The Outdoor and Environmental Bi-Weekly

High Country News

, No. 2 Lander, Wyoming Friday, January 19, 1973

The Crisis in Energy : Impact on Montana

Nothing in recent years has stirred the people of Montana quite so much as the problems of the energy crisis have. One way or the other, the impact is being felt from one end of that big state to the other. And, of course, developments in Montana are being paralleled in Wyoming. (But without the same effects on the citizenry as a whole.)

It is not surprising then that efforts are being made to outline and define the relevant issues and problems. Recently, the University of Montana Environmental Studies Program concluded a Seminar on the Northern Plains Coalfield Development. It was announced as a course and held throughout the fall quarter. Participants were university students, faculty members, and a number of Missoula townspeople.

The object was to gather the best information available in order to shed light on two ...ated questions:

1) What can we expect will be the nature of ... industrial development that will build up around the coal fields, and what will be its impacts — favorable and unfavorable — upon Montana?

2) How can the people of Montana, acting through their state administration and legislature, control — or at least influence — the character of the development in the best interests of the State and the region?

Dr. Robert McKelvey was director and coordinator of the seminar and was instrumental in getting a report published. (Available from Mrs. Prudence Smith, Rocky Mountain Mathematics Consortium, Rm 203, Mathematics Bldg., University of Montana, Missoula 59801 for $2.50. For those interested, the approximately 140-page report contains some nine parts covering the following subject areas: The Demand for Energy; The Impact of Energy Conversion Technology on Eastern Montana; Economics and Taxation; Reclama-

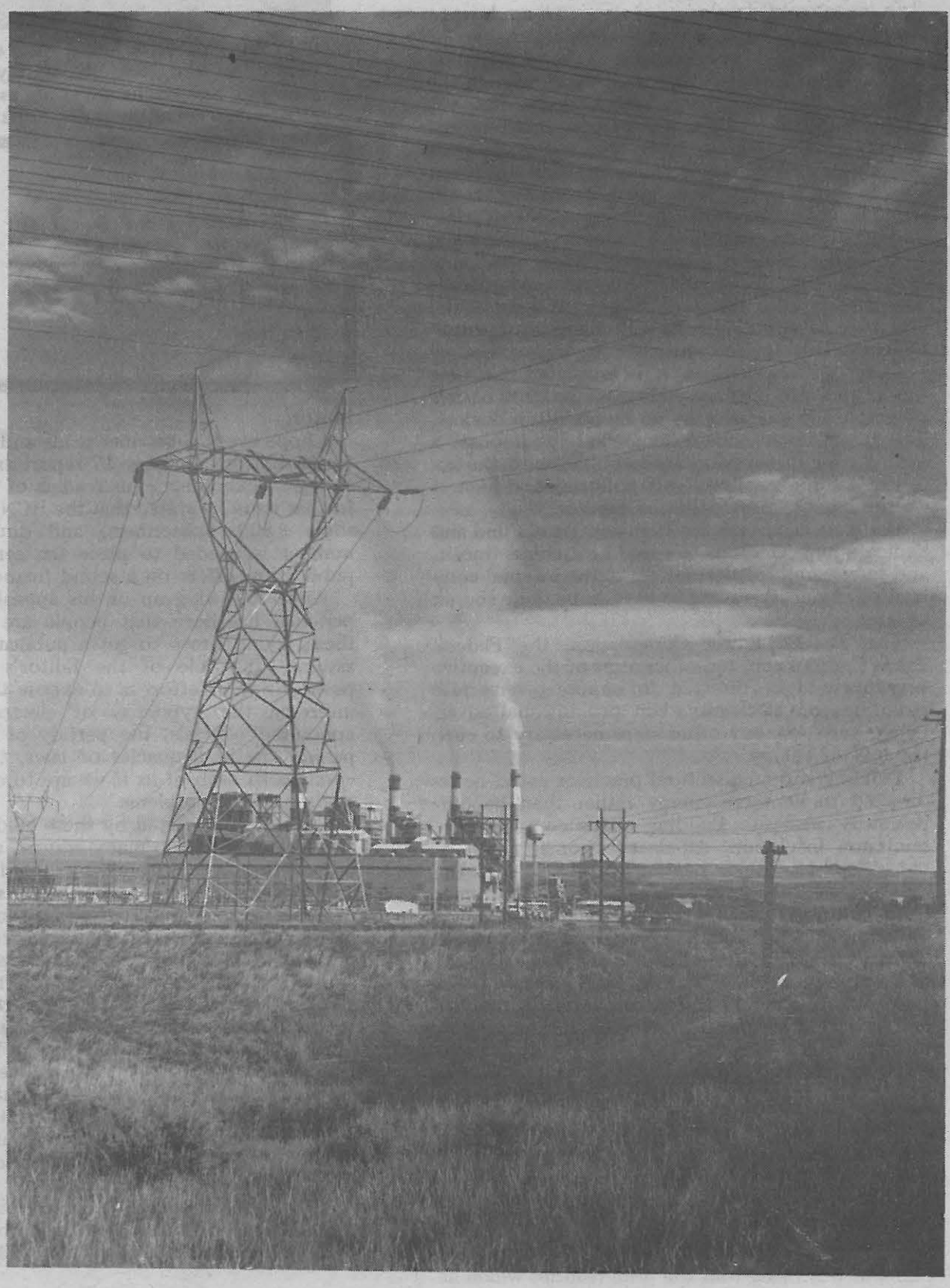
(Please turn to page 4)

Alert! Alert!

...t is authoritatively reported that a meeting ...the National Woolgrowers in Washington, ...uary 22-25, is going to stage a demonstration march on the Interior Department. The woolgrowers are going to demand the scalps of Interior Secretary Rogers Morton and Assistant Secretary Nathaniel Reed for their part in banning the use of poisons on public lands. Pressures will also be brought to bear on David Dominick of the Environmental Protection Agency. Arthur Lee Quinn, a high-priced, high-pressure Washington lawyer, has requested a number of western governors to come to Washington and help "persuade" the administration to relax the ban on predator poisons.

Your letters, telegrams and even phone calls are needed. These should go to President Nixon, to your governor if a westerner, and to your congressmen.

Photo by Tom Bell



Throughout the West huge power plants are beginning to rise as monuments to our lust for more electricity. With them come transmission lines marching across the landscape; strip mines which swallow hill and dale, ranches and rangelands; railroads; pipelines; the social impact of thousands of construction workers and hundreds of thousands of new people; enormous new demands upon scarce water supplies, and a steady decline in air quality in spite of the best technology. The accompanying article from the University of Montana may be helpful in understanding the developments taking place.

HIGH COUNTRY

By Tom Bell

What this country desperately needs is an energy policy. Within the next few weeks President Nixon is supposed to announce his version of such a policy. Unless I am completely surprised, it will not be what I envisage as a comprehensive or acceptable energy policy.

A foretaste of what he has in mind was recently carried in the papers. He is expected to call for a conversion of most powerplants to coal from oil. At the same time he will propose that air pollution controls be relaxed so that the powerplants can pollute with impunity. Proponents of this plan say that we will have to rely on massive reserves of coal over the next 15 years, and possibly beyond. Supposedly, this will keep us from getting "hooked" on foreign oil and keep us from going bankrupt buying it.

Theoretically, I suppose after 15 years we will then rethink our energy policy. In the meantime, we go on increasing our consumption at a prodigious rate, tap into the Alaskan oil and consume it in its entirety, develop oil shale, and learn how to gasify coal on a vast scale. The alternative of facing hard, cold facts will not be acceptable.

If this turns out to be Nixon's policy, then the West is in for more devastation than anyone has yet dreamed. It will commit hundreds of thousands of acres to strip mining under emergency or crisis conditions. Successful reclamation has not been proven, least of all over great expanses. It will commit entire rivers to the production of electricity, pipeline gas, and liquid petroleums made from coal. Some or much of the water will come from agricultural uses. Air quality over vast regions will be sacrificed for more power. And the social structure of entire regions will change from rural-agricultural to urban-industrial.

There are alternatives. It is estimated that new model cars will burn an additional 300,000 barrels of gasoline a day because of air pollution devices. The government could immediately impose a sliding scale of taxes on automobiles, with the tax lowest on the smallest, least polluting and highest on the largest, most polluting models.

Congress can break the Highway Trust Fund and dedicate huge amounts to speeding up mass transit, and to research for alternatives to the internal combustion engine. It is going to have to be done sooner or later.

The Federal Power Commission, the Federal Trade Commission, and other arms of the executive branch could be directed to impose reverse rate structures on electricity, ban promotional advertising, and take any other steps necessary to curb the uses of energy.

Building and architectural practices could be redirected to conserve energy rather than be outrageously wasteful. Building codes could require minimum insulation. All-electric homes could be converted to other heating methods and the building of anymore electrically heated homes banned. In areas where solar-heated homes could be feasible, such building could be encouraged.

There is a great deal of difference in the amount of electricity used by various appliances, and between makes and models. Tax or marketing penalties could be imposed upon those least efficient or most wasteful.

The means are at hand now to save or conserve prodigious amounts of energy. Many of them may not be palatable to a society with champagne tastes. But they would be politically acceptable if a coherent energy policy were spelled out, with the reasons for it.

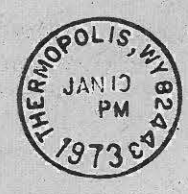
It is not only going to take real political leadership, but some guts to boot, to pull us through the energy crisis which looms ahead. The American public is not being told the grim realities which lie ahead. It is time the public was told.

It will be interesting to hear President Nixon's solutions to our energy problems. I would be willing to bet we get a placebo, pablum and platitudes. The truth is just too awful to contemplate.

Photo by Charles W. Smith

Prolonged, bitter cold and deep snows have driven game animals out of the mountains and foothills. In Wyoming and Colorado particularly, damage claims to rancher's hay stacks are rising as deer and elk seek food. Antelope in Wyoming's Red Desert area are again under stress because of severe weather conditions.

Letters To The Editor



Editor:

I hope every subscriber reads and responds to the Editor's October 17 report and appeal to the stockholders — us readers of the HCN. In that issue he stated that the HCN had only some 1800 subscribers, and double that number is needed to place the services the publication offers on a sound financial basis.

While following up on his appeal, my experience has been that people are eager in these trying times to get a publication that assumes the role of the Editor's declared position: "Our effort is to expose the selfish interests, the hypocrisy of elected and/or appointed officials, the perfidy of big companies, the inadequacies of laws, the shortcomings of each of us if we are to ever solve environmental problems."

People are attracted by these guidelines, as they realize that too many editors, scientists, bureaucrats are controlled by vested interests and, therefore, fail to expose the consequences of unregulated free enterprise and profit motivated systems that cause environmental problems. These forces resist any boat-rocking and become the advocates of more and more "studies" instead of directing efforts to find solutions to environmental problems.

Aside from telling it as it is, the Editor of HCN is among the few who realize that we are not the owners of the globe, but only its possessors for the time being and, therefore, have an obligation to pass it on to succeeding generations in a more productive condition than we received it.

The Editor's guidelines should provide all the drive needed to more than double the number of subscribers for the HCN.

G. M. Brandborg
Hamilton, Montana

Editor's note: My undying thanks to a great guy and dear friend, G.M. "Brandy" Brandborg. I have lost track of the new readers he has introduced to HCN in the last year, but it has been a considerable number. I am the more humbled for his kind and generous thoughts because he is one of the most outspoken and honest conservationists in the West.

We certainly can use the help in increasing our circulation that he indicates. Thanks to Brandy and a host of other concerned readers, our circulation is now up to 2050. The immediate goal, if the paper is to become self-sufficient and survive, is still 3,000. Can you help us reach that mark?

* * *

Editor:

I am writing to you in regard to the possibility of locating a young man for a partner interested in cattle ranching.

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HIGH COUNTRY NEWS

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EDITOR Thomas A. Bell
EDITORIAL ASSISTANT Anne Turner
OFFICE MANAGER Mary Margaret Davis
CIRCULATION MANAGER Marjorie Higley

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Guest Editorials

Reprinted from DESERET NEWS, Jan. 6, 1973.

Olympics Again In Question

Salt Lake City's unanimous nomination by the U.S. Olympic Committee as host for the 1976 winter games is a source of considerable pride, though the feeling is not unmixed.

The selection constitutes national recognition of the excellence of Utah skiing conditions and facilities. If the winter games are actually held here, Utah's growing reputation as a winter sports area will spread world-wide. Because so many Utahns have lived in other nations and speak a wide range of foreign languages, Salt Lake City is better prepared than many other larger American cities to handle certain aspects of the winter games. Nor are Utahns unmindful of the potential impact the games can have in stimulating the local economy.

Even so, there is room for some reservations.

Traffic jams already are developing in the canyons at peak hours, and the winter games would help intensify the growing congestion.

Attracting more skiers from other areas as a natural result of the publicity that attends the winter games would mean that Utahns would stand in lift lines even longer than they already do.

Or there would be pressure to build more resorts at the risk of over-developing our precious but fragile canyons and ski slopes.

Mayor Jake Garn acted wisely in inviting the Olympics here only on the condition that the games not burden local taxpayers and that no additional facilities be built on the watersheds. These are sound and necessary conditions; can they be strictly observed as the winter games come closer and closer?

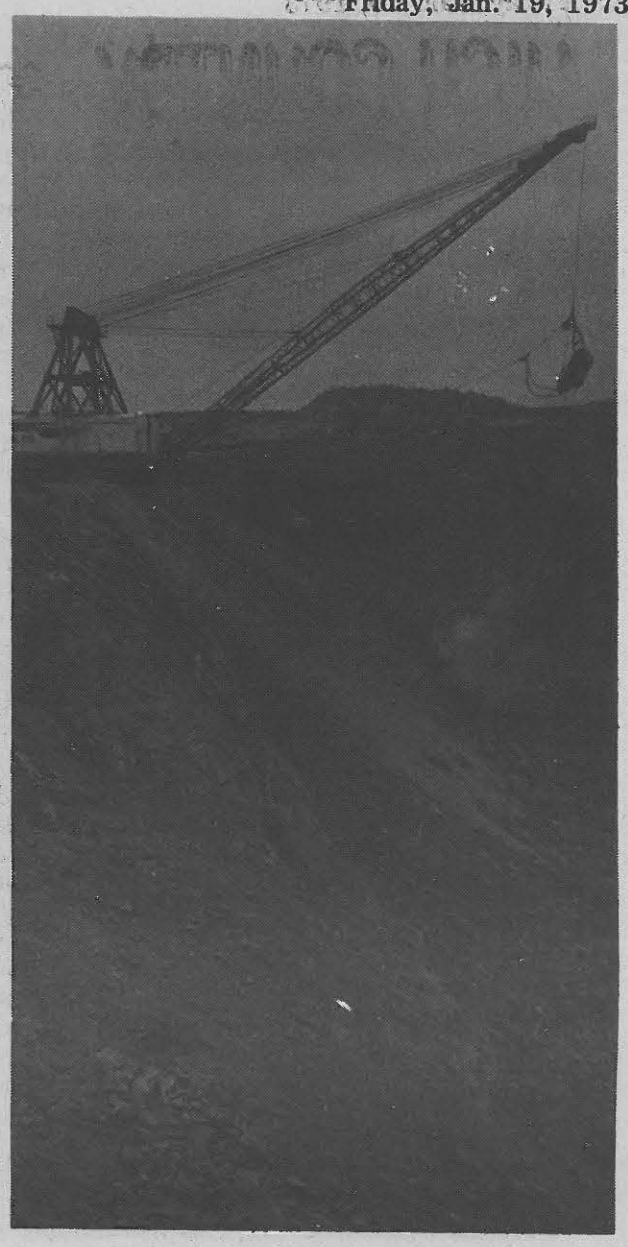
Since the winter games may never come here, these reservations could soon become academic. If adequate federal funds are not forthcoming, Salt Lake City would have to withdraw and the U.S. Olympic Committee would switch its site selection to Lake Placid, N.Y. Even if outside financing is provided in full, the International Olympic Committee could still decide to stage the games outside the U.S.

Before matters go much further, shouldn't the question of how fully the public accepts the prospects of hosting the winter games be thoroughly explored?

In an effort to answer this question, the Deseret News conducted a poll right after the announcement of the U.S. Olympic Committee's decision. The initial public reaction is encouraging, but more discussion and pulse-taking is necessary.

Salt Lake City can't afford to ignore the experience of Denver, where voters overwhelmingly rejected the winter games after they had been committed.

If the Olympic games come here, Utahns can be counted upon to roll up their sleeves and go to work on the project vigorously and imaginatively. But first let's make sure the public support is really there.



Reprinted from the LOS ANGELES TIMES

Jackson To Propose An Energy Policy

The special Senate study on the energy crisis won't be finished until spring. But Sen. Henry M. Jackson (D-Wash.), who is presiding over the inquiry, made a speech the other day in which he dropped the first hints about the legislative proposals that are likely to result.

When the experts talk about an energy crisis, they are talking about the fact that consumption of oil and gas is rising much more rapidly than domestic production. It is obvious that if crippling shortages are to be avoided, greater reliance is going to have to be placed on imports.

Because most of these foreign supplies must come from the politically unstable Middle East, however, and much of the rest may come from Communist countries, it is also obvious that this dependence on overseas sources shouldn't go too far. Steps must be taken to increase domestic oil and gas production and to speed the development of alternative fuels and energy sources.

Policies toward these ends must be drawn up within a framework of fair play to consumers and due regard for environmental considerations and the U.S. balance of payments.

The need for a coherent national energy policy, taking all such factors into account, is clear. But, as Jackson noted, one does not exist. Furthermore, he said, "There is no single forum or decision-making body in which alternative means for meeting our energy needs can be weighed against the nation's economic, environmental and security objectives."

Indeed, 44 federal agencies are directly involved in the administration of energy programs and another 20 are indirectly involved. There is no effective coordination.

Jackson has reached some other conclusions, too, which will probably show up in the study group's legislative recommendations next spring.

The current system for regulating oil imports should be scrapped, he says, and replaced by one following clear policy guidelines from Congress. Federal regulators should allow natural gas prices to float a bit higher, so that domestic producers will have an incentive to find new reserves.

Jackson warns, too, that the country should not leap into a deal for importation of natural gas from Russia without full consideration of alternatives.

Soviet gas, he observes, is expected to cost several times as much as producers in Texas or Oklahoma or Louisiana are allowed. And the prospective arrangement will require many millions of dollars in federal subsidies for tanker construction and financing.

Jackson wonders whether it might not be better to spend that money on research into fuel cells and solar power, and into the development of processes to make high sulphur coal environmentally acceptable, to manufacture gas from coal and to extract oil from shale.

Not all of Jackson's proposals are equally worthy, but they all deserve serious consideration — particularly by the Administration, which has yet to get its own thoughts in order on one of the most difficult problems facing this country in the years ahead.

The Editor Says...

Western woolgrowers are not going to spare any political means of getting the ban on predator poisons lifted. It now appears that a show of strength will be made while the National Wool Growers are in convention in Washington, D.C., January 22-25. There they will "kick off" a concerted effort by demanding the scalps of Interior Secretary Morton and his Assistant Secretary, Nat Reed. It is also reported that they will present a petition to the Environmental Protection Agency demanding re-registration of 1080 and other poisons.

The public, once having gained a ban on the use of terribly destructive poisons, should not have to back away now. Most informed westerners have no quarrel with sheepmen on the need for selective predator control. We know they lose some sheep to coyotes, a few to bear, and maybe even rarely to eagles. But even they don't know how many they actually lose through direct killing by predators.

Circumstantial evidence which would never be admissible in a court of law has been used to indict all predators. And with the indictment in hand, the cheapest, and to them most effective way, of dealing with the offenders was to broadcast poisons across the land. A few went even further and hired aerial gunners to shoot eagles from the sky.

Sheepmen claim losses of lambs have skyrocketed since poisons were banned. But close observers point out that 1080 baits are normally placed in late fall or early winter, and supposedly taken up by spring thaw in April or May. The Presidents' ban went into effect in February, with some baits not retreivable until spring. Therefore, if poisons are really the answer, mortality to coyotes should have been near "normal." Increased losses of sheep may have occurred but the question still remains — can the losses all be attributed to predators?

We think not! We think the Department of the Interior's "new" program should be allowed to operate for several years before throwing it out and reverting to widespread poisoning.

The Energy Crisis:

tion — five parts: 1) Reclamation of Stripmined Lands in Montana, 2) A Proposed Definition of Reclamation, 3) Mining Techniques 4) Water Reclamation, 5) Reclamation of Stripmined Land — Biota; Governmental Regulation; The Case for Abolition of Strip Mining; Land Use; Portrait of Rosebud County Today, and Planning for New Towns.)

Dr. McKelvey wrote the foreword and introduction which follow. Of the report he says, ". . . we deliberately have assumed a regional, and undoubtedly provincial, point of view. We are interested in the "National Energy Crisis," but principally for the manner in which it will affect events in Montana. We have thought in terms of protecting Montana against exploitation by the urbanized and industrialized regions outside of its borders.

"In undertaking this study we have regarded ourselves as laymen, not experts. Some of us are indeed experts or at least professionally trained, but not usually in areas which directly relate to the coal field development. We have had to make the best of limited, often sketchy, information, and we have had to make judgements from amongst conflicting claims of "fact." We have always tried to point out weaknesses in methodology or factual basis. We have tried to be honest, and to put aside our preconceptions and biases in the interests of reaching the truth. Each chapter of the report is signed by its authors, and is their responsibility. Each chapter must stand or fall on its own merits."

by Dr. Robert McKelvey

FOREWORD

In the short span of a year, the mining of Eastern Montana coal has emerged from the realm of obscure agency reports to become the hottest environmental issue in a state where "the environment" has come to occupy the very center of the political stage. The beginning of the change may have been in an initially localized dispute over the reclamation of a small strip mine in the Bull Mountains near Roundup, but unquestionably the event that seized public attention was the release, late in 1971, of the North Central Power Study. This Study, a joint venture of the Bureau of Reclamation and a group of Middle Western utility companies, explored the feasibility of constructing a vast system of water diversion works and "mine-mouth" coal-fired electric generating plants in Eastern Montana and Wyoming. Its purpose was to supply 53,000 megawatts of peak power, a substantial fraction of the projected electric power demand in this century for much of the Middle West, and its public announcement caused a shock which reverberated across the state.

