

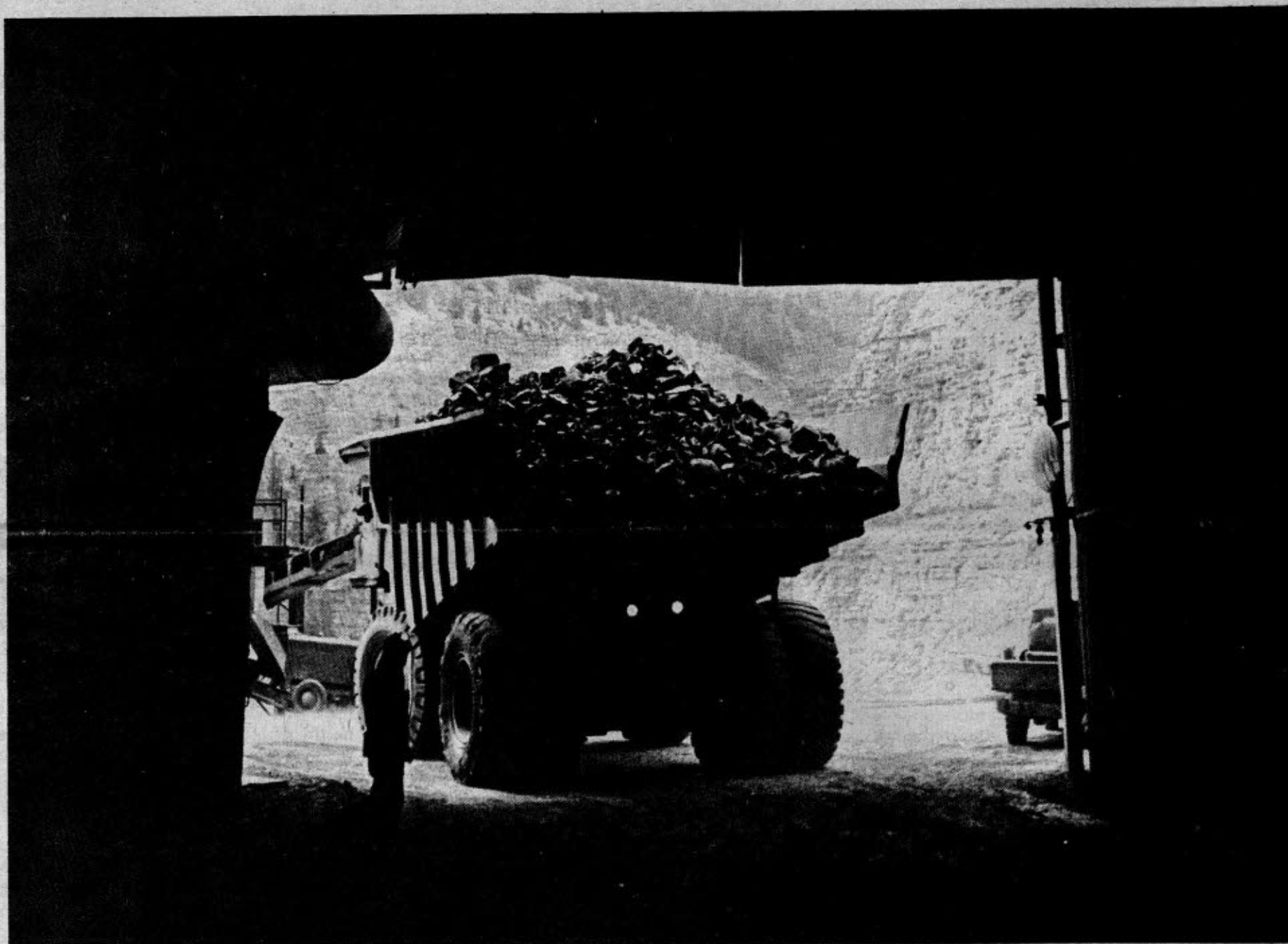
The Environmental Bi-Weekly

# High Country News

Vol. 6 No. 14 35¢

Lander, Wyoming

Friday, July 5, 1974



A truck carries oil shale, "the rock that burns," from a pilot room-and-pillar underground mine near Grand Valley, Colo. From here the shale will be crushed, retorted (cooked) to extract the petroleum, and dumped into neighboring canyons for disposal.

The richest oil shale beds are found in northwest Colorado, northeast Utah and southwest Wyoming. Eighty per cent of these reserves are on public lands administered by the federal government. The government wants to achieve a million-barrel-per-day shale oil industry. To stimulate this new industry, the Interior Department attempted to lease two 5,000 acre tracts in each state. The Colorado and Utah tracts went for millions of

dollars to major oil companies. No bids came in for the lower grade Wyoming tracts.

Now the path is cleared for development, but the big question still looms: Can it be done without laying waste to a spectacular semi-wilderness landscape?

The mine pictured above is owned and operated on private land by the Colony Development Operation (principally Atlantic-Richfield Oil Company). The Colony pilot plant produced 1,000 barrels per day (b/d) of shale oil when it was in operation. Commercial plants planned for the government leased tracts would produce 50,000 b/d upwards to 200,000 b/d.

Photo courtesy of Colony Development Operation

## Oil Shale v. Environment

# The Great Balancing Act

In April Mrs. V. Crane Wright addressed the thirty-ninth North American Wildlife and Natural Resources Conference on "Criteria for Balancing Energy and Environmental Needs." She found her assigned topic "inoperative" be-

cause traditional energy development techniques and the natural environment are at such odds.

"Fossil energy development, as we know and practice it today, harvests nature's bounty

beyond the point where the natural ecosystem can regenerate and maintain itself," she told the conference.

Balance necessitates the dynamic state of (Continued on page 4)

## HIGH COUNTRY

By Tom Bell

High Country News is one of those rare and unique experiences of life. It is not very often that a man has an opportunity for such an experience. I did, and I am most grateful.

High Country News is a personal labor of love. After five and a half years of ups and downs, of trials and tribulations, of heart-rending experiences and sheer desperation, it has come to be my very life.

But life itself must someday be given up, not with sadness and despair but with the anticipation and enthusiasm of a new generation who can take up the torch and carry on. It is with that thought that I pass the editorship of High Country News to Joan Nice, managing editor, and her husband, Bruce Hamilton, news editor.

Joan and Bruce have proved themselves to me in the past year. When they came, it was never intended that they be asked to take over so soon. But time and circumstances have proved otherwise. They are worthy inheritors of a worthy cause.

I shall continue as publisher. I hope to continue appearing here under my by-line for as long as the Good Lord is willing. And as time and circumstances permit, I hope to continue contributing articles.

My wife and I will be moving our family to Oregon in August. There, we own 40 beautiful acres. In the sheltered valley at Halfway, near the Idaho boundary at Hells Canyon, we will go back to the land. It is a move I look forward to with anticipation. Through the last several years, I have felt my spiritual batteries slowly being drained. The spark which I once had has been deadened and dulled by too much desk and too many deadlines. It will be good to work with dirt under my fingernails, although I am sure I will miss the printer's ink.

But my decision is really much more than that. I am afraid for my family in the years ahead. Our grown family of three boys are competent young men, all now married to equally competent young women. Our little boy and two little girls are another matter.

I look for the economy of this country to grow steadily worse. As an environmentalist and observer of the national scene, I am discouraged and dismayed with an economic and political system wedded to ever more growth and ever more consumption. Sooner or later that system is going to break down in the face of the finite limitations of our planet.

Thanks to Watergate and Mr. Nixon, our country is drifting without leadership into ever-spiraling inflation and an ever-weakening economy. I have no way of knowing when the house of cards collapses. But I don't want to get caught in the fall.

All that I have after 50 years of life and 27 years of marriage is the house my family lives in and the land in Oregon. (My wife and I do hold a third interest in an old gold mine which ironically may now be of some value.) The land in Oregon can feed my family if the going should get rough. I have no other assurances that I can take care of my little family, especially here.

It will not be without a certain amount of sadness that we leave the state where we were born and have spent our lives. But the Wyoming we have known will not long remain. It is slated for drastic changes which will forever alter its character. And those changes are coming rapidly.

In our move back to the land, I hope to put into practice some of things I have written about here over the past couple of years. And I hope to put to use some of the ideas on solar energy and methane and other sources of alternative energy which have promise.

Recently, Dr. Amory B. Lovins asked some pertinent questions in an article in *The Bulletin of the Atomic Scientists* (The Case for Long-Term Planning, June, 1974.)

He asks, "What happened to thrift? To neighborliness? To craftsmanship? To the notion that esteem is merited more by conspicuous simplicity than by conspicuous consumption?" I want to find out and then write about it here.

Sooner or later, all of us are going to have to change our whole attitudes about our society, our system, and our individual lifestyles. My wife and I are changing ours now while it is still relatively easy.



Halfway, Oregon, beneath the Eagle Cap Wilderness in the Wallow-Whitman National Forest.

## Letters



Dear Thomas Bell,

My thanks for the copies of *High Country News* you've been sending. "Energy Boom — Plans and Payments," Friday, June 7, 1974, lays it all out. I hope people are beginning to realize what goodies such programs have in store for them.

Here we're involved in saving Arizona's third highest peak, Escudilla Mountain, from a timber sale sponsored by the Forest Service. Escudilla is unique, home of Arizona's diminishing bear and eagle population, and mentioned lovingly by Aldo Leopold. The main problem is that the Forest Service seems bent on violating its own regulations. This three-year struggle has been the largest controversy in Arizona with that agency, involving a good deal of action by citizen groups and some rather brave private citizens. We've just submitted an administrative appeal to stop the sale.

Meanwhile, don't be too disheartened about defeat of the Land Use Planning bill — a sad example of impeachment politics on the part of Nixon. I called Udall's office in town today; apparently he and Jackson aren't going to give up.

Yours,  
Peter Wild  
Tucson, Ariz.



Dear Mr. Bell,

I have read your newspaper many times the last five months and on one point I can give you an unqualified, "Bravo." You demonstrate, with great effect, the deep conflict now engaging major economic and social forces in the West. You poignantly reveal the extreme threat which corporate exploitation of our natural re-

sources poses to the perpetuation of our beautiful, wild land.

Nonetheless, I suspect your informative activities will fall short of the goal of preserving the wilderness and the natural qualities of the Western landscape. You are a "voice in the wilderness" expounding many of the necessary ideals, but you fail to address yourself to the source of the problems. I contend it is necessary to know the enemy and his reason for waging war if we are to defeat him. The enemy is Capitalism and its reason for waging war is to "turn a profit."

An old adage describes Capitalism's basic battle strategy against the people: divide and conquer. Virtually every person in the United States is involved in Capitalism as a worker and everyone is involved as a consumer; thus everyone has at least one and more likely, several special economic interests.

So when the question of whether or not to strip mine arises, those of us who say, "No, let's figure a better way to do it," are told to forget it because it is not economically feasible. That means that the old profit-maker is in the driver's seat again. The energy cartel has decided coal production by strip mining is the most profitable energy source now, so the age of coal dawns. We couldn't get together to really say, "No." We are truly divided and conquered.

The first step is to understand that our unquestioned conviction that free enterprise insures our individual liberty is tragically false. The enemy is us. We must overcome ourselves. What our culture needs is socialist consciousness so we can deal with the problem of ordering our society in a fashion which guarantees individual liberty and promotes the democratic process. Then we can have the power to make and implement the decisions which determine the character of our existence. Then, rather than worry about what is profitable, we can concern ourselves with what is good. Then men of good-will can have primacy over self-serving men of ill-will.

G. P. Woodruff  
Laramie, Wyo.

## Editorial

# Wake Up, Wyoming!

High Country News-3  
Friday, July 5, 1974



If you travel near Sheridan, Wyo. this summer you may see some ranchers and townspeople wearing a big "Wake Up Wyoming" button. The button-distributors, members of the Powder River Basin Resource Council, are trying to call attention to the fact that it's time Wyomin-gites opened their eyes. Major changes are coming that will shake the very foundations of the Cowboy State, and we need to prepare ourselves to meet those challenges.

Wyoming state government has been inactive in this respect. Our leaders should peer over and take note of what sister states' leaders are doing.

In Colorado this past month we saw Gov. John Vanderhoof speak out against the proposed Two Forks Dam southeast of Denver on the South Platte River (see story on page 12 of this issue). A spokesman for the governor told the Denver Water Board and the U.S. Bureau of Reclamation that providing more water for the Denver metropolitan area would lead to too much growth too quickly. He said we needed to consider controlling growth, not encouraging it by providing more municipal water.

"I think a lot of people will challenge these remarks," said the governor's spokesman. "But I think a lot of people are going to have to search their consciences about how much they want the Denver area to grow."

But that's Colorado. She already has enough industry and population. She can afford to shun development. Less developed states can't afford that same tactic. They need to court growth, no

matter how dirty, if they are to survive. Or do they?

Look at North Dakota. A state with a small (618,000) declining population and a tremendous potential for industrial development. If North Dakota had half the sense Wyoming has she'd be busy rolling out the red carpet of resources for the coal companies Wyoming-style.

