered. It was, he said, like being thrust into "a carnival atmosphere, perhaps similar to that when a few Christians were thrown to the lions."

The alleged lion, Sen. James Abourezk (D-S.D.), broke into a Cheshire grin. Abourezk a lion?

That was the way Komes saw it. He heads up Energy Transportation Systems, Inc. (ETSI), the company planning the thousand-mile coal slurry pipeline between Wyoming and Arkansas. He is also vice-chairman of Bechtel Corp., which owns 40% of ETSI.

Abourezk has charged ETSI and Bechtel with engaging in a "clear conflict of interest."

The South Dakotan held hearings on the allegation, and his press man billed them as a sort of Watergate — Slurrygate, if you will.

"Don't miss the continued excitement," the billing read.

Bechtel produced a document for the government that included the assertion that slurry pipelines are cheaper than railroads for hauling coal long distances. At the same time, ETSI has been lobbying Congress for permission to build its pipeline across railroad rights-of-way.

One of the main arguments in ETSI's lobby effort is that slurry pipelines should be built because they are cheaper than railroads for hauling coal long distances.

To Abourezk, this was a case of Bechtel-ETSI tucking its argument under a government stamp of approval, which it could then use in its lobby effort.

"He doesn't understand," one Bechtel-ETSI man would whisper to another as Abourezk grilled them in last week's hearing.

What Abourezk didn't understand, they said, was that it wasn't really a "study" that was done for the government.

"It's really a computer program, which puts into a bank a whole host of data, which then allows the computer to sort out and reassemble it in answer to specific questions," Komes explained.

Question: What would be the cheapest way to haul coal from, say, Wyoming to Arkansas?

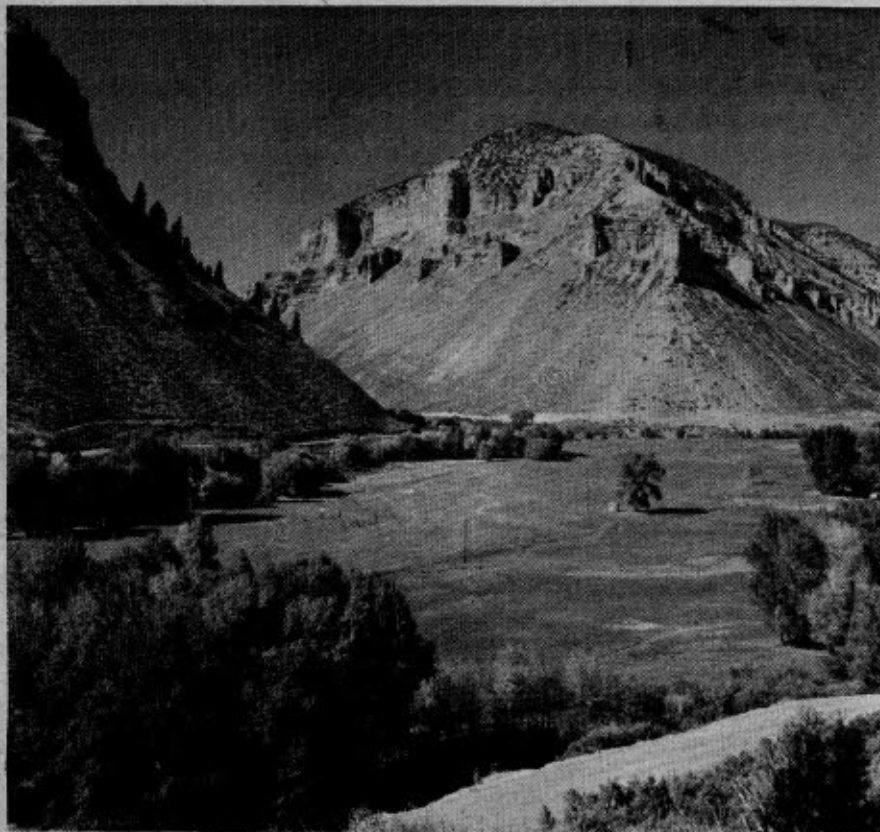
Answer: Coal slurry pipeline. Was there ever any doubt?

There could not have been a conflict of interest, Komes explained, because the government contract was not done by the same Bechtel-ETSI people who have been involved with the proposed Wyoming-to-Arkansas pipeline. In fact, he said, they had "little, if any, knowledge" that the company wanted to build such a pipeline.

The government also had little, if any, knowledge of that fact. If it had, government officials said, it would have had second thoughts about giving Bechtel the contract in the first place.

However, those officials said it made little difference in the end. If Bechtel had loaded the case for slurry pipelines, they said, the government would have detected it.

After all the testimony, Abourezk's investigator concluded it was a "close call" on whether there had been a conflict of interest, one that the people involved were aware of. Mainly, he said, it was "dumb."



OIL SHALE DROPOUTS

The House of Representatives' refusal to grant \$6 billion in federal loan guarantees to producers of synthetic fuels is already taking its toll in the oil shale business. On Dec. 19, 1975, two leading oil shale firms pulled out of the federal leasing program. The Atlantic Richfield Co. (Arco) and TOSCO (The Oil Shale Corp.) pulled out of a consortium that had leased tract "C-b" in northwest Colorado for \$117 million. Their partners — Shell Oil and Ashland Oil — say they will "try to continue development" without Arco and TOSCO.

"It demonstrates the uncertainty the oil industry is faced with when Congress has been unable to come up with a national energy policy," Interior Department spokesman William Rogers told the DENVER POST. "I just don't know what it means for our prototype oil shale program; it certainly doesn't strengthen it."

TOSCO listed three reasons for pulling out of tract C-b: lease expense, House rejection of the loan guarantee program and lack of private capital. An Arco spokesman, Micky Parr, told the ROCKY MOUNTAIN NEWS that his company's move showed a "disillusionment with the prospects of being able" to develop oil shale under present economic conditions.

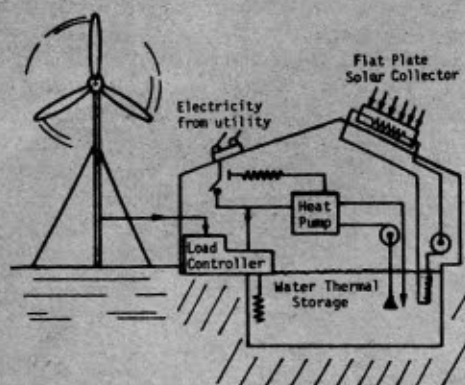
Carolyn Johnson with the Colorado Open Space Council told the NEWS: "Oil prices have jumped 300% in the past few years. If the Arab oil embargo didn't get this thing off the ground, nothing will... The companies show no willingness to develop oil shale without subsidies..."

Both TOSCO and Arco still have private oil shale holdings in Colorado and Utah. TOSCO told the NEWS it plans to give priority attention to its Utah holdings where "public support for energy development... is such that one of the first commercial plants can be constructed there."

Photo of Colorado oil shale country by Hubert Burke.

Wind furnaces

What to do when the wind stops



"Wind energy is great, until the wind stops."

"How are you going to solar heat your house on a cloudy day?"

There are no two ways about it — wind and solar energy systems are dependent on highly variable and uncontrollable climatic factors. But does that mean we should abandon these technologies as unreliable and fall back on fossil energy?

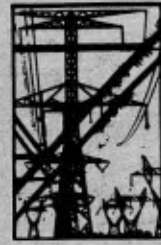
One way to overcome some of the irregularities of solar and wind power is to

employ a storage system. Most solar systems today store excess heat in either water or air. Another way, currently being studied by the University of Massachusetts, is to integrate solar and wind systems. Maybe when the wind isn't blowing, the sun will be shining or vice versa.

The U. Mass. experiment, called the Wind Furnace Project, employs an electrical generating windmill, 200 square feet of flat plate solar collector, and a 1,000 to 3,500 gallon hot water storage tank in the basement.

"It is expected that the combined wind and solar heat energy input introduced via the storage subsystem will provide at least 80% of the total heating requirement for the model home — roughly 35,000 kilowatt hours of heat — for a typical New England winter season (nine month residential heating load)," says U. Mass. researcher Woody Stoddard.

In the system, electricity from the windmill is fed through a load controller into a resistance heater to warm the house. A model house is being constructed on the Amherst, Mass., campus to test the system.