Since that time, a whole series of events have seemed to confirm the original impression from the North Central Power Study that coalfield development is imminent and will be on a grand scale. **Item:** (April 12) Westmoreland Coal Company, a Pennsylvania firm, announces plans for the strip mining of 4 million tons of coal annually in the Sarpy Creek area and discloses its agreement to supply 300 million tons to Colorado Interstate Gas for a giant gasification facility in the area.

Item: Montana Power announces plans to build at Colstrip the state's largest coal-fired electric generating plant, and then (on October 30) its further plans for two more units, equally as large. This power — which was not contemplated in the North Central Power Study — will flow in part to the Puget Sound area. Montana Power Board Chairman J.E. Corrette predicts before a Great Falls Rotary Club audience that coal development will attract an industrial development in the region exceeding in size "any that has occurred in the United States."

Item: (August 12) Burlington Northern announces that "unit train" shipment of 42.5 million tons of Montana coal will begin in 1976 to Avinger, Texas, 1483 miles away. President Downing views this, and a test shipment to TVA at New Johnsonville, Tennessee, as "additional evidence that the market for low pollutant western coal will be an expanding one for decades." On October 15, Burlington Northern announces the planned construction of a 126 mile rail line — the longest to be built in the nation since 1931 — to connect its present line through Douglas, Wyoming with Gillette and the Powder River Basin coal fields which lie to the north.

Item: (November 17) Consolidation Coal, a subsidiary of Continental Oil, announces its plans for a $1 billion coal gasification complex on the Northern Cheyenne Indian Reservation. The operation will be based on the leasing for strip mining of up to 90,000 acres of Reservation land. The facility appears to be somewhat larger but similar to one near Farmington, New Mexico that Consolidation is building jointly with El Paso Natural Gas, with construction to begin about a year from now. In energy production these plants dwarf the planned Montana Power Colstrip electric generating facility.

Final Item: (Late November) From several sources, information is leaked that the Bonneville Power Administration has well-formulated plans — never publicly announced — for the shipment of power from Montana to the Pacific Northwest. The scale of the development (said to be 31,000 megawatts by 1990) compares with that of the North Central Power Project itself. The Bonneville Power Administration has approached the Forest Service about routing of the power lines through the "Magruder Corridor," bordering the Selway-Bitterroot wilderness. There is some urgency in their request, since Bonneville is anticipating a serious electric energy shortage in the Northwest by 1978, and looks upon coal as its only available source.

The reaction within the state to all of this activity has been pronounced, but without any consensus of view. Predictably, the state Chamber of Commerce and the Montana Bureau of Mines and Geology emphasize the potential for jobs and expanded tax revenues. Also, predictably, environmentalists and ranchers express fear of the devastation of stripmined land, the degradation of the air, the preemption of agricultural and recreational waters, and, in the long run, industrial instability and a bust. Governor Anderson warns of "economic colonialism," and establishes a State Inter-Agency Task Force — without teeth or resources. The Governor and state newspaper editorials ask for a Federal research project to provide guidance. Eventually the project is announced, but soon seems bogged down in bureaucratic politics. The environmentalists call for a "moratorium" — a temporary freeze — which is quickly labeled as a "heads-in-sand" reaction rather than a real solution. President George O'Connell of Montana Power seeks to calm fears by stressing his company's past environmental plusses, and assures the Montana Wilderness Society that the proposals of the North Central Power Study are moribund. And the Billings Gazette, in an extraordinary front-page editorial, proclaims a "Death Knell for Montana — in Colstrip."

INTRODUCTION

1. Eastern Montana's coal is an extraordinarily rich resource which, properly husbanded, can bring the State prosperity and provide the means for solving some of its most pressing problems. Misused, this wealth of coal could bring us instead to ruin. Should that happen it would not be the first time, either for Montana or for coal.

It seems that we stand at the beginning of a period of vast exploitation of this Montana resource. There will be hazards for us in this process, some of which can already be discerned. Some are avoidable; some may not be. The people of Montana can, if they choose, exert a substantial degree of influence over the character of the development — both in its form and in its pace.

The information which is presented in the body of this report seems to point up two distinct stages in the development, each with its own unique problems and hazards.

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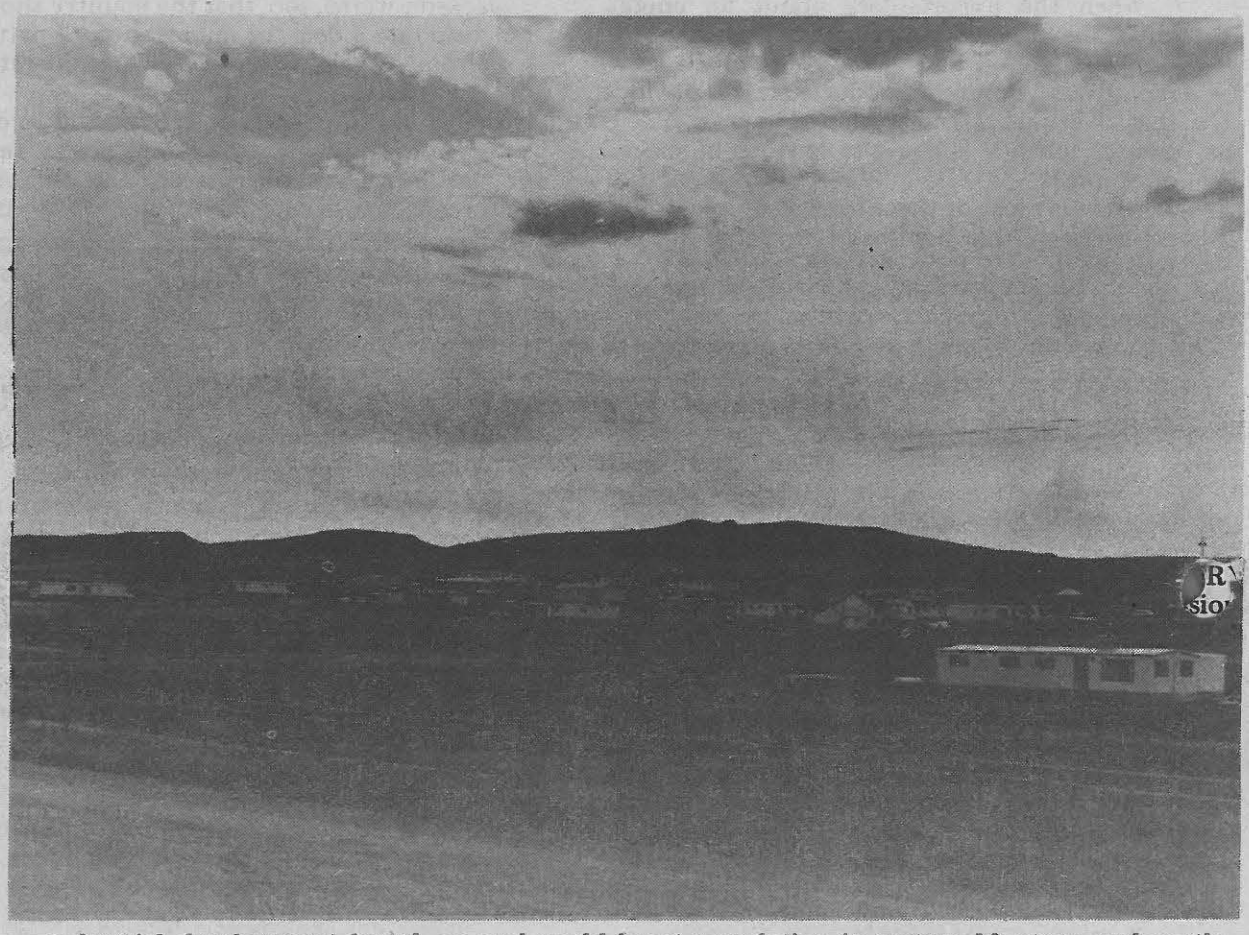

Industrial development based on coal could boast population in eastern Montana and northeastern Wyoming by as much as one million people. Gillette, Wyoming, with a present population of approximately 7,000 would be located near the center of activity. Already, trailer housing and urban sprawl is reaching into the hills surrounding the town. The Montana Legislature is expected to consider "New Town" legislation. None is reported for the Wyoming Legislature.

Impact on Montana

In the short term, to the end of the present decade, the problems stem from a national pinch in electrical energy supply, resulting from a serious miscalculation of the availability and reliability of nuclear energy. During this period the United States will have to produce its electricity from coal, and by inherently dirty and wasteful generating processes. Until sulfur removal technology advances, a disproportionate amount of the coal will have to come from low-sulfur-content western reserves — much of it to be found in Montana. The danger for Montana in this period is that premature development of a coalfield industry could tie the state for the rest of this century to archaic technology which would pollute its air, use up vast quantities of its water, and dominate its landscape with thousands of miles of high tension lines and massive steel towers. If the State chooses to act decisively, it undoubtedly has the power to avoid this kind of blight.

In the long run, say the next 30 to 40 years, Eastern Montana would appear to be headed toward a total transformation into a major energy producing industrial region, built on a population base of 300,000, or even twice that number. Quite possibly this development will exhaust Montana's entire strippable coal reserves within the 30 to 40 year span, although major deep reserves will remain. I am aware that it has become fashionable to scoff at such projections as exaggerated, but our calculations show that they are entirely feasible — without assuming any development of energy-based secondary industry.

The demand for coal in this period may be principally for conversion to natural gas and oil. The more immediate need will be for natural gas, since our underground reserves are running very low. Already massive coal gasification plants are being designed to supply Los Angeles from New Mexico, and tentative plans have been announced for plant construction in Montana around 1978. Preliminary estimates seem to indicate that gasification will be substantially less polluting than current electric generation, and less consumptive of water. Also, gas pipelines probably are less offensive than high-tension power lines. But none of these large gasification plants has been built yet, and it would be wise to retain a cautious attitude until their characteristics have been demonstrated.

It is obvious that this period of unparalleled growth will demand of Montana's people and leaders the utmost in foresight and imagination.

Throughout the period Montana will have to learn to deal adequately with the problems of restoring mined lands — and not only those associated with coal. The difficulty now is not merely the lack of experience in reclamation on the arid plains. More fundamentally, it is that we have not yet arrived in this country at a land ethic which could enable us really to define the terms of acceptable land restoration. Until that can be done, the succession of new reclamation measures that we are seeing can represent only marginal improvements — the tinkerings of the technicians.

Must the development occur or could we prevent it altogether? Even more, should we try? This report does not attempt to answer those questions. A responsible answer would have to begin with an examination of the trade-offs involved; the degree of permanent disruption of our land would have to be calculated, and weighed against a certain level of injury and death unavoidable even with the best safety precautions in the deep mines of Appalachia, and also weighed against the frightening hazards inherent in the routine use of plutonium atomic fuel. We would have to assess the risks inherent in an attempt to return society to the "simple" pre-industrial life style, should that be our collective choice. We would have to calculate the odds that clean solar energy might provide us with an easy way out of our dilemma — and also calculate the penalty to be paid should we gamble on that hope and lose. Our Seminar's report is restricted to a more modest inquiry.

New railroad spurs have already been built into Decker, Montana, (shown here) and to a strip mine south of Gillette, Wyoming. New spurs proposed or under construction will go to Sarpy Creek in Montana and link Douglas and Gillette, Wyoming, through the Powder River Basin.

The report is not long, and I hope you will wish to read it through. Each chapter is signed by its authors, and contains their views. **They** are in no way responsible for the interpretations — and extrapolation — which appear in this introduction. These represent merely one man's opinion.

2. **The Demand for Montana Coal.** Everyone is aware that the United States, along with the entire western world, is entering a period of "energy crisis." But what does this imply about the development of Montana coal? The answer is not as obvious as it may seem, for energy comes from many sources, and coal itself is mined in many places. While mining activity has been advancing in Montana and Wyoming, the coal fields of Appalachia (long our nation's primary source) are sunk deep in recession — the latest in a series of hard times that have recurred throughout the history of that blighted region. Ironically, it is the insistence of the environmental movement upon a clean-up of air pollution which, combining with the present low state of pollution control technology, is helping to shift production to the low-sulfur bituminus coal of the West and away from traditional sources. The pollution control incentive is reinforced by a second technological fact: the perfection of massive earth moving equipment now gives the economic edge to strip mines, even at remote locations, over conventional underground coal mines nearer to the point of use. It should be said that the balance of development can quite possibly shift again the other way: for example, a breakthrough to high efficiency pollution control technology, a shift to coal gasification processes (which are inherently less polluting), or the development of more efficient underground mining techniques (such as "in situ" gasification) — any of these could aid such a reverse shift.

A notion of the size of the present imbalance can be derived from some figures from a November 15 Forbes Magazine article: Western coal is selling for as little as $1.80 per ton at the mine, versus $10 at some deep mines in the East. For Eastern consumers the difference is made up in freight charges — $8 or $9 per ton to Chicago from Montana or Wyoming. In fact, Wyoming coal is now said to be competitive as far east as Detroit. Note that these figures make the recent proposal for a $2 per ton severance tax on Montana coal look rather conservative — such a tax certainly would not dry up the market!

While the pressure is strong for Montana coal to be utilized, there is less certainty as to **how** it will be used or **where.** For example, electric generating plants can be located either at the source of coal or at the place where the power is used. Right now the economic balance between these seems nearly even. In such circumstances a State policy decision — backed up by regulation and taxation — could tip the balance either way.

In the long run, what of demand? Quite naturally, projections of national energy needs to the end of the century rest on shaky premises, and there is a wide spread between them. Perhaps the most conservative estimates are for a doubling of energy consumption by 1990 or (assuming cutbacks in consumer demand) by 2000. Other estimates run several times higher. Demand for electrical energy is rising twice as fast as overall energy demand. At one time our national expectations for supplying these demands were tied closely to the development of the fast-breeder nuclear reactor, but recent difficulties with the safety and reliability of nuclear energy plants have led to a major reappraisal. Many observers now feel that within the next 30 years we will continue to have to rely heavily on conventional fossil fuels — coal, oil, and gas — and that much of the oil (possibly more than half by 1985) will have to be imported. Because of the distasteful ramifications of a reliance on imported oil (balance-of-payment deficits, and dependence on the unstable Middle East) there will be great pressure to utilize more of our domestic reserve of coal, through gasification and liquefaction processes. Undoubtedly too, serious attention will be given to less conventional energy sources, such as geothermal and solar energy. It is generally assumed (with more hope than solid evidence) that after the year 2000 our reliance on fossil fuels will diminish greatly. In this connection, it is interesting to note that both here and in the Four Corners area (Arizona-New Mexico), industrial plans for coal-fired electric generators and coal gasification plants generally assume a 30-year plant lifetime, and the size of facility generally is adjusted so it will use

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Impact on Montana

up the available strippable coal supply in about that 30-years time.

This observation leads to an interesting calculation, proposed by our Technology Workshop group. What level of use over 30 years would totally exhaust Montana's surface coal reserve? Utilizing processes with present day efficiencies, one answer is this: Montana's 30 billion ton strippable reserves could be exhausted by a 30 years production level of 69,000 Mw of electric power and 19 billion cubic feet per day of natural gas. This would require 15 electric generating plants like Montana Power's proposed 4-unit Colstrip plant, and 19 giant gasification plants of the size of Consolidation Coal's proposed facility on the Northern Cheyenne reservation. Over 70% of the coal would be going into gas. The plants need not, of course, be built in Montana (although by the BuRec's calculation, there would be more than enough water to operate them). Bringing the plants on line at a uniform rate, production would not actually reach this level until around the year 2000 — the standard planning horizon.

An independent, more conservative estimate is the following: let us accept the National Petroleum Council's estimate of a 15-year doubling time for national coal production, and assume that Montana's production is confined to its share (25%) of the national strippable reserve. Then Montana's annual production in the year 2000 would exceed one-half billion tons — a level only half of that figuring in our previous calculation, but still very large.

While one certainly cannot say that such levels of use will occur, they are nevertheless entirely feasible. Producing one-half billion to one billion tons of coal, Montana would be supplying only 8 to 15 percent of the country's natural gas needs and 2 to 5 percent of the electricity. This is not at all unreasonable, considering that Montana contains 25% of the nation's strippable coal.

To carry the calculation one step further, one may work out the total employment and population growth which would result from such development. Using employment figures for present day gasification and electric generating facilities, and applying the (conservative) methodology of our Economics Workgroup, the answer is: an employment of 40 to 80 thousand and a population of 240 to 480 thousand! This does not include construction employment, which would average an additional 10 to 20 thousand workers, assuming that construction were spread out uniformly over the 30 years, and pushes the total population estimate up to between 300 and 600 thousand.

What about water consumption? Using the known consumption of present day electric generating facilities and the claimed consumption of gasification plants (the claims may be over-optimistically low), one arrives at between one and two million acre-feet of water annually, depending on the size of development. To make an understandable comparison, the current agricultural use of water in all of Montana is 2.4 million acre-feet annually, which irrigates 1.8 million acres of land.

Finally, let us calculate the amount of disturbed land which would result from strip mining at the indicated production levels. Let us assume that each acre stripped will average five years out of production. (Mr. O'Conner of Montana Power claims that Western Energy land will be reclaimed in four years). Since the strippable coal averages an estimated 50 thousand tons per acre, we conclude that there will be 80 to 160 square miles of unreclaimed land at any given time! By way of comparison, the surface of Flathead Lake is 185 square miles.

(Let me repeat: projections 25 or 30 years into the future necessarily rest on shaky assumptions, and these levels of development may never occur. All the same, it would seem only simple prudence for Montana to have ready some contingency plans!)

3. **Energy Technology.** The key to an understanding of our options in the coal field is an awareness of the possibilities and limitations of technological innovation: innovations in mining the coal, in converting it to usable forms of energy, and in transporting that energy to its place of use. Our chapter on "Energy Conversion Technology" examines these matters in detail. Three salient facts stand out:

a. Presently available technology, from an environmental standpoint, is quite unsatisfactory and, if employed on the proposed grand scale, could be disastrous. Our evidence is somewhat circumstantial, since it is based on assumed production levels and comparisons with observed effects in other parts of the country. Nevertheless, the evidence seems compelling. The worst conceivable energy processing system is precisely the one which

Unless non-degradation of clean air is insisted upon by citizens of clean air regions, air pollution will get steadily worse. Plans for huge electric generating plants, gasification plants, and other pollution sources will dirty the relatively clean air of the western states. Here, the air along the mountains near Glenrock, Wyoming, is polluted by the Dave Johnston steam generating plant operated by Pacific Power & Light Co.

is now being installed in the Southwest (Four Corners — Navaho country) and which is on the verge of installation in Montana (Colstrip — North Central Power Study — Bonneville Power). This system would stripmine the coal, burn it (with major air pollution effects) to make steam, utilize the steam (with the consumption of enormous quantities of cooling water) to make electricity, and finally "wheel" the electricity to distant users via a vast array of high-tension lines. Any single generating plant (such as the Montana Power — Puget Sound Power and Light facility at Colstrip) can probably meet current air pollution standards, but the cumulative effect of a number of plants would very likely mean major air degradation. The current pollution standards seem ineffective to deal with this, and would allow the air of the entire region to be uniformly degraded to a specified level. Furthermore, current standards apply only to acid fumes and soot, and exert no control over numerous other hazards, such as radioactivity and toxic elements. Current technology is capable of great savings in water (through dry tower cooling), but presently there is no economic or other incentive for the power companies to adopt this improvement. The technology for undergrounding power lines at economically feasible costs seems very far off, and proposals for state control over the location of plants and power lines may provide only an unhappy choice among evils. Finally, these power plants are highly automated and will provide little employment. Their only advantage seems to be in their contribution to the property tax base — and this has to be weighed against the uncompensated property and environmental damages which they do.

b. Energy conversion technology is entering a period of rapid flux. News of recent advances are coming in from all sides and in a steady flow: a journal article describing a cheaper and less water-consumptive gasification process, a report of a dramatic improvement in the level of stack gas clean-up, progress in the direct removal of sulfur from coal, a technical advance toward a more efficient gas turbine power-cycle for making electricity, a pilot experiment in gasification of coal directly in the mine, the award of a major research contract for investigating a new solar energy process. And on and on. It takes time to carry a technological innovation from conception through pilot project to large scale plant installation, but there is little doubt of the trend, and the pace is accelerating. While no one can say with assurance that a particular process will pay out (though everyone seems to have his favorite), more efficient and less consumptive processes clearly are on the way. The technical methods involved are generally of a rather conventional sort, since the element that has been missing in the past is merely the will to try — stifled by our single-minded national preoccupation with the nuclear panacea. Having delayed so long in giving serious consideration to non-nuclear alternatives and being under the gun of the short term energy crunch, we face a cruel dilemma: whether to install dirty and inefficient but immediately available equipment, or to accept energy rationing and blackout episodes. The battle will be ferocious.

c. Our present regulatory system simply is not adequate to deal with the worst effects of the present archaic technology, or to hold off development until environmentally acceptable technologies are available, or to insure that superior technology will be utilized when it does become available. To cope with the problem we will have to be imaginative, and break entirely new ground.

4. **Land Use and Reclamation.** Our seminar was very much preoccupied with these issues, and several chapters in this report deal with them. Certain themes recurred persistently in our discussions, and I will try to address these here.

a. Reclamation, we agreed, has to be regarded as a process which is an intimate part of the entire mining operation — not merely a stage at the end. It consists, as Tom Foggin has expressed it, of all of those activities implemented before, during, and after the active mining operation that provide for the effective rehabilitation and management of the mined land ecosystem to a predetermined state of environmental stability and productivity. Thus, reclamation is a process, guided by explicit goals.

b. The Seminar did not, I believe, arrive at any concensus on what the goals of reclamation should be. Perhaps that was ruled out in any case by the present state of scientific ignorance about what in fact can be done. No one has claimed to date to have achieved the reclamation of high plains mined land, although naturally workers in the field would like to believe that they are progressing toward it. Many in the seminar equated reclamation with the reestablishment of the status quo ante, which to them meant restoring the underground aquifers, natural landforms, soil profiles, and biological communities. In the short period of five or ten years, this ideal can only be distantly approached. Others emphasized the continued responsibility for management, recognizing that man has long since intervened in the natural systems. There may be a conflict between restoring to a use, or productive function, and restoring to an ecologically defined state: we did not settle the issue. In a

(Continued on page 11)

Cultural Clash in Canyonlands

Text and photos by Fran Barnes

The vast canyonlands country of southeastern Utah is both a joy and a sorrow to archeologists — a joy because of the rich treasure of early Amerind sites and artifacts still to be found there, and a sorrow because these irreplaceable traces of aboriginal American culture are so rapidly being destroyed.