As it is, North Dakota has twice our sense and she's guarding her coal, air, land, water, and people until she's sure she can protect her virtues from the resource hustlers. North Dakota Gov. Arthur Link and the State Water Commission recently shunned two large power companies interested in tying up the state's coal and water. The resources would supply a power generating complex near Underwood, N.D. and the power would be shipped to Minnesota (see story on page 6 of the June 21, 1974 **High Country News**). Link told the companies, "Our air should not be considered available for pollution because Minnesota customers do not want their air contaminated. The companies said they would meet state and federal air quality standards but Link said, "That's not good enough for us." When utility companies are fighting tooth and nail to have the standards lowered or dropped altogether it's a hollow promise to say you'll meet the standards in North Dakota's eyes.

Meanwhile, back in the doldrums, Wyoming state officials look at North Dakota's conditional moratorium on coal development as a case of paranoia and over-reaction. Wyoming

Gov. Stanley Hathaway, appearing at a public hearing in Cheyenne on the draft environmental impact statement (EIS) on coal development in the Powder River Basin, said he doesn't think such development will result in the land and air degradation the EIS predicts.

The federal government's experts must be mistaken. The EIS estimates rehabilitated land will be 50% less productive than before coal mining, but "I don't think the facts will bear this out," said Hathaway. The governor thinks the land will be up to 50% more productive after reclamation.

The EIS says some 300 elk in the area will be lost because of damage to wildlife habitat. The governor can't understand how that could happen since the elk herd in question is 30 miles from the federal coal leasing area. "The report fails to recognize the excellent fish and game management we have here," Hathaway said.

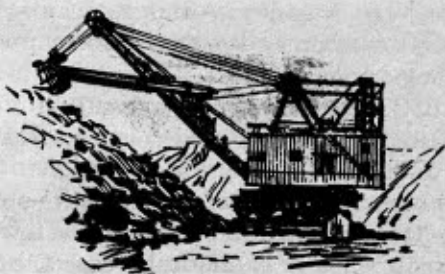
And as for Wyoming's pristine air, the governor doesn't believe there will be severe air pollution inversions as the EIS predicts. "The report fails to recognize when it predicts pollutants that we do have federal and state standards that must be met," said Hathaway.

Such a pie-in-the-sky statement makes you hope that when Gov. Hathaway steps down he goes back to his law practice near Torrington and lives down wind from the 1,500 megawatt Missouri Basin Power Project coal fired power plant that's slated for that region.

Is this man naive? Does he really believe Wyoming won't change for the worse in the face of this onslaught? Can the rest of the state afford to dawdle in the same delusion?

Do we need a nightmare to arouse us? Wake up Wyoming!

—BH



### HIGH COUNTRY NEWS

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"JUST DOING MY JOB, YOU KNOW."

*High Country News*  
HIGH COUNTRY  
NEWS • 1974

High Country News  
Friday, July 5, 1974

Photo courtesy of Colony Development Operation



Air pollution monitoring in Colorado's oil shale country has forced some major changes in development plans already. More may follow. The Colony Development Operation plant was originally planned for this valley floor, but the possibility of air pollution inversions forced the consortium to move the proposed plant 2,000 feet above the original site to the mesa top. Colony estimates the move will cost an additional \$2-3 million. Colony's Dr. Max Legatski uncovered another air pollution problem last October. He said data on air quality in the area since 1970 indicates that pollution standards for dust particles and hydrocarbons are exceeded by nature already without the additions from an oil shale industry in the area. Sulfur oxides in excess of standards may be present now under some conditions. The main causes are blowing dust and vegetation, Legatski said. Plants are a natural source of hydrocarbons.

## Balancing ...

(Continued from page 1)

co-equals so we cannot put a dominating industry into balance with the environment around it. "We can, however, re-order our priorities if that is this nation's wish and determine our goal to be 'clean energy' in the true sense. We have the means to reach this goal," she said. Consequently, she subtitled her speech "Criteria for Energy with Honor."

Wright is a director of the National Audubon Society, a past president of the Colorado Open Space Council, and a member of the Colorado Governor's Oil Shale Advisory Board. She was recently appointed to serve on the Department of Interior's Regional Oil Shale Environmental Advisory Committee to oversee the federal leasing program.

Because of her familiarity with oil shale development, she used it as an example to illustrate that there can be no balance between energy and environmental needs. Her edited remarks on the subject follow.

The editors.

by V. Crane Wright

Let me illustrate our present inability to balance energy development and environmental quality by using the Prototype Oil Shale Leasing Program as an example in point.

The program was designed by the Interior Department with balance as a stated objective. I quote: "To assure the environmental integrity of the affected area. . ." (Interior, 1973) This objective was supported by President Nixon when he said, "A leasing program to develop our vast oil shale resources, provided that environmental questions can be satisfactorily resolved." (Nixon, 1971)

In June of 1971 President Nixon made headlines by announcing the program and declaring

oil shale to be a "clean energy source." (Nixon, 1971) In a natural state, oil shale is clean and shale oil is low in sulfur. But the extraction of oil from the shale as it is proposed is a dirty business.

It was further announced in 1971 that this program was to be a "prototype." Prototype means experimental, a working model for testing new and innovative commercial technology. The knowledge gained from this initial infant model would dictate the decisions and conditions of expanded commercial development. However, the techniques to be used on the lease tracts are traditional underground and open-pit mining methods. There are no upper limits set for production from the tracts and no standards by which to judge the experiment. A lessor has already announced plans to exceed, by three times, the prototype production level. (Gulf-Amoco, 1974) This program, by not adhering to the accepted definition is prototype in name only.

At the same time, Secretary Morton announced that industry would conduct an exploratory core-drilling program on the public lands to obtain oil shale resource information and environmental data, such as ground water conditions. This environmental data was to be made publicly available upon completion. However, John Rigg, Deputy Assistant Secretary of Interior, refused to release this hydrologic data when requested, redefining it as oil shale resource, not environmental information, which was proprietary to the companies.

The program began with Interior's selection of tracts from among those nominated by industry. The government men on the selection team had no environmental criteria, no guidelines for their selection decisions. Of the 20 tracts nominated by industry, a number were immediately eliminated because they would not square with industry's desires for maximum recoverable shale oil. None of the tracts were by-passed be-

cause of environmental considerations. Contrary to Interior's own assertion that it would not take State lands for this operation, (Interior, 1971) Colorado tract C-a, which includes Division of Wildlife lands, was one of the selections. Industry's desires took precedence over prior commitments. Thus, from the beginning Interior was biased toward development in this "balanced" program.

Let us look at specific areas where "balance" between development and environmental considerations were attempted in the oil shale program.

### SOCIAL IMPACTS

The social impacts on the oil shale region are dictated by the needs of the oil shale industry. Industry will require workers, supportive off-site servicing facilities, and the workers will need community services such as roads, schools, sewer systems, police departments, hospitals and the staff to run all these — with the cost falling on the states and counties of the region. According to Interior, the regional population is expected to increase 140 percent by 1981 in the prototype program and top 200 percent by 1985 for a one-million-barrels-a-day (b/d) industry. No figures which describe the tangible and intangible costs of development to the present and future residents are available. (Interior, 1973)

### OFFSITE IMPACTS

To support an oil shale industry, electric generation stations, four-lane highways, coal strip mines, dams and aqueducts, ancillary industry, and perhaps even refining capacity will be developed in the region. Anticipated locally are expanded towns, trailer courts, tent cities, new cities and Colony towns. Other state and regional impacts could occur from oil pipelines, (perhaps heated), transport of Canadian and Pacific Northwest water, desalinization plants, pumping saline ground water into Great Salt Lake, building refineries in Chicago and perhaps Los Angeles. Although these offsite impacts are estimated to have more long-range and long-distance adverse effects than the mine sites (COSC Mining Workshop, 1972), Interior mentions some of these developments but neglects to discuss the impacts.

Requests for roads and facilities have already started to come in. States, counties and towns do not know what to realistically expect, how to plan, or where the money and help will come from. (United States Senate Hearings in Grand Junction, Colorado, 1974)

### AIR POLLUTION

Interior is candid in saying that the air quality of the area will significantly deteriorate but goes on to conclude that industry will meet standards that have not yet been set with technology that does not yet exist. (Interior, 1973)

Industrial research done in the area is no more promising. In a recent newspaper article, an Atlantic-Richfield (Arco) staff ecologist was quoted as saying, "To be really blunt, we haven't done anything about (this kind) of air pollution. . . . That's society's problem, not ours." (Duff, 1973)

### OIL SHALE TAILINGS

Retorting of oil shale removes the oil and leaves black, talcum-powder-like shale tailings which expand about 1.5 times the original rock volume. This material has no nutrients, is salty and essentially sterile. About 70 percent of the tailings, or "spent shale," might be returned to the mine. The companies frankly said that they didn't want the expense of returning

the tailings to the mine cavity. Interior yielded in its oil shale lease by accepting industry's plan to dump all these tailings in canyons as fill — a unique case of leveling our canyons from the bottom up. In a promotional slide show produced by Interior to sell the program to the public the text terms this dumping a "beneficial use of canyons."

The tailing-filled canyons will necessitate the building of dams and pump-back facilities at their base to minimize the amount of leached salts entering the waterways. The lease fails to address the possibility of dam failure and the industry's responsibilities, nor does it require the companies to make any provisions to maintain these dams in perpetuity.

Interior asserts that salts in the Colorado River will increase "only 10-15 mg/l." (Interior, 1973) Dr. Glenn Weaver has calculated that at 99 percent effective control of tailings enough salts would leach from spent shale dumps alone to more than double Interior's estimates. (The Institute of Ecology, 1973)

#### WATER

The three-state oil shale region of Colorado, Utah and Wyoming is a semi-arid area where water is scarce. The annual rainfall ranges from five to fourteen inches. Interior assures us that there is enough water in the three-state area to support the production of up to one million barrels of oil per day; it does not disclose that water now necessary to farmers, ranchers, wildlife, and existing communities must also be provided. Using this water in the amounts estimated as needed for a one-million-barrel-per-day industry would preempt the possibility for other uses of this water for now and in the future. In effect this region's water supply will be committed for this single priority and other uses will be subjugated, reversing the existing priorities of an agricultural, recreational and wildlife area.

Comprehensive studies have not been made to determine the amount of available water for use in the oil shale development plans and to outline competing uses. Dr. Luna Leopold stated that Interior did not have enough water quality or quantity information on which to base a decision to proceed with the program. (The Institute of Ecology, 1973)

#### REVEGETATION

The oil shale lease states as a revegetation goal that the affected areas are to be revegetated to the original carrying capacity. This is based on hope, not facts. The Final Environmental Statement clearly points out that there will be destruction of vegetative habitat both from disturbed land and the spent shale dumps and that no technology exists that can guarantee their revegetation. (Interior, 1973)

The primary lease goal (equal productivity) is waived by the autocratic authority given the Mining Supervisor, an employee of the U.S. Geological Survey. If a company, in his opinion, tries but fails to revegetate, he can excuse that company from further responsibility. (Interior, 1973) As facetious as this may sound, there is nothing in the lease that would prevent the Mining Supervisor from deciding that black-topping an area is the best use. Reduced to its bare bones, the lease allows industry to do too little environmental reconstruction but discourages it from doing too much.

For the past four years environmental organizations have visited the revegetation experimental plots conducted by industry and by the State of Colorado. What we have seen is not encouraging — exotic plant species grown under conditions of fertilization, irrigation, hand care and prayer. There are no goals for the

revegetative research; it is not stated whether revegetation is for stabilization of tailing piles, to support existing wildlife and agricultural grazing or just to prove that disturbed arid areas can be made to green up. The experiments to date have leaned heavily on whether a given species can be made to grow at all in the area, not whether it would fulfill a role in a natural community.

Colony Development Operation finds its own early results exciting. (Thorne, 1973) I can only equate that excitement to a similar one over a false pregnancy. The grass is there, the seedheads are there, but they have yet to reproduce. After regular irrigation is withdrawn, the natural climate cannot support these stands. (Interior, 1973)

As a specific, deer cannot survive on exotic

grasses (reclamation plantings) but must have high standing browse and cover. To date the browse and cover revegetation experiments have gone from hope to disillusionment. From a possibility of 22 native shrub species, four species were attempted for revegetation but none was successful in reproduction. The experimental grass species could be beneficial to other animals; however, revegetated lands cannot be grazed by wildlife and stock because the impact would be detrimental to the attempted growth. (Interior, 1971, 1972, 1973)

#### WILDLIFE

Oil shale country is semi-wilderness land rich in wildlife with common, rare and endangered (Continued on page 6)



A water monitoring station set up by the Colony Development Operation. Although Colony has done extensive environmental research on its private holdings north of Grand Valley, Colo., the federal Bureau of Land Management has announced it will prepare a full environmental impact statement on the proposed development. Colony plans a commercial 66,000 ton-a-day shale facility near this site. Much of their operation will be on private land, but state BLM director Dale Andrus expects a land trade proposal in the near future. A pipeline is already planned that would cross federal land in Colorado and Utah.