The HCN Hot Line

energy news from across the country

NUCLEAR LIABILITY. An amendment to the Price-Anderson Act, which would have removed the \$560 million nuclear industry liability ceiling, was rejected by the House 176 to 217. Supporters said removing the ceiling would encourage safer construction and operation of nuclear power plants.

POWER SURPLUS. The Edison Electric Institute reports that as of September 1975, power demand has climbed only 1.7% above last year — a record low. Utilities across the country are recording demands for power at peak hours only 2.0% higher than in 1974, according to *Business Week*. "Pacific Gas & Electric Co. in San Francisco has experienced only a 1.0% increase in peak demand, which leaves 20% of its capacity idle," reports *Business Week*.

ALASKA OIL SPILL. About 600,000 gallons of oil were spilled at the Prudhoe Bay oil field at the northern-most end of the trans-Alaska pipeline. The oil spewed over two acres of frozen tundra, and none of it reached the Arctic Ocean, according to a spokesman for Alyeska Pipeline Service Company. Intensive efforts are underway to recover or destroy the fuel, and environmental damage has not yet been assessed, according to Alyeska. The spill is the largest in the state's history.

SLURRY POWER OPPOSED. The Sierra Club Board of Directors has passed a resolution opposing pending legislation which would grant the right of eminent domain to builders of coal slurry pipelines. The action came at its December meeting in San Francisco.

CARLSON RESIGNS. Jack Carlson, Assistant Secretary of the Interior for Energy and Minerals, has resigned his position effective Jan. 15, 1976. Carlson is planning to challenge Sen. Frank Moss (D-Utah) for his seat this fall. The current favorite to assume Carlson's post is his deputy, Bill Fisher, according to *Coal Week*.

IMPACT AID FORMULA. Interior Secretary Thomas Kleppe wants to raise each state's share of federal bonus and royalty coal lease payments from 37.5% to 45%. The increase should go directly to impacted communities, according to Kleppe. Sen. Clifford Hansen (R-Wyo.) and several Western governors want the state's share boosted to 60%, according to *Coal Week*.

INDUSTRY OBJECTS TO COAL RULES. New federal coal mining and reclamation regulations have been criticized by coal companies which don't want the new regulations to apply to existing mines, don't want the Interior Department to acquiesce to state law, and object to the mining supervisor having so much discretionary authority. Interior sources tell *Coal Week* that the new rules will probably have to apply to existing mines but say the department may be willing to provide extended deadlines and allow a phase-in of compliance in order to mitigate economic hardship on operators.



Jan. 2, 1976 — High Country News-11

Clean Air Act changes to protect West

Clean Air Act amendments and a new national parks air study pose "a greater threat to Utah energy development than anything before it has," according to Utah Gov. Calvin Rampton. This is the latest in a series of attacks on the new Clean Air Act amendments being proposed by Congress. Many people would assume clean air is as desirable as the proverbial apple pie, but the question of "how clean is clean" is the center of controversy.

The Senate Public Works Committee will be working on the significant deterioration portion of the amendments when the Senate reconvenes this month, and the House Commerce Committee will get to it soon. This portion is particularly aimed at protecting the West — "so it doesn't end up looking like Pittsburgh," according to Bob Slomski of the National Clean Air Coalition.

The amendments provide for a classification system for air that is now cleaner than national standards. Class I air areas would have little or no additional air pollution, moderate amounts would be allowed under Class II, and Class III permits deterioration up to 75% of the lowest national standards. The Senate committee has eliminated the Class III designation, but efforts are expected to try to reintroduce Class III. Idaho Gov. Cecil Andrus has gone on record as urging that Class III be eliminated.

Despite the fact that the significant deterioration portions are designed to help protect the West, two Western governors have spoken in opposition to them.

Although Herschler has supported strong state regulations over air quality, he views the Clean Air Act amendments as "back door land use planning" and resents the federal intervention. The national Chamber of Commerce has made this charge and sent out a map with "totally misleading and inaccurate information," according to the Clean Air Coalition. They claim that a "no-growth" policy will result from the new clean air standards, depriving the country of needed growth in the output of energy.

HALT TO GROWTH?

However, the Clean Air Coalition says that the standards do not halt the construction of electrical plants and do provide for state control. "The question is not, except in very rare circumstances, whether or not energy development can proceed if significant deterioration prop-

osals are adopted, but rather the degree of emission control that will be required, and the location and size of the power plant. Analysis by the Environmental Protection Agency (EPA) indicates that Class II and III areas may be suitable locations for virtually any type of industrial facility, with the additional requirement of relocation or stricter controls near Class I areas," the coalition says.

This answers the accusation of zoning against growth. The Ford Administration and industry representatives are expected to lobby the two committees, opposing both requirements for mandatory penalties against polluters and also continuous emissions controls. Utilities argue that intermittent controls are more economically feasible. These intermittent controls include reduced operations during poor weather conditions and tall stacks to disperse pollutants. The Clean Air Coalition says these controls are impossible to enforce and ineffective.

STATE CONTROL

In response to Western states' resistance to federal interference, the proposed House amendments are designed to limit EPA's authority over states' decisions. The only mandatory Class I areas in both the Senate and House proposals are national parks or wilderness areas over 10,000 acres. EPA can override a state's classification of any area only if it violates the actual requirements of the law, such as Class I for wildernesses and parks, or if it ignores procedural requirements, such as public hearings, according to Slomski.

North Dakota Gov. Arthur Link has classified his state as Class II.

Rampton's fear that the Clean Air Amendments could have a drastic effect on energy development in Utah is justified. The proposed Kaiparowits coal-fired power plant is 35 miles from Bryce Canyon National Park. Although there are no set requirements for buffer zones, the size of the proposed plant (3,000 megawatts) and the existing topography and weather mean that Class I air most likely could not be

maintained in the park if the power plant were built as presently proposed.

Gary Everhardt, director of the National Park Service, has already recommended that the Kaiparowits project be "modified, relocated, or reduced in scope so that the present air quality of our national parks will remain unimpaired." In his comments on the draft environmental impact statement on Kaiparowits, Everhardt said, "It should be made clear that the project could not proceed as presently envisioned if parks in the affected area are designated Class I." The park service is now compiling data on air quality around Bryce and Capitol Reef National Parks and Glen Canyon National Recreation Area. This data will be used to supplement the final en-

vironmental impact statement on Kaiparowits.

Jerry Apodaca, governor of New Mexico, has given his support to proposed strengthening amendments for the Clean Air Act. He points out that by avoiding significant deterioration, states can maintain their quality of life and encourage tourism, which he says is one of the region's biggest and most important industries. Apodaca commends the regulations for focusing on preventive measures for air quality rather than on corrective and for assuring more uniform regulations among states. "New Mexico should not lose new industries as a result of more stringent air quality standards," he says.

Mining regs draw fire from all

Walkouts, boycotts, and a barrage of criticism met Interior Department officials holding hearings in the West on proposed federal coal mining regulations last month.

At the hearing in Cheyenne, Wyo., Gov. Ed Herschler charged that the regulations threatened state jurisdiction over mining. He also criticized the regulations for their lack of specificity.

Sierra Club Northern Plains representative Laney Hicks "boycotted" the hearings. "Frankly, we are tired of attending these Washington-styled credibility plays," she told the Associated Press.

In Billings 70 people, including many members of the Northern Plains Resource Council, walked out of the hearings after NRPC representative Bob Tully had testified. Tully called the regs "vague, unspecific, inconsistent, and irresponsible in the extreme."

A representative for an association of coal mining companies in Montana said that the regulations were superfluous. "We do not need another layer of bureaucratic regulation larded on top of Montana's tough reclamation law, MEPA (Montana Environmental Policy Act), and NEPA (National Environmental Policy Act). In Wyoming, a representative for the Wyom-

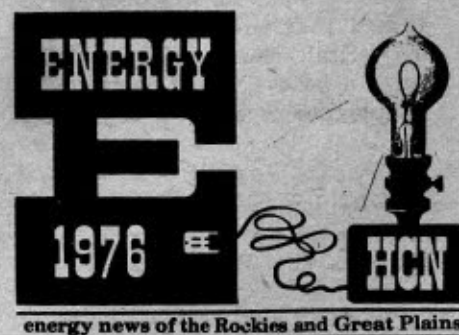
ing Mining Association suggested that the Interior Department either relinquish its authority to other federal or state agencies or preempt those agencies in the field.