It seems to be a part of the nature of man that each succeeding culture inevitably destroys all obvious, physical traces of earlier human cultures that occupied the same land. America is certainly no exception to this, and in fact is doing a far more complete job of destruction than any earlier, or even contemporary, culture has been able to do. The "barbarians" within this most "civilized" of all human cultures still follow this ancient human tradition, whether by deliberate intent or by simply not caring. Thus, despite the continuous efforts of more civilized Americans, most traces of earlier American cultures have long since disappeared forever, destroyed in ceaseless, mindless waves of "progress," or maliciously damaged or defaced by barbarous individuals.

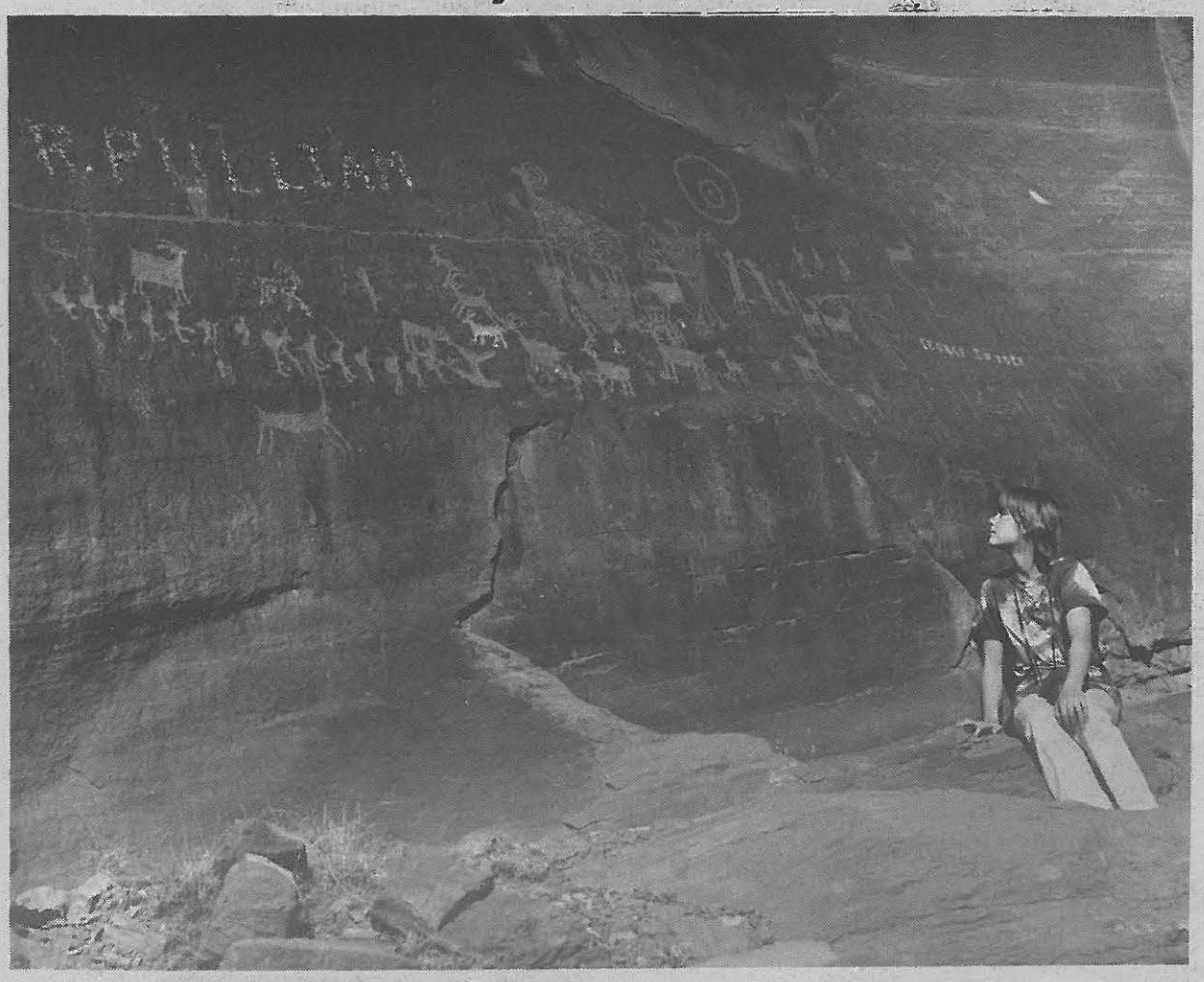
The chief instruments of the destruction of the few remaining traces of earlier American cultures have been the plow, the bulldozer, logging equipment, the dam, forest "chaining" equipment, and road building equipment. Thanks to these "tools" of modern civilization, virtually all traces of earlier Amerind cultures that existed on the east and central parts of this continent when the white man first arrived, have long since vanished, irretrievably destroyed by thoughtless, careless "progress."

In the American west, our archeological treasures have fared somewhat better because they were fewer, widely scattered and in many cases located in inaccessible, remote or unexplored country. In spite of these protective factors, however, western sites and artifacts are now fast disappearing. Several major factors are at work in this process.

The largest single factor in the destruction of Amerind artifacts and sites is, not too surprisingly, the federal government. Various federal land control agencies that still operate under outmoded laws, regulations and philosophies, or that are controlled at the decision-making level by economic interests, annually destroy hundreds, perhaps thousands, of archeological sites and artifacts. This, despite federal and state laws that supposedly protect these valuable remaining traces of earlier American cultures.

The Bureau of Reclamation and the Army Corps of Engineers promote the construction of dams and other projects that drown or destroy countless Indian ruins and other archeological sites, often for highly questionable economic "justifications." The construction of Hoover Dam and Glen Canyon Dam resulted in the drowning of literally hundreds of unique ruins, plus uncounted thousands of hunting camps, granaries, chipping grounds and other archeological sites.Surveys of the more obvious of these, performed on a rush basis by largely amateur teams of searchers directed by local universities, saved a few artifacts from the rising waters.

But the bulk of the scientific knowledge that might eventually have been gleaned from these sites, especially as more sophisticated research equipment and methods were developed, was lost forever. And every bit of the aesthetic value inherent in these sites was lost completely. Never will a thoughtful, civilized American be able to see these surprisingly well-preserved sites, be able to stand within them and try to understand and appreciate how the original American citizens lived their daily lives, and coped with their primitive environment. All that now remains of these hundreds of irreplaceable sites, these thousands of unique artifacts, these "nonrenewable resources," is a pitifully tiny fraction of the knowledge that was available, and a pitifully few artifacts, all now gathering dust in some university warehouse, where the scant knowledge they contain may or may not ever be extracted.



This photo shows only a small part of a 400-foot panel of very old petroglyphs found in a remote, difficult to reach area near Moab. The panel is along the base of an elongated, mushroom-shaped plateau, part of which bears the scattered remains of an Anasazi "fort" or stronghold. Some of the name-graffiti on the panel are relatively fresh, such as "George Snyder" and "R. Pulliam" in this photo. Others are old enough to be almost historic in themselves, such as "E. Jorgensen, 1900" near the bullseye in the photo. The relative ages of the petroglyphs, and grafitti, can be determined by the amount of "desert varnish" that has built up in the chipped or scratched marks. Very old glyphs may be as dark as the surrounding varnish.

The Bureau of Land Management, the Soil Conservation Service, and the Forest Service are also major culprits in the destruction of Amerind artifacts, as are several other federal agencies that have to do with agriculture, animal husbandry and watershed control, and of course numerous state agencies of the same sort play similar parts in the damage and loss of Amerind artifacts. Massive "chaining" projects, in which vast areas of public land known to contain archeological sites are leveled by teams of giant bulldozers dragging between them heavy chains, steel cables or rails, are performed on a regular basis within western states by the BLM and Forest Service.

The BLM and the Bureau of Indian Affairs also cooperate in the establishment of massively destructive industrial projects such as power plants and transmission lines, strip mines and coal slurry pipelines, mineral leasing and oil and gas pipelines. All of these destroy irreplaceable and valuable archeological sites within the Four Corners states. Yet seldom, if ever, are these highly destructive operations, which wreak massive environmental damage, preceded by the meaningful, objective environmental studies required by the National Environmental Policy Act of 1969. And seldom are they preceded by anything more than a cursory, lip-service scan of archeological values, even when it is known that numerous sites exist, this despite both federal and state antiquities laws which strictly forbid the destruction of such sites. If the sites are in the way of "progress," they must go!

To give two recent examples of this, in March, 1972, the BLM proposed to permit a millionaire cattleman who held grazing leases on 6500 acres of land adjacent to Natural Bridges National Monument, chain the virgin pinion-juniper forest on that land so as to "improve grazing" for some 600 head of cattle for about six weeks of use each year. The area was "surveyed" for archeological sites by an "old cowboy" in BLM employ whose qualifications certainly did not include an education in archeology nor, probably, anything above the grade school level. Many sites were found, many others were obviously not. But their importance was shrugged off. No environmental impact statement was prepared nor planned.

A second example occurred in late 1972, when Forest Service officials announced plans to chain 1600 acres of pinion-juniper land in the foothills of the La Sal Mountains in southeastern Utah. A Forest Service "archeologist" found several dozen sites within this relatively small area, yet he concluded that ". . . . there is no archeological reason not to chain the area." He reached this "scientific" decision before the survey was more than 75% complete. The "archeologist's" report went on to recommend that several sites be studied both before and after chaining, to determine the extent of damage such an operation caused. This recommendation, after several decades of chaining and equally destructive clear-cutting in National Forests known to contain archeological sites, borders on the facetious, and can only be likened to "locking the barn door after the horse is stolen."

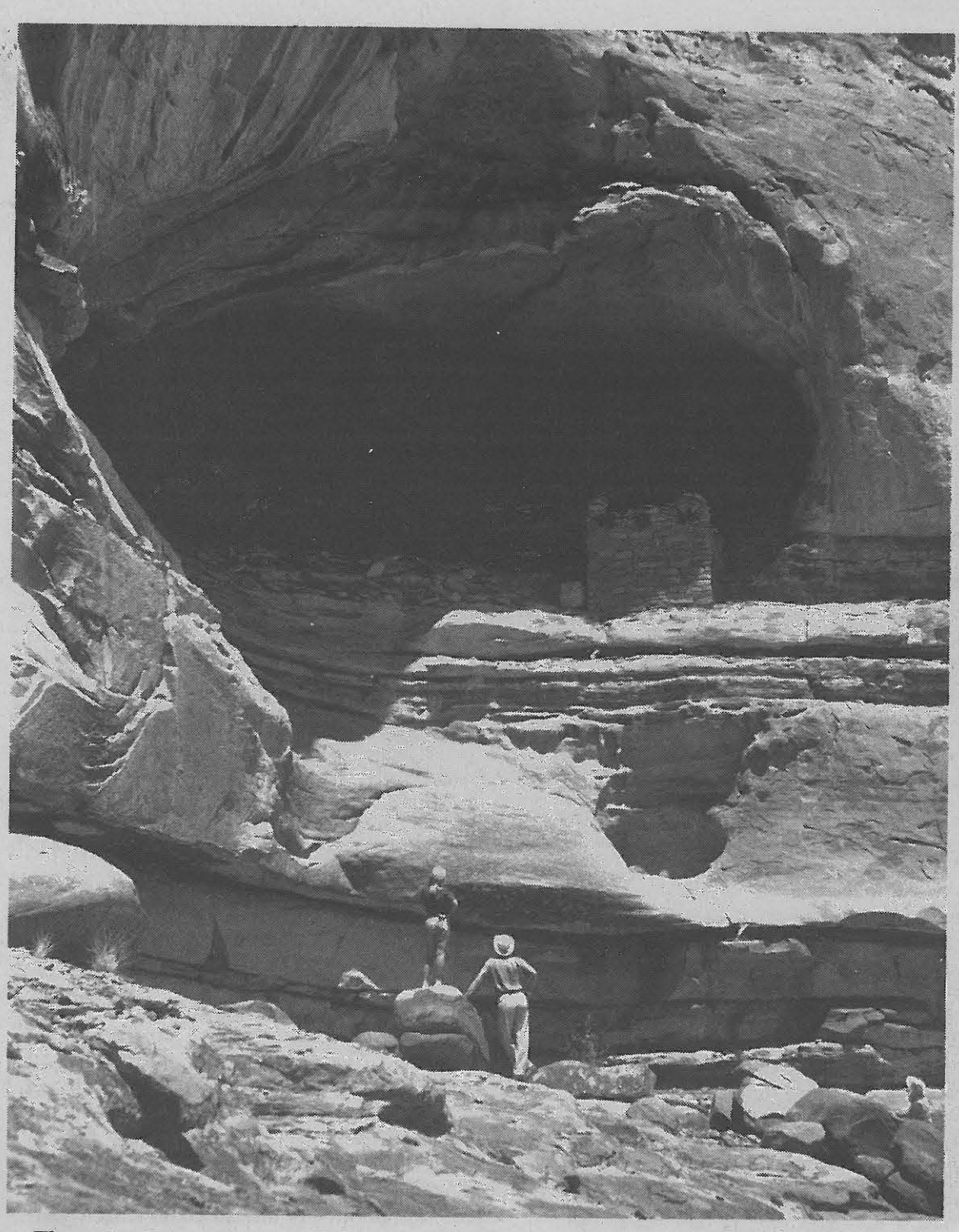
Of course, the Forest Service officials who planned the chaining operation did not conform to the requirements of the National Environmental Policy Act. A local rancher wanted the land chained, Congress in all its infinite wisdom had passed pork-barrel legislation alloting funds for "range improvement," so the Forest Service officials naturally had to do the chaining, however much archeological knowledge was lost in the process.

Even the Park Service is not beyond cooperating in the destruction of archeological sites. To give one example, in response to heavy pressures from local political and economic interests, officials of Canyonlands

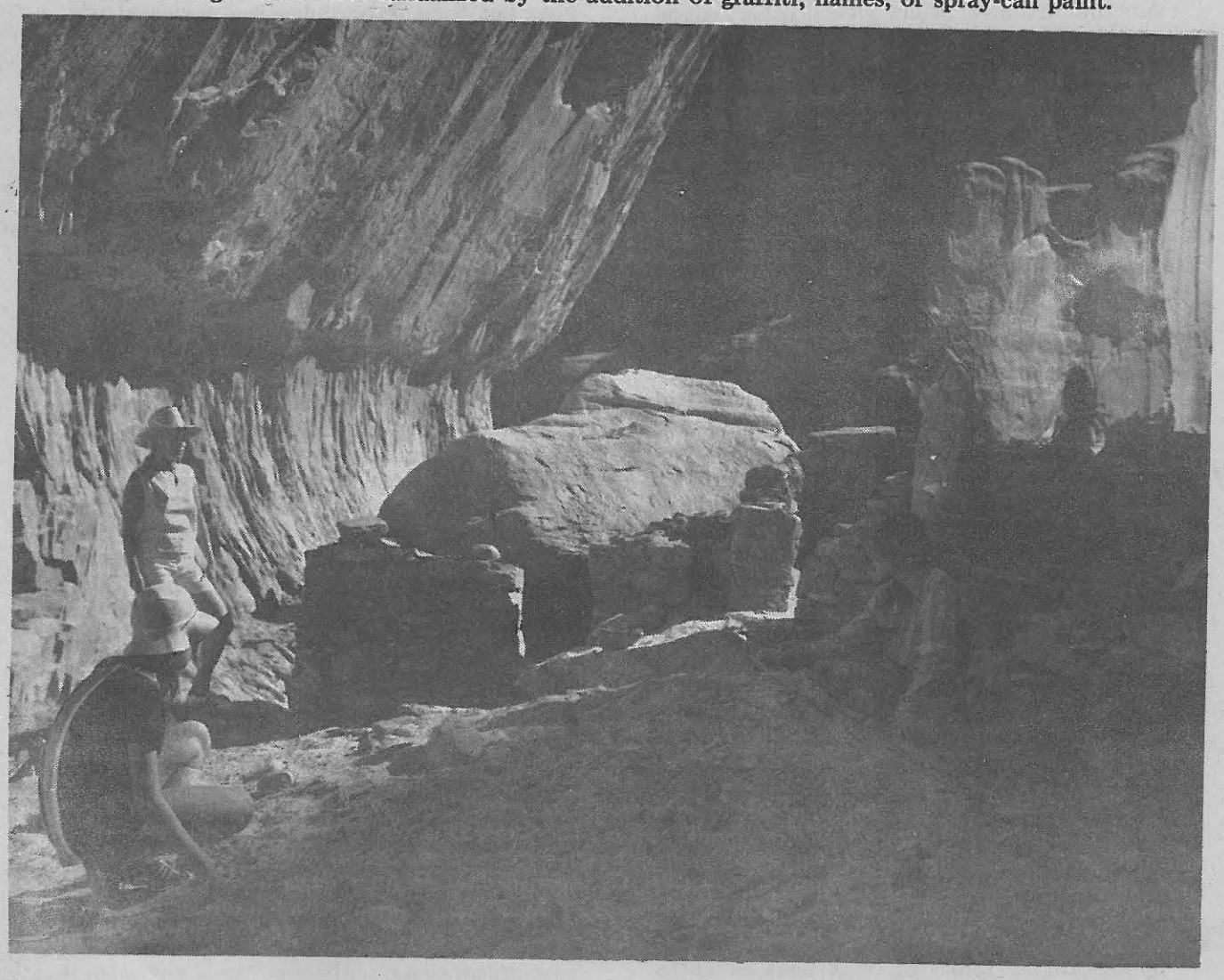
(Continued on page 10)

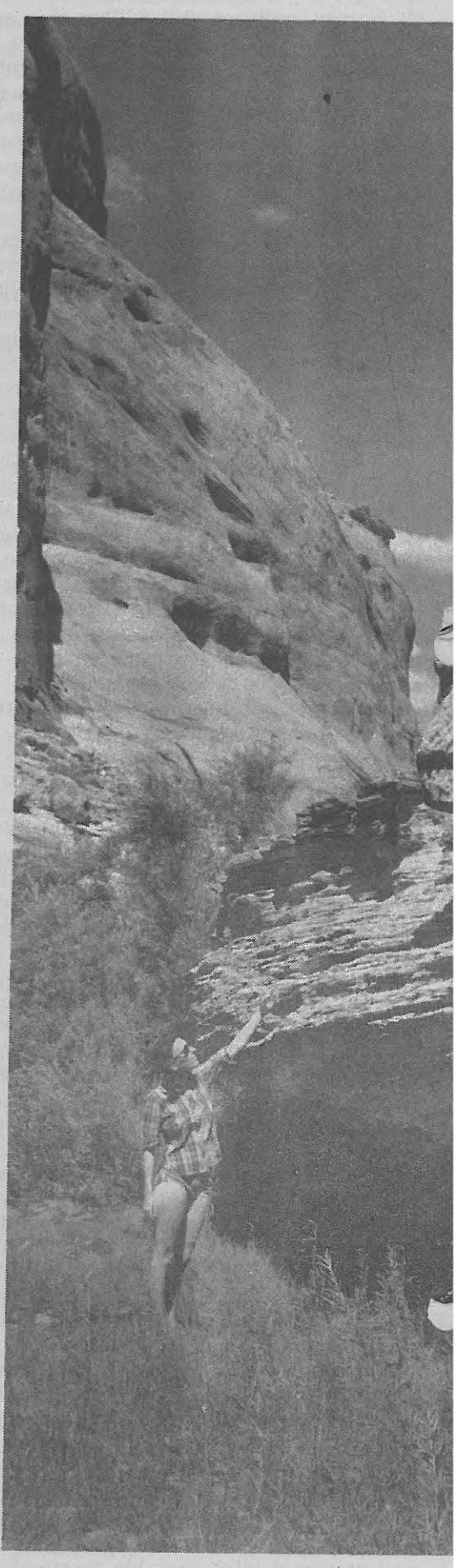
ANTIQUI

Many Anasazi and Fremont Indian ruins suc
borders of Canyonlands National Park, but tho
private land receive no protection at all beyond
many ruins within what is now Canyonlands Nat
official exploration party in 1952. Many artifact
1964, when the park was established, all these ru
virtually nothing of value for the first official scien
other archeological sites within the same general
during the same period. Such looting continues ev
the more bold collectors excavate the better know



The ruins below were annexed into Canyonlands National Park in late 1971, but too late to save them. This photo was taken just weeks before the annexation, showing evidence of fresh digging for artifacts. Mortared walls had been undermined and overturned in the digging. Earlier, a lovely clay pot was found on a hidden rock ledge near another ruins in the same canyon. The pot went into a private collection, unreported. Most such ruins have pictographs or petroglyphs near them. Generally, such "Indian writings" have been vandalized by the addition of graffiti, names, or spray-can paint.