Photo courtesy of Colony Development Operation

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Photo courtesy of Colony Development Operation



A revegetation plot at the Colony Development Operation pilot plant in Parachute Creek Canyon near Grand Valley, Colo. Once the canyons are filled to the brim with oil shale wastes, the companies hope to establish plant cover to stabilize the wastes and return them to a productive state. The tower in the background is Colony's retort which heats the crushed oil shale and drives the petroleum from the rock.

## Balancing ...

(Continued from page 5)

species that are not only important to the ecological diversity of the area but also are vital to the long-range economy of the region. For example, the deer herds in the Colorado oil shale area have a population of about 146,000. (Colorado Division of Wildlife, 1974) Interior has estimated that oil shale development will reduce the deer herds alone by a minimum of ten percent. (Interior, 1973) Wildlife experts in the State estimate the loss will be closer to 75-80 percent. (National Audubon Society, 1973)

The highest concentration of golden eagle nestings in Colorado is in this area with at least 50 nests. The population is about 1,000. The endangered bald eagle winters here and the

peregrine falcon has confirmed nests in the Piceance Basin. (Colorado Division of Wildlife, 1974) Other animals living in the region include mountain lion, coyote, bear and, what are possibly rare in Colorado, the kit fox and ring-tailed cat. Chukar, three species of grouse, wintering ducks and geese, and rabbits comprise some of the hunted species. Very little work has been done on the numerous nongame species. (Interior, 1973)

The offsite developments, dams power plants, powerlines, roads, urbanization and recreational impacts of an increased population are not related to the effects on wildlife in Interior's Final Environmental Statement (FES). The oil shale lease asks for "Fish and Wildlife Management Plans" on the mining tract but does not stipulate what these plans are to be used to accomplish.

Most of the wildlife types will be reduced; predators will decrease; stream and spring depletion will reduce riparian communities. Some species will be lost to the area entirely. (Interior, 1973; Audubon, 1973; The Institute of Ecology, 1973)

Given these anticipated changes, the program does not address the means of decreasing this destruction, nor does it take a holistic cumulative view of impacts on wildlife.

### THE "BALANCE" WITHIN INTERIOR

Since the decisions for these actions came from Interior, let's look for the balance of interests within the oil shale program decision-making level of Interior. What do we find? A simple eco-community with scant diversity composed of geologists and mining engineers, *Homo interindustrius*. Interior and the oil industry are noted for their ability to occupy each other's nests interchangeably. The change of command of those who designed the program illustrates their adaptability: John Whitaker, petroleum geologist, now Undersecretary of Interior, formerly an oil executive; Hollis Dole, geologist, heads Colony Development Operation, an oil shale consortium in which the principal company is Atlantic-Richfield, but was Assistant Secretary of Interior when the program was designed; John Rigg, mining geologist, Deputy Assistant Secretary, formerly a lobbyist for the Colorado Mining Association; Reid Stone, mining engineer, head of Interior's Oil Shale Task Force, formerly the Atlantic-Richfield head of western resource exploration.

Dole, Rigg and Stone are still on the National Petroleum Council, an industry group that "advises" the Secretary on oil policy. As such they were and are still advising Secretary Morton on oil shale matters. (National Petroleum Council, 1971) Industry and Government are not disparate in their views: Mr. Dole, at ARCO, says that industry needs more incentives (Denver Post, 1973), and Mr. Rigg, at Interior, tells congressional investigators that oil shale should be given away to industry with "deep subsidies." (Washington Post, 1974)

There is not one ecologist, social scientist, wildlife expert or even a token biostitute at this decision-making level. Thus, from the beginning, Interior was constricted in an attempt toward balance because of the background and interests of the decision makers.

### THE OIL SHALE LEASE

The lack of a broad ecological base in Interior is reflected in the oil shale lease. There was promise that the lease would implement and enforce "economic and environmental standards" but such standards were never set. From the beginning of this program Interior's premise has been: "What is industry willing to pay?" not "What is our resource worth?"

Under lax lease terms Interior will credit development costs against 40 percent of the bonus bid. It will credit reclamation costs against royalties. It gave lease tracts with far more recoverable oil shale than is necessary to test a prototype plant, thus leaving the door open for industry to go to full-scale production. It underwrites industry for planning miscalculations and for complying with regulations and laws not yet enacted; and it may grant further "incentives" if industry claims "difficulties" in making a profit. It allows an all-powerful Mining Supervisor to waive environmental goals, and it will credit "extraordinary" environmental costs of over \$500,000 used for environmental reclamation against royalty payments. (Interior, 1973)

In view of the hidden subsidies credited to industry, we can call it what it is — putting the

oil shale industry on the welfare roll and wrapping the gift with the covers of the Oil Shale Lease terms.

#### CRITERIA FOR ENERGY WITH HONOR

The oil shale program is a case in point and not unique in our energy development picture of today. We can, though, redetermine our goal to be energy production by ecologically acceptable means. To reach that goal of "clean energy" we must devise and perfect technology for energy development that would meet two criteria: (1) develop recycling and (2) develop renewable energy.

**(1) Develop Social and Industrial Recycling.** Nature has used virtually closed systems for billions of years and the test of time has shown that it is efficient, functional, productive, diverse and that it works. Closed systems have the following common characteristics: For base energy they utilize a renewable, constant energy source; they recycle all waste by-products; they devise energy cycling that promotes high energy efficiency at higher system (food chain) levels — this is, by definition, efficiency. Without further delay we need to emulate nature in this regard. We need to address ourselves to virtual closed systems to help alleviate the use-and-discard ethic that we are living under.

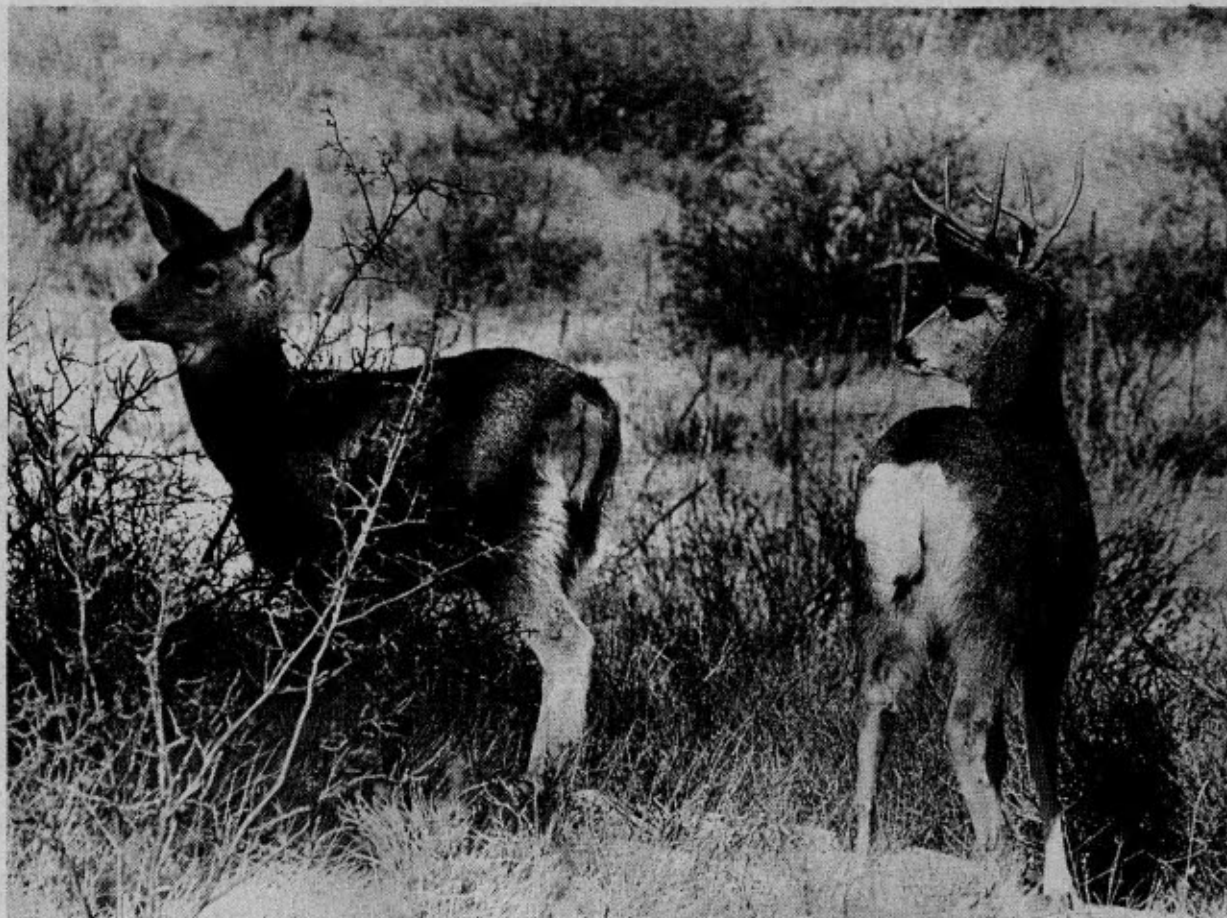
Relating this to the oil shale program we find that technology, known as the three-mineral industry, which held promise of some recycling and improved efficiency, was not even given a chance. It would extract by conventional methods up to the point of crushing the shale, but there the similarity ceases. The retorting and hydrogenation of the shale oil can be done in one step to produce high quality fuel oil; it extracts three minerals — oil shale, nahcolite and dawsonite — which so reduces the residual volume that the tailings can be returned to the mine cavity from which they came. The dawsonite, an aluminum mineral, could replace the supplies we now import. The added recovery of nahcolite would eliminate most of the salts from the water. There is a commercial market for nahcolite since it is used to eliminate pollutants from stack gasses. (Interior, Superior Oil Testimony, 1973) Interior by closing out smaller, perhaps more innovative, companies has locked us into development by the same methods — they opted for the familiar at the expense of efficiency.

During World War II this nation showed that we could recycle. And industry has done some exciting things. Recently we heard about Grumman Company and how they met the energy crunch by recycling their computer heat to warm their offices. They not only saved energy, they saved money.

We see and hear of examples every day. It is not that we cannot attain a closed system, that we can do; but to do we must open closed minds.

**(2) Develop Renewable Energy Sources.** Nature operates on a least work hypothesis. It utilizes renewable sources which are easy to get and stores the unused portion of this energy for later use. Plants are a good example in their utilization of solar energy.

So far the initiative in renewable energy areas has been taken on by individuals. News items about wind generated electricity and the use of solar energy for partial heating and cooling are no longer a novelty. An inventor in New York is producing electricity from dead leaves and will use his compost piles to heat and light his six-room home. There are proponents of using chicken droppings for powering cars, which may not be too funny when you consider that the potential BTU's in one ton of manure equals over two tons of oil shale. (Science, 1972) Individuals seem more eager to experiment and



Mule deer, mountain lion, kit fox, ring-tailed cat, coyote, bald eagle, golden eagle and peregrine falcon are but a few of the animals that make their homes in the region designated for oil shale development. The mule deer herd is the largest on the continent and state wildlife experts say perhaps 75-80% of it will be lost if full scale development occurs.

Photo by David Sumner

find answers to these problems than the bureaucratic and industrial minds.

Enough sunlight falls on the United States in just two days to exceed in BTU's all the country's known reserves of oil, natural gas, and coal. (Conservation News, 1973) Yet our national budget for 1975 allots 18 times more money to the Atomic Energy Commission than that for solar research. The economic preference given to non-nuclear fossil fuels over solar is nine to one. In 1973, the AEC out-dollared solar by 120-1. (Science, 1974) And solar research monies have a way of being impounded by this Administration.

Four years ago the National Academy of Science said that we should make an effort now to put our base industries on a renewable energy source. Obviously, with such a recommendation, they did not consider the task impossible. But our Government continues to provide funds for "conventional" means of energy out of proportion to that committed to research for solar energy, wind power, tidal or anything else that is termed "unconventional."

These terms, by the way, perplex me. We speak of tearing up the earth and emitting toxicants into the air and water as "conventional" and term the ways of nature, things like sun, wind and tide, as "unconventional," even exotic. Then this would mean that green plants are "unconventional?"

The technology for the use of renewable energy sources is within our grasp and capabilities. Yet, we continue to cater to the development preferences of the energy cartels and provide for their wealth at the expense of the public. This does show the consistency of our

priorities. Not only do we commit our development to conventional extraction, but we also commit our monies to an accelerated use of what is running out.

#### SLOW DOWN AND CONSERVE

To attain these two criteria of recycling and renewable energy, we must continue to slow down energy use and to conserve as a necessary stop-gap.

Although the United States has six percent of the world's population, we consume over forty percent of the world's energy. From 1961 to 1973 our population increased by 14 percent but our per capita consumption of energy went up 40 percent. This country was once genuinely blessed with abundance but we have come within sight of the end of abundance as this nation has historically known it. Still, we are encouraged to perpetuate the myth of abundance by being led to believe that as a people we deserve to eat more, use more, and waste more.