U.S. Rep. John Melcher (D-Mont.) said the regulations do not adequately protect land and water resources. They "apparently require reclamation only where convenient to do so by the operator," Melcher said during his highly critical hour-long testimony at the Billings hearing.

In both Billings and Cheyenne, Jack O. Horton, Assistant Secretary of the Interior, denied that the department intended to pre-empt any state mining laws, providing the state did not ban all development of coal on public lands.

A Herschler aide told HCN that, despite these assurances, the regulations are disturbingly unclear on the state v. federal relationship. One cause for concern is a provision that the Secretary of Interior can override a state law if he finds it in the national interest to do so, the aide pointed out.

"What the governor wants is a simple statement in the regulations saying that state laws apply when they are stricter than federal regs," says the aide, Dan Spangler of the state planning office.



SO2 CHALLENGE DROPPED. Basin Electric Company has dropped its request for a variance from Wyoming sulfur dioxide (SO2) air pollution standards from the power plant proposed near Wheatland, Wyo. Tri-State Generation and Transmission Company, another sponsor of the Wheatland plant, has withdrawn its name from a legal challenge of the state SO2 regulations. Tri-State's SO2 challenge was one of three pending in state district court. In related action, an impact study has been submitted by the Missouri Basin Power Project to the Wyoming Industrial Siting Council on the Wheatland plant.

NEW COLO. STRIP REGS. Six years after passage of a reclamation law, Colorado has finally adopted regulations governing some stripmining in the state. Since

the Land Reclamation Board was formed, it has been operating without rules. This has led to ineffective enforcement of the law, according to a Rocky Mountain News report. The new rules cover surface mining of coal, sand, gravel, quarry aggregate, and limestone. They do not cover metals and oil shale.

FINANCING OWN EXECUTION. "We are being asked to build a water diversion system which will supply the energy companies with water in southwestern North Dakota. . . It's like being asked to finance your own execution," Arlene Wilhelm, North Dakota Water Commission member, said recently referring to the West River Diversion in that state. She said the diversion study initially calls for construction of seven more gasification plants in order to feasibly divert water to the area from the Missouri River, according to The Dickinson Press.

EXXON EARNS AIR CRITICISM. The Billings Exxon refinery placed second lowest among 61 of the nation's refineries tested recently for air pollution by the Council of Economic Priorities (CEP). Exxon official Arthur Greathouse said the high emissions are caused by the high sulfur content of "sour crude" from the Elk

River Basin which the refinery must use to stay in operation. Most of the other refineries in the study use natural gas, he said. The CEP report also blamed the Billings refinery's fluid cokers (which is "probably the dirtiest refinery process from an air pollution standpoint"), and the "virtual absence" of pollution controls, as well as the high sulfur fuel oil used.

INTERIOR'S KLEPPE DISCUSSES KAIPAROWITS. Interior Secretary Thomas S. Kleppe discussed the proposed Kaiparowits coal-fired power plant with a high level delegation from Utah and promised a final decision on the impact statement by March. Utah Gov. Calvin Rampton, Sen. Frank Moss (D-Utah), and Rep. Allan T. Howe (D-Utah) met with Kleppe in Washington. According to an Associated Press report, Howe thought Kleppe had assured his support of the project. However, the Deseret News said only that Kleppe assured the delegation he would make a decision on the project as soon as he legally can. The Environmental Protection Agency has registered strong objections to the draft of the environmental impact statement, and several conservation groups have issued legal challenges to the project which is proposed for southeast Utah.

WHOM TO WRITE

If you want to express your views on the proposed regulations, the Clean Air Coalition lists the following Western committee members:

Senate Public Works Committee: Sens. Joseph Montoya (D-N.M.), Mike Gravel (D-Alaska), Quentin Burdick (D-N.D.), James McClure (R-Idaho), and Pete Domenici (R-N.M.). The coalition says Sen. Gary Hart (D-Colo.) has been supporting strong amendments.

House Commerce Committee: Reps. James Santini (D-Nev.) and Timothy Wirth (D-Colo.) Wirth has also been supporting strong amendments.

For more information about the mark-ups of the amendments, write to the National Clean Air Coalition at 620 C Street, SE, Washington, D.C. 20003, or call (202) 543-0305.

12-High Country News — Jan. 2, 1976

A look at some naturalists

Scientists who challenge the technological society

by Ann L. Schimpf

What comes to mind when you hear the term "naturalist?" Visions of little old ladies in tennis shoes, Theodore Roosevelt on a collecting safari to Africa, someone with a Thoreau-like reverence for nature, a trained biologist?

The term "naturalist" can be defined as "one who consistently finds pleasure in observing and learning about the natural world." He is not necessarily a scientist, though he may be one. He calls on science to enhance his pleasurable observations and may even contribute to science, but he is characterized by his pure, unadulterated love of things natural and by his commitment that his natural world remain healthy.

JOHN JAMES AUDUBON

In the United States of the early 1800s there was a dire need for a gigantic cataloging of resources — a need which had been fulfilled in Europe 100 years earlier. One of the greatest contributors to this early cataloging effort was John James Audubon. His drawings and descriptions of American bird life are classics still recognized as authoritative works. As anyone who has read his series, *The Birds of America*, will acknowledge, he went far beyond illustration. He successfully wedded art and science — no mean feat in any generation. And yet, as a young man he had almost given up hope.

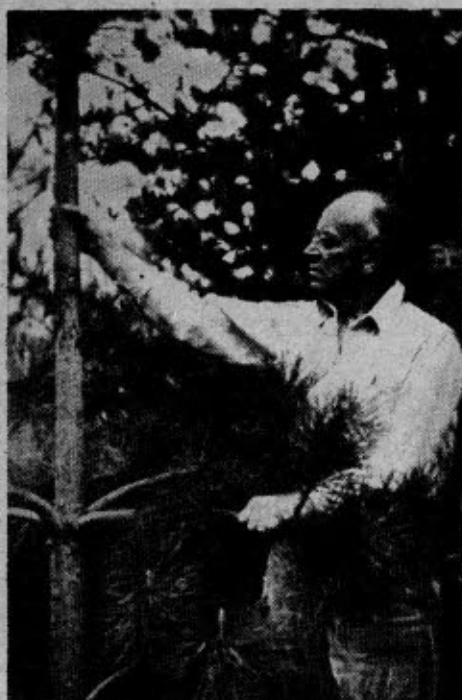
He was a poor storekeeper in Kentucky struggling to support a starving wife and babies. He just couldn't seem to make ends meet and most certainly had little time for naturalizing. However, the dedication to things wild was there. It is said that enroute home from learning that his business had failed he covered his eyes as wild turkeys flew across the road. The irony was too great — all that waited at home was his poor family and yet the burst of excitement at seeing these beautiful creatures was unquestionably strong.

Although his early years were far from enviable, he somehow managed to find a market for his skills. Gradually people began to buy his drawings and he was able to explore even wider sections of the United States.

ALDO LEOPOLD

Audubon belonged to the category of "field collecting and observing" naturalists. By the turn of the 20th century, much of the resource cataloging had been done and a new era in naturalizing began. Inquiry into habitat, behavior, and interactions of living organisms or "synthesizing and evaluating" began a more dynamic approach to natural history. Aldo Leopold is a good example of an American "evaluating and synthesizing" naturalist. He followed a less turbulent professional pathway than did Audubon, but he, too, "followed the beat of a different drummer."

Receiving his Master of Forestry degree from Yale in 1909, he was appointed to the newly formed Southwest District of the U.S. Forest Service. During his 15 years in New Mexico, his natural history and management skills began to extend beyond the discipline of forestry. He felt keenly about the importance of the interrelationships between wildlife, land, soil, air, and water in managing any area.



Aldo Leopold, the naturalist who led a twentieth century synthesis of environmental information. His finest expression of that synthesis is contained in *A SAND COUNTY ALMANAC*.

Photo from *THE SAND COUNTRY OF ALDO LEOPOLD* by Charles Steinhacker with Susan Flader.

When transferred to Wisconsin as director of the U.S. Forest Products Laboratory in Madison, he was more beleaguered than ever by his love for things natural. He sought to partially satisfy this longing by weekend hunting outings. These excursions began a romance with the Sand Counties of Wisconsin which culminated in his family's purchase and care of an old farm. The years of planting, exploring, and thinking on his sand county farm resulted in what may be the most sensitive land ethic ever formulated, *A Sand County Almanac*. Although his professional activities in the field of game management and forestry made him a prominent figure, the publication of this book earned him the title of "great naturalist."