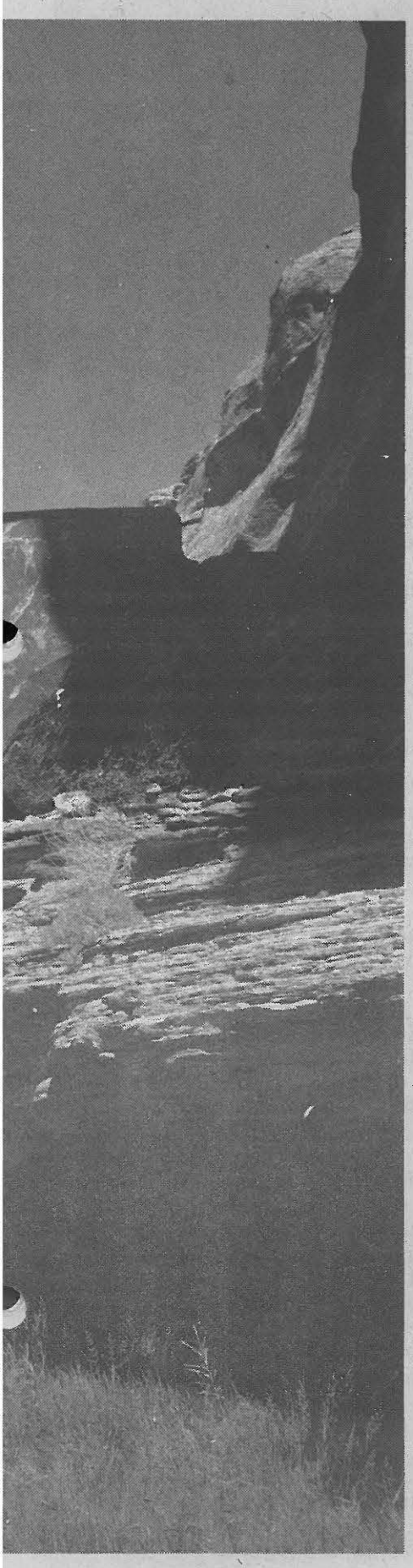


Here, two huge, age-darkened boulders are vir
grace a ledge in a canyon system near Moab, Uta
purposes. These and other petroglyphs will be d
for public hearings, to discuss this and other as
and local authorities, even though at least tw
Management and the Corps of Engineers.

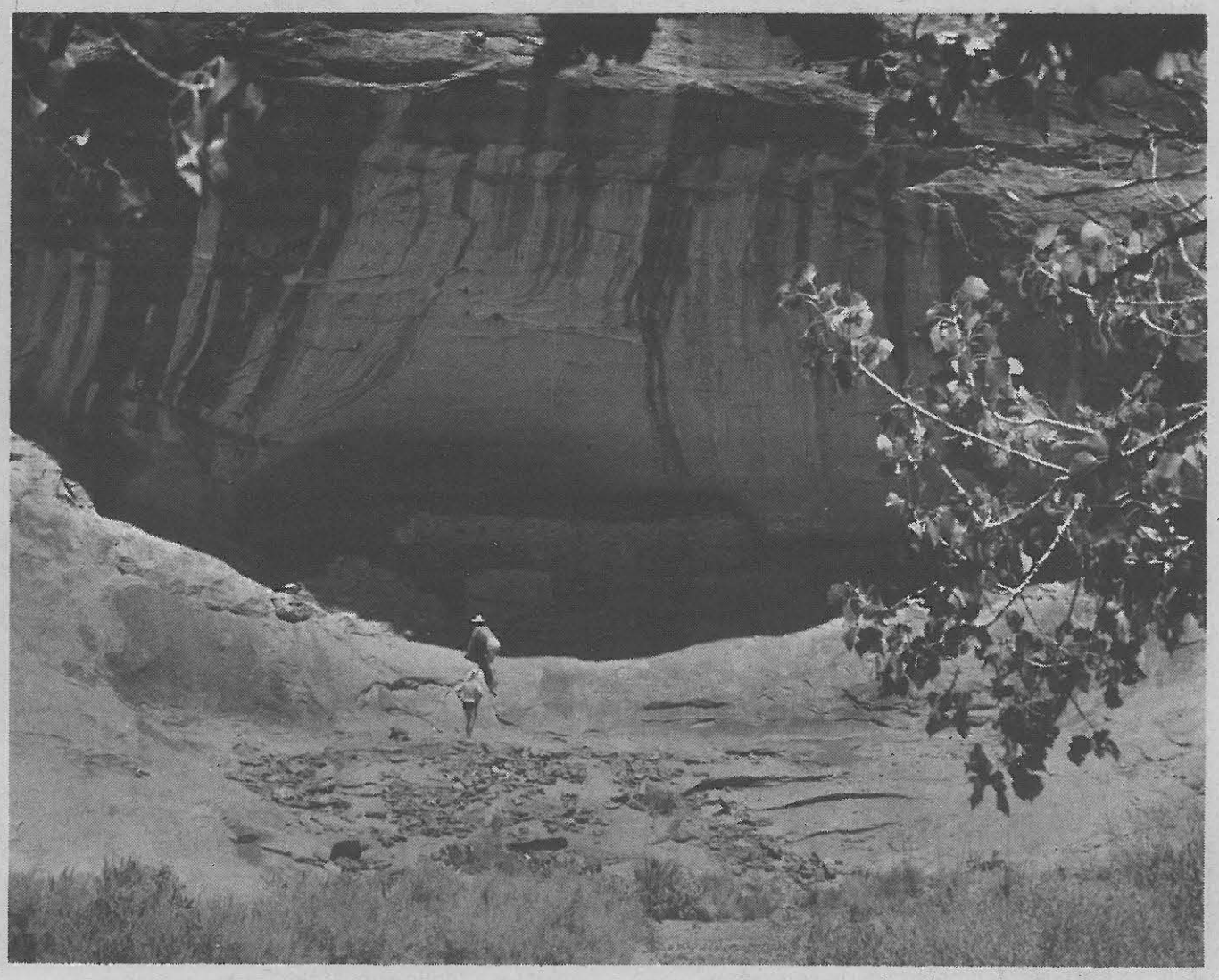
ES UNDER ATTACK

Photos by F. A. Barnes

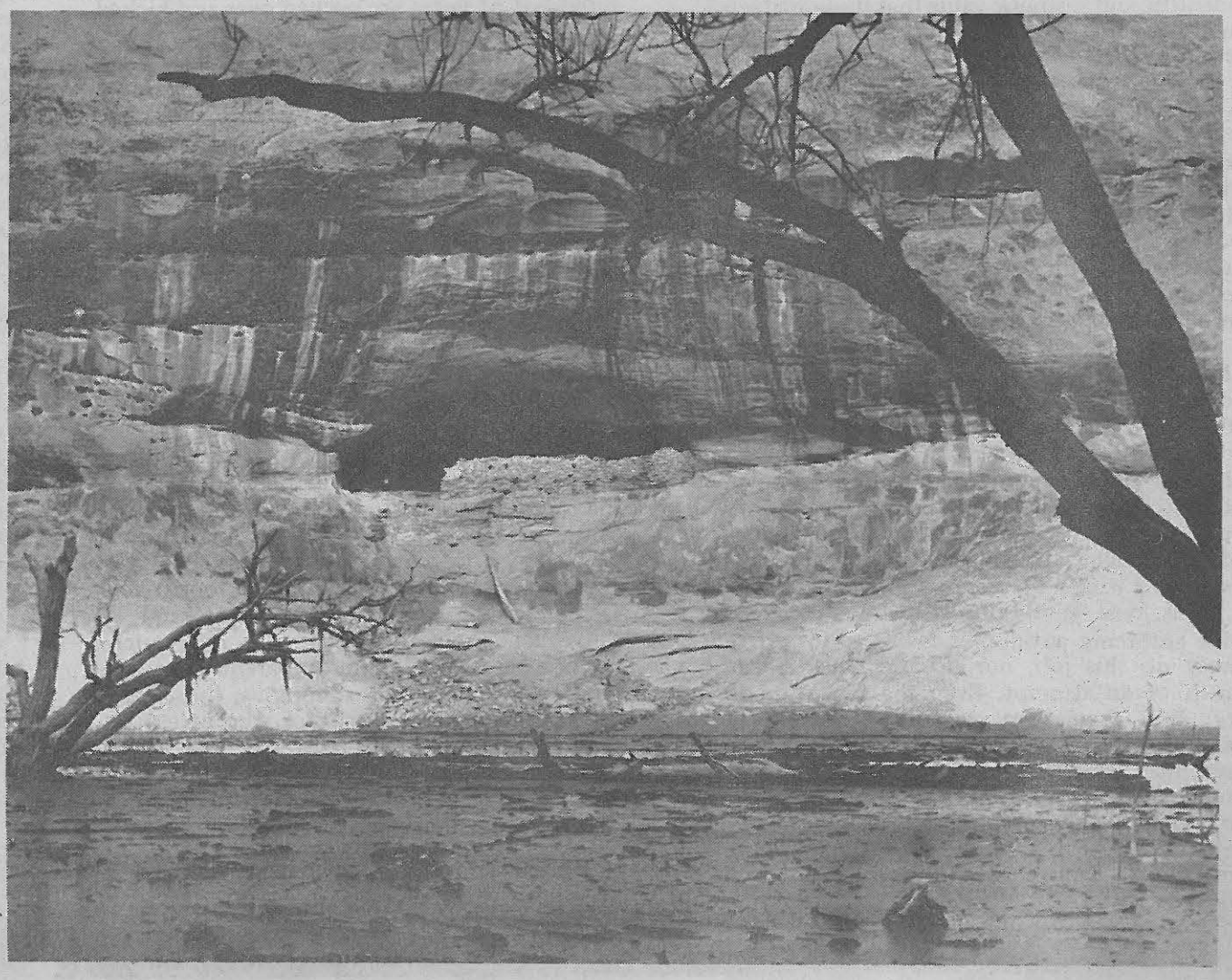
left) are now protected within the
er archeological sites on public and
ate and federal antiquities laws. The
first given a brief survey by an un-
and left, in place. Between then and
natically looted by collectors, leaving
the University of Utah. Hundreds of
not within any park, were stripped
ore remote areas are penetrated, or as



l with very old petroglyphs. The boulders
rities plan to dam for highly questionable
ined by the reservoir waters. All requests
dam project, have been rebuffed by state
ncies are involved, the Bureau of Land



Here is a sad example of cooperative industrial/Bureau of Reclamation vandalism. Hundreds of archeological sites have already disappeared beneath the waters of Lake Powell. This site, and several others up Lake Canyon near Bullfrog Basin, will be the next to go. The first photo was taken a couple of years ago, when it took a hike to reach the site. The second photo was taken in November 1972. At that time the rising lake waters had killed all the ancient cottonwood trees that filled the canyon below the alcove ruin, and the canyon was choked with driftwood and other debris. As the waters rise still farther next year and the next, this small but lovely archeological site will be drowned and destroyed, lost forever, along with countless other such sites that stand in the way of industrial "progress."



Clash . . .

National Park are planning the construction of a ten-mile spur road within the unique "Needles" district of the park. The expense of building the road is exorbitant, it will do considerable damage to local terrain, be difficult to maintain, take four years to complete, and even then will go only to a viewpoint of moderate interest. The construction of new roads within National Parks is also contrary to clearly stated Park Service policy. Construction of the road will also destroy fifteen known archeological sites.

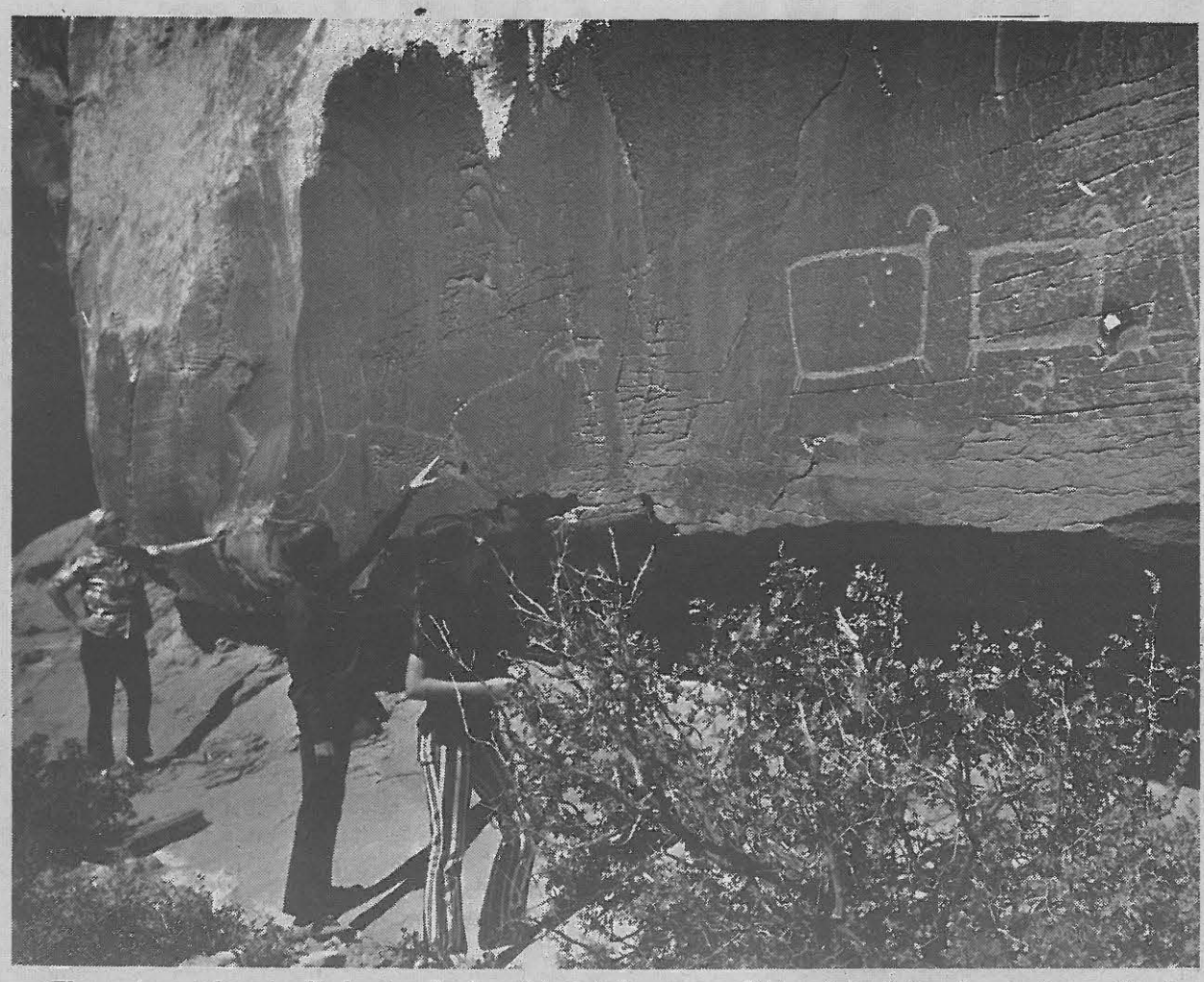
But local politicians, under the influence of local road building contractors and other economic interests want the road, so the Park Service is going to build it, despite all logic to the contrary. In this case, an environmental impact statement was filed, but public comments pointing out the many obvious weaknesses in the proposal are being ignored, including pleas to save the archeological sites and develop them for interpretation for park visitors.

While no amount of destruction of archeological treasures by private citizens can begin to match the wholesale, organized destruction regularly performed by our state and federal agencies, private citizens and businesses nonetheless constitute a big factor in the loss of Amerind sites and artifacts. Despite laws which are applicable to antiquities on both public and private lands, private land holders develop lands having archeological value without even slight concern for such values. Plowing and chaining on private land have destroyed unknown thousands of archeological sites within canyonlands country, and collectors, both private and commercial, have systematically stripped most of the known ruins in this vast region, even those within National Parks, Monuments and Recreation Areas. Other collectors, largely amateurs, have gathered countless scattered Indian artifacts such as arrowheads and spearheads, ax heads, corn grinders, pots, baskets, human mummies and other still rarer items. These have been added to private collections that are in some cases horrifyingly large, and any historic, scientific and aesthetic value that these artifacts may have had are totally lost to the scientific world and the American public.

Federal agencies responsible for the protection of archeological material, themselves the worst culprits, are not in any position to enforce existing antiquities laws. In the first place, enforcement would be hypocritical. How could a local BLM office "throw the book" at a collector for picking up a few arrowheads, while at the same time planning to utterly destroy several hundred ancient dwelling sites?

In the second place, all too many such "hobby" collectors, and even commercial collectors, live in the same community as the BLM officials, and may thus be friends or acquaintances of these officials. Further, local old-west philosophies, still in effect in much of southeastern Utah, see nothing wrong with "picking up a few points," and an "outsider" who thought otherwise would soon be ostracized within the community.

Thus, local federal officials who are charged with enforcing antiquities laws cannot effectively do this job, nor do they even make much of an attempt. Even the few who do try, find themselves severely hampered in canyonlands country. Violations of federal laws must be tried in federal courts, and there are no federal magistrates available for southeastern Utah. A federal judge in Salt Lake City is too jealous of his prerogatives to delegate any such authority, so every case has to be tried in Salt Lake City, an expensive, time-consuming process that has quite definitely discouraged and hampered enforcement of the federal antiquities laws in canyonlands country. As a result, only the most blatant of violators are apprehended and tried, while hundreds of others, both local and from out of state, go on stripping the land of its few remaining archeological treasures.



These strange box-bodied petroglyphs of desert sheep are within plain sight of a road near Moab, Utah, and have suffered accordingly. Notice the several bullet holes that mar the larger image. Bullet pocks and scratched names are the commonest forms of defacement suffered by the many petroglyph sites in canyonlands country. Virtually none have escaped vandalism.

Nor is "collecting" the only hazard to archeological sties from private citizens. Vandalism also plays a part. The barbarians among us still pursue their ancient impluses to totally destroy what they can, and deface what is not easily destroyed. Unique and irreplaceable Anasazi and Fremont Indian dwellings and granaries made of fitted and mud-mortared rock are senselessly damaged, often just for "fun." Stone walls that have withstood time and the elements for many hundreds of years are pushed over and kicked to pieces. Fired-clay pots, now rare but still occasionally found in hidden places, are broken into worthless shards by those who do not realize their value. Pictograph and petroglyph panels hundreds, even thousands, of years old are defaced with spray paint, rock hammers, bullet pocks and scratched graffiti and names. Even scientific research teams, hired by federal agencies to "survey" archeological sites, leave them in sad condition. Ruins are dug up without restoration, rare and unique pictograph panels are marked with paint to aid "scientific analysis" and well-hidden sites are marked with signs, making them obvious to the collectors and vandals who come later.

And again, even the few conscientious federal officials who would like to enforce the antiquities laws find this difficult because of lack of local federal magistrates.

What can be done to stop this inexorable and accelerating loss of the irreplaceable archeological treasures that still exist in canyonlands country? Probably not much, because it seems quite apparent that the vandals, the barbarians among us, those who would deliberately destroy or who care little about anything but dollars, vastly outnumber the relatively few Americans who are more civilized and consider other factors on a par with economic factors. We who care are too few and too weak — those who do not care are too many and too influential. In most of this broad nation, the fight was lost before it even started. A bare pittance of the archeological values that were here when our forefathers landed on this continent still remain in the rest of the country, and a clear majority of those that were within canyonlands country are now already lost. And what remains is going fast, as modern American culture washes in ever-growing waves into the last remote regions of the southwest.

Stop the destruction of the few surviving remains of our predecessor culture? This is not possible, given human nature as it is, with its ingrained, traditional, xenophobic, perhaps instinctive hate, fear and distrust of earlier peoples and cultures, and its innate, insatiable lust for material wealth and progress. But perhaps if the few of us who are civilized enough to place other values on a par with, or above, the modern cultural goals of "progress," "development" and "economic gain" — or if those few of us who are human enough to rise above our more destructive, selfish, animalistic instincts — can make ourselves heard in the right places, maybe, just maybe, we could slow down this destruction for awhile. At least for long enough to permit some larger fraction of the potential knowledge still remaining to be gathered, if not for long enough to permit our children, and children's children, to derive any aesthetic enjoyment and appreciation from what little is left of the first American culture.

Those who would like to try to save what tiny bit is left of our American archeological heritage, should do everything possible to discourage the various federal and state agencies from doing anything to destroy archeological sites and objects. They should promote in every way full enforcement of existing antiquities laws. They should insist that officials responsible for the enforcement of these laws do so, despite social and economic pressures to the contrary. They should cooperate in the establishment of public museums and displays, in the formation of qualified field research teams and in the restoration and protection of damaged ruins and other archeological sites. They should encourage private hobbyists to put their collections on display in public museums on "permanent loan." They should act as "citizen police" to discourage and prosecute those who vandalize.

Yes, there are things that can be done, many things. But there are all too few of us who care enough to do them. Are you one of those few?

Impact on Montana

brief essay in our chapter on Reclamation, Professor Melvin Morris offers some wise observations of a very practical nature.

c. Varying degrees of skepticism were expressed in the Seminar about the likely effectiveness of proposed reclamation laws. It was stated that "reclaiming for wildlife" could be a "bugout," since it would be achieved without the leveling or compacting of spoil-banks. Similarly the much touted "recreational lake" might be only a euphemism for the steep-sided final-cut trench left at the end of the stripping operation. We examined the dismal history of attempts in Appalachia to impose "stringent" reclamation laws — a failure over 20 years and more — and wondered about the easy optimism of State officials in Montana. We were divided in our own proposals. Our Government Group experimented with a "model reclamation law." Others favored the proposed "moratorium" on new mining, urging that this remain in effect until present operations have demonstrated the degree of reclamation which will in practice be attained. (The burden of proof should be on the mine operator.) Some favored outlawing strip mining altogether and relying, instead, on underground mining. There is in fact plenty of deep coal in Montana and nationally to meet energy needs for many years to come, but the economics of its recovery come into play.

Probably most seminar participants — like most Montanans — are prepared to give reclamation a chance. We will judge it on the terms proposed by Carl Bagge of the National Coal Association, ". . . by the best we can do rather than the worst we have done." Montanans do not yet know what that best may be, nor whether we will find it acceptable. Certainly if the coal companies show the callousness and bad faith in Montana which has characterized their activities in the East, finally we will all be made Abolitionists.

d. Our Land Use Group's report is a comprehensive portrait of the land, and the Social Group tells us about the people of the coalfield region. We did not, in the Seminar, approach the larger issues of land use planning — that will be a major focus for our attention when the Seminar resumes in winter quarter. We see real promise in several ideas that have been proposed: zoning that would keep the mines out of rich bottom lands and scenic natural areas, state authority over the site location of power plants and transmission lines, state authority for the planning of "New Towns," a public development corporation with broad authorities. If development approaches anywhere near the 300 to 600 thousand population level which we prophesy, then Montana will have its hands full. The issues of comprehensive land use planning are among the most profound and politically sensitive of any that the State will then have to face.