People have reacted positively to the conservation of energy. The thermostats are down, bike sales are up, car pools are functioning and wool sales are increasing. Already individual reductions of energy use have been estimated at between 20 and 25 percent. (Ford, 1974) And at the height of the energy crisis, during the so-called environmental backlash, National Audubon Society, a conservation leader, increased its membership by 28 percent over any previous quarter in its history. Signs of concern are evident.

The energy industries do need incentives — stricter environmental laws. They also need a prod — enforcement of these laws.

To illustrate this let me recount a dinner conversation with a businessman. He started with, "Because of you environmentalists, the new plant we are building will cost about \$4 million more." My defensive reaction was that he was going to give me hell for ruining his livelihood. Much to my surprise and pleasure, he went on to say that the extra cost was more than worth the price and that he had no complaints. He just wanted to say, "Thanks."

It seems that the environmental standards

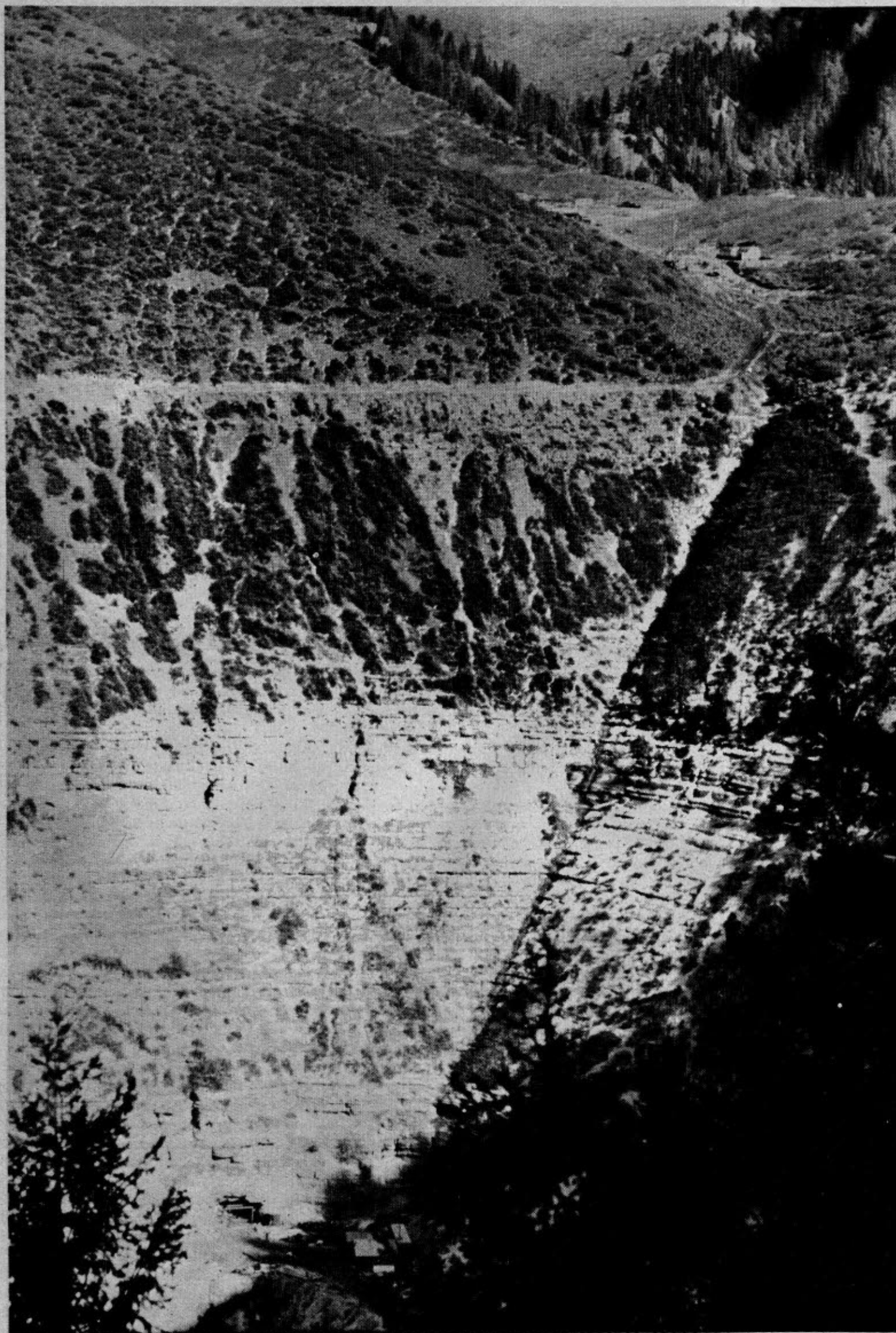
(Continued on page 12)

Until this time, the impacts of oil shale development have been a problem handled by the U.S. Interior Department for the federal government. But it is now clear that the problem will require the involvement of the entire federal establishment.

John Vanderhoof  
Governor of Colorado

## In-Situ Oil Shale Development

# Why Move the Mountain ?



Occidental Petroleum Corporation is mining oil shale in the mountains of Colorado using an innovative underground retorting process to extract the oil from shale. Occidental claims their process won't harm the surrounding environment since, in the company's in situ process, the spent shale remains in the ground. This photo shows the shale operation location, with the mine entrance at the lower left, and the above ground facilities at the upper right.

Photo courtesy of Occidental Petroleum Corporation

When oil shale is mined by room and means, it is brought to the surface and he extract the shale oil. This process leaves powder-like waste that is one and a half ti the original rock. This waste (spent shale) posal, revegetation, and water and air poi

To avoid most of these problems, some co ernment agencies have been investigatin extraction. With this process the shale ground and the oil and gas that are given ground retort are pumped to the surface, le place.

The primary stumbling block to in-situ been the inability of experimenters to cre meability in the formation. The rock need sustain combustion and allow the petroleu into a reservoir from which they are pump

Several companies and the U.S. Bure tried to crack the underground oil shale conventional explosives. No major succes nounced from these experiments. The Ato mission (through its Lawrence Livermore solve the fracturing problem with undergr losives. The specter of 1,000 nuclear blas trated in Colorado's northwest corner ha protest against that approach.

Perhaps the most promising in-situ tech developed by Occidental Petroleum Corpo proposes to excavate a chamber underg tional mining methods and then blast the chamber so that the rubble fills the entire three-dimensional jigsaw puzzle." This method has been proven on a test plant. company has an operation near Grand V northwestern corner of the state that ha between 25 and 30 barrels of crude oil dai year at a cost of about \$1.18 a barrel befo investment," according to an Occidental

This cost estimate was made by the S Institute which concluded that the Occi superior to any shale oil extraction met author." The final cost of delivering the cluding pumping, piping and other costs w dollars a barrel.

Critics of Occidental hasten to point ou has only been tried on a very small scale still some waste disposal problems posed shale.

If Occidental's process is as good as it so that no developer has seized it yet. Of the federal government put up for lease this will probably be exploited by convention ground or open pit mining), and the two Wy were suitable only for in-situ development



A senior mining engineer checks oil deep inside Occidental's mine near Gr  
Photo courtesy of Occidental Petrol

shale is mined by room and pillar or open pit brought to the surface and heated in a retort to shale oil. This process leaves a black talcum-waste that is one and a half times the volume of rock. This waste (spent shale) poses major distasteful, and water and air pollution problems. Most of these problems, some companies and governments have been investigating in-situ oil shale. With this process the shale is heated underground the oil and gas that are given off by the underground are pumped to the surface, leaving the waste in

ary stumbling block to in-situ development has ability of experimenters to create adequate permeability formation. The rock needs to be cracked to allow the petroleum products to flow out from which they are pumped to the surface. Companies and the U.S. Bureau of Mines have cracked the underground oil shale formations with explosives. No major successes have been announced in these experiments. The Atomic Energy Commission through its Lawrence Livermore Lab claims it can solve the problem with underground nuclear explosives. A specter of 1,000 nuclear blasts a year concentrated in Colorado's northwest corner has aroused public opposition to that approach.

The most promising in-situ technology is a process developed by Occidental Petroleum Corporation. Occidental excavate a chamber underground by conventional methods and then blast the oil shale above the chamber so that the rubble fills the entire chamber "like a jigsaw puzzle." This modified in-situ process has been proven on a test plant scale already. The test is an operation near Grand Valley, Colo. in the northwest corner of the state that has been producing and 30 barrels of crude oil daily "for more than a year" at about \$1.18 a barrel before amortization of the test," according to an Occidental spokesman.

An estimate was made by the Stanford Research Institute which concluded that the Occidental process "is the most economical shale oil extraction method known to the world." The final cost of delivering the oil to suppliers including mining, piping and other costs would be about \$2-3 a barrel.

Occidental hasten to point out that the process has been tried on a very small scale and that there are waste disposal problems posed by the excavated

Occidental's process is as good as it sounds, it seems odd that the government has seized it yet. Of the six tracts that the government put up for lease this spring, four tracts may be exploited by conventional means (underground pit mining), and the two Wyoming tracts, that are only for in-situ development, received no bids.



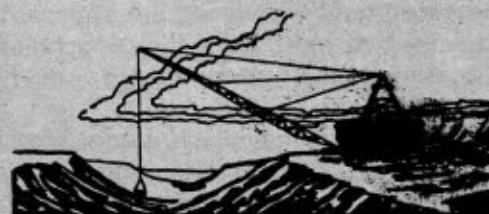
mining engineer checks oil shale formations at Occidental's mine near Grand Valley, Colo. Photo courtesy of Occidental Petroleum Corporation



Occidental technicians pump recovered shale oil from a sump in the retort into 26,000 gallon tanks on top of the mountain. In actual production, all tankage will be underground.

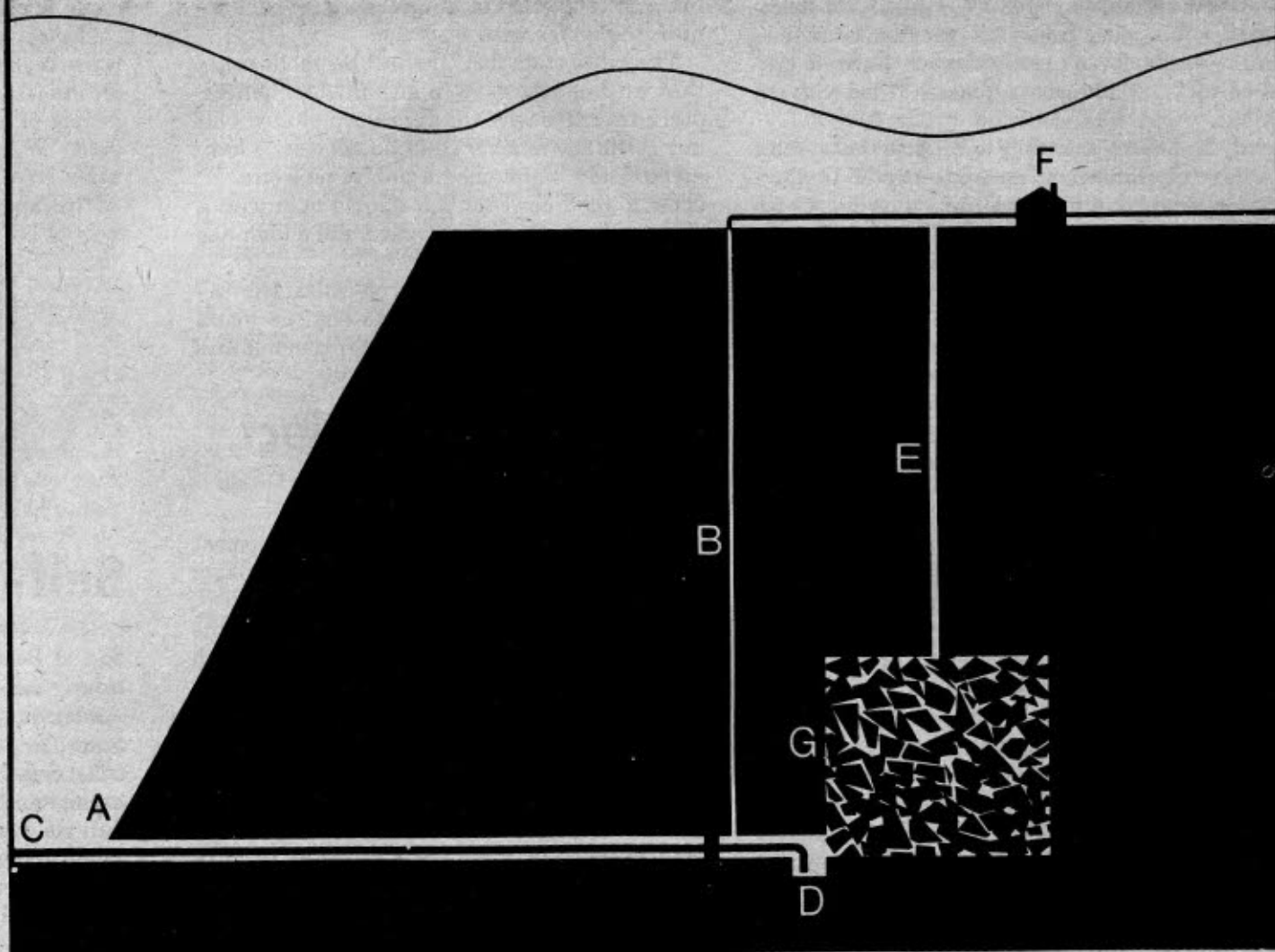
Photo courtesy of Occidental Petroleum Corporation

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### Diagram of Shale Oil Recovery Process

- A. Mine Adit
- B. Gas Recovery Line
- C. Oil to Storage
- D. Oil Recovery Sump
- E. Air Inlet Hole
- F. Surface Facilities
- G. Oil Shale Chimney



This diagram of Occidental's shale oil recovery process shows an underground oil shale chimney retort (G) filled with shale crushed by conventional explosives. Air is provided through the air inlet hole (E) and feeds an underground combustion previously started by natural gas. The heat from this combustion chemically alters the solid organic material in the rock to produce shale oil. The oil is collected in a sump (D) at the bottom of the chimney and is pumped through the mine tunnel to the mine adit (entrance) (A), and on to oil storage (C). Another important product of the process is gas, captured and returned to the surface through the gas recovery line (B).