WOMEN

There have been many great men for young, up-and-coming naturalists to look to as examples. So, what about women? John Terre's *Great Moments in the Lives of Outstanding Naturalists* is an interesting editorial collection of a "golden moment" in the lives of 36 naturalists. He has included only one woman, Margaret Nice of song sparrow fame.

Joseph Ewan's *Rocky Mountain Naturalists*, a roster of brief biographical sketches of hundreds of naturalists, reveals a few women's names. For example, the wife of T.D.A. Cockerell, noted botanist, was a publishing naturalist in her own right. The fact that she was one of few women listed and then only listed as "the wife of..." is significant. Natural history endeavors have long been dominated by males.

Ellen Swallow, the first woman graduate of Massachusetts Institute of Technology, was extremely sensitive to the human environment of the late 1800s. She literally founded the modern consumer health and nutrition movement via such means as a statewide analysis of Massachusetts's water supplies, improved designing of home

plumbing and ventilation, and an experimental nutrition restaurant.

Although her campaigns for proper school lunch nutrition, home study courses, and higher education for women seem somewhat afiel from those of a naturalist, she was every bit a naturalist. Her inspiration for such activism came from enthusiastic field and laboratory observations of living organisms.

RACHEL CARSON

Rachel Carson was an instigator of the current environmental movement. Contrary to her critics' conception of a herculean-like woman, small-framed, quiet-spoken Carson proved the saying "the pen is mightier than the sword."

She spent 15 years working as a biologist for the U.S. Fish and Wildlife Service. Office writing assignments were often given to her. Although this government publication work was stifling in format, it formed the roots of her growing commitment to interpret science so the layman could understand it.

She eventually dropped work for the U.S. Fish and Wildlife Service to devote full time to writing. Then the struggles of a professional writer — little income, little recognition — constantly plagued her efforts. However, she slowly gained recognition by the publication of various natural history articles in popular magazines. Eventually her debut as a writer was made with the publication of *Under the Sea Wind* followed by *The Sea Around Us* and *The Edge of Sea*.

Carson's lifelong dedication to the natural world was immortalized in *Silent Spring*. She spent four long years corresponding with experts in all fields related to pesticides — public health, biochemistry, entomology, and medicine. Her goal was nearly impossible — the accurate, concise synthesis of volumes of technical information on pesticides. She was successful beyond her wildest imagination. *Silent Spring* literally became a best seller overnight.

"... the fury with which it was attacked, the attempts to discredit that 'hysterical woman' as she was called, have, I believe, deeper roots than a simple concern for profits or power on

the part of special interest groups. Her opponents must have realized — as was indeed the case — that she was questioning not only the indiscriminate use of poisons, but the basic irresponsibility of an industrialized technological society toward the natural world."

—Paul Brooks

The House of Life — Rachel Carson at Work

NATURALISTS' JOBS

Today naturalists' jobs range from school teacher to forester to recreation leader to scientist to photographer to camp director. (A complete listing can be found in *Opportunities in Environmental Careers* by Odom Fanning.) Aldo Leopold's "official" profession was that of forester; Ellen Swallow was labeled a chemist; Rachel Carson was a biologist. Job availability, skill requirements, and personality demands are important considerations in choosing a place. Although the job market often seems hopelessly glutted, there are a variety of niches for naturalists.

Another avenue, and to some a more realistic avenue, is part time involvement. The importance of part time naturalists must not be underestimated. The increasing membership lists of environmental organizations such as Friends of the Earth, Sierra Club, and Audubon Society is encouraging as it indicates an increasing commitment to the importance of the naturalist attitude. For though it is important to place people with naturalist attitudes in professional policy-making roles, it is equally important that a naturalist attitude pervade the whole of society.

As Rachel Carson said through the publication of *Silent Spring*, our technological society must begin to take responsibility for the effects of its activities on the natural world. The more amateur writers, field trip leaders, cause leaders, clean-up drives, education and program leadership, and environmentally active voters there are, the greater the chances for an environmentally sound world. And that is of sizeable significance.



Rachel Carson expressed a lifelong dedication to the natural world in *SILENT SPRING*.

Photo from *THE HOUSE OF LIFE — RACHEL CARSON AT WORK* by Paul Brooks.

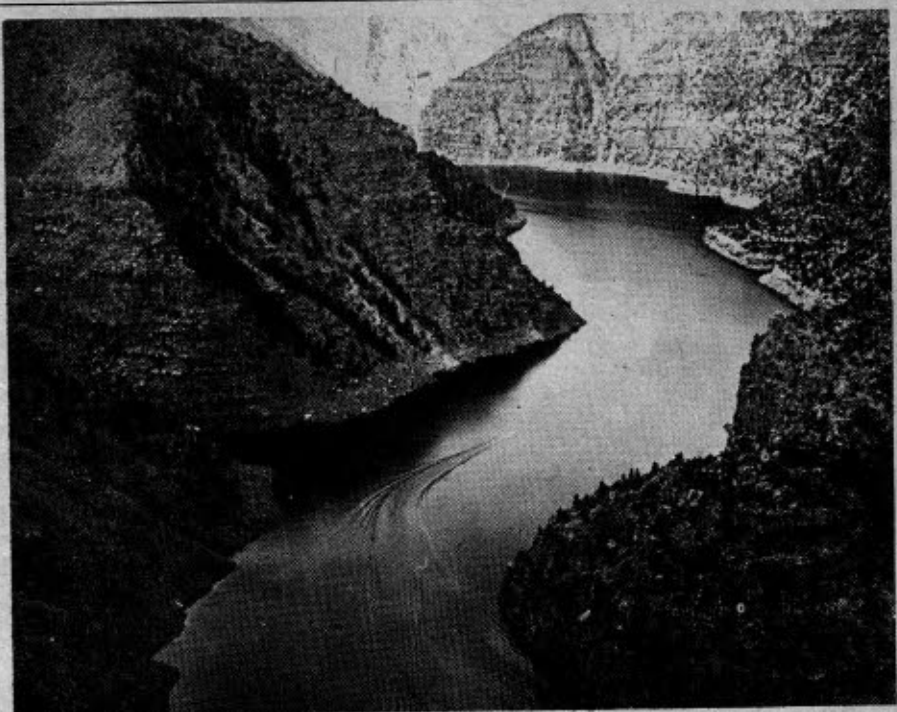
Jan. 2, 1976



Western Roundup

HCN

13



RESERVOIR UPS POLLUTION 32%

Flaming Gorge Reservoir on the Green River in Utah and Wyoming "was built without considering the geology of the land to be flooded," said V. Crane Wright, a conservationist from Denver. In a paper Wright delivered before the International Association of Game, Fish and Conservation Commissioners Convention in Las Vegas she said, "The reservoir covered some of the saltiest strata of the Green River shale. Daily, the reservoir fluctuates, bringing reservoir waters in contact with the higher salty beds, and daily the draw down pulls the salt-laden waters into the reservoir." Wright cited a U.S. Geological Survey water quality report on the Green River which shows that the reservoir has increased the river's salinity by 32%. "Since this deterioration of water quality was unanticipated, nothing was done to mitigate its impact on fish populations below the dam," she told the commissioners.

Utah Travel Council Photo.

Plutonium levels scare Colo. board

Plutonium contamination at the Rocky Flats nuclear weapons plant near Denver, Colo., is more serious than was previously thought, according to the Jefferson County health director. His warning has prompted the Colorado Board of Health to urge a moratorium on a new land developments near the plant. The health director, Dr. Carl Johnson, measured plutonium in the top layer of dust in the soil. In previous tests, soil was taken to depths of several centimeters, where the plutonium is less concentrated. Based on the new tests, Johnson says that people living around the area are faced with a "definite risk" of lung or bone cancer.

Toxic PCB's soak Wyoming highway

One thousand two hundred tons of highly toxic chemicals spilled out onto an interstate highway near Little America in Southwest Wyoming Dec. 13. The spill was the largest dumping of poly-chlorinated biphenols (PCB's) ever in the country. "It's soaked into the ground and soaked into the asphalt," a Wyoming water quality expert said. "You get the damned stuff into the environment and it's worse than DDT." PCB's are a corrosive, toxic chemical used as an insulating agent in electric transformers. Vapors from the chemical cause rapid liver damage. The state plans to remove the contaminated asphalt and soil and move it to a disposal site in Texas.