5. A Control Strategy for Montana. The proposals that follow have not been checked by serious study in the Seminar: there simply was not time for that. My hope in presenting them is that they will be provocative and will inspire further debate. Of course, none of the proposals is entirely new — but some seem not to have attracted notice within the State.

a. Reclamation should be given a chance, but only under the most precise controls that can be devised. This means we must have (i) a good **Federal reclamation law** to insure controls on public lands as well as (ii) a good State **Reclamation law.** There have been many suggestions made concerning the provisions of such laws, and I will not repeat these here. We also need (iii) **State zoning legislation** to outlaw the strip mining of prime agricultural land, aquifers and surface water resources, outstanding scenic recreational lands, and other lands whose special vulnerability makes them a poor risk for successful reclamation. **Until this controlling legislation has been enacted, Montana lands should be protected by a Moratorium on the issuance of new strip mining permits.**

Montana should enact a **severance tax on coal,** initially $2.50 per ton, as the state's fair assessment against these mineral-rich properties.

b. The state Legislature should impose a two or three year **moratorium on the construction of energy conversion plants** — coal gasification plants as well as electric power plants. This delay would give time for rapidly evolving technology to begin to settle down, and time also for enacting and implementing improved air pollution control regulations.

The State Health Board should adopt **rigorous air emission standards** for nitrogen oxides, toxic substances such as flourides, radioactivity, and hydrocarbons — any of which might result from the operation of energy conversion plants. (Standards can be promulgated only after a hearing procedure, and require approval by EPA.)

The State Legislature ought to pass an **effluent tax,** similar to that proposed by Senator Proxmire: I suggest 20 cents per pound of emitted sulfur and 10 cents per pound of nitrogen emitted in oxides. Such a tax would encourage utilities to wait for improvements in technology before installing new facilities, and to continually upgrade pollution control on existing facilities. Such a tax would help to solve the problem of dealing with multiple sources, such as envisioned in the NCPS, where cumulative pollutants tend to build up to unacceptable levels.

The State Administration should consider joining the suit, now pending before the U.S. Supreme Court to make operational the language in the Federal Clean Air Act which insures the **non-degradation of clean air regions.** The State Legislature should amend the **Montana** air pollution law to include a **non-degradation statement.**

c. Ways must be found to insure that the energy companies switch to low water consumption technologies in their power plants and coal gasification plants. One way to achieve this might be to upgrade the status of in-stream values of water, protecting them from the adverse effects of consumptive water diversions. Passage of the Natural Resource Department's proposed **Montana Water Use Law** seems to be the important first step. It would authorize public agencies to make in-stream water reservations, would recognize recreational values, and would require applicants for new water rights to demonstrate to the Board that their diversions would not harm prior appropriations.

Perhaps a means could be devised for **taxing wasteful water consumption.** The idea would be to compensate the public for the degradation of in-stream and shore line environmental qualities, which would result from consumptive diversions. (It is wryly amusing that power plants in other parts of the country cause severe **thermal pollution** problems by the return flow of heated waters to lake or stream. In the West that problem is being circumvented by a simple expedient: the diverted waters are never returned to the stream, but are instead totally evaporated into the air! This is not officially pollution, even though it clearly results in depletion and thereby degradation of the stream.)

d. The State Health Board should be aware of **potential water pollution** from coal gasification and liquefaction facilities. The newly revised **Federal Water Pollution Control Act** provides the necessary authority to control it.

e. As many have suggested, the State needs to provide for the regulation of **siting of transmission lines, pipelines, railroads, as well as power plants and other energy conversion facilities.** This authority must include the **right to deny construction anywhere in the state of facilities intended to serve out-of-state power needs, if the total environmental impact of the generation and delivery systems is judged to be unacceptable.**

f. The State should also assume authority over the **Siting and Design of New Towns.** The Canadian provinces of Alberta and British Columbia have had such legislation for some time, and their experience may serve as a useful guide.

Trains Run

by Norma Hentges

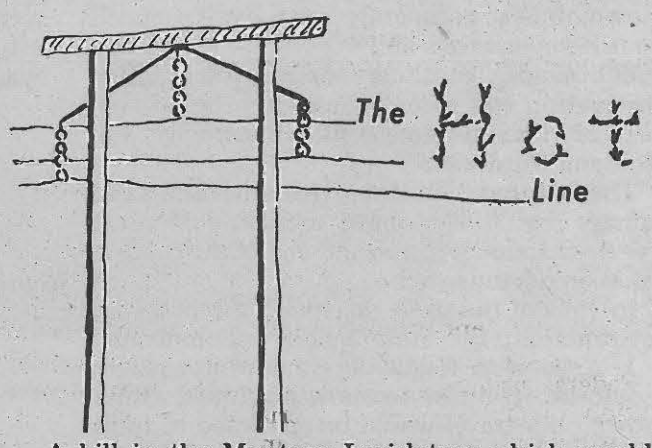
The new Black Mesa & Lake Powell Railroad (BM&LP) in northern Arizona, has the first all-electric, 50,000-volt locomotives in the world.

Three of the new E60 locomotives will haul coal trains from the strip mines at Black Mesa near Kayenta, Arizona, to the 2.31 million-kilowatt Navajo Generating Station near Page, Arizona.

These new monsters weigh 426,000 pounds each and are rated at 6,000 horsepower.They were built by General Electric and are said to be pollution-free and fully automated.

The once-beautiful Black Mesa is now being stripped of it's coal at a fantastic rate. The new trains will be loaded in as little as 80 minutes. The run will be completed in two hours and 20 minutes. Unloading at the Navajo Station will take only 20 minutes.

Joint owners of the Navajo Generating Station are the Arizona Public Service Co., Tucson Gas and Electric Co., Los Angeles Department of Water and Power, Nevada Power Co., and the U.S. Bureau of Reclamation. The station is run by the Salt River Project.



A bill in the Montana Legislature which would prohibit promotional advertising for electricity or natural gas has drawn fire from utilities. But proponents of the bill cited statistics to show Montana Power Co. spends five times as much on advertising and sales as it does on research. Such expenditures are paid for by consumers. The bill would provide for fines up to $1,000 a day.

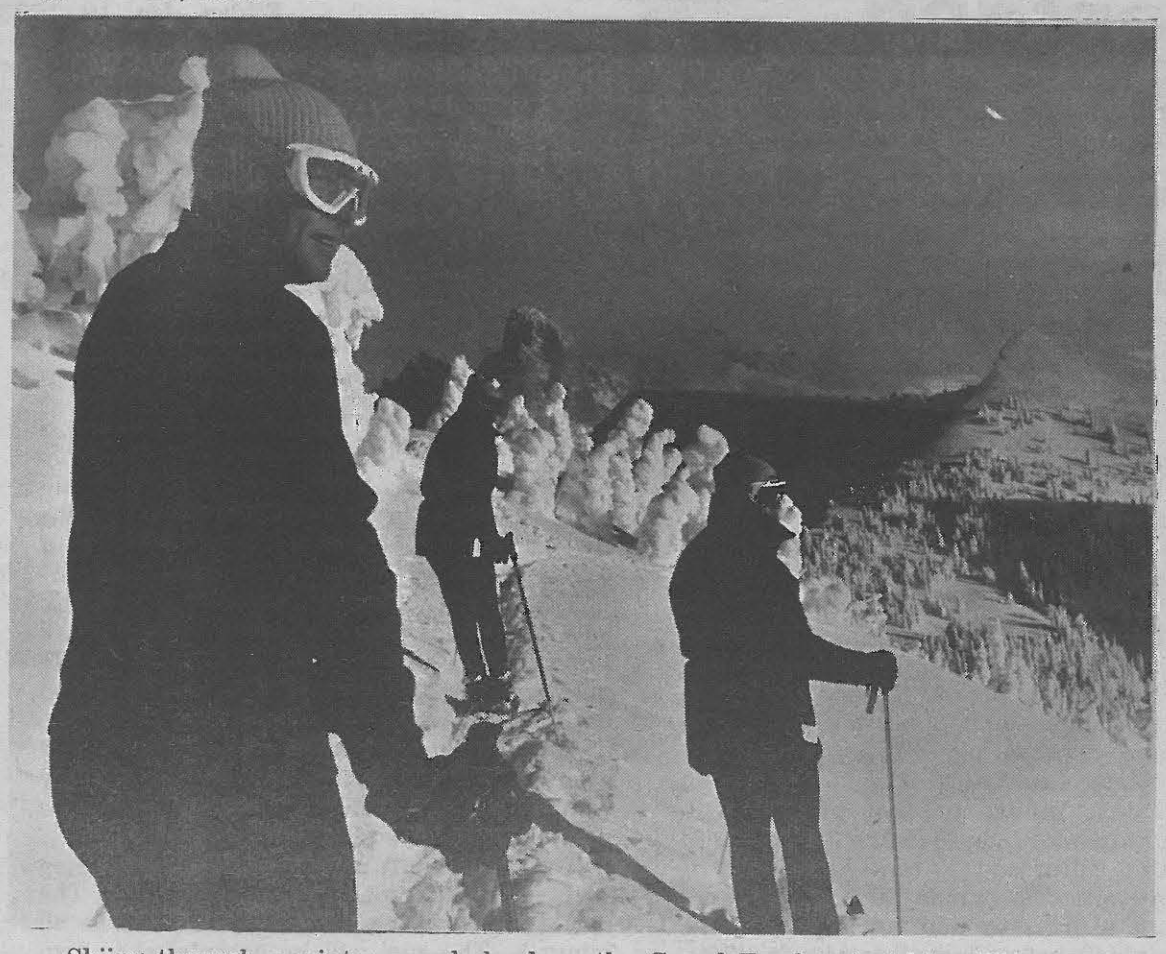
* * *

Aluminum Co. of America has announced the development of a new process to refine aluminum which could reduce electricity consumption by 30 percent. The new process would eliminate the need for fluorine. It can also use ores such as anorthosite. Aluminum Co. recently bought 8,000 acres of Wyoming land north of Laramie which contains the ore. The Wyoming deposit covers some 200 square miles in Albany and Platte Counties. The ore would be strip mined.

* * *

Experts studying the world potential for energy from geothermal sources say that vast underground pools of hot water and steam could fulfill all electrical needs for the United States by the year 2000. The study, in which former Interior Secretary Walter Hickel participated, says geothermal sources could save the United States billions of dollars. It would be an environmentally clean source of energy.

Photo by Idaho Dept. of Commerce and Development



Skiing through a winter wonderland on the Grand Targhee in Idaho. This area is under consideration as a wilderness.

Snowmobiles Reviewed

In characteristic American fashion, the snowmobile boom has outraced environmental studies and regulations. With some 60,000 snowmobilers competing with backpackers, ice fishermen, skiers and wildlife on Montana's public lands, conflicts are inevitable. This observation was recently made by the Department of Fish and Game in its official magazine, **Montana Outdoors.**

The feature article notes that environmental damage by snowmobiles including seedling tree destruction, erosion and aminal disruption has been documented.

In view of the snow machine's threat to the environment, the state agency recommends:

1. Areas with fragile big game winter ranges should be off-limits to snow machines. Other snowmobile travel would be restricted to trails and snow-covered roads. A few special trails are already available. The Lincoln district of the Helena National Forest has 12 snowmobile routes ranging in length from 5 to 16 miles of marked trails near Garnet, Montana. South of Bozeman, the Gallatin, Big Sky Snowmobile Trail offers a scenic path that leads to Yellowstone Park.

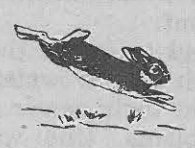
2. Manufacturers should be pressured to produce quieter and safer machines. (Montana law has established a noise level of no more than 85 dB-A at 15 feet for snowmobiles sold after June 30, 1972. Most snowmobiles manufactured prior to the 1973 models exceed 85 dB-A at 50 feet. A large power mower is also in the 85 dB-A range.

3. It is now unlawful to discharge a firearm from a snowmobile. In the feature, author Gene Colling notes, "Firearms of any type should be prohibited on the machines."

4. Oversized serial numbers should be imbedded in the tread to leave an impression in the snow. This would discourage vandalism, littering, and wildlife harassment.

A major complaint about the machines involves harassment of wildlife on winter ranges. Wildlife harassment is generally unintentional, the result of trying to get a photograph or a closer look, but cases of intentional damage are also reported each year. State laws forbid "driving, rallying, or harassing any of the game animals, game birds, or furbearing animals of the state" with snowmobiles.

The Department of Fish and Game stresses that like hunting, snowmobiling is often judged on the actions of a few. Thoughtless acts of littering and vandalism can give the entire sport a bad reputation in the public's eye.



Reprinted from the DESERET NEWS,
Dec. 4, 1972.

Endangered

If present trends continue, the rare little Utah Prairie Dog is not long for this world.

Unhappily, there won't be many to mourn his passing. But that's as much a reflection on them as it will be on the deceased.

The Utah Prairie Dog, a unique species found only in south central Utah, was reasonably abundant in nine counties in 1937. Now it is found in only four.

There has been a particularly precipitous decline since 1970. During this period 22 prairie dog towns have been wiped out by poisoning and shooting, leaving only 39 in existence.

If this species is to be saved from extinction, the Utah Prairie Dog should be restored to the U.S. Department of Interior's Endangered Species List from which it was inexplicably removed in 1970.

In all frankness, the prairie dog is a serious pest to farmers and cattlemen because it eats grasses and roots — especially alfalfa and grain — and because it digs open burrows. A running horse or cow that steps into one of these holes may break a leg.

So why save the Utah Prairie Dog?

One observer explained it best when he compared the extinction of any species of animal to ripping an entire chapter from a rare old book.

It's doubtful that modern man is wiser than the author of the book that includes the Utah Prairie Dog as one of its chapters.

THE WILD WORLD

by Verne Huser

Have you seen the Proposed Back Country Policy recently suggested for the Targhee National Forest in eastern Idaho and those parts of Wyoming adjacent to Grand Teton National Forest? It seems to have been an outgrowth of the nation-wide review of unroaded areas in national forests.

Frankly, I'm not sure at this point whether the move is good or bad, but let's look at the various aspects of it.

Philosophically the proposed policy is intended to do three things: 1) provide national forest areas which afford opportunities for high quality, near-primitive dispersed recreational opportunities away from public roads and most other developments, 2) offer a wider range of recreational experiences than is permissible in wilderness, and 3) help relieve the recreation pressures threatening overuse of wilderness.

Certainly, we are loving many of our wilderness areas to death, especially in country near large population centers, and much wilderness use is concentrated — we could use a little dispersal.

And yet isn't this new designation — Back Country — one of the very things that the Wilderness Act set out to clarify? We had so many different designations for varying degrees of protection — wild areas, wilderness areas, primitive areas, etc. — that it was confusing and inconsistent. The Wilderness Act was designed in part to clear up the confusion and provide some consistency.

Now we circumvent the intent of the Wilderness Act with enclaves in National Park Wilderness, and we hear talk of "administrative wilderness" and near-primitive areas and near-natural areas and a dozen other designations. Where will it all lead?

Perhaps such designations really are necessary. They may seem like sops to the anti-wilderness nuts who use snowmobiles and tote-goats, power boats and 4-wheel-drive vehicles, but these forces are part of the general public who own the national forests as much as we conservation nuts — and they might stand in the way of some important wilderness designations if we ask for too much.

Yet, how much is too much wilderness? I don't believe we can have too much, and we lose more every day — even through traditional wilderness uses like backpacking, horse packing, and hunting and fishing: too many people in the wilderness leaves it less wild.

So we're back to the population problem. I'm a great believer in the national recreation area concept: sacrifice certain areas for mass and intensive recreation for the sake of preserving other areas as pristine. After all, some recreationists seem to enjoy elbow-to-elbow camping in vehicles that bring home to the woods; they seem not to mind fishing off Fishing Bridge in Yellowstone or waiting to launch their power boats on Lake Powell or Ross Lake.

But by providing such areas for the brute creation of American affluency, we can perhaps save the true wild world for those who can appreciate it on its own terms. If only 5% of the nation's people want the true wilderness experience — the true re-creation of the human spirit through contact with nature in its natural state as Thoreau suggested, then should not 5% of the land be preserved as Wilderness?

Perhaps not, because there may not be that much left that is true wilderness. And just what is TRUE WILDERNESS? Perhaps the Targhee concept is sound. "Scenery and natural landscape are maintained and protected, and wildlife values are maintained or enhanced. Unlike Wilderness, in Back Country, the natural ecological succession need not always be encouraged. Manipulation is permissible." Is not even wilderness under the Wilderness Act manipulated?

Enhance wildlife values? Yes, re-introduce elk or grizzly bear where they have become extinct; perhaps even the wolf and the cougar. That is manipulation.

But for all of its varied designations and rationales for excluding forest lands from wilderness protection, the Targhee does seem to find 172,000 acres suitable for such designation in what they call Area No. 8 — West Slope Tetons. Let's hope that the portion of the Targhee adjacent to Grand Teton National Park will some day soon be given official wilderness protection — it is a fantastic area, a true wild world that deserves protection.

Western..... Roundup

Concern Expressed

Regional Forester Vern Hamre, Ogden, Utah, today expressed concern about some significant aspects of the possible selection of Salt Lake City and the Wasatch Front area for the 1976 Winter Olympic Games. He pointed out that a number of the Olympic activities would undoubtedly be carried out on National Forest lands in the vicinity of Salt Lake City, if the local proponents' proposal is accepted by the International Olympic Committee. He stressed the need for considerable additional information and extensive environmental studies to determine the full impact that the Olympics would create in the Wasatch Front area, before any irreversible actions are planned or taken there.

"In view of the urgent need for such information if the Salt Lake City proposal is accepted, I believe it would be essential that a site evaluation committee be established promptly, for at least the downhill ski events," Hamre said. "Such a committee should include representatives of the Forest Service, the Utah Department of Natural Resources, the Utah Ski Association, the Mayor of Salt Lake City, and the local Olympic Committee."

"We are encouraged by the position taken by Salt Lake City proponents that no additional facilities for the Olympics should be built in the canyons and that the Games should be scaled down in size and returned to amateur competition," said Hamre. "However, even without construction of additional major facilities in the canyons, the environmental impacts created by an event such as the Olympics could be immense. Among the major problems involved is providing safe and adequate public transportation into narrow canyons such as Little Cottonwood Canyon. Predicted use in this area, even without the Olympics, may already surpass what the environment can tolerate unless strict limitations or controls are initiated. Based on past records, unrestricted attendance at the games could be expected to exceed a hundred thousand people at one time."

"The possibility of avalanches in Little Cottonwood Canyon disrupting the tight schedules for Olympic downhill ski events, along with possible hazards to the contestants and spectators, also should not be overlooked," Hamre continued. "Pollution of and damage to Salt Lake City's watersheds are other possible significant impacts which would need to be avoided."

"Some system would be needed to assure that the thousands of skiers living in and visiting the Salt Lake City area are able to continue to enjoy daily use of most of its ski facilities, during the Olympic period. This, too, could pose a major problem," he said.

Hamre pointed out that, historically, the cost of providing facilities for the Olympic Games has surpassed original estimates.

Compliance with the National Environmental Policy Act will be necessary for any site utilizing National Forest lands that might be selected for the Olympics. This will require preparation of an environmental impact statement by the Forest Service and submission to the Council on Environmental Quality. "Public input, including hearings if appropriate, is an essential ingredient of any environmental impact statement," said Hamre.

Hamre pointed out that the Forest Service is charged with the protection of the environment on the majority of the mountainous lands along the Wasatch Front. The Forest Service also is basically responsible for public use of National Forest lands and facilities.

Turned down by Colorado, the Winter Olympics may now go to Utah. But once again the impact on natural resources is being debated, and public support is being evaluated. (See editorial, page 3.)

Environment Bills Predicted

A state senator from Denver says he believes twelve pieces of environmental legislation will get to the floor of the Colorado Legislature in the present session. They are bills that would provide for:

— A coordinator of long-range resources planning in the governor's office.

— Twelve regional resource districts.

— A front range commission superimposed over existing governments and with taxing powers.

— An environmental policy.

— Incentives to revitalize economic life in rural areas.

— A conservation trust fund similar to the highway users trust fund.

— A department of transportation.

— A state water-management policy that would involve the state in all water use.

— Statewide land use or zoning.

— Placement of monitoring devices in plant smokestacks.

— The regulation of auto emissions.

— A state housing financing authority.

Hunt Reported

The 1972 grizzly bear harvest report recently completed by Wyoming Game and Fish Department biologists show four of the huge bruins were taken by sportsmen last year.

A total of 16 grizzly bear hunting permits were issued last year for the spring and fall seasons, down from the 24 permits issued in 1971. Twelve grizzly permits were issued for Park County while Teton County hunters received the remaining four permits. Persons successful in the 1972 bear hunt reported all four grizzlies, two males and two females, were taken in Park County.

Hunters responding to the harvest questionaires reported spending an average of 11 days in the field and sighting an average of seven grizzlies while hunting.

Rivers Protected

A tough bill to protect several California rivers and their tributaries has been signed by Governor Ronald Reagan. The bill establishes a "California Wild and Scenic Rivers System" on the Eel, Klamath, and Trinity Rivers and parts of others. Dam building on the Eel will be prohibited for 12 years and on the others indefinitely.

Thoughts from the Distaff Corner

By Marge Higley

Man is superior to nature's other living creatures because his technology covers everything from A to Z. Right? Well, maybe! Just for fun, let's examine some of man's accomplishments, starting with A.

A — Aerodynamics. No doubt about it — the birds did it first, and still do it better.

B — Barometer. Animals seem equipped with built-ins. They don't need to watch a needle to decide when to plan a picnic.

C — Camouflage. Man hasn't yet perfected this to the same degree as the chameleon.

D — Dams. Man builds 'em bigger, but the beaver has sense enough to build a semi-permanent dam — when he's through with it, the stream can revert to its natural state.