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## Reckoning from Washington

by Lee Catterall

Sheepmen have been somewhat appeased and environmentalists agitated by the government's decision to allow use of a chemical poison over the next five months.

While a spokesman for the National Wool Growers Association called last week's action "a step in the right direction," Humane Society lawyer Murdaugh Madden called it "premature" and complained the government "didn't give the alternative methods a chance."

Chemical poisons have been banned for predator control on public land for more than two years under President Nixon's executive order. Since then, sheepmen have complained coyotes have increasingly feasted on lamb.

The Environmental Protection Agency began experimenting with several devices that could be used instead of poisons. "They felt they could do this job without the use of poisons," Murdaugh lamented.

But as sheep losses soared and owners increased their pressure on both the administration and Congress, EPA authorized an "experimental" program for a poison on private land in Texas and later in Montana and California.

However, most sheep in Wyoming graze on federal land, so programs like those wouldn't have done much good there. Refusing even to apply for those, the State of Wyoming stuck to a lawsuit it had filed against the federal government to restore use of poisons.

The EPA experiment in those three states uses sodium cyanide capsules in a spring device called an M-44. Unlike Compound 1080 — the poison sheepmen had been using before the executive order — sodium cyanide doesn't present much harm to critters feeding off dead coyote carcasses filled with the stuff.

Its only bad effect, according to EPA, is that coyotes aren't the only canines attracted to the M-44. Dogs like it too, and have to be trained — perhaps with pepper instead of poison — not to bite into it.

The woolgrowers' main complaint is that it's too safe. EPA agrees there's "no firm evidence" the M-44 is really very effective. A spokesman said EPA is in the middle of research about "coyote behavior," which seems to show the kind of coyotes that kill sheep may not be the kind that lick their chops over the M-44.

That's part of the purpose of the program announced last week. M-44 will be allowed for "emergency uses" anywhere through October. After that, EPA will study what happened in the program to determine if the M-44 would be good to allow on a more permanent basis.

The government has authorized up to 100,000 sodium cyanide capsules and 10,000 M-44s for the program.

Meanwhile, lawsuits will continue to hang — not only Wyoming's but also one brought by the Humane Society against the government allowing the use of any poisons anywhere. The society is likely to contend that the government's recent action delegates authority to approve emergency use of poisons too far.

The executive order says only the Secretary of Interior may allow "emergency" uses of poison, and this latest action clearly delegates that authority away from Washington.



## Suit Strikes at Achilles' Heel of Coal

# Industry Fights for Water

Big industry has joined Interior Sec. Rogers C.B. Morton and the Bureau of Reclamation as defendants in a western water-use suit. The suit was filed last October by the Environmental Defense Fund (EDF) and numerous farmers, ranchers and irrigators in the Northern Plains.

George Pring, EDF attorney in Denver, says that practically all the oil and coal companies that are active or potentially active in Montana and Wyoming and intervening "because this lawsuit strikes at the Achilles' heel of Northern Plains coal development — water." The intervenors are American Metals Climax, Colorado Interstate Corp., Consolidation Coal Co., Continental Oil Co., Exxon, Gulf Oil, Mobil Oil, Panhandle Eastern Pipeline Co., Peabody Coal Co., Shell Oil and Texaco.

The plaintiffs claim that Boysen and Yellowtail reservoirs were authorized by Congress for specific purposes (primarily irrigation and hydro power) which did not include fossil fuel energy development. The Bureau of Reclamation has been marketing water from these reservoirs for energy development purposes without further authorization from Congress. All

## Zoning of Future

Kiowa, Colo., population 235, is prepared for the energy systems of the future. The town recently adopted zoning ordinances to protect residents who build solar and wind energy devices.

As far as we know, these ordinances are the first of their kind to be passed by any municipality in the U.S. The Kiowa regulations provide for the relaxation of height and set-back requirements for wind systems.

They also state that "it shall be public policy that anyone who shall in any manner deliberately interfere with the operation of any solar device in any manner shall be deemed to have erected and maintained a public nuisance. . ." (That's good news for the Kiowa man with a solar collector in his back yard and a high-rise proposed next door.)

Maynard Cohn, a private consultant in Denver, wrote the ordinance. He says he would welcome the chance to help other communities make way for alternative energy.

## N. Dakota Project Spreads Facts

Need to know about industrial development in North Dakota? Then ask the North Dakota Project.

"We believe North Dakotans must have the facts if they are to decide on the future of North Dakota. . . . We want the people of North Dakota to be informed of the impact industry will have on our land, air, water, and way of life," reads the project's introductory flyer.

The project is a non-profit research organization composed of researchers, office personnel and volunteers. From their office at 107½ N. Fourth in Bismarck they release fact sheets on various aspects of development. Just organized this spring, the project already has a resource request and lending library that includes "publications, printed material, audio visual and research information . . . and a complete file of newspaper and magazine clippings on industry issues."

David Brown serves as the project's executive director. The North Dakota Project can be reached at P.O. Box 1932, Bismarck, N.D. 58501.

the intervenors have contracts or options for water from Boysen or Yellowtail reservoirs.

Pring says the suit was originally brought against only the federal government, which wasn't taking the case too seriously. "The fact that, half way through the case, these 11 companies are entering the suit shows that they are taking it very seriously," says Pring. The 11 companies have retained Ed Clyde of Salt Lake City, who Pring calls "one of the best water lawyers in the West."

## Landowner Alert: Coal & Consent

Rep. Teno Roncalio (D-Wyo.) warns landowners that the Melcher amendment is under attack by the National Coal Association and may be removed from the strip mining bill now before Congress, H.R. 11500. The Melcher amendment would require a landowner's written consent before strip mining may take place on his property.

In a letter to a rancher in Sheridan, Wyo. Roncalio said, "I write to let you know that unless you take affirmative action immediately, I believe this attack by the National Coal Association may prevail. Therefore, I beg of you to mount all effort possible now by way of letters, telegrams or phone calls to every Congressman you know to insist that they vote for the protection of the surface owner in preserving in Melcher amendment as it is. . . ."

The House will debate the strip mining bill early in July.

"Not since I came to Congress in 1964 has there been a piece of legislation which will have as great an impact on the daily lives of the people of Wyoming as H.R. 11500," Roncalio said. "Wyoming needs this legislation. It will allow strip mining of our valuable coal, but not at the expense of our unique environment or our way of life."



## Self-Sufficient Home

Using technology now available, Sam Anderson of Bozeman, Mont. is building himself a nearly self-sufficient home. Forty-six year old Anderson will use wind power for electricity and solar power for heating. Those sources will take care of 50-80% of his energy needs, he estimates. He's also planning a trout pond that can yield 50 pounds of fish annually and a terraced garden that will add 20 days to Bozeman's growing season.

His wind generator from Australia will have a monthly capacity of 600 kilowatt hours. He will heat his water with six solar panels, also from Australia. These two items will cost about \$5,000, but Anderson says they will pay for themselves within 10 years.

In two or three years after his own home has been thoroughly tested, Anderson plans to advise other people interested in building self-sufficient homes. He'll call his business the "Office of Alternative Energy Systems."



Hells Canyon of the Snake River may still be safe from the power companies' dams, but only public opinion may keep it so. Thanks to the energy crisis, recent polls indicate public opinion may be shifting. Idaho Sen. James McClure says his most recent poll shows 47% of Idahoans are opposed to any more dams, while 39% favor dam construction. A 1971 poll showed 72% opposed to any more dams, 25% in favor. In May, the Oregon Water Resources Board concluded that the Middle Snake River was "nationally significant as a scenic and recreational waterway." Photo by Ernie Day



## Emphasis ENERGY



in the Northern Rockies and Great Plains

Western "low-sulfur" coal may pollute the air too, says H. Anthony Ruckel, an attorney for the Sierra Club.

A coal sample taken from the Atlantic Richfield Black Thunder strip mine in the Powder River Basin in Wyoming shows high enough sulfur content to cause a power plant without sulfur controls to regularly exceed particulate opacity and sulfur oxide emission limitations, Ruckel says.

"The remedy for this is use of scrubber emission control devices," Ruckel says.

A law to allow the state to issue revenue bonds for water development was proposed at a meeting of the Wyoming governor's Powder River Basin Task Force. State Engineer Floyd Bishop told the meeting that Wyoming lacks the "aggressive water development policy," necessary to meet the needs of expanding mineral development.

A government environmental analysis of Montana Power Co.'s proposed additional two 700-megawatt power units at Colstrip and a 450 mile transmission line from Colstrip to Hot Springs will be in draft form by Nov. 1, the Bureau of Land Management has announced. BLM began preparing the environmental impact statement in March.

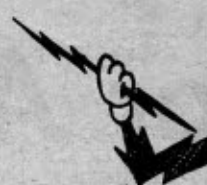
An Idaho Public Utilities Commission staff report has recommended that Intermountain Gas Co. stop new customer advertising and the sale of appliances, and that they not be allowed to include a percentage of purchased gas costs as working capital. The staff report surfaced when Intermountain Gas asked the commission for permission to boost residential rates by about 12%.

Interior Secretary Rogers C.B. Morton has decided not to cancel existing coal leases on Northern Cheyenne Indian land — but to let the tribe sue coal companies to renegotiate the leases. The Indians had asked Morton to void coal leases on 240,000 acres of land in the Southern Montana reservation. The Cheyennes claimed that the Bureau of Indian Affairs had violated federal regulations by allowing the coal companies to lease land without a technical assessment and with a bonding rate too low to cover possible damage. In his decision, Morton said that the tribe may request the Justice Department to bring suit in their name or the tribe bring its own suit.

Ralf Myers of Paradise Oil, Water and Land Development, Inc. thinks he can provide as much as 750,000 acre feet of water a year for the oil shale industry on the Western Slope of Colorado. He claims the water could come from a giant underground aquifer which has been mapped from the banks of the Colorado River near McCoy to the Yampa River valley near Steamboat Springs. It has taken Myers five years and \$500,000 to clear the way for a system to deliver the resource. At the end of May several big companies had contacted him about the sale of all or part of his water package. His plan would involve a dam across the Colorado River and a reservoir with a 25-mile shoreline, stretching most of the distance between DeBeque and Grand Valley, Colo.

Three companies have an option on 16,000 acres near Cedar City, Utah where coal, alumina and alumina may be mined. The companies are Earth Sciences, Inc. of Golden, Colo., National Steel Corp. of Pittsburgh, Pa., and Southwire Co. of Carrollton, Ga.

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## The Hot Line

across the country

After fighting against a trans-Alaskan pipeline route that would bring north slope oil directly overland to the Midwest, the oil industry now says there will be a surplus of oil on the West Coast when the Alaskan oil arrives. Charles Spahr, board chairman of Standard Oil of Ohio (Sohio) says up to one million barrels of the Alaskan crude may have to be piped from the West Coast to the Midwest. Sohio owns 27% interest in the trans-Alaskan pipeline.

Albertson's supermarkets will install a new system for reclaiming heat in all its new retail stores. The switch may save up to 50% of the energy required for heating. Heat from refrigeration units will be used to heat other parts of the stores. Normally the heat is expelled to the outside.

The National Coal Association (NCA) has asked Congress to grant coal slurry pipelines the right of eminent domain. NCA vice president Robert Price told a Senate committee that "the coal pipeline must be accorded the right of eminent domain to assure that such pipelines can be built where economics and technology indicate that they should be built." Without that right any slurry pipeline is at the mercy of a single landowner or group, he said.