Great Falls sends Concorde invitation

The Great Falls, Mont., airport board has decided to contact Air France and British Overseas Airways Corporation (BOAC) about the possibility of landing the supersonic Concorde jetliner at Great Falls International Airport. "Air France and BOAC would like to serve Los Angeles by the polar route, but the Department of Transportation may not grant landing authority at Los Angeles because of that area's dense population. Great Falls has been named as a possible port of entry because of its relatively small population and that of surrounding areas," reports the Environmental Information Center in Helena, Mont. Concorde supporters are trying to get permission to land the planes in New York and Washington, D.C., as well. A Department of Transportation environmental statement on the proposed landings predicts increased noise levels and increased incidence of skin cancer because of ozone destruction by the jets.

Library saved (for six months)

Due to encouraging fund-raising efforts, the Denver Public Library Commission has voted to keep Denver's conservation library open for six more months. The library, the largest public facility in the nation devoted to conservation materials, became a victim of city cost-cutting this fall. Supporters of the library have raised \$26,600 in a 28-day drive to keep the facility open. The most difficult task lies ahead, say the supporters — finding enough private and public funds to keep the library open in the long term.

Interstate planned for scenic canyon

The scenic Glenwood Canyon near Glenwood Springs, Colo., has been chosen as the corridor for Interstate 70 by Transportation Secretary William Coleman. Planning for the highway has been stalled for 10 years because of a debate over whether to put the highway in the narrow steep-walled canyon or over Cottonwood Pass. Colorado Gov. Dick Lamm preferred the canyon route because it already has a developed two-lane highway while Cottonwood Pass is relatively undeveloped. Lamm emphasized that designation of the canyon corridor has no bearing on the highway design or the number of lanes, according to the *Rocky Mountain News*. Conservationists fear that trying to fit a four-lane freeway in the canyon could ruin its environmental values.

Grand Canyon leases labeled illegal

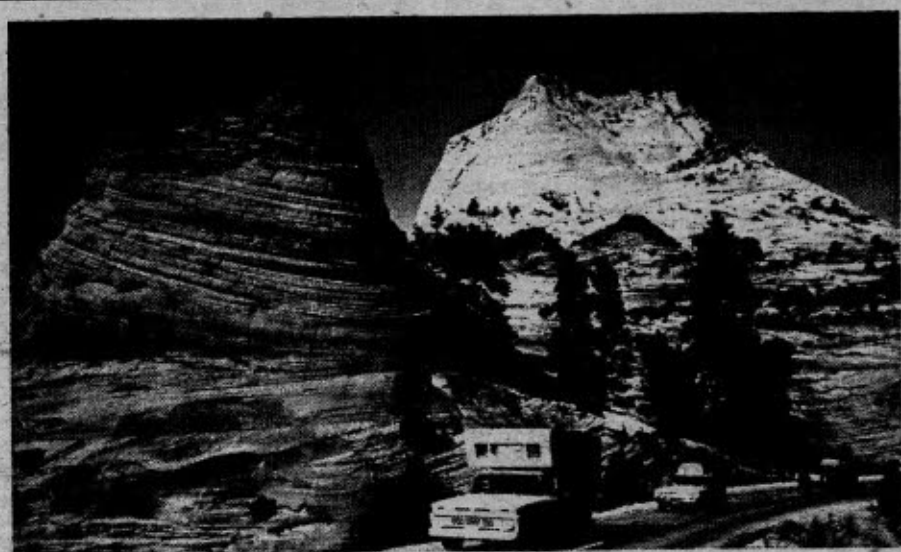
The Sierra Club is asking the National Park Service to prevent mineral exploration on three uranium leases in the Grand Canyon. The leases — covering 1,560 acres in two side canyons — were issued Sept. 10, 1975 to the Exxon Corp. by the Bureau of Land Management. BLM controls the mineral estate under park service lands. The leases are in an area of the Lake Mead National Recreation Area which Congress has asked the park service to study for inclusion into Grand Canyon National Park. Sierra Club attorney Allen Stokes told the *Denver Post* that the leases are "patently illegal." The park service reviewed Exxon's exploration plans and decided an environmental impact statement on the development was not required, according to the *Post*.

Citizens rally to stop Kindred Dam

A group of residents in the Sheyenne River Valley in North Dakota have joined together to oppose the Kindred Dam. The dam, proposed by the U.S. Army Corps of Engineers, is a multi-purpose project with the prime objective of flood control. The Sheyenne Valley Association wants to stop the dam and support a "more rational approach to flood control," according to *Flickertales*, a N. D. Wildlife Federation publication. The group says the project's costs exceed its benefits. For more information, contact the Sheyenne Valley Association, Box 275, Kindred, N.D. 58051.

Arizona cities slate auto clean-up

Starting in January, Phoenix and Tucson motorists must have regular inspection and maintenance of air pollution controls, according to the U.S. Environmental Protection Agency. Emission control tests will be a prerequisite to vehicle registration, says EPA. "Numerous other areas of the country should also have inspection and maintenance in effect right now as a basic step in protecting public health from air pollution hazards," says EPA's Stanley W. Legro. No other Rocky Mountain state has such a program. "Arizona is setting a laudable example," says Legro. EPA expects gas savings as well as cleaner air to result from the check-ups. Preliminary tests revealed that 33% of the vehicles in the area fail to meet the new standards, but 84% of the offending cars could be corrected with minor engine adjustments.



BRYCE, ZION CONCESSIONS TO STAY

The National Park Service will extend tourist facility concessions for seven more years in Zion and Bryce Canyon National Parks in Utah. The park service had planned to close the Zion facilities this month and the Bryce Canyon concessions next year because they were incompatible with park resource values. Closure plans met heavy opposition from state officials and the Utah congressional delegation. Under a new agreement, the park service will negotiate with the concessionaire — Trans World Airlines — for contracts running through Jan. 1, 1983, according to a *DESERET NEWS* report. Park service director Gary Everhardt made it clear he wants to close down lodging and reduce private auto traffic in Zion and Bryce at the end of the renewed contract period. Everhardt said the extended phase-out period is "to allow time for adequate visitor service facilities to be developed at communities near the parks." TWA is expected to spend \$250,000 on facilities in Zion soon, rather than invest in gateway community facilities.

National Park Service photo of Zion by Fred Mang Jr.

14-High Country News — Jan. 2, 1976

Eavesdropper

environmental news from around the world

LOONEY LIMERICKS

by Zane E. Cology

Inventors are in a rush
To stop the five gallon flush
They've come up with a head
That looks like a shed
Works great, but it's hardly plush.

PESTICIDE USE CURBED. In a Christmas Eve decision, the Environmental Protection Agency banned most uses of the popular pesticides chlordane and heptachlor. The Environmental Defense Fund claims that the ban, which applies to 85% of heptachlor use and 70% of chlordane use, does not go far enough to protect human health. EPA's decision permits continued use of the pesticides to control soil insects in the 1976 corn crop, for underground termite control around buildings, for controlling fire ants and Japanese beetles under Agriculture Department programs, and on a number of other crops, including strawberries and pineapples. The EPA ban on other uses will last at least 18 months, while the agency proceeds with hearings on whether or not to permanently cancel the registrations of the substances.