E — Electric generators. The electric eel does this without burning an ounce of coal or oil or gas!

F — Factories. A honey factory is a well-managed operation, and it doesn't pollute the air, either.

G — Gardening. Did you know that there are ants that grow mushrooms? It's organic, too — they use decaying flower petals for fertilizer.

H — Hi-fi. It'll never sound as good as a meadowlark!

I — Illumination. Fireflies and glow-worms managed this long before Thomas A. Edison's time. They don't even have to flip a switch!

J — Jet propulsion. There's a small tropical fish who uses this idea to propel himself right out of the water to snag a tasty insect from an overhanging bush.

K — Kleig lights. Night-time animals don't need them, and day-time animals time their activities to the rhythm of the sun.

L — Lenses. The eyes of birds and insects are far more complex than any lens man has come up with so far.

M — Man-made fibers. There are certain spiders who can still spin silk that is stronger than nylon.

N — Navigation. Birds don't use road maps or a compass, even if they've never been there before!

O — Oceanography. Man has studied this for years. He might expedite matters by learning the language of the undersea creatures.

P — Paper. Wasps were using paper-mache before man could read or write.

Q — Quadrant. Man invented this method of measuring altitude. Birds "eye-ball" it, and seldom crash-land.

R — Radar. Bats used it long before man suspected that there was such a thing.

S — Sanitation. Well, if leaves came individually packaged, giraffes would have a garbage-disposal problem, too!

T — Tunnels. Rodents have built millions of miles of them. (But they don't build them under a mountain just to keep from going over or around!)

U — Ulcers. Definitely a by-product of man's technology. Can you imagine a Rainbow Trout having to go on a milk diet?

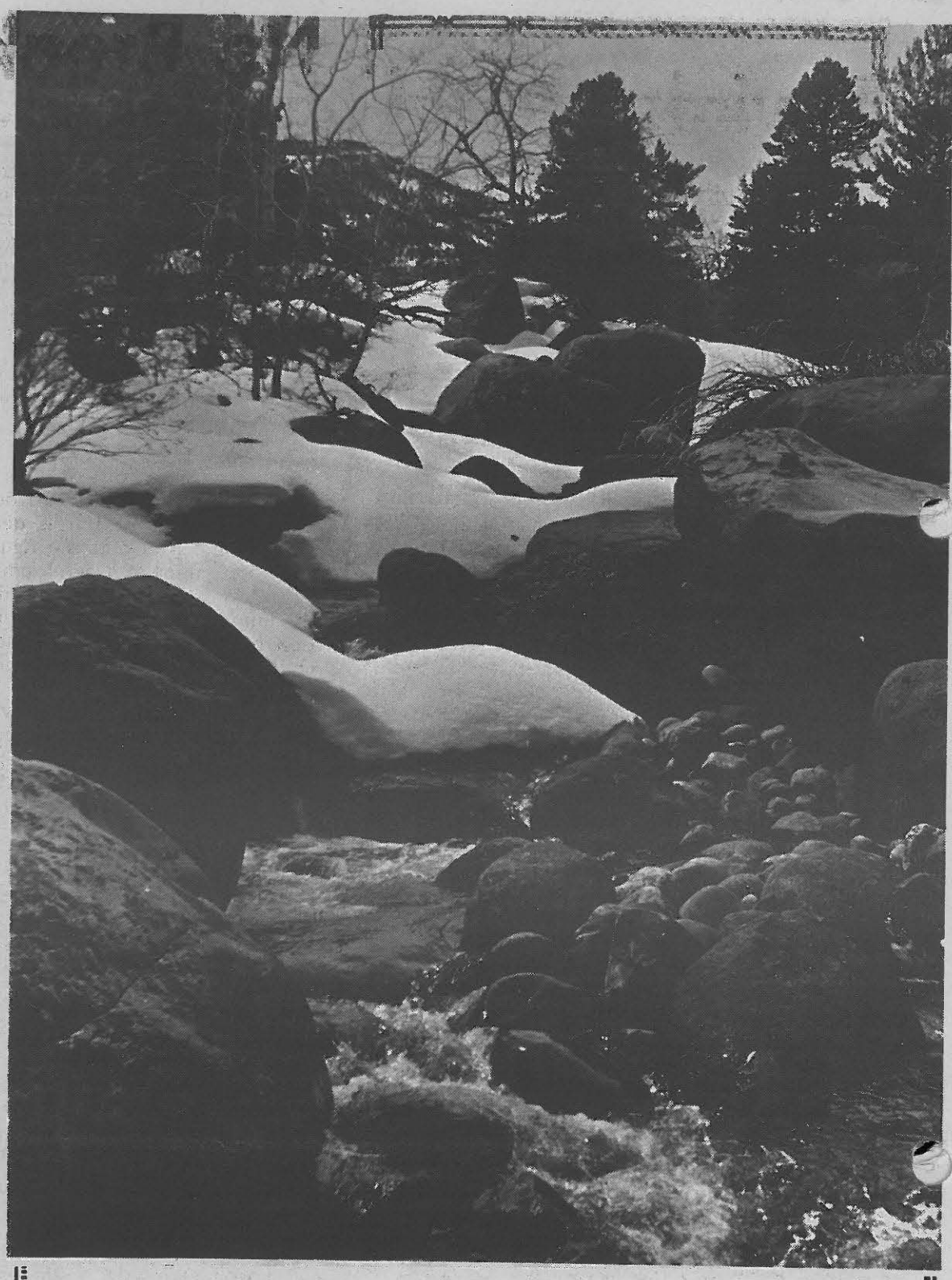
V — Vacuum. The elephant doesn't have to hunt for a convenient wall-plug before he can blow in or out, or hot or cold.

W — Weapons. Man's are more sophisticated, but wildlife accomplishes all that's necessary with teeth, claws, horns, paws or talons. As for chemical warfare — just consider, if you will, the skunk.

X — Xylography. (I finally found one!) That's the art of engraving on wood, and grubs and insects have been doing some pretty modern-looking artwork along this line for ages.

Y — Year. Man has divided this into twelve fairly equal segments, but the swallows of Capistrano don't need a calendar!

Z — Zoo. At last we come to a clear case of Man's superiority! No other living creature captures and cages another species for purposes of display!



Was somebody asking to see the soul?
See, your own shape and countenance, persons, substances, beasts, the trees, the running rivers, the rocks and sands.

WALT WHITMAN: Starting from Paumanok

Helpful Hints For The Office

by Dorsey Connors

Many ecologically-minded ladies, who recycle cans and bottles at home, turn off their save-the-Earth sound waves when they go to the office.

Glamour magazine has come up with some super ways to eliminate waste at work.

Spread the good word to your associates, and the boss might recognize you for the good Earth angel that you are:

(1) Use all space on inter-office envelopes. Don't throw them away after each use.

(2) Reuse file folders — just turn them inside out. Stick labels on top of old writing or labels.

(3) Use both sides of a sheet of paper when drafting letters or speeches. (Most sheets get used this way at HCN.)

(4) Copies of articles for distribution should be limited to the minimum.

(5) Turn off lights when leaving an office.

(6) Encourage the kids in the lunchroom to use pottery mugs instead of paper cups.

(7) Keep a mesh shopping bag in your purse so you can put purchases in it, instead of using paper bags.

(8) Cut down on noise pollution in the office. Most office phones have a volume adjuster on the bottom. Select a soft ring instead of an ear-splitter.

Tax On Autos?

by Norma Hentges

Arizonans may find that taxing of second and additional motor vehicles owned by the same family will be necessary in order to reduce auto pollution. People will be asked during January how they feel about this method of restricting unnecessary use of cars.

The proposal was advanced by a consulting firm which said that the anti-pollution devices ordered by the federal government for cars will not be adequate to meet the national air quality standards for photochemical oxidants by 1975 and carbon monoxide by 1977. It is especially true of the Greater Phoenix metropolitan area.

A public hearing will be held on January 25, 1973. If accepted the application of the plan will be on a statewide basis.

Environmental Eavesdropper

LOONEY LIMERICKS

by Zane E. Cology

Howled Californian David Dineen
"They can't ration MY gasoline!
Inconvenient indeed —
I don't see the need
This air (cough!) is plenty (cough!) clean!"

* * *

Many Americans are suffering from malnutrition due to mineral-poor foods, reports a nutrition expert. Dr. Melchior Dikkers, 72, is a retired professor of bio-chemistry at Loyola University of Los Angeles. He says mineral-depleted soils, chemical fertilizers and preservatives, and food refining processes are at fault. Dr. Dikkers was disturbed by the depletion of "trace chemicals" in foods. Iron, zinc, copper and others serve as chemical activists for "the other 99%" of the body's chemical functions. He was especially critical of the use of nitrates in food preservatives. These can endanger health by changing to toxic nitrates and entering the bloodstream.

* * *

Wisconsin Senator Gaylord Nelson has introduced in the Senate a resolution to designate the week of April 9 through 15 as Earth Week, 1973. His intention is to encourage the continued concern for the environment by the new 93rd Congress and by all Americans through education, legislation, and personal committment.

* * *

Industries which lack adequate pollution controls face the loss of insurance protection. The Insurance Co. of North America and several other major national insurance companies are beginning to pressure industries into gradual clean-up campaigns. CNA said industries' fear of losing insurance protection is a more effective clean-up incentive than local tax breaks, low interest loans, or partial subsidies tried by various levels of government.

* * *

New sewage disposal systems are being innovated by industries. Chrysler Corporation suggests the use of recyclable mineral oil as a substitute for fresh water in the disposal of sewage. Chrysler says its system can save 30 gallons of fresh water per person normally used in flushing and can reduce the amount of waste to be treated by 98%.

* * *

The city of Atlanta, Georgia, plans to transport its solid wastes to disposal sites by train. The city decided to close down its incinerator when faced with a federal order to either close or improve its waste disposal facilities. The incinerator will be converted into a facility for shredding and baling trash to be hauled by train to abandoned mines in central Georgia. Nearly one third of Atlanta's trash is to be disposed of in this manner, the rest will go to local landfill areas. The system, which was proposed by Southern Railway, is scheduled to begin in 1974.

* * *

For intrepid gourmets, the future may hold the promise of such delicacies as sautéed tire. According to a study sponsored by the Firestone Tire and Rubber Co., discarded tires can be used to condition poor quality soil, to purify water — and to make a high-protein (although rather tasteless) foodstuff.

No Break on Taxes

Sub-division developments are being promoted in many areas throughout the West. They are not always the boon to a community that developers would lead others to believe. Without an accompanying industry tax base, some communities will find themselves worse off. The following is an explanation of why this is so. It is reprinted from Maine Environment, Bulletin of the Natural Resources Council of Maine.

by Sterling Dow III

Development of land into house lots is viewed generally as an asset to a community. "Broaden the tax base," is often heard. There's good reason to broaden the base in most Maine towns. But is development the answer? Let's look at the figures.

To determine if a development is going to pay its way, follow this procedure: (1) divide the number of school children into the education budget to obtain the education cost per child; (2) multiply (1) by approximately 2.5 children per family to find the education cost for an average new family; (3) divide the town's population into the remainder of the municipal budget to get the per capita cost for municipal services; (4) multiply (3) by 4.5 people per family; (5) add (4) and (2) to get the service demand price of each new residence; (6) apply the tax rate to an assumed assessment based on the applicable zone and you find the expected tax revenue from a given ratable; (7) the difference between (6) and (5) is the effect on the local budget.

To illustrate, in one Maine Coastal town, the figures went like this: (1) school budget = $468,000; number of school children = 650; cost per child = $468,000/650 = $720. (2) $720 x 2.5 = $1800 = education cost for family. (3) remainder of municipal budget = $250,000/town's population = 2000; cost of municipal services per person = $250,000/2000 = $125. (4) $125 x 4.5 = $563 = cost of services per family. (5) service demand per family = $1800 + $563 = $2363. (6) tax rate = $25/1000 (100% assessed value) assume a $50,000 house tax would be $50,000/$100 x $25 = $1250. (7) effect on local budget of a $50,000 house is $2363 minus 1250 = $1113 deficit! Note break even point is $2363/$25 x $1000 = $94,500 house!

Note also 25 $50,000 houses would yield $31,250 in taxes but would demand $59.075 per year in services leaving a deficit of $27,825.

One can readily see why that town would do well to purchase land slated for development.

Letters . . .

I wonder if you would publish this letter in your paper and possibly I would hear from someone who would want a partner.

Sincerely,
John A. Whittington
Route 2, Box 228
Columbia, Louisiana 71418

* * *

Editor:

In response to the offer, we will be pleased to receive 3 copies of the newspaper on our one subscription. They can be sent to me and I will distribute them promptly where they will be useful.

Thank you.

Sincerely,
Letitia Johnson (Mrs.)
Librarian
Missoula County High School
Missoula, Montana

Editor's note: Our thanks to Mrs. Johnson for taking advantage of our offer to supply all school subscriptions with three copies of the paper. We have been very gratified with the response of our readers to make the paper available to schools through gift subscriptions and to the many schools for making the paper available to their students. For those who are still not aware of our policy, we will send three copies of the paper to any subscribing school which requests them — to be sent to the librarian or to be directed to specific departments or teachers. We will send two copies to any public library when requested.

Budget Cut

Vern Hamre, Regional Forester for the Intermountain Region of the Forest Service, says that action is being taken to try to maintain quality resource management within the current budget.

"New legislation resulting from growing environmental concern requires increased planning and interdisciplinary studies to improve the quality of National Forest management. At the same time, forest use has increased. While our budgets have remained fairly constant, the cost of doing business has gone higher."

Hamre explained that it is necessary to reduce overhead staffing as one action to cut costs. In line with this action, a significant reduction will be made in Ogden Regional Office personnel. A study is now underway on the consolidation of some national forest supervisors' offices. Staffing reductions will be attained primarily through normal attrition over the next several months.

"During the last two years the number of ranger districts in the Intermountain Region has been reduced from 120 to 94 through consolidation," said Hamre. "We have moved in this direction in order to improve resource management effectiveness and efficiency. Larger ranger districts require a lesser proportion of staffing to perform the overhead and management functions."

Studies of Forest consolidations and reduction in Ogden Regional Office staffing are aimed at getting more dollars and personnel for on-the-ground work, such as campground maintenance and cleanup, winter sports administration, timber sales, livestock range management, watershed improvement, and wildlife management.

Controversy in Jackson Hole

by Anne Turner

Is nothing sacred anymore but our irrational lust for the dollar at all costs? The congressional and presidential decision to finance a $2.2 million airport expansion to accommodate jets in Grand Teton National Park certainly says so.

This controversial issue is well on its way to becoming nationally significant, and well it should. It is our public lands and national heritage that are at stake.

The Jackson Hole Airport in Grand Teton National Park is the only airport existing on public park lands. The 760-acre tract in the park's southern extremity has been leased by the Airport Board from the Park Service for $50 a year since 1955.

The existing airport is in flagrant violation of stated park policy which promises to "conserve the scenery and the natural and historical objects and the wildlife therein. . . for the benefit and enjoyment of the people." An expansion of the airport on park lands would not only give the Park Service a black eye. It could set a precedent for further betrayal of public trust in the use of federal (publicly owned) lands.

The present runway is 6,300 feet long. Frontier Airlines is the only commercial airlines now serving the area. Many private planes now fly in and out of Jackson Hole. The Airport Board and commercial interests in the tourist-dependent town of Jackson want the runway expanded 1,700 feet to a total 8,000-foot length to accommodate Frontier's Boeing 737 jets. If the runway were lengthened, the Boeing 737 jet could replace the propeller-driven Convair 580 now servicing the area. The expansion proposal also calls for the construction of taxiways and other airport improvements.

Pro-expansion interests anticipate increased tourist trade if bigger planes with larger carrying capacities are serviced by the airport. Despite such expectations, a recent Park Service report stated that "the vast majority of visitors arrive by private automobile." Of the 3.3 million people visiting Jackson Hole in 1971, less than 1% came by Frontier Airlines.

Jackson's economy is thriving without the benefit of jet traffic. Gross retail sales increased by 8.8% during the last fiscal year despite a drop in the GNP.

ENACT, an environmental protection organization in Jackson, considers the expansion to be an unnecessary and undesirable threat to the environmental and social health of the community. While opposing any increase in runway length, ENACT favors the construction of needed safety facilities, including a parallel taxiway.

ENACT has also raised a larger question — that of growth for growth's sake. They maintain that the concept of growth must somewhere be challenged. And they feel the airport in their own backyard is a prime candidate for challenge.

Frontier Airlines maintains a neutral position in the controversy. It said it will continue Convair 580 service to Jackson Hole indefinitely if that is what the public wants. The Convair 580 is by no means obsolete. Parts and service are still readily available. Frontier only began use of the model in 1964 and anticipates its continued use for the next 5-8 years.

A sobering thought is the statement by Marvin Stevenson of the Wyoming Aeronautics Commission that an 11,000-foot (rather than the proposed 8,000-foot) runway is needed to accommodate a fully laden 737 jet on an overbooked day at the Jackson Hole Airport.

If the 1,700-foot expansion is permitted, how long will it be before an 11,000-foot runway is demanded, and even further expansion becomes "necessary" to accommodate ever-newer jet models, ad infinitum?

Wyomingites have apparently decided in favor of the airport. Wyoming Senators Gale McGee and Clifford P. Hansen and Governor Stanley K. Hathaway bowed to commercial interests to lobby for the expansion.

Jackson's Mayor Lester May has taken his stand on the issue. "What a lot of people don't understand is that I'm a park enthusiast, but we've got to provide a way for everybody to see these parks, not just a privileged few."

Who but "just a privileged few" will be flying in by jet to see the parks?

According to the Park Service's new master plan, over-population in both Grand Teton and Yellowstone Parks already requires the use of strict park controls. The accommodation of the Boeing 737 jets with twice the carrying capacity of the Convair 580's would only aggravate this condition.

Over-crowding is not the only threat from the expansion proposal facing Grand Teton National Park and the lovely valley of Jackson Hole in which it is nestled. Environmental degradation and devaluation of "the park experience" will be considerable. It is likely that few people will derive much satisfaction from a wilderness, no matter how beautiful, from which all serenity has been driven by the ear-splitting shrieks of jet traffic overhead. Jet streams scarring the face of the mountains are neither pretty to view nor photograph.

It is reported that an environmental impact statement has been prepared but not yet released to the public. Senator Hansen has urged its immediate release but for reasons other than those supported by non-expansion interests. Furthermore, it now appears that the time available to study the draft statement and prepare comments will be limited.

The Council on Environmental Quality states that no administrative action subject to the environmental impact statement can be taken within 90 days after the draft is made available to the Council, appropriate agencies, and the public. The President and the Congress have seen fit to ignore this ruling by having already appropriated funds for the airport's expansion. Apparently public opinion in this matter is of no concern to the administration or the peoples' representatives.

What are the alternatives? No airport expansion at all with the construction of whatever safety improvements are considered necessary seems to be the sanest course of action. Pro-expansion interests have simply not clearly demonstrated either the necessity or overall desirability of airport expansion to the environmental, social, psychological — or even economic — needs of the area.

If the public decides that expansion must, after all, take place, it should be mandatory that this occur to the south rather than further north. Expansion in either direction lies within park boundaries, but southward expansion would usurp less public park land.

At present, the Park Service is holding to the position of lengthening the runway only 300 feet to the north and 1,400 feet to the south. This would necessitate the purchase of 40-45 acres of private land owned by one or more land developers for a "clear zone" at an estimated cost of $300,000.

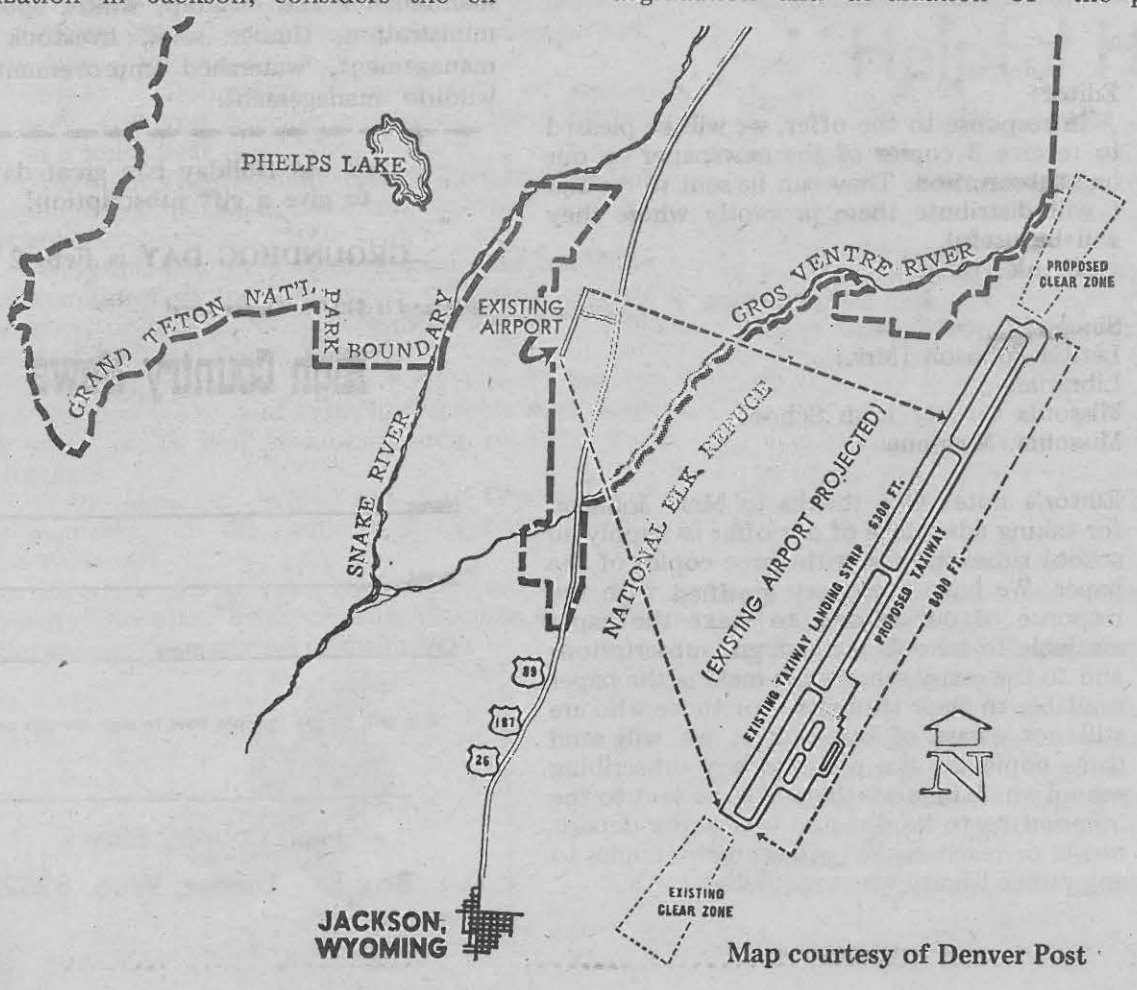
Pro-expansionists — commercial and land interests — don't like this idea. Said Ralph Moulton, one of the land owners involved, "We just figure it would devalue our land."