A Binghamton, N.Y. inventor has a revolutionary new home heating system that could cut heating bills to \$60 a year. George Lutz says his system relies on pumping chemicals through a cylinder of wire. The resulting friction creates heat, which he has used to keep his 13,000 square foot ranch-style house warm since last January. Lutz says he can install the system for \$1,800. An engineer with the local utility says, "If it works out as it seems to on initial tests, Lutz's heating system will revolutionize the heating industry."

"In the western regions, prospects for gasification projects abound, but the inaccessibility of water in many of these locations lessens its feasibility," reads a draft chapter of the Federal Power Commission's National Gas Survey.

"In the Rocky Mountain region, a concerted effort to build reservoirs and aqueduct systems for carrying water to the coal must be made," says the report.

House Republican Leader John J. Rhodes of Arizona told the National Coal Association's annual convention that the House Interior Committee's strip mining bill "would really damage your industry — at a time when it needs stimulation. Requiring return of the land to its original contour would require 'the digging of one hole to fill up another — thus disturbing two or three times as much land," he said. "Next there will be a demand to cover the mine site with Astro-turf."

"Save gas, run on dog food" reads a current bumper sticker. That slogan may be worth more than a good laugh. Dog sledder Joe Redington of Knik, Alaska hasn't fired up his snowmobile at all this past winter. "We're really saving gas," he says. Three years ago the trails were used mostly by snowmobiles. "Now there are a lot of people using dogs on them. Dogs are coming back all along the Yukon and elsewhere where they had practically disappeared. It's just like a highway."

The Bureau of Mines reports that between 1930 and 1971 about 3,650,000 acres of land in this country was mined. Of that amount, 40% or 1,460,000 acres has been reclaimed. The mined area represents 0.16% of the total U.S. land area. Bituminous coal mining accounted for 40% of the land mined during this period. Sixty-eight per cent of the bituminous coal mined land has been reclaimed.

## Denver's Two Forks Dam

# Governor Advocates Slow Growth

Colorado Gov. John Vanderhoof is unalterably opposed to the construction of the Two Forks Dam on the South Platte River southwest of Denver. Speaking for the governor, administrative aide Henry Kimbrough said the dam site was opposed because it might lead to too much growth in the Denver metropolitan area. He said the governor isn't advocating a no-growth policy for Denver, but rather a wise, far-sighted policy of controlled growth.

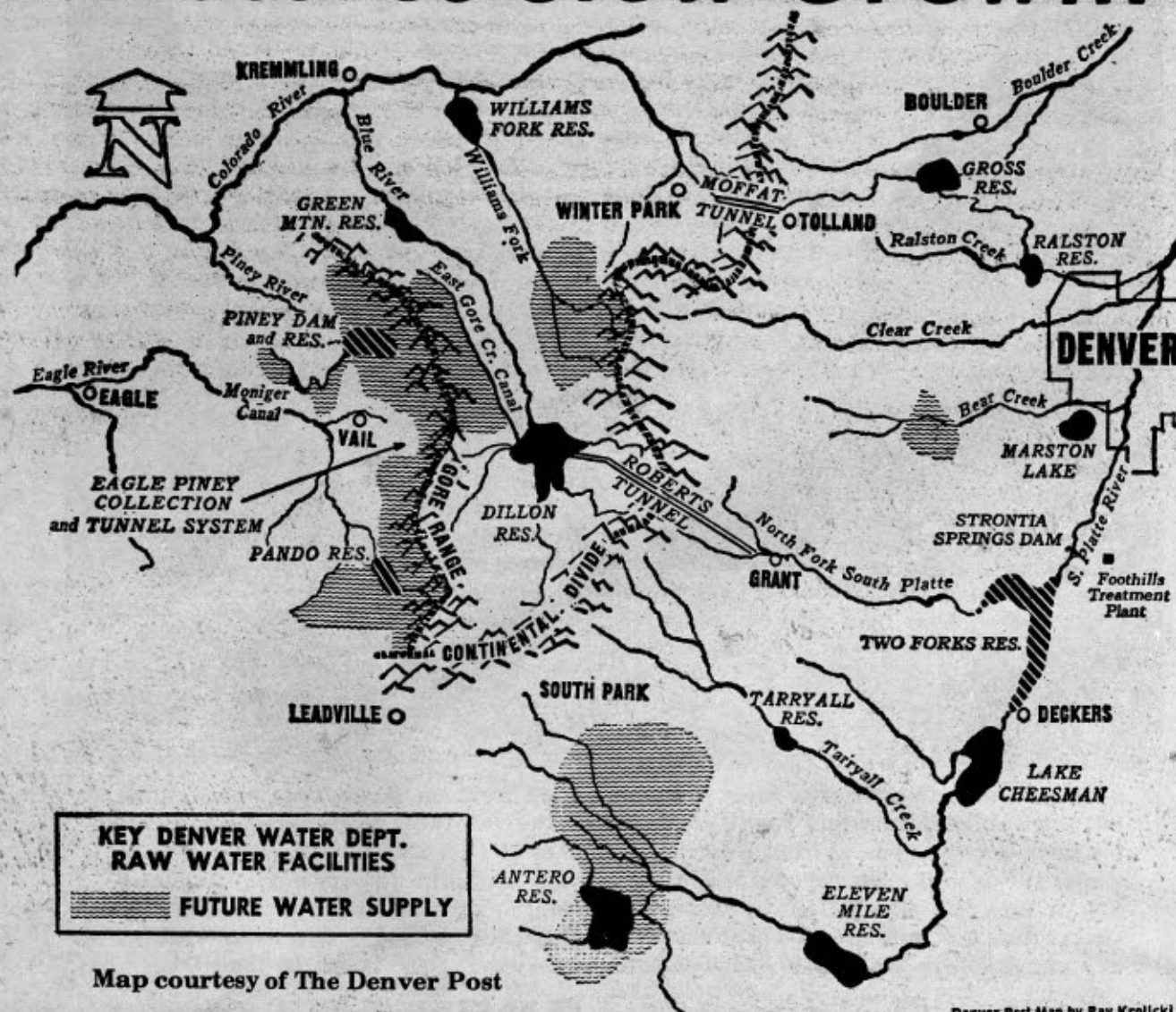
The Denver Water Board and the Bureau of Reclamation say the Two Forks Dam is needed to store water diverted from Colorado's Western Slope for future Denver metropolitan population growth that may top two million within a generation. The water board wants to develop 100,000 acre-feet of water on the proposed Eagle-Piney Project near Vail, Colo. on the west side of the Gore Range, and another 70,000 acre-feet on the eastern side of the Gore Range by the East Gore Canal. This water would be diverted to Dillon Reservoir and then under the Continental Divide via the existing Roberts Tunnel. Without Two Forks, all this claimed water can't be fully utilized because there is no place to store it close to Denver.

"This dam is certainly required to meet the inevitable growth that will occur here," said Kirk Bryant of the Denver Water Board. "If you don't have the dam, what you are going to get is no water, not no growth."

BuRec project planning leader Larry Nelson says unless the dam is built, severe water shortages will occur within 30 years which would succeed in "wiping out most vegetation in the metro area."

Besides the slow growth advocates, the dam has two other main groups of opponents, according to Dick Prouty of the *Denver Post*. The first group are the landowners who will be inundated by the largest man-made lake in Colorado and the recreationists who use the high quality trout fishing river. The second group are West Slope water users who would like to see the trans-basin water diversions stopped so they can use the water for recreation, urban growth, and coal and oil shale energy development.

A complicating factor came in the form of a letter sent to Rep. Patricia Schroeder (D-Colo.)



by Wildlife 2000 asking her to direct the federal government to study the South Platte for National Recreation River status. "The request is a direct effort to stall further federal consideration of the Two Forks Dam and Reservoir Proposal," says Wildlife 2000, an Aurora-based conservation group. "It is also the result of several years of study which show unquestionably that the South Platte's greatest potential is as a recreation area. If a federal study is undertaken, it would protect the area from further developments until the study was finished."

## Balancing ...

(Continued from page 7)

his industry had been opposing so hard for so long had become a fact of life for the chemical industry. Having to live with these restrictions made them look closer at their operation. They evolved new technologies to meet the new standards. They were forced to recycle and clean up and found that what they had previously thrown away could be sold for profit. When it was cheaper to waste, they wasted. When waste became expensive, they produced by-products that were an economic benefit. He assured me that strict environmental standards can be good for business.

So, I contend that we need to establish a national goal: clean energy production. We need to encourage the energy industry's ability to be adaptive and to devise the technology for recycling by-products and using renewable energy sources for the energy base.

Our legislators must force industry to go the path of ecologically acceptable energy production by making environmental standards more restrictive, not more permissive. They ought to give our federal agencies the enforcement power to prod industry to be responsive to our goal. And, somehow, we have got to up-grade Interior's decision-makers to respond to broad ecological interests, not just special interests. We can then move away from our present short-term solutions that Project Independence promises into a long-term solution which could be Project Interdependence.

Only then can we achieve our goal of energy with honor.

## Forest Service Does About-Face

According to the Gallatin Sportsmen's Association, the Forest Service has made an abrupt about-face in its management of the Porcupine-Buffalo Horn Planning Unit of the Gallatin National Forest south of Bozeman, Mont. The unit has historically been managed for wildlife and dispersed recreation. The unit provides critical winter range for "the nationally recognized Gallatin elk herd, and a large portion of the watershed for the nationally recognized Gallatin River blue ribbon trout fishery," say the sportsmen. But now the plans call for roads, power lines and logging.

"Last year, former Gallatin Forest Supervisor Paul Weingart announced that this plan-

ning unit would remain unroaded and that a plan had been developed for the area to enhance wildlife, recreation, and the natural environment. The proposed plan was to retain the unit in a nearly roadless condition and allow limited aerial logging," say the sportsmen. This arrangement was put forth in the draft environmental impact statement (EIS) for the unit and supported by "nearly everyone," according to the sportsmen.

In 1974 the Gallatin had a new supervisor, Lewis Hawkes, and a new plan for the Porcupine-Buffalo Horn that was barely recognizable to the sportsmen that had been involved in the preparation of the draft EIS. The final EIS, filed on May 13, contained plans by Burlington Northern (BN) for about 31 miles of logging roads in the unit rather than an aerial logging plan, and a plan by Montana Power Company (MPC) for a power transmission line through the unit.

The sportsmen are now asking for wilderness classification for the planning unit to "stop the piecemeal loss of fish and wildlife habitat being experienced on the Gallatin National Forest."



# Western Roundup

## Tongue River, Wild or Dammed?

Tongue River Canyon near Sheridan, Wyo. may become part of the National Wild and Scenic Rivers System or it may become a dam site for Pacific Power and Light Co. The Sheridan County Sportsmen's Association has asked their county commissioners to initiate action to include the river under the protective act. They cite Game and Fish Department objections to the proposed reservoir which would inundate elk and deer winter range and block elk and moose migration routes.

Wyoming Rep. Teno Roncalio has asked the Sheridan County Commissioners how much of the river they would like to see protected. Roncalio said he has drafted possible legislation to include the Tongue River from the mouth of the canyon upstream to the sources of both the north and south forks.

PP&L has applied with the U.S. Forest Service to drill exploratory holes to study the feasibility of placing a large (30,000 acre-feet) dam across Tongue River Canyon near Box Canyon. The company filed on the reservoir site back in 1960. The Forest Service sees no reason to deny the exploratory permit, but says a formal environmental impact study would have to be done before a construction permit was granted.

## MinesDump Mysterious Molybdenum

The Environmental Protection Agency (EPA) doesn't know how much molybdenum it takes to harm humans. It will allow three Colorado mines to continue dumping the metal into local streams however. The mines, operated by American Metals Climax, dump wastes into water courses in Colorado that eventually end up in Dillon Reservoir and Clear Creek — the drinking water supplies of Denver and its suburbs.

At a public hearing on the discharge proposal an EPA spokesman said that the agency did not know at what point the metal becomes toxic to humans but that it would welcome information on the topic. Colorado Public Interest Research Group, Inc., a Ralph Nader affiliate, said such a stand by the government's environmental watchdog was a failure to perform its required duties.

The molybdenum would amount to less than 150 parts per billion in the water which appears to be safe for livestock, but no one knows if that level is safe for humans and other living creatures.

## Alpine Replica of Industrial Barrens

"While the average purchaser tries to avoid expenses, the Idaho Power Company must try to accrue them," says Steve Lathrop, editor of the Idaho weekly, *Ketchum Tomorrow*. "That is the only way it can increase its profits." The Public Utilities Commission regulates the power company's profits on the basis of the amount the company has invested in plants and equipment.

Lathrop is exploring the motivations of the legally protected power monopoly in his fight against high tension lines on 55-foot poles through downtown Ketchum near Sun Valley, Idaho. The system would upgrade the city's power line from 46,000 volts to 138,000 volts. "People around here would far rather take a chance on an occasional blackout of a few hours (and even Idaho Power has conceded that anything longer than this is unlikely) than see the Wood River Valley turned into an alpine replica of the New Jersey industrial barrens," Lathrop says.