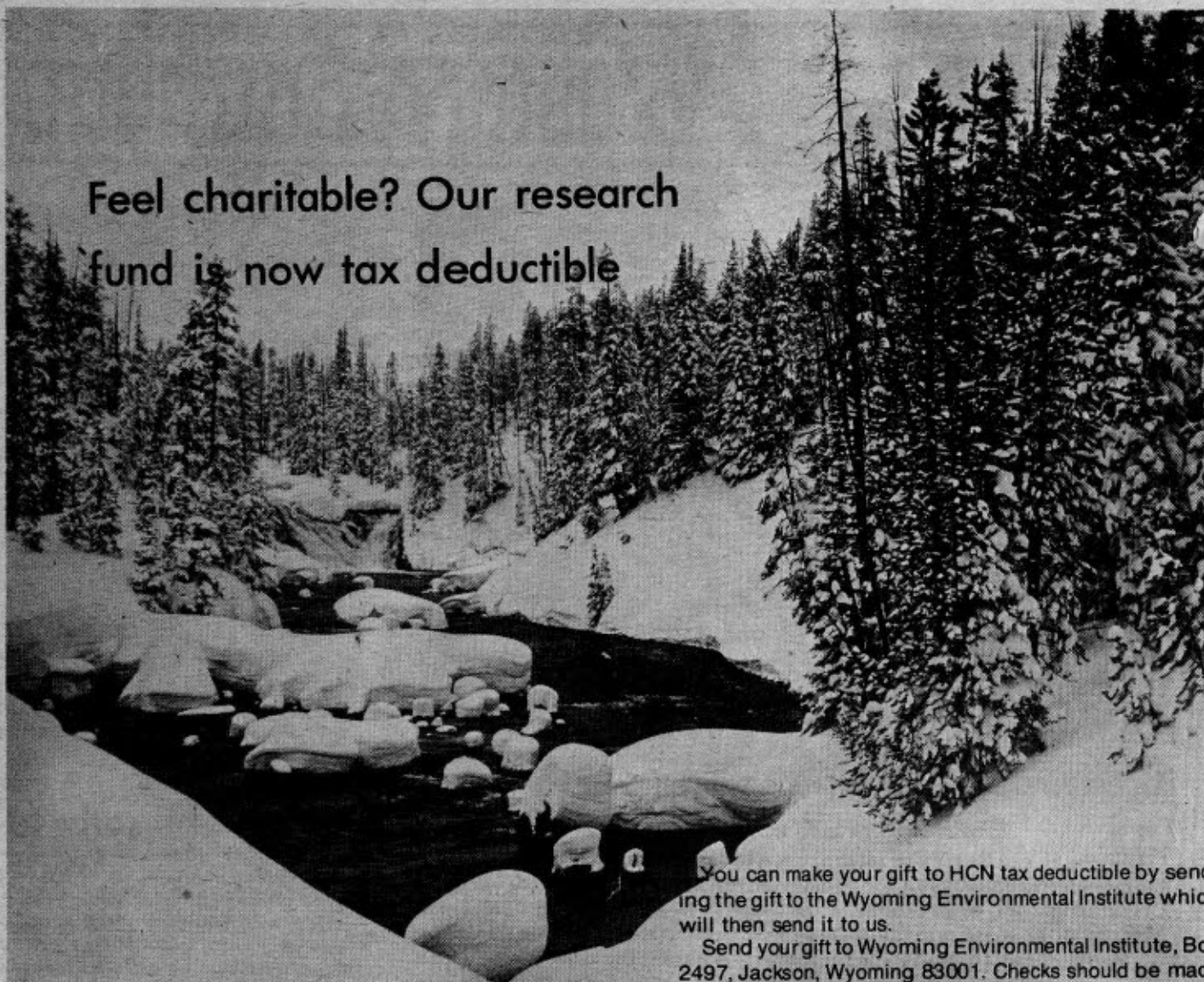
FEDERAL CONSERVATION FUND THREATENED. The Office of Management and Budget (OMB) has recommended a one year moratorium on expenditures out of the Land and Water Conservation Fund. The Sierra Club's National News Report says, "The effect of any serious cut in the LWCF budget would be serious curtailment of federal park acquisitions — a situation which could be disastrous for new areas, such as Big Thicket, which face imminent threats." The club says Interior Secretary Thomas Kleppe does not agree with the OMB cut and plans to appeal to the President. "Letters are urged to President Ford and to the House and Senate Appropriations Committees calling for full funding of LWCF in 1977," says the club.

DEAD TREE VALUES. "Regional U.S. Forester Theodore A. Schlapfer, of Region Six (the Forest Service region based in Portland, Ore.) has set a policy that merits the thanks of conservationists," reports the Audubon Leader. Schlapfer has ordered timber operators in his region to leave standing adequate numbers of dead and defective trees for cavity-nesting birds and animals.

PCB REGS URGED. "We must immediately respond to the dangers posed by PCBs (polychlorinated biphenyls); they represent a ubiquitous degenerative influence on our national health and well being," Assistant Secretary of the Interior Nathaniel Reed told the Environmental Protection Agency. "Our food and water supplies are contaminated; our health is threatened. . . ." Reed said. Reed urged a national ban on PCB's other than those used to build transformers and capacitors.

YOUNG FARMERS RETURNING. The migration of young farmers to the cities is ending, according to the Agriculture Department. "The last five years have seen a dramatic reversal which has sharply increased the number of young farmers," reports United Press International. Calvin L. Beale of the Agriculture Department said the reason for this new trend may be the improved economic outlook for farmers and "the whole environmentalist, organic farming, natural-living approach" among young people in recent years.

Feel charitable? Our research fund is now tax deductible



You can make your gift to HCN tax deductible by sending the gift to the Wyoming Environmental Institute which will then send it to us.

Send your gift to Wyoming Environmental Institute, Box 2497, Jackson, Wyoming 83001. Checks should be made out to "Wyoming Environmental Institute — HCN Research Fund."

TOILET SHOPPERS' GUIDE

ADDRESSES Manufacturers and Distributors

(composting toilet)
Multrum Clivus Inc.
14 A Eliot St.
Cambridge, Mass. 02138

(sliding valve portable toilet)
Corlon Mfg. Corp.
1711 Floradale
S. El Monte, Calif. 91733

(humus toilet)
Hawkeye Purifications, Ltd.
1827 E. State St.
Bettendorf, Ia. 52722

Humumat Ltd., R. Williams
11837 Holmes Pt. N.E.
Kirkland, Wash. 98033

(incinerator toilet)
Destroilet
La Mere Industries, Inc.
Walworth, Wisc. 53184

(sliding valve portable toilet, chemical toilet, recirculating chemical toilet)
Sears, Roebuck and Company
Minneapolis, Minn. 55407

(sliding valve fixed toilet and recirculating chemical toilet)
Mansfield Sanitary, Inc.
Perryville, Ohio 44864

(recirculating chemical toilet)
Monogram Industries, Inc.
6357 Arizona Cir.
Los Angeles, Calif. 90045

(sliding valve fixed or portable toilet)
Thetford Corp.
P.O. Box 1285
Ann Arbor, Mich. 48106

For general information on ecologically sound sanitation systems write:
Community — Memory — Energy
1545 Dwight Way
Berkeley, Calif. 94703

Thoughts from the Distant Corner

by Marge Higley

'Twas the week before Christmas, and all over the city
The bright lights were burning. It sure did look pretty!
Store windows were dressed by the merchants with care,
In hopes Christmas shoppers had money to spare.
In each tiny shop, and in every big store
The shelves were piled high with gift items galore.
I strolled down the street, and beheld with surprise
All the fancy new gadgets that now met my eyes.
Lectric combs, lectric brushes, hot lather dispensers,
And cameras equipped with electronic sensors.
Dolls that sing, dolls that skate, dolls that wet when they cry,
And even one doll with a bionic eye!
There were radios, stereos, and color TV
And microwave ovens you really should see.
Electric appliances, gleaming and shining —
Vibrating chairs that shake while reclining.
I started for home. As I turned around
The whole world seemed filled with the amplified sound
Of Christmas carols being piped through the air —
That came from the record shop, just over there.
As I walked down the street, my poor brains were quaking —
The sights I had seen were surely earth-shaking!
I opened the door and threw off my cap
And settled down for a nice winter's nap.
Then out on the lawn there arose such a clatter
I sprang from my bed to see what was the matter.
I opened the window, and to my surprise
Reddy-Kilowatt stood there, right in front of my eyes!
He shook and he shivered and crackled and glowed —
I thought for a minute he was going to explode!
Shooting out sparks from his head to his toes,
To the top of the power pole he rose.
I heard him shout (and his voice made me cower!)
"You'd better watch out — you'll run out of power!"

HCN Books

I HEARD THE OWL CALL MY NAME

a novel by
**MARGARET
CRAVEN**



by Margaret Craven, Doubleday & Company, Inc., Garden City, New York, 1973. \$4.95, hard cover, 166 pages.

Review by Peter Wild

This is a first novel by Margaret Craven, now 74. The plot is simple. Mark, an Episcopalian priest, learns that illness leaves

him three years to live. In an effort to divert the young vicar's mind from the condition, his bishop sends him to serve the Kwakwaka'wakw Indian village of Kingcome, the hardest parish in the area. The town is isolated, accessible only by sea. As the young man steers his launch along the misty coast of British Columbia and up the shrouded fiord where Kingcome lies in earthly poverty but also in its own kind of spiritual richness, he is leaving the 20th century. His entry into a world of living myth, of tribal harmony with nature, begins his preparation for a different understanding of life. It also begins his preparation for death.