Ninety-five percent of Teton County is public land. Is our land — especially national park land — any less valuable?

A real estate agent for the land owners said, "It's an intrusion on some very delightful and scarce private property." Grand Teton National Park was set aside to be preserved for future generations because of its "delightful" quality.

Strangely enough, although Moulton complained that the noise would probably stampede his cattle, the real estate agent said of the park's wildlife, it "doesn't care if it's (jet activity) there. They accommodate it much better than homo sapiens."

Where will it all end — this blind desecration of all spiritual, moral, and aesthetic values? Maybe when there's nothing left and we have fulfilled T.S. Eliot's vision of hollow men in a sterile waste land of our own creation, we will appreciate what we have destroyed. Remorse is the most futile of emotions — and the most tragic.



Map courtesy of Denver Post

The Outdoor and Environmental Bi-Weekly

High Country News

, No. 2 Lander, Wyoming Friday, January 19, 1973

The Crisis in Energy : Impact on Montana

Nothing in recent years has stirred the people of Montana quite so much as the problems of the energy crisis have. One way or the other, the impact is being felt from one end of that big state to the other. And, of course, developments in Montana are being paralleled in Wyoming. (But without the same effects on the citizenry as a whole.)

It is not surprising then that efforts are being made to outline and define the relevant issues and problems. Recently, the University of Montana Environmental Studies Program concluded a Seminar on the Northern Plains Coalfield Development. It was announced as a course and held throughout the fall quarter. Participants were university students, faculty members, and a number of Missoula townspeople.

The object was to gather the best information available in order to shed light on two ...ated questions:

1) What can we expect will be the nature of ... industrial development that will build up around the coal fields, and what will be its impacts — favorable and unfavorable — upon Montana?

2) How can the people of Montana, acting through their state administration and legislature, control — or at least influence — the character of the development in the best interests of the State and the region?

Dr. Robert McKelvey was director and coordinator of the seminar and was instrumental in getting a report published. (Available from Mrs. Prudence Smith, Rocky Mountain Mathematics Consortium, Rm 203, Mathematics Bldg., University of Montana, Missoula 59801 for $2.50. For those interested, the approximately 140-page report contains some nine parts covering the following subject areas: The Demand for Energy; The Impact of Energy Conversion Technology on Eastern Montana; Economics and Taxation; Reclama-

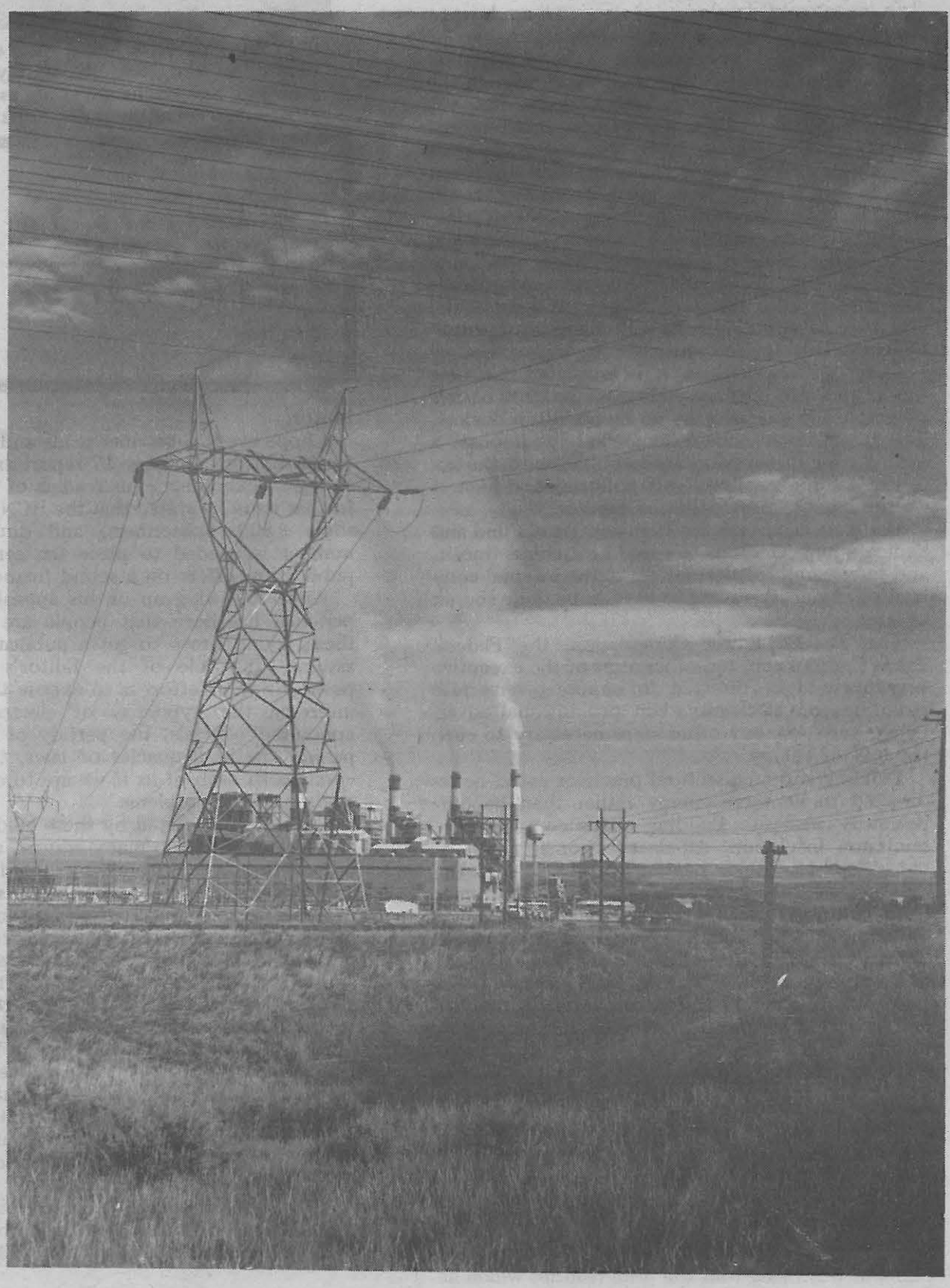
(Please turn to page 4)

Alert! Alert!

...t is authoritatively reported that a meeting ...the National Woolgrowers in Washington, ...uary 22-25, is going to stage a demonstration march on the Interior Department. The woolgrowers are going to demand the scalps of Interior Secretary Rogers Morton and Assistant Secretary Nathaniel Reed for their part in banning the use of poisons on public lands. Pressures will also be brought to bear on David Dominick of the Environmental Protection Agency. Arthur Lee Quinn, a high-priced, high-pressure Washington lawyer, has requested a number of western governors to come to Washington and help "persuade" the administration to relax the ban on predator poisons.

Your letters, telegrams and even phone calls are needed. These should go to President Nixon, to your governor if a westerner, and to your congressmen.

Photo by Tom Bell



Throughout the West huge power plants are beginning to rise as monuments to our lust for more electricity. With them come transmission lines marching across the landscape; strip mines which swallow hill and dale, ranches and rangelands; railroads; pipelines; the social impact of thousands of construction workers and hundreds of thousands of new people; enormous new demands upon scarce water supplies, and a steady decline in air quality in spite of the best technology. The accompanying article from the University of Montana may be helpful in understanding the developments taking place.

HIGH COUNTRY

By Tom Bell

What this country desperately needs is an energy policy. Within the next few weeks President Nixon is supposed to announce his version of such a policy. Unless I am completely surprised, it will not be what I envisage as a comprehensive or acceptable energy policy.

A foretaste of what he has in mind was recently carried in the papers. He is expected to call for a conversion of most powerplants to coal from oil. At the same time he will propose that air pollution controls be relaxed so that the powerplants can pollute with impunity. Proponents of this plan say that we will have to rely on massive reserves of coal over the next 15 years, and possibly beyond. Supposedly, this will keep us from getting "hooked" on foreign oil and keep us from going bankrupt buying it.

Theoretically, I suppose after 15 years we will then rethink our energy policy. In the meantime, we go on increasing our consumption at a prodigious rate, tap into the Alaskan oil and consume it in its entirety, develop oil shale, and learn how to gasify coal on a vast scale. The alternative of facing hard, cold facts will not be acceptable.

If this turns out to be Nixon's policy, then the West is in for more devastation than anyone has yet dreamed. It will commit hundreds of thousands of acres to strip mining under emergency or crisis conditions. Successful reclamation has not been proven, least of all over great expanses. It will commit entire rivers to the production of electricity, pipeline gas, and liquid petroleums made from coal. Some or much of the water will come from agricultural uses. Air quality over vast regions will be sacrificed for more power. And the social structure of entire regions will change from rural-agricultural to urban-industrial.

There are alternatives. It is estimated that new model cars will burn an additional 300,000 barrels of gasoline a day because of air pollution devices. The government could immediately impose a sliding scale of taxes on automobiles, with the tax lowest on the smallest, least polluting and highest on the largest, most polluting models.

Congress can break the Highway Trust Fund and dedicate huge amounts to speeding up mass transit, and to research for alternatives to the internal combustion engine. It is going to have to be done sooner or later.

The Federal Power Commission, the Federal Trade Commission, and other arms of the executive branch could be directed to impose reverse rate structures on electricity, ban promotional advertising, and take any other steps necessary to curb the uses of energy.

Building and architectural practices could be redirected to conserve energy rather than be outrageously wasteful. Building codes could require minimum insulation. All-electric homes could be converted to other heating methods and the building of anymore electrically heated homes banned. In areas where solar-heated homes could be feasible, such building could be encouraged.

There is a great deal of difference in the amount of electricity used by various appliances, and between makes and models. Tax or marketing penalties could be imposed upon those least efficient or most wasteful.

The means are at hand now to save or conserve prodigious amounts of energy. Many of them may not be palatable to a society with champagne tastes. But they would be politically acceptable if a coherent energy policy were spelled out, with the reasons for it.

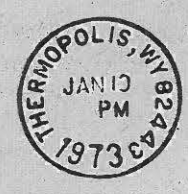
It is not only going to take real political leadership, but some guts to boot, to pull us through the energy crisis which looms ahead. The American public is not being told the grim realities which lie ahead. It is time the public was told.

It will be interesting to hear President Nixon's solutions to our energy problems. I would be willing to bet we get a placebo, pablum and platitudes. The truth is just too awful to contemplate.

Photo by Charles W. Smith

Prolonged, bitter cold and deep snows have driven game animals out of the mountains and foothills. In Wyoming and Colorado particularly, damage claims to rancher's hay stacks are rising as deer and elk seek food. Antelope in Wyoming's Red Desert area are again under stress because of severe weather conditions.

Letters To The Editor



Editor:

I hope every subscriber reads and responds to the Editor's October 17 report and appeal to the stockholders — us readers of the HCN. In that issue he stated that the HCN had only some 1800 subscribers, and double that number is needed to place the services the publication offers on a sound financial basis.

While following up on his appeal, my experience has been that people are eager in these trying times to get a publication that assumes the role of the Editor's declared position: "Our effort is to expose the selfish interests, the hypocrisy of elected and/or appointed officials, the perfidy of big companies, the inadequacies of laws, the shortcomings of each of us if we are to ever solve environmental problems."

People are attracted by these guidelines, as they realize that too many editors, scientists, bureaucrats are controlled by vested interests and, therefore, fail to expose the consequences of unregulated free enterprise and profit motivated systems that cause environmental problems. These forces resist any boat-rocking and become the advocates of more and more "studies" instead of directing efforts to find solutions to environmental problems.

Aside from telling it as it is, the Editor of HCN is among the few who realize that we are not the owners of the globe, but only its possessors for the time being and, therefore, have an obligation to pass it on to succeeding generations in a more productive condition than we received it.

The Editor's guidelines should provide all the drive needed to more than double the number of subscribers for the HCN.

G. M. Brandborg
Hamilton, Montana

Editor's note: My undying thanks to a great guy and dear friend, G.M. "Brandy" Brandborg. I have lost track of the new readers he has introduced to HCN in the last year, but it has been a considerable number. I am the more humbled for his kind and generous thoughts because he is one of the most outspoken and honest conservationists in the West.

We certainly can use the help in increasing our circulation that he indicates. Thanks to Brandy and a host of other concerned readers, our circulation is now up to 2050. The immediate goal, if the paper is to become self-sufficient and survive, is still 3,000. Can you help us reach that mark?

* * *

Editor:

I am writing to you in regard to the possibility of locating a young man for a partner interested in cattle ranching.

(Continued on page 15)

HIGH COUNTRY NEWS

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EDITOR Thomas A. Bell
EDITORIAL ASSISTANT Anne Turner
OFFICE MANAGER Mary Margaret Davis
CIRCULATION MANAGER Marjorie Higley

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Guest Editorials

Reprinted from DESERET NEWS, Jan. 6, 1973.

Olympics Again In Question

Salt Lake City's unanimous nomination by the U.S. Olympic Committee as host for the 1976 winter games is a source of considerable pride, though the feeling is not unmixed.

The selection constitutes national recognition of the excellence of Utah skiing conditions and facilities. If the winter games are actually held here, Utah's growing reputation as a winter sports area will spread world-wide. Because so many Utahns have lived in other nations and speak a wide range of foreign languages, Salt Lake City is better prepared than many other larger American cities to handle certain aspects of the winter games. Nor are Utahns unmindful of the potential impact the games can have in stimulating the local economy.

Even so, there is room for some reservations.

Traffic jams already are developing in the canyons at peak hours, and the winter games would help intensify the growing congestion.

Attracting more skiers from other areas as a natural result of the publicity that attends the winter games would mean that Utahns would stand in lift lines even longer than they already do.

Or there would be pressure to build more resorts at the risk of over-developing our precious but fragile canyons and ski slopes.

Mayor Jake Garn acted wisely in inviting the Olympics here only on the condition that the games not burden local taxpayers and that no additional facilities be built on the watersheds. These are sound and necessary conditions; can they be strictly observed as the winter games come closer and closer?

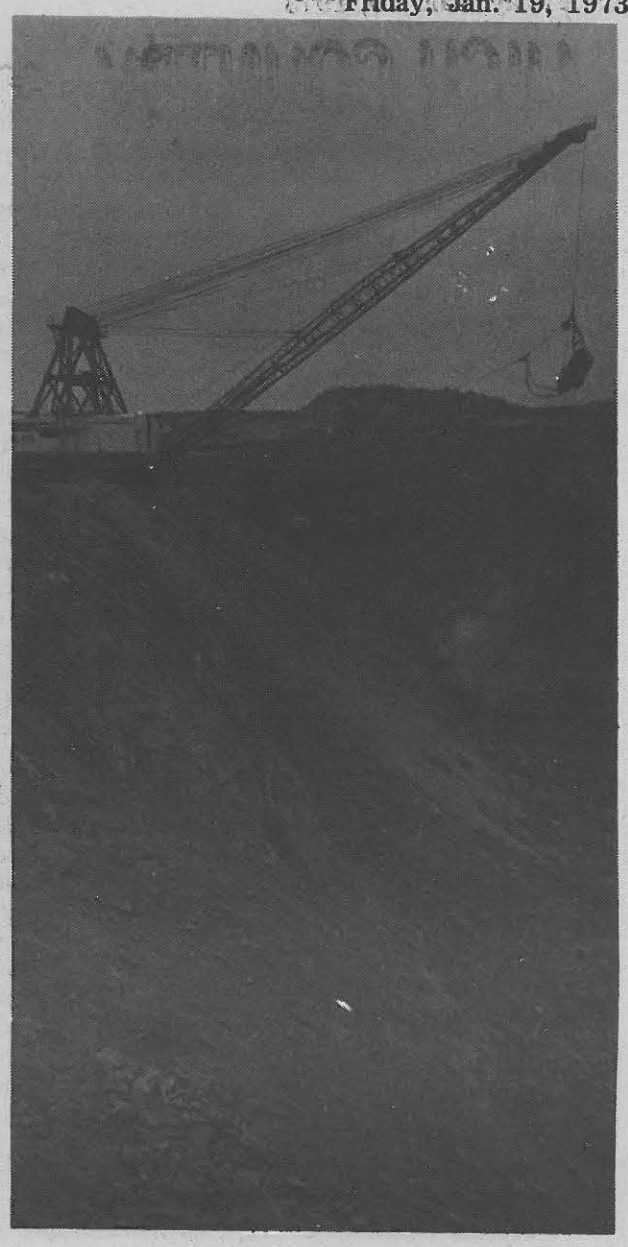
Since the winter games may never come here, these reservations could soon become academic. If adequate federal funds are not forthcoming, Salt Lake City would have to withdraw and the U.S. Olympic Committee would switch its site selection to Lake Placid, N.Y. Even if outside financing is provided in full, the International Olympic Committee could still decide to stage the games outside the U.S.

Before matters go much further, shouldn't the question of how fully the public accepts the prospects of hosting the winter games be thoroughly explored?

In an effort to answer this question, the Deseret News conducted a poll right after the announcement of the U.S. Olympic Committee's decision. The initial public reaction is encouraging, but more discussion and pulse-taking is necessary.

Salt Lake City can't afford to ignore the experience of Denver, where voters overwhelmingly rejected the winter games after they had been committed.

If the Olympic games come here, Utahns can be counted upon to roll up their sleeves and go to work on the project vigorously and imaginatively. But first let's make sure the public support is really there.



Reprinted from the LOS ANGELES TIMES

Jackson To Propose An Energy Policy

The special Senate study on the energy crisis won't be finished until spring. But Sen. Henry M. Jackson (D-Wash.), who is presiding over the inquiry, made a speech the other day in which he dropped the first hints about the legislative proposals that are likely to result.

When the experts talk about an energy crisis, they are talking about the fact that consumption of oil and gas is rising much more rapidly than domestic production. It is obvious that if crippling shortages are to be avoided, greater reliance is going to have to be placed on imports.

Because most of these foreign supplies must come from the politically unstable Middle East, however, and much of the rest may come from Communist countries, it is also obvious that this dependence on overseas sources shouldn't go too far. Steps must be taken to increase domestic oil and gas production and to speed the development of alternative fuels and energy sources.

Policies toward these ends must be drawn up within a framework of fair play to consumers and due regard for environmental considerations and the U.S. balance of payments.

The need for a coherent national energy policy, taking all such factors into account, is clear. But, as Jackson noted, one does not exist. Furthermore, he said, "There is no single forum or decision-making body in which alternative means for meeting our energy needs can be weighed against the nation's economic, environmental and security objectives."

Indeed, 44 federal agencies are directly involved in the administration of energy programs and another 20 are indirectly involved. There is no effective coordination.

Jackson has reached some other conclusions, too, which will probably show up in the study group's legislative recommendations next spring.

The current system for regulating oil imports should be scrapped, he says, and replaced by one following clear policy guidelines from Congress. Federal regulators should allow natural gas prices to float a bit higher, so that domestic producers will have an incentive to find new reserves.

Jackson warns, too, that the country should not leap into a deal for importation of natural gas from Russia without full consideration of alternatives.

Soviet gas, he observes, is expected to cost several times as much as producers in Texas or Oklahoma or Louisiana are allowed. And the prospective arrangement will require many millions of dollars in federal subsidies for tanker construction and financing.

Jackson wonders whether it might not be better to spend that money on research into fuel cells and solar power, and into the development of processes to make high sulphur coal environmentally acceptable, to manufacture gas from coal and to extract oil from shale.

Not all of Jackson's proposals are equally worthy, but they all deserve serious consideration — particularly by the Administration, which has yet to get its own thoughts in order on one of the most difficult problems facing this country in the years ahead.

The Editor Says...

Western woolgrowers are not going to spare any political means of getting the ban on predator poisons lifted. It now appears that a show of strength will be made while the National Wool Growers are in convention in Washington, D.C., January 22-25. There they will "kick off" a concerted effort by demanding the scalps of Interior Secretary Morton and his Assistant Secretary, Nat Reed. It is also reported that they will present a petition to the Environmental Protection Agency demanding re-registration of 1080 and other poisons.

The public, once having gained a ban on the use of terribly destructive poisons, should not have to back away now. Most informed westerners have no quarrel with sheepmen on the need for selective predator control. We know they lose some sheep to coyotes, a few to bear, and maybe even rarely to eagles. But even they don't know how many they actually lose through direct killing by predators.

Circumstantial evidence which would never be admissible in a court of law has been used to indict all predators. And with the indictment in hand, the cheapest, and to them most effective way, of dealing with the offenders was to broadcast poisons across the land. A few went even further and hired aerial gunners to shoot eagles from the sky.

Sheepmen claim losses of lambs have skyrocketed since poisons were banned. But close observers point out that 1080 baits are normally placed in late fall or early winter, and supposedly taken up by spring thaw in April or May. The Presidents' ban went into effect in February, with some baits not retreivable until spring. Therefore, if poisons are really the answer, mortality to coyotes should have been near "normal." Increased losses of sheep may have occurred but the question still remains — can the losses all be attributed to predators?