## Planning and Permits—Not Zoning

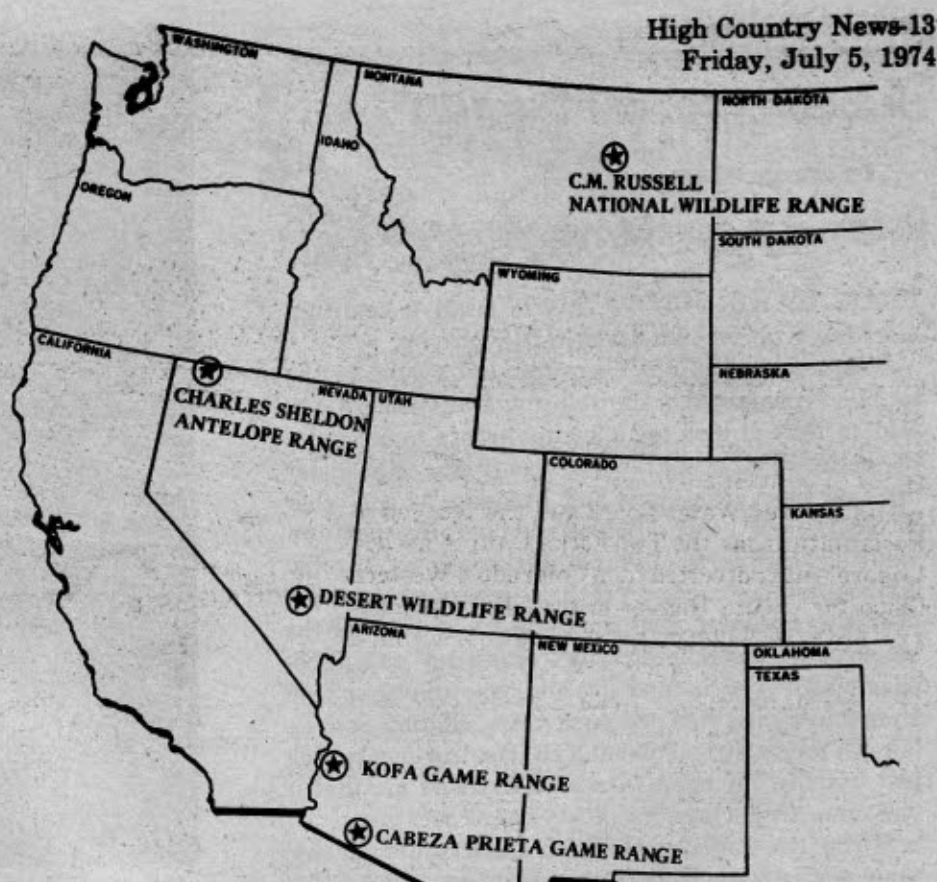
ROMCOE, the Rocky Mountain Center on Environment, has come up with a new approach to land use control. In place of zoning ordinances and subdivision regulations a permit system for developers based on community growth policies would be employed.

This new system is a "more responsible, particularly more environmentally responsible" way to arrive at land use decisions, says project director Kirk Wickersham. Under the ROMCOE system a developer would submit a proposal to public officials that would be either granted or denied according to established public policy. The public policy is set forth in a formal policy plan that guides growth.

The results of the ROMCOE study are being compiled as workbooks and handbooks for public officials and citizens by the Environmental Protection Agency which funded the study.

## Judge Nods to Central Utah Project

A federal judge has ruled that the final environmental impact statement (EIS) on the Central Utah Project (CUP) meets the requirements of the National Environmental Policy Act. The Sierra Club and three other conservation groups claimed the EIS was inadequate and had asked U.S. District Court Judge Willis W. Ritter to rule on the matter. Ritter said the EIS makes a "rigorous exploration and objective evaluation" of alternatives to the massive water development scheme. Curtis Oberhansly, attorney for the conservationists, said an appeal of the ruling is being prepared.



Four of the nation's greatest wildlife ranges are under attack from special interests. A fifth, the Desert Wildlife Range in Nevada, could be threatened by what happens in the other four. Set aside in the 1930s by Presidential proclamation, the wildlife ranges were intended to give protection to big game species threatened by encroachment on their native ranges.

The proclamation gave joint administration of the game ranges to the Bureau of Sport Fisheries and Wildlife and the Bureau of Land Management. The latter agency was to administer the grazing and any mining resources.

Wilderness proposals for the large wildlife refuges have spurred efforts by the livestock and mining industries to have full administration taken over by BLM. Such a shift would place primary emphasis on grazing and mining, rather than the wildlife the ranges were intended to protect. BLM has already made plans to build fences and spray herbicides on some of the game ranges.

The public should fight such a raid on the National Wildlife Refuge System. You can help by writing Interior Secretary Rogers Morton and sending copies of your letter to your Representative and your Senators. Ask Secretary Morton to assign sole administration to the Bureau of Sport Fisheries and Wildlife for Cabeza Prieta, Kofa, Charles Sheldon, and Charles M. Russell National Wildlife Ranges. Ask him, too, to approve citizen proposals for wilderness in all five areas.

Write: Hon. Rogers C.B. Morton  
Secretary of the Interior  
Washington, D.C. 20240

## Briefly noted . . .

John Reuss, an assistant professor of government at Montana State University, has been appointed executive director of the Montana Environmental Quality Council. Former EQC director Fletcher Newby left that position in April to become deputy director of the Montana Department of Fish and Game. Reuss is a native of California and is currently the principal investigator of a Montana State University-National Science Foundation study of Gallatin Canyon south of Bozeman.

\* \* \*

Eagle shooting and electrocution are still going on in Utah. The U.S. Bureau of Sport Fisheries and Wildlife and the Utah Division of Wildlife Resources reported 58 golden eagles dead and two others wounded in 1973. The agencies also turned up three dead and three wounded bald eagles that year.

"Obviously more raptor mortality occurred than was reported," said Wildlife Resources officer John Nagel. "Hopefully the public will realize the value of these birds, and mortality by shooting will decline in the future." There was one arrest in 1973 in Utah for killing a hawk, none for shooting eagles.

\* \* \*

The Army Corps of Engineers is studying two Wyoming rivers near Jackson Hole for consideration as national wild, scenic or recreational rivers. They will study the Snake River from Moran to Alpine and the Gros Ventre River. Corps officials say that the 23-mile stretch of the Snake will probably be denied wild or scenic river status because of levee work done there since 1957. But they say they are hopeful recreational river status will be given.

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Friday, July 5, 1974

## Thoughts from the Distaff Corner

by Marge Higley

PEARL LAKE, COLO.—This is such a beautiful morning that I'd like to share it with you.

Just before daylight I was startled awake by the sound of a sandhill crane in flight. I have heard it so seldom that it took me a few moments to recognize the raucous noise for what it was. I snuggled under my two heavy blankets and listened as the other birds greeted the day. Robins and chirping sparrows vied for the honor of sounding the busiest. I could distinguish the reedy cry of the red-winged blackbird over the meadow, and from the trees back of the house came the echoing "ping-ping-ping" as a woodpecker searched for food. The angry-sounding voice of a crow mingled with the squawking of ducks on the lake. A noisy little chipmunk chattering on a branch just outside my open window convinced me that it was time to get up.

While the coffee perked, I walked the short distance to the top of the knoll overlooking the lake. The surface was like a mirror, and across the water a yellow canoe noiselessly rippled the reflections as an early morning fisherman tried his luck.

I am sitting now on the front porch looking out across the meadow. I would be uncomfortable without my heavy sweater—the steam from my after-breakfast coffee rises visibly in the cool morning air. The sun is just coming over the treetops at the top of the knoll, and long dark shadows stretch out into the edges of the sun-splashed grass.

If an artist were painting the scene before me, he would use a palette almost entirely of variegated greens. There's the grassy green that spreads from the doorstep to the willows along the creek. The shadowed side of the willows looks almost black, but the sunlit side glimmers with the silvery sheen of new leaves. Across the creek is a sage-covered flat, with its own distinctive grey-green shade. Beyond that, the meadow reaches out to touch the trees at the base of Grouse Mountain. At that far side, the green is tinged with the gold of dandelions.

The hillside itself is a veritable patchwork of green. The aspens at the lower edge have almost acquired their cool summer color, but those on the higher slopes are still a pale spring green. The stands of pine look brownish-olive, and a row of dark blue-green spruce covers the rounded mountain top and extends halfway down the east slope. There are patches of sage and oak-brush, and in the fall the hillside is riotous with color; now, in early summer, it is calm and serene.

My binoculars hang just inside the door so that we may better watch the deer which feed along the creek. With vigilance and patience, we are able some days to watch the more elusive cranes.

The drone of a plane high overhead reminds me that there is a world outside this quiet green haven. I could go inside and turn on the radio long enough to hear what's happening in that world—but that can wait. This afternoon I must drive the 30 miles to town (and reality) to take care of such mundane matters as laundry and groceries—but that, too, can wait.

Right now, I am perfectly content to sit here and savor the peace and beauty of this morning.



Our dear Marge has had another personal tragedy enter her life so she is spending the summer at the family cabin. She has retired from active participation on the paper, but will continue to do her column and will send us dispatches from time to time. We miss her.

The editors

Photo by Francis J. Walcott



## Wyomingites Win Awards

Margaret E. Murie of Moose, Wyo. and Thomas A. Bell, editor of *High Country News*, were two recipients of national Citations for Conservation Service. The awards were presented by Interior Secretary Rogers C.B. Morton at the 42nd Honor Award Convocation held in Washington, D.C., on June 27.

Mrs. Murie was recognized for her "outstanding devotion and leadership in the preservation and conservation of our nation's wildlands" and for her "unswerving loyalty to the land."

"Mrs. Murie's courage and leadership coupled with her warmth and sincerity have earned the deserved respect of friend and foe alike," read the citation. Interior noted her part in the establishment of the Arctic Wildlife Range and the North Cascades National Park as well as her devoted work with in Wilderness Society.

Tom Bell was recognized for his "fearless, honest and accurate reporting of environmental issues threatening our public lands." He was

commended for "establishing a non-partisan, accurate, hard-hitting conservation newspaper as a free voice of the conservation movement in the Intermountain region of the United States. His untiring efforts to ferret out and publish the facts concerning such diverse environmental threats as the illegal bald eagle killings in Wyoming or the potentially devastating effects of the proposed strip mining of the vast coal deposits of Wyoming have enabled government agencies, at all levels, and private landowners as well, to face up to the need for corrective action."



## Birds Trapped

Nearly two dozen traps have been set by U.S. Fish and Wildlife biologists in an effort to keep cowbirds out of the nests of the endangered Kirtland's warbler in its only remaining nesting area of Michigan. Today there are an estimated 432 of these warblers breeding in Michigan, and that number is expected to increase with the breeding season now underway.

The declining warbler population puzzled biologists for years. This bluish-gray small bird breeds only in the lower peninsula of Michigan and winters in the Bahamas. It nests almost exclusively in young jack pine trees, so the U.S. Forest Service and the State of Michigan set aside over 4,000 acres of forest in the 1960s to be managed solely for the Kirtland's warbler's benefit, primarily by selective cutting and burning to encourage new jack pine growth.

Despite these efforts, the bird's decline continued, prompting a cooperative Federal-State-private study which singled out the brown-headed cowbird as another major culprit threatening the warbler's precarious existence. The female cowbird, slightly larger than the warbler, doesn't build a nest of her own. Instead, she removes eggs from other bird nests, lays hers, and leaves her young to be hatched and fledged by foster parents. This piggy-back cradling of cowbird eggs in Kirtland's warbler nests had a devastating effect on warbler nesting — nearly 80% of warbler eggs were being lost. The Kirtland's warbler usually lays five eggs, and roughly only one of five were hatching.

## Man Is Enemy

Work in recent years by Dr. John Lilly and other scientists has confirmed that dolphins and other whales have a level of intelligence as high as that of humans. But the big creatures have one enemy — people.

The brain of the sperm whale is the largest and most complex produced by evolution — but sperm whales are being blown apart to provide oil for automatic transmissions.

The brain of the bottlenose dolphin is larger and as complex as a human brain — but these mammals are being slaughtered for cat food.

An international movement called Project Jonah has been organized to save the intelligent sea mammals. The group says that every twelve minutes a whale is killed — and that in ten to fifteen years most whale species will very likely be extinct. Jonah says that there are substitutes for whale oil and flesh for such uses as pet food, cosmetics, and fertilizers. Nevertheless, the whaling nations — chiefly Japan and the Soviet Union — are continuing to harvest whales that are perhaps more intelligent than their butchers.

Project Jonah is calling on people to write a letter, draw a picture, or make a poem expressing their feelings about the whales. The letters are to be sent to the Prime Ministers of Japan and the Soviet Union to encourage them to stop the killing of whales. : : EARTH NEWS

## Bulletin Board

### TRAIL SCOUTS

Volunteer scouts and explorers are needed for the NOAMTRAC Reconnaissance Corps. Since 1971 NOAMTRAC (North America Trail Complex) has been researching a network of hiking trails which will interconnect all regions of the continent. Scouts are needed to explore sections of trail study routes. You pick your area and provide equipment and expenses. NOAMTRAC provides maps. To volunteer write to the group at 307 S. Highland, Bloomington, Ind. 47401.