This sounds like the frayed story of a low-budget movie. But, then, *Hamlet*, *The Great Gatsby*, *The Old Man and the Sea*, most of the stories that touch us deeply and leave us with a surer sense of ourselves, consist of plots either preposterous or banal. The book is not only a sensitive and individualized revelation of what has gone haywire with modern man's approach to his environment. The telling of the story is a superb example of what teachers of creative writing are at pains to get across to their classes. It's not what a writer says but how he says it that will determine whether a book joins the hundreds of mediocre novels published each year or becomes one of the few destined to be enjoyed by generations.

With the exceptions of a few places where the sentimental, the overly dramatic, poke through, Craven transcends the dangers inherent in the plot. Rooted in solid details, the story unfolds a man's

phantasmagoric relationship with the natural world through which he is passing. Early in his initiation Mark sees his first salmon run:

"Two or three feet beneath the surface Mark could see hundreds of silvery fish, pressed tight, moving secretly, almost stealthily, with a kind of desperate urgency, as an army moves to hold an outpost which must be reached at any cost. He watched, fascinated, until they had passed, and for a moment he was not sure that it had happened at all."

The reader joins the priest in a continuing epiphany as his perceptions of the ravens, the deer, of the Kwakwalas themselves, change. As he moves toward death he becomes a part of these perceptions.

In the Kwakwaka'wakw world a man about to die will hear the owl call his name. One night Mark hears the owl, and the book ends with a surprise that verges on the mystical but remains weirdly convincing. The stamp of the genuine sets this novel apart from the plethora of books based on Native Americana. There may be some, like myself, who missed *I Heard the Owl Call My Name* when it first appeared. They are in store for a moving and disturbing pleasure.

Margaret Craven was born in Helena, Mont., and spent much of her life on the Pacific coast as a journalist and short-story writer. Originally published in Canada, *I Heard the Owl Call My Name* found its first success among readers of the Pacific Northwest. However, attesting to the universality of its message, the novel has since

Jan. 2, 1976 — High Country News-15 sold over 135,000 copies nationwide. Soon it will appear in French, Spanish, German, and Turkish editions. Craven now lives in Sacramento, where she is working on a second novel about hiking in the Cascades during her youth.

BULLETIN BOARD

TOUR KAIPAROWITS SITE

An on-site information tour of the Kaiparowits Power Project will be led by conservation groups Jan. 9-11. The weekend includes briefing sessions, an aerial tour of the power project impact area, a press conference, and special guests Robert Redford and Edward Abbey. The tour costs \$60. For more information, contact any of the sponsoring groups: Canyon Country Council, Environmental Defense Fund, Friends of the Earth, National Audubon Society, National Parks and Conservation Association, Sierra Club, and the Wilderness Society.

GUIDE DOLORES' DESTINY

A report which recommends that portions of the Dolores River in Colorado be included in the National Wild and Scenic Rivers System is available now from R. M. Nelson, U.S. Forest Service, 11177 W. 8th Ave., P.O. Box 25127, Lakewood, Colo. 80225. A draft environmental impact statement on the Dolores proposal should also be available for public comment soon. The EIS will discuss the recommendations of the state and federal study team, the state, and the "Citizens' Alternative." "Letters of strong support for the Citizens' Alternative are needed now," says the Wilderness Workshop of the Colorado Open Space Council.

STAFF POSITION

The Laramie River Conservation Council, a group of landowners in and around Wheatland, Wyo., concerned about the proposed Laramie River Station power plant, is looking for help. LRCC wants to hire a full-time staff person to do communications, research, and membership building. Applications or requests for more information should be sent to: LRCC, Box 84, Wheatland, Wyo. 82201.

PLAN GRAND CANYON PARK

The public now has less than a month to comment on the Final Environmental Impact Statement on the Master Plan for Grand Canyon National Park. To receive a copy, write the Superintendent of Grand Canyon National Park at P.O. Box 129, Grand Canyon, Ariz. 86023. Comments are due by Jan. 25.

FOREST JOBS

If you want to work for the U.S. Forest Service this summer, you should apply before Feb. 15. Applications are at any Forest Service office. The service suggests that you apply to only one of the nine regions in the U.S. For more information, write Rocky Mountain Region of the U.S. Forest Service, 11177 W. 8th Ave., P.O. Box 25127, Denver, Colo. 80225.

FLATHEAD STUDY READY

The final draft of the Flathead River Basin Study by the Montana Department of Natural Resources and Conservation is now available. Comments from agencies and the public are urged. Copies of the report are available from the DNRC, Sam W. Mitchell Building, Helena, Mont. 59601.

Report from Alaska



by Gregory Paul Capito

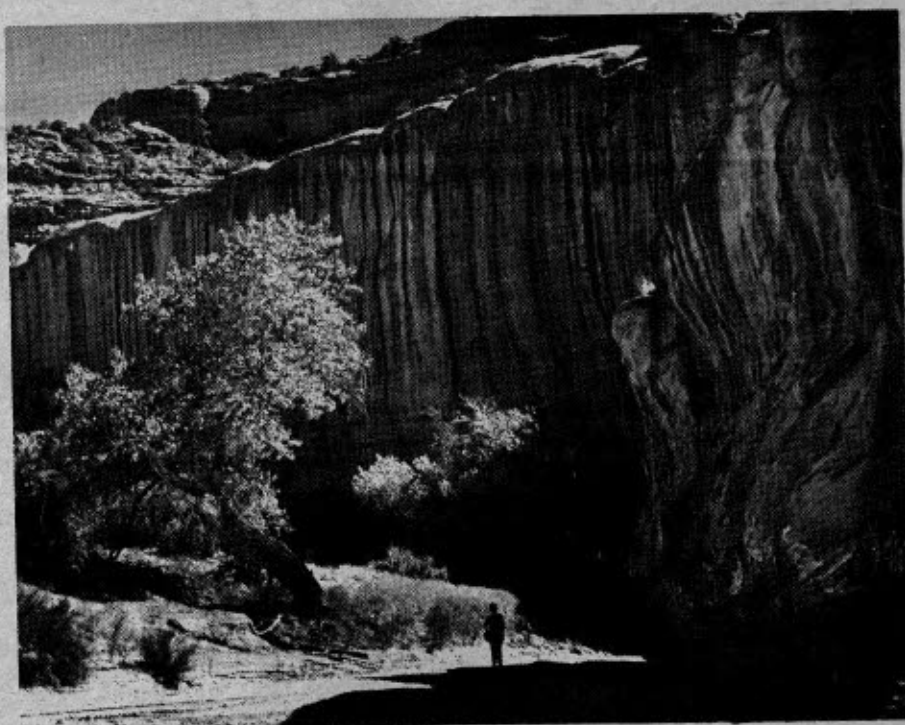
In less than 24 months, crude oil from Prudhoe Bay will be pumped to the warm water port of Valdez, loaded onto supertankers and shipped to refineries on the West Coast. However, officials in Washington, Oregon, and California are now concerned that they will not be ready for the oil onslaught.

Their fears may be summarized as follows: Alaskan crude oil production is expected to reach 1.2 million barrels per day, (mbd), by late 1977. Between 1978 and 1980, the total West Coast crude supply, including oil produced in California as well as that imported from foreign nations, could reach 3.1 mbd. The total refining capacity of the three West Coast states is only 2.8 mbd. Recent studies indicate that crude oil surplus could range from 150,000 to 1.2 mbd.

Out of this potentially chaotic situation, several facts emerge. First of all, West Coast refineries lack the capacity to handle the extra supply of crude created by the influx of Alaskan oil. Secondly, the West Coast, because of its geographic isolation, does not export refined oil to any other American market. Finally, no West Coast port is currently equipped to handle the large 150,000 to 165,000 ton supertankers. Adequate docking facilities and berths simply do not exist.

The projected crude oil surplus has given rise to speculation that excess Alaskan crude may be exported — probably to Japan. Although this action is now prohibited by law, it can be accomplished with an executive order signed by the President.

Clearly, the projected West Coast crude oil surplus raises serious economic and environmental questions. It is both alarming and disconcerting that neither the federal government nor the energy companies appear to have any of the answers.



ESCALANTE COUNTRY. Silver Falls Creek, a tributary to the Escalante River. Photo by Jack McLellan.

Escalante mine leases blocked

Uranium mining in Glen Canyon National Recreation Area has been temporarily blocked by Sierra Club legal action. On Dec. 15, 1975, the Sierra Club and two Utah residents — Ruth Frear and June Viavant — obtained a temporary restraining order from the U.S. District Court in Salt Lake City blocking development of the Tiffany Claims. The claims, located in the Moody Creek drainage tributary to the Escalante River, are owned by a Canadian corporation — Geodyne Resources, Inc.

The same plaintiffs have also gone to court to stop oil drilling and tar sand development in the Escalante. "These events, together with present activities of Geodyne Resources, indicated that the Park Service is not managing Glen Canyon National Recreation Area according to the laws under

which it was created," says the Sierra Club.

The Sierra Club maintains that a complete wilderness study, the filing of an environmental impact statement, and review by the Secretary of the Interior are all required before mining should be allowed in the recreation area.

The Sierra Club's lawyer, H. Anthony Ruckel of Denver, Colo., states: "For more than two years the Park Service has apparently been ignoring substantial parts of the law in allowing mining activities to proceed in the Glen Canyon National Recreation Area. It is extraordinary to the Sierra Club that an area of such fantastic beauty should be treated by the Park Service with such a cavalier attitude. The time has come for us to question not just individual projects but the entire management policy of the area."

Stuart Mace, teacher, of Toklat-at-Ashcroft

As Stuart Mace of Toklat-at-Ashcroft, Colo., says, "There are just a few men in your life who really teach you anything." From the first time you listen to Mace talk of his way of living, you know he could be one of those rare teachers. You feel that you want to learn from him because, despite his obvious awareness of the problems that surround him, you sense an inner peace that implies he has found some answers.

This is perhaps what gives him the strength to venture out of this ghost town near Aspen, Colo., to stand up for the wildlife, for the "green world," and for the young people of the area when they have "legitimate beefs."

"I go up here to fight the cause of the beavers, and the forest superintendent says, 'Sure, I love the beaver, but I got a directive from headquarters to kill him. I can't help it if I'm told to kill him — it's not my decision.'"

"I told him, 'If you're a superintendent, you're at the kind of status that you could educate your employers, if you had the nerve, but you're too damn afraid of your pocketbook.'"

Mace and his wife have found a lifestyle that frees them from pocketbook pressure from opponents. They run a unique mountain restaurant (seasoned with mountain philosophy), have a large garden in a greenhouse, and sell artwork. Mace also does volunteer teaching at schools and at the local college.

When Mace goes to testify at public meetings and is asked whom he represents, he replies, "I represent 5 million animals and 10 million plants who could not be here to speak for themselves." "That gives me a lot of prestige, you know," he says. Mace does not say this to be facetious. The interrelatedness of the natural world is integral to his philosophy of teaching and of living. He says man has to learn to cope with his ego, as well as his pocketbook. "We speak of dumb animals, and we relegate plants to even lower than that," he says. "We have to learn to cope with the idea that we are parasites on this green earth."

"The environmental effort is going down the drain because suddenly people found out that it's getting to their pocketbooks. It's getting to their synthetic way of life. We've just been drifting into a more and more comfortable way of life which has given people no more 'riches,' no more things that are meaningful — just given more things."

"We are perpetrating a great theft. We are taking minerals that were left many years ago and overusing them and giving nothing back. One of the first basic laws of the living world is that the whole living world is based on balance — give and take. And anything that takes more than it gives back goes down the drain sooner or later. . . Just look at man's record — you're lying, cheating, polluting, and stealing — just to be a little more comfortable."

Using the example of the mine which is in the Maroon Bells Wilderness, just a short way up the road from the Mace home, he says, "It's more economical to tear another mountain down than to save and re-use the iron."

When teaching, Mace sometimes finds resistance to some of these concepts. He

says it is much easier to teach younger students. While he says that at his age, he is not prejudiced against adults, he finds adults come with many extra layers of veneer that have to be stripped off before they can learn.

With adults, he says it is necessary to "go to the subject." "I must get their feet in a bog, get them up on a windblown cliff, get them hot, get them cold and frightened," he says. When he teaches his "Philosophy of the Green World" course at the local college, he insists that the college give scholarships to several high school students to join the class. "I like the young minds because after they feel comfortable, they help me teach," he says.

Mace sees the value of a formal education, for most people. "You can't go to the subject until you prepare yourself for it. . . You learn mathematics, you learn botany, you learn this and that."

"But that's only the first step a person makes intellectually," he says. Using an orange to illustrate, Mace often hacks one into several pieces before his students.

"You can call this piece zoology, and this mathematics, and these pieces represent all the other disciplines. . . Then you take one piece and take that apart — that's your graduate study. You chop the hell out of it. As you chop it apart, you suddenly realize that you've led yourself down a blind alley. You realize you know a whole lot about something, but you know nothing because you know nothing about what makes up the whole, about the interrelationships of all living things which make up the reality of life."

From his perspective as a botanist, as a teacher, and as a man involved in the everyday decisions being made, Mace says there must be a turning point coming. "The thing is that we have accepted the whole concept of bankruptcy — in our national, state, and local governments, and in our private lives. We're stealing from the past and not giving any flow amount back for

the future. . . We're getting deeper and deeper in the red because we can get away with it now. The next generation will hate us, and the generation after that will hate us more. . . ."

"We abdicate wholeness in our lives for this false thing called security. There is nothing secure — it is only in balance. And then when it is in balance, the next law of nature is change. Most people are afraid of change. They're afraid that what they've got now is going to disappear, and it is. . . Change is a basic law of nature. Balance, change, growth — they're all part of the same symbolic image."

"And so we have the great *Equisetum*, the little horsetails, the ones that formed the giant things that were bigger than the *Sequoia gigantea*. . . . They have survived because they're simplified. They've reduced their needs. They have adapted and met the laws of the living world. They were here 140 million years ago."

"Man has been here a very short time. Man is one of the great experiments of nature. The question is, can man with his facile mind learn to skim the crud off and get rid of the junk to learn what the core structure of the living world is all about?" —MJA



Stuart Mace:

Most people are afraid of change. They're afraid what they've got now is going to disappear, and it is. . . . Change is a basic law of nature.

Dear Friends

Toilets. Not a very inspirational way to start the new year, you might say. But any of you who have ever spent much time meditating on toilets realize that, in fact, it is one of those rare topics which can be hopeful — if it's done in a new way. Like eating, heating, traveling or other everyday functions, we now alienate ourselves from the life forces, as Stuart Mace, subject of this issue's portrait, would say. We encase our bodies in metal and glass shells to protect us from the road, we keep a foil container and some MSG between us and our food, and there's usually an electric thermostat between ourselves and the elements.

It could be different. There's no better way to get in touch with some natural forces than having to tend to our own wastes. As Mace tells us, the best way to learn is to go to the subject. The energy crisis and the rising food

prices took us back to walking and chopping firewood and soy protein and homemade soup. Experiencing them made more of an impression upon us than reading about what we **should** do ever could.

A friend of HCN who also believes in taking the student to the subject, tried the theory on Pemberton Hutchinson, president of Westmoreland Resources. Our friend, Donald Tobkin, had spent some time on a ranch at Sarpy Creek, Mont., which Westmoreland was trying to strip mine. At Hutchinson's invitation, he met several times with him but found that abstract talk got them nowhere. Feeling that perhaps Hutchinson's views would change if he could only "see Sarpy" through the eyes of the people who love it, he who love it, he decided to take some photographs. Soon the photographs became a book, accompanied by Donald's irregular, heart-

felt lines of poetry about homesteads, sunsets, and dreams of Sarpy Creek.

We haven't yet heard what Hutchinson thought of the book, but he hasn't stopped mining yet. Our bet is that Donald's book isn't going to turn his head around. A person accumulates too many layers of veneer, as Mace would say.

But there are others who are a little more open to the idea of changing their lifestyles. The uncle who tells you, "I wish I had the nerve to do what you're doing. . . ." The clerk at the hardware store who asks whether you actually keep warm with just a wood fire through the winter. . . . They're the neighbors who notice how well your garden started growing a couple of years after you got that compost toilet

That's what we mean by a revolution from the bottom up — and that's hope for the new year. —the editors

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