### SUCCESS STORIES

"Environmental Accomplishments to Date: A Reason for Hope" will be the topic of the Second International Symposium of Expo '74. The symposium will be held in Gonzaga University's Russell Theatre in Spokane, Wash. Speakers from around the globe will tell how the River Thames in London was cleaned up, how geothermal energy is used in Italy, how wildlife is protected in Tanzania and other interesting success stories. The sessions are free and run all day long on July 16, 17 and 18.

### UNPOLLUTION COMICS

A Canadian government comic book called *Let's Unpollute* has survived testing in fourth and fifth grade classrooms. The book describes ecology projects for elementary school students—field trips, discussion groups, crossword puzzles and quizzes. For a copy, write: Darrell Eagles, Information Branch, Environment Canada, Ottawa K1A03, Canada.

### BIBLIOGRAPHY

A 864 page reference book, *Environment: A Bibliography of Social Science and Related Literature*, is available from the U.S. Government Printing Office for \$7.45. The book is the product of three years of research funded by the Environmental Protection Agency and Michigan State University. To order, write: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.



## Western Wildlands

*Western Wildlands* is a new natural resource journal published by the Montana Forest and Conservation Experiment Station. Dr. Robert Wambach, Director of the Station, says the purpose of the journal is to help foster a better public understanding of the scientific management of natural resources.

The first issue carried such articles as "Coal Versus a Way of Life in Eastern Montana" by Dr. Melvin Morris, Professor Emeritus of Range Management at the University of Montana; "Wildlife, Land Use and People" by Dr. Robert Ream, Associate Professor of Wildlife Management at the University of Montana; and "Opinion," a critical review of the President's Advisory Panel on Timber and the Environment by Arnold Bolle, former Dean of the University of Montana forestry school.

Cost of the quarterly journal is \$1.00 per issue. It may be obtained by writing *Western Wildlands*, School of Forestry, University of Montana, Missoula, MT 59801.

### OLD GLASS PAYS

For the first time Coloradoans can recycle glass — and get paid for it. The Thixor Company in Lakewood, Colo. will pay one cent a pound for any clean glass. Thixon crushes it into a powder to make Thixite, a tile product using only five to eight percent virgin materials.

Glass bottles must have top caps removed, all metal rings removed, all labels off and must be fairly clean inside and out. Glass need not be separated by color.

Thixon is at 1367 Harlan St., Lakewood, Colo.

### AERO POWER

People in Wyoming and Montana have joined to push for solar, wind and bio-gas energy in the Northern Plains States. They call themselves AERO (Alternative Energy Resource Organization) and they are oriented toward action. AERO will set up demonstration projects, push for large scale applications of alternative sources of energy, and spread information. The group plans a monthly newsletter. For more information, write to Kye Cochran, AERO Administrator, 418 Stapleton Bldg., Billings, MT. 59101.

### RECYCLE PAPER

Old newspaper is twice as valuable as it was last year, according to paper recycler Friedman and Son in Denver, Colo.

Friedman (2345 Walnut) will buy six kinds of paper if they are bundled separately. Newsprint — \$14 a ton. Magazines (slick paper) — \$14 a ton. IBM Cards — \$100 a ton. Corrugated Cardboard — \$16 a ton. Computer Printout Paper — \$60 a ton (without carbons). Office Files — \$16 a ton (without carbons).

## REERIO

W. C. Loudermilk, an early leader in soil conservation, once described God's 11th Commandment as "Thou shall protect the Holy Earth."

A group of environmentalists from the United States and Mexico are attempting to observe that commandment and share their beliefs with others in the Southwest. This spring marks the third anniversary of that group — the Regional Environmental Education Research Improvement Organization (REERIO) — founded in May, 1971.

Dr. Gerald W. Thomas, President of New Mexico State University, helped found REERIO and has served as head of the group for three years. The organization has set a goal of 1,000 members from New Mexico, Texas, Arizona, Utah, Colorado and Mexico. International in scope, the group's recent efforts have been directed toward solving water problems between Mexico and the United States.

REERIO will focus on energy, pollution, waste disposal and land-use in 1974. As in past years, the organization will sponsor major conferences on specific problem areas and smaller task force seminars on Southwestern environmental subjects. It will continue to promote communication between educators and researchers, businessmen, agriculturists, industrialists, government people, conservationists and the public.

Persons interested in joining REERIO may contact Executive Director Keith Austin, NMSU Drawer 3AE, Las Cruces, N.M. 88003. Both individual memberships (\$10) and organizational memberships for business, industry, agency organizations (\$25) are available.

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## Eavesdropper

LOCNEY LIMERICKS

by Zane E. Cology

There's oil shale out in them there hills.  
To get it, the canyons they'll have to fill.  
Wildlife betraying,  
They stick to the saying:  
Spare the land and up the bills.

Two New England shoe importers have had to hand over \$35,000 worth of crocodile shoes to the U.S. government. The action was taken to settle a suit brought by the Fish and Wildlife Service. The two firms were charged with importing shoes made from the Nile crocodile, which is listed as an endangered species.

Wood is a basic structural material, like iron, steel, aluminum, brick or concrete, but it is the only one perpetually renewed by nature, and the only raw material that doesn't require irreplaceable ores or fossil fuels to produce. Man can assure himself a bountiful supply of wood as long as sunlight falls on the forests of the earth. To produce a ton of lumber, about 430 kilowatt hours of electricity or its equivalent are required, while the production of a ton of steel requires consumption of 2,700 kwh, and a ton of aluminum requires 17,000 kwh.

To estimate the effects of a prairie dog colony upon range land, a study of the vegetation of abandoned towns was undertaken. Areas studied had been abandoned for one, two, and five years. The study was conducted by Lois Klatt under the supervision of Dr. Dale Hein of Colorado State University in Fort Collins, Colo. After five years of abandonment, the towns were virtually indistinguishable from adjacent areas. The vegetation was back to normal; even the burrows and mounds were non-existent.

An Australian eucalyptus tree is believed to be the fastest growing tree in the world. One reportedly grew 45 feet in height in two years.

The plan was to ship a dozen rare baby prairie falcons from a captive breeding program at Cornell University in Ithaca, N.Y. to the wilds of Colorado. When the box was opened at the Denver airport, four of the falcons were dead. Colorado Division of Wildlife bird biologist Gerald Craig said the birds, which are extremely sensitive to temperature, had apparently succumbed to heat. The surviving falcons will be placed in nests around the state to see if they are adopted by wild parents. The shipping container will be redesigned to prevent similar mishaps in future shipments, said Craig.

Moths native to Russia and Pakistan are being raised by the government to eat tumbleweeds in California's desert areas. The moths feed only on tumbleweeds and other poisonous desert weeds, says a spokesman for the state Department of Transportation. He says that the tumbleweed (Russian thistle) is not native to the West, but was accidentally introduced to the U.S. in 1872 in grain imported from Russia.



# Egan O'Connor and Nuclear Pollution

Egan O'Connor is leading a single-minded citizens' battle. "We want to turn off nuclear fission," she says simply.

That battle can be won within the next five years, O'Connor predicts. It should be won because "I'm absolutely convinced that a nuclear power industry gives a near certain probability of irreversible nuclear pollution."

Through a group called the Task Force Against Nuclear Pollution, O'Connor has helped locate, computerize, and wave in front of Congress the names of nearly 81,000 Americans who agree with her. Each supporter has signed a petition for solar energy and a phase-out of nuclear fission power plants. In the summer of 1972 when they began publicizing their petition, the task force received only about 10 signatures a day.

"Now we get about 200 a day," O'Connor says "in spite of threats of blackout, depression and recession. People are learning fast. The more the nuclear industry promotes, the more opposition grows."

"A sunshine future" could be an alternative to the doom of a nuclear society, O'Connor says.

At the Alternative Energy Conference in Billings, Mont. the nimble-minded, confident woman painted a picture of a Montana 10 years hence: "...without strip mining, without dead rivers and water starvation, without radioactive pollution and the threat of atomic terrorism. Imagine Montana cars and planes and tractors burning non-polluting solar fuels like methane and hydrogen. Imagine a Montana that would still sparkle, thanks to solar energy."

O'Connor is swamped—spending full-time stopping nuclear and starting solar power. Her official title is energy consultant. Her advice is channeled in three directions: to the Task Force Against Nuclear Pollution (153 E. St. SE, Washington D.C.), to the Committee for Nuclear Responsibility (Box 2329, Dublin, Calif. 94566), and to Sen. Mike Gravel of Alaska.

She entered the energy field when she was a free-lance film maker, working on a project for Public Affairs Analysts. Her assignment took her to the Atomic Energy Commission's Nevada Test Site. There, she "saw the necessity to understand nuclear radiation and its violent effects." Delving deeper, she learned that the nuclear material in a bomb contained less potential destruction than the nuclear material which would be used during every year of one nuclear power plant's production.

"It was instantly obvious which was the great

problem," she said.

O'Connor, whose varied career has included teaching ballroom dancing, has a degree in cultural anthropology. She's also interested in science and medicine. The future will be full of more fighting and then, she hopes, some formal



study in the fields she has been exploring for the benefit of politicians and laymen.

"When I'm sure that we have won this battle, I'm going to drop out and study chemistry and thermodynamics," she says.

Her "sunshine future" dream for the U.S. is not pie-in-the-sky, she says. "Solar electricity from the wind and solar fuels from methane production may be cost competitive if built today and almost certainly will be within five years."

Once the technologies are cost-competitive, it will take some kind of push to move private industry from present commitments to cleaner capital investments. As an experienced lobbyist in Washington, O'Connor warns, "If you can solve a problem at the state level without dealing with Congress at all, I highly recommend it. Let your elected officials know the equipment to do it is now commercially available and that their re-election depends on their taking some prompt action."

At the Billings conference O'Connor mentioned several ways to win at the state level:

—Ask vocational training programs in the state to teach students how to build solar

equipment.

—Pass tax laws that allow credits for people (and utilities) who build and use solar energy equipment.

—Use some portion of the federal money spent in Montana to finance solar energy demonstration and production facilities. The federal government spent \$1 billion in Montana in 1972, O'Connor said.

—Ask elected officials, Reps. Shoup and Melcher for instance, to set aside half of all the campaign contributions they receive and, if they are elected, ask them to use these contributions to hire an extra staff member whose only assignment is to work on clean, reliable solar energy for the state.

"If you are lazy," she warned, "others will louse up your state for you, for sure."

To insure a sunshine future at the national level requires more grandiose schemes. "You must make it profitable for private industry, which means at first that you pay through the nose," O'Connor says.

"In this country when Congress decides we want something, we take all the risks away from private enterprise," she says. "There was no risk in the rocket program or the moon program, for instance. Don't say, we're going to test a couple of little demonstration plants and hope private industry will take over. Because private industry won't if they have to gamble on their dollars."

"In my opinion the only way we can get it through private industry is to have huge contracts. Tell G.E. to build a wind power system for New England. Tell some other huge corporation to build bio-conversion systems for the Midwest, and another to build a solar thermal system for the Southwest, and another to build sea thermal power. You cover the country and you develop systems that way—all with tax dollars. If you don't like this process then you are going to have to examine the fundamental principles of private enterprise."

O'Connor thinks that private enterprise could provide for our social needs "if we gave corporations a legal responsibility to deliver on their claim that they can do a better job for society than communism or socialism. Right now they have no obligation to perform a socially useful function. The only obligation is that of the board of directors to maximize the return on somebody's capital investment. There's a lot we can do to recover control of our private enterprise system, although I don't see any big movement to do so." —JN

## A CLEAN ENERGY PETITION

1. I, the undersigned, petition my representatives in Government to sponsor and actively support legislation to: (1.) develop safe, cost-competitive solar electricity and solar fuels within ten years or less, and (2.) phase out the operation of nuclear power plants as quickly as possible.

|                                           |                      |           |
|-------------------------------------------|----------------------|-----------|
| Signature                                 | Name printed clearly | Date      |
| <hr/>                                     |                      |           |
| Street address (students: where you vote) | City                 | State Zip |
| <hr/>                                     |                      |           |

### PLEASE MAIL SIGNED PETITIONS TO:

Task Force Against Nuclear Pollution, Inc.  
Franklin L. Gage, Washington Coordinator  
153 "E" Street, Southeast  
Washington, D.C. 20003

202/543-7232

### A Nationwide Petition Drive

### Board of Directors

Dr. Dean Abrahamson (MN),  
Irene Dickinson (NY),  
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Dr. Harold C. Urey (CA),

The Task Force is happy to supply you with extra petitions. Please ask all your friends to sign. The petition-drive has helpers in every state. For the names and addresses of co-workers in your area, send a stamped self-addressed envelope to the Task Force.

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