We think not! We think the Department of the Interior's "new" program should be allowed to operate for several years before throwing it out and reverting to widespread poisoning.

The Energy Crisis:

tion — five parts: 1) Reclamation of Stripmined Lands in Montana, 2) A Proposed Definition of Reclamation, 3) Mining Techniques 4) Water Reclamation, 5) Reclamation of Stripmined Land — Biota; Governmental Regulation; The Case for Abolition of Strip Mining; Land Use; Portrait of Rosebud County Today, and Planning for New Towns.)

Dr. McKelvey wrote the foreword and introduction which follow. Of the report he says, ". . . we deliberately have assumed a regional, and undoubtedly provincial, point of view. We are interested in the "National Energy Crisis," but principally for the manner in which it will affect events in Montana. We have thought in terms of protecting Montana against exploitation by the urbanized and industrialized regions outside of its borders.

"In undertaking this study we have regarded ourselves as laymen, not experts. Some of us are indeed experts or at least professionally trained, but not usually in areas which directly relate to the coal field development. We have had to make the best of limited, often sketchy, information, and we have had to make judgements from amongst conflicting claims of "fact." We have always tried to point out weaknesses in methodology or factual basis. We have tried to be honest, and to put aside our preconceptions and biases in the interests of reaching the truth. Each chapter of the report is signed by its authors, and is their responsibility. Each chapter must stand or fall on its own merits."

by Dr. Robert McKelvey

FOREWORD

In the short span of a year, the mining of Eastern Montana coal has emerged from the realm of obscure agency reports to become the hottest environmental issue in a state where "the environment" has come to occupy the very center of the political stage. The beginning of the change may have been in an initially localized dispute over the reclamation of a small strip mine in the Bull Mountains near Roundup, but unquestionably the event that seized public attention was the release, late in 1971, of the North Central Power Study. This Study, a joint venture of the Bureau of Reclamation and a group of Middle Western utility companies, explored the feasibility of constructing a vast system of water diversion works and "mine-mouth" coal-fired electric generating plants in Eastern Montana and Wyoming. Its purpose was to supply 53,000 megawatts of peak power, a substantial fraction of the projected electric power demand in this century for much of the Middle West, and its public announcement caused a shock which reverberated across the state.

Since that time, a whole series of events have seemed to confirm the original impression from the North Central Power Study that coalfield development is imminent and will be on a grand scale. **Item:** (April 12) Westmoreland Coal Company, a Pennsylvania firm, announces plans for the strip mining of 4 million tons of coal annually in the Sarpy Creek area and discloses its agreement to supply 300 million tons to Colorado Interstate Gas for a giant gasification facility in the area.

Item: Montana Power announces plans to build at Colstrip the state's largest coal-fired electric generating plant, and then (on October 30) its further plans for two more units, equally as large. This power — which was not contemplated in the North Central Power Study — will flow in part to the Puget Sound area. Montana Power Board Chairman J.E. Corrette predicts before a Great Falls Rotary Club audience that coal development will attract an industrial development in the region exceeding in size "any that has occurred in the United States."

Item: (August 12) Burlington Northern announces that "unit train" shipment of 42.5 million tons of Montana coal will begin in 1976 to Avinger, Texas, 1483 miles away. President Downing views this, and a test shipment to TVA at New Johnsonville, Tennessee, as "additional evidence that the market for low pollutant western coal will be an expanding one for decades." On October 15, Burlington Northern announces the planned construction of a 126 mile rail line — the longest to be built in the nation since 1931 — to connect its present line through Douglas, Wyoming with Gillette and the Powder River Basin coal fields which lie to the north.

Item: (November 17) Consolidation Coal, a subsidiary of Continental Oil, announces its plans for a $1 billion coal gasification complex on the Northern Cheyenne Indian Reservation. The operation will be based on the leasing for strip mining of up to 90,000 acres of Reservation land. The facility appears to be somewhat larger but similar to one near Farmington, New Mexico that Consolidation is building jointly with El Paso Natural Gas, with construction to begin about a year from now. In energy production these plants dwarf the planned Montana Power Colstrip electric generating facility.

Final Item: (Late November) From several sources, information is leaked that the Bonneville Power Administration has well-formulated plans — never publicly announced — for the shipment of power from Montana to the Pacific Northwest. The scale of the development (said to be 31,000 megawatts by 1990) compares with that of the North Central Power Project itself. The Bonneville Power Administration has approached the Forest Service about routing of the power lines through the "Magruder Corridor," bordering the Selway-Bitterroot wilderness. There is some urgency in their request, since Bonneville is anticipating a serious electric energy shortage in the Northwest by 1978, and looks upon coal as its only available source.

The reaction within the state to all of this activity has been pronounced, but without any consensus of view. Predictably, the state Chamber of Commerce and the Montana Bureau of Mines and Geology emphasize the potential for jobs and expanded tax revenues. Also, predictably, environmentalists and ranchers express fear of the devastation of stripmined land, the degradation of the air, the preemption of agricultural and recreational waters, and, in the long run, industrial instability and a bust. Governor Anderson warns of "economic colonialism," and establishes a State Inter-Agency Task Force — without teeth or resources. The Governor and state newspaper editorials ask for a Federal research project to provide guidance. Eventually the project is announced, but soon seems bogged down in bureaucratic politics. The environmentalists call for a "moratorium" — a temporary freeze — which is quickly labeled as a "heads-in-sand" reaction rather than a real solution. President George O'Connell of Montana Power seeks to calm fears by stressing his company's past environmental plusses, and assures the Montana Wilderness Society that the proposals of the North Central Power Study are moribund. And the Billings Gazette, in an extraordinary front-page editorial, proclaims a "Death Knell for Montana — in Colstrip."

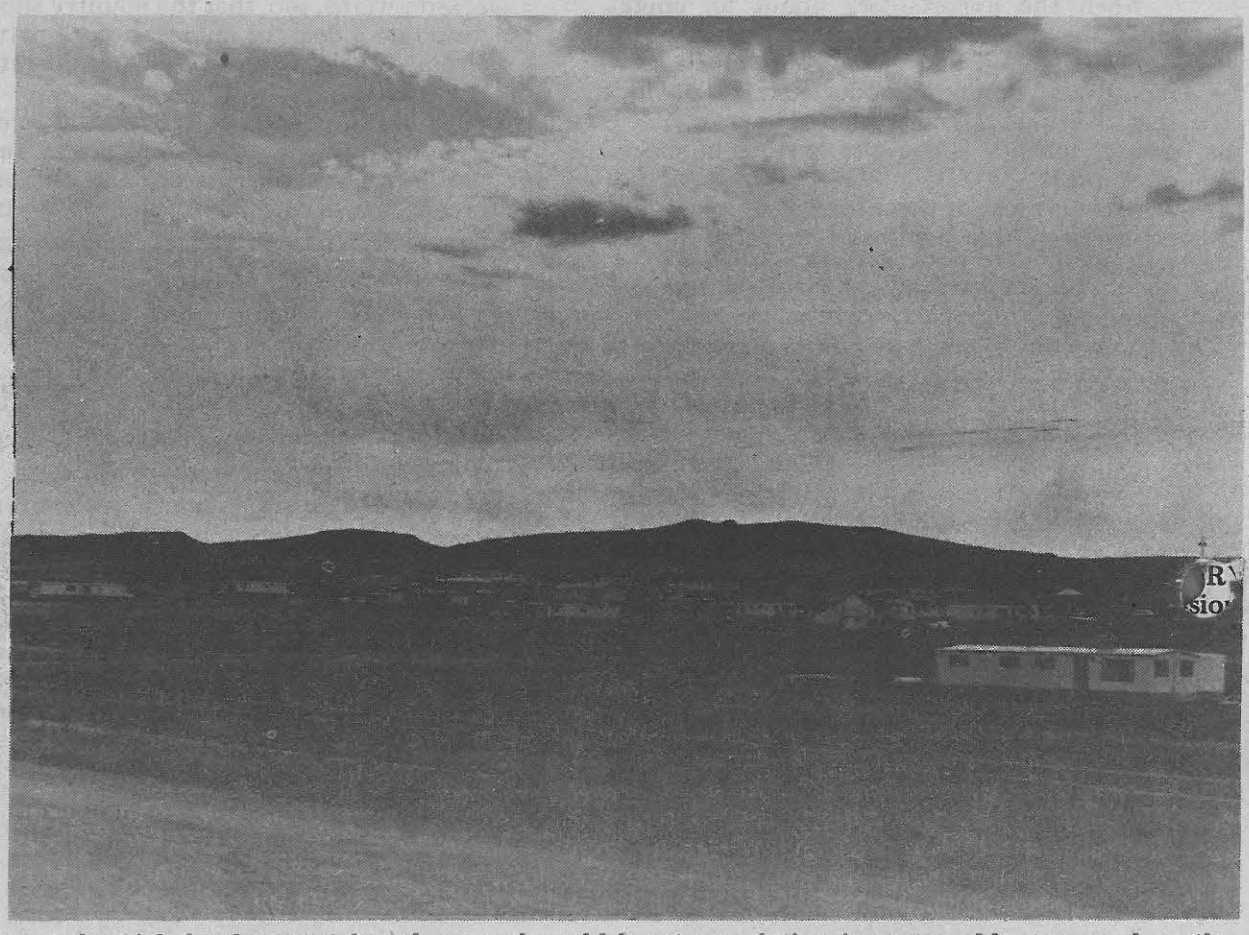
INTRODUCTION

1. Eastern Montana's coal is an extraordinarily rich resource which, properly husbanded, can bring the State prosperity and provide the means for solving some of its most pressing problems. Misused, this wealth of coal could bring us instead to ruin. Should that happen it would not be the first time, either for Montana or for coal.

It seems that we stand at the beginning of a period of vast exploitation of this Montana resource. There will be hazards for us in this process, some of which can already be discerned. Some are avoidable; some may not be. The people of Montana can, if they choose, exert a substantial degree of influence over the character of the development — both in its form and in its pace.

The information which is presented in the body of this report seems to point up two distinct stages in the development, each with its own unique problems and hazards.

(Continued on page 5)



Industrial development based on coal could boast population in eastern Montana and northeastern Wyoming by as much as one million people. Gillette, Wyoming, with a present population of approximately 7,000 would be located near the center of activity. Already, trailer housing and urban sprawl is reaching into the hills surrounding the town. The Montana Legislature is expected to consider "New Town" legislation. None is reported for the Wyoming Legislature.

Impact on Montana

In the short term, to the end of the present decade, the problems stem from a national pinch in electrical energy supply, resulting from a serious miscalculation of the availability and reliability of nuclear energy. During this period the United States will have to produce its electricity from coal, and by inherently dirty and wasteful generating processes. Until sulfur removal technology advances, a disproportionate amount of the coal will have to come from low-sulfur-content western reserves — much of it to be found in Montana. The danger for Montana in this period is that premature development of a coalfield industry could tie the state for the rest of this century to archaic technology which would pollute its air, use up vast quantities of its water, and dominate its landscape with thousands of miles of high tension lines and massive steel towers. If the State chooses to act decisively, it undoubtedly has the power to avoid this kind of blight.

In the long run, say the next 30 to 40 years, Eastern Montana would appear to be headed toward a total transformation into a major energy producing industrial region, built on a population base of 300,000, or even twice that number. Quite possibly this development will exhaust Montana's entire strippable coal reserves within the 30 to 40 year span, although major deep reserves will remain. I am aware that it has become fashionable to scoff at such projections as exaggerated, but our calculations show that they are entirely feasible — without assuming any development of energy-based secondary industry.

The demand for coal in this period may be principally for conversion to natural gas and oil. The more immediate need will be for natural gas, since our underground reserves are running very low. Already massive coal gasification plants are being designed to supply Los Angeles from New Mexico, and tentative plans have been announced for plant construction in Montana around 1978. Preliminary estimates seem to indicate that gasification will be substantially less polluting than current electric generation, and less consumptive of water. Also, gas pipelines probably are less offensive than high-tension power lines. But none of these large gasification plants has been built yet, and it would be wise to retain a cautious attitude until their characteristics have been demonstrated.

It is obvious that this period of unparalleled growth will demand of Montana's people and leaders the utmost in foresight and imagination.

Throughout the period Montana will have to learn to deal adequately with the problems of restoring mined lands — and not only those associated with coal. The difficulty now is not merely the lack of experience in reclamation on the arid plains. More fundamentally, it is that we have not yet arrived in this country at a land ethic which could enable us really to define the terms of acceptable land restoration. Until that can be done, the succession of new reclamation measures that we are seeing can represent only marginal improvements — the tinkerings of the technicians.

Must the development occur or could we prevent it altogether? Even more, should we try? This report does not attempt to answer those questions. A responsible answer would have to begin with an examination of the trade-offs involved; the degree of permanent disruption of our land would have to be calculated, and weighed against a certain level of injury and death unavoidable even with the best safety precautions in the deep mines of Appalachia, and also weighed against the frightening hazards inherent in the routine use of plutonium atomic fuel. We would have to assess the risks inherent in an attempt to return society to the "simple" pre-industrial life style, should that be our collective choice. We would have to calculate the odds that clean solar energy might provide us with an easy way out of our dilemma — and also calculate the penalty to be paid should we gamble on that hope and lose. Our Seminar's report is restricted to a more modest inquiry.

New railroad spurs have already been built into Decker, Montana, (shown here) and to a strip mine south of Gillette, Wyoming. New spurs proposed or under construction will go to Sarpy Creek in Montana and link Douglas and Gillette, Wyoming, through the Powder River Basin.

The report is not long, and I hope you will wish to read it through. Each chapter is signed by its authors, and contains their views. **They** are in no way responsible for the interpretations — and extrapolation — which appear in this introduction. These represent merely one man's opinion.

2. **The Demand for Montana Coal.** Everyone is aware that the United States, along with the entire western world, is entering a period of "energy crisis." But what does this imply about the development of Montana coal? The answer is not as obvious as it may seem, for energy comes from many sources, and coal itself is mined in many places. While mining activity has been advancing in Montana and Wyoming, the coal fields of Appalachia (long our nation's primary source) are sunk deep in recession — the latest in a series of hard times that have recurred throughout the history of that blighted region. Ironically, it is the insistence of the environmental movement upon a clean-up of air pollution which, combining with the present low state of pollution control technology, is helping to shift production to the low-sulfur bituminus coal of the West and away from traditional sources. The pollution control incentive is reinforced by a second technological fact: the perfection of massive earth moving equipment now gives the economic edge to strip mines, even at remote locations, over conventional underground coal mines nearer to the point of use. It should be said that the balance of development can quite possibly shift again the other way: for example, a breakthrough to high efficiency pollution control technology, a shift to coal gasification processes (which are inherently less polluting), or the development of more efficient underground mining techniques (such as "in situ" gasification) — any of these could aid such a reverse shift.

A notion of the size of the present imbalance can be derived from some figures from a November 15 Forbes Magazine article: Western coal is selling for as little as $1.80 per ton at the mine, versus $10 at some deep mines in the East. For Eastern consumers the difference is made up in freight charges — $8 or $9 per ton to Chicago from Montana or Wyoming. In fact, Wyoming coal is now said to be competitive as far east as Detroit. Note that these figures make the recent proposal for a $2 per ton severance tax on Montana coal look rather conservative — such a tax certainly would not dry up the market!

While the pressure is strong for Montana coal to be utilized, there is less certainty as to **how** it will be used or **where.** For example, electric generating plants can be located either at the source of coal or at the place where the power is used. Right now the economic balance between these seems nearly even. In such circumstances a State policy decision — backed up by regulation and taxation — could tip the balance either way.

In the long run, what of demand? Quite naturally, projections of national energy needs to the end of the century rest on shaky premises, and there is a wide spread between them. Perhaps the most conservative estimates are for a doubling of energy consumption by 1990 or (assuming cutbacks in consumer demand) by 2000. Other estimates run several times higher. Demand for electrical energy is rising twice as fast as overall energy demand. At one time our national expectations for supplying these demands were tied closely to the development of the fast-breeder nuclear reactor, but recent difficulties with the safety and reliability of nuclear energy plants have led to a major reappraisal. Many observers now feel that within the next 30 years we will continue to have to rely heavily on conventional fossil fuels — coal, oil, and gas — and that much of the oil (possibly more than half by 1985) will have to be imported. Because of the distasteful ramifications of a reliance on imported oil (balance-of-payment deficits, and dependence on the unstable Middle East) there will be great pressure to utilize more of our domestic reserve of coal, through gasification and liquefaction processes. Undoubtedly too, serious attention will be given to less conventional energy sources, such as geothermal and solar energy. It is generally assumed (with more hope than solid evidence) that after the year 2000 our reliance on fossil fuels will diminish greatly. In this connection, it is interesting to note that both here and in the Four Corners area (Arizona-New Mexico), industrial plans for coal-fired electric generators and coal gasification plants generally assume a 30-year plant lifetime, and the size of facility generally is adjusted so it will use

(Continued on page 6)

Impact on Montana

up the available strippable coal supply in about that 30-years time.

This observation leads to an interesting calculation, proposed by our Technology Workshop group. What level of use over 30 years would totally exhaust Montana's surface coal reserve? Utilizing processes with present day efficiencies, one answer is this: Montana's 30 billion ton strippable reserves could be exhausted by a 30 years production level of 69,000 Mw of electric power and 19 billion cubic feet per day of natural gas. This would require 15 electric generating plants like Montana Power's proposed 4-unit Colstrip plant, and 19 giant gasification plants of the size of Consolidation Coal's proposed facility on the Northern Cheyenne reservation. Over 70% of the coal would be going into gas. The plants need not, of course, be built in Montana (although by the BuRec's calculation, there would be more than enough water to operate them). Bringing the plants on line at a uniform rate, production would not actually reach this level until around the year 2000 — the standard planning horizon.

An independent, more conservative estimate is the following: let us accept the National Petroleum Council's estimate of a 15-year doubling time for national coal production, and assume that Montana's production is confined to its share (25%) of the national strippable reserve. Then Montana's annual production in the year 2000 would exceed one-half billion tons — a level only half of that figuring in our previous calculation, but still very large.

While one certainly cannot say that such levels of use will occur, they are nevertheless entirely feasible. Producing one-half billion to one billion tons of coal, Montana would be supplying only 8 to 15 percent of the country's natural gas needs and 2 to 5 percent of the electricity. This is not at all unreasonable, considering that Montana contains 25% of the nation's strippable coal.

To carry the calculation one step further, one may work out the total employment and population growth which would result from such development. Using employment figures for present day gasification and electric generating facilities, and applying the (conservative) methodology of our Economics Workgroup, the answer is: an employment of 40 to 80 thousand and a population of 240 to 480 thousand! This does not include construction employment, which would average an additional 10 to 20 thousand workers, assuming that construction were spread out uniformly over the 30 years, and pushes the total population estimate up to between 300 and 600 thousand.

What about water consumption? Using the known consumption of present day electric generating facilities and the claimed consumption of gasification plants (the claims may be over-optimistically low), one arrives at between one and two million acre-feet of water annually, depending on the size of development. To make an understandable comparison, the current agricultural use of water in all of Montana is 2.4 million acre-feet annually, which irrigates 1.8 million acres of land.

Finally, let us calculate the amount of disturbed land which would result from strip mining at the indicated production levels. Let us assume that each acre stripped will average five years out of production. (Mr. O'Conner of Montana Power claims that Western Energy land will be reclaimed in four years). Since the strippable coal averages an estimated 50 thousand tons per acre, we conclude that there will be 80 to 160 square miles of unreclaimed land at any given time! By way of comparison, the surface of Flathead Lake is 185 square miles.

(Let me repeat: projections 25 or 30 years into the future necessarily rest on shaky assumptions, and these levels of development may never occur. All the same, it would seem only simple prudence for Montana to have ready some contingency plans!)

3. **Energy Technology.** The key to an understanding of our options in the coal field is an awareness of the possibilities and limitations of technological innovation: innovations in mining the coal, in converting it to usable forms of energy, and in transporting that energy to its place of use. Our chapter on "Energy Conversion Technology" examines these matters in detail. Three salient facts stand out:

a. Presently available technology, from an environmental standpoint, is quite unsatisfactory and, if employed on the proposed grand scale, could be disastrous. Our evidence is somewhat circumstantial, since it is based on assumed production levels and comparisons with observed effects in other parts of the country. Nevertheless, the evidence seems compelling. The worst conceivable energy processing system is precisely the one which

Unless non-degradation of clean air is insisted upon by citizens of clean air regions, air pollution will get steadily worse. Plans for huge electric generating plants, gasification plants, and other pollution sources will dirty the relatively clean air of the western states. Here, the air along the mountains near Glenrock, Wyoming, is polluted by the Dave Johnston steam generating plant operated by Pacific Power & Light Co.

is now being installed in the Southwest (Four Corners — Navaho country) and which is on the verge of installation in Montana (Colstrip — North Central Power Study — Bonneville Power). This system would stripmine the coal, burn it (with major air pollution effects) to make steam, utilize the steam (with the consumption of enormous quantities of cooling water) to make electricity, and finally "wheel" the electricity to distant users via a vast array of high-tension lines. Any single generating plant (such as the Montana Power — Puget Sound Power and Light facility at Colstrip) can probably meet current air pollution standards, but the cumulative effect of a number of plants would very likely mean major air degradation. The current pollution standards seem ineffective to deal with this, and would allow the air of the entire region to be uniformly degraded to a specified level. Furthermore, current standards apply only to acid fumes and soot, and exert no control over numerous other hazards, such as radioactivity and toxic elements. Current technology is capable of great savings in water (through dry tower cooling), but presently there is no economic or other incentive for the power companies to adopt this improvement. The technology for undergrounding power lines at economically feasible costs seems very far off, and proposals for state control over the location of plants and power lines may provide only an unhappy choice among evils. Finally, these power plants are highly automated and will provide little employment. Their only advantage seems to be in their contribution to the property tax base — and this has to be weighed against the uncompensated property and environmental damages which they do.

b. Energy conversion technology is entering a period of rapid flux. News of recent advances are coming in from all sides and in a steady flow: a journal article describing a cheaper and less water-consumptive gasification process, a report of a dramatic improvement in the level of stack gas clean-up, progress in the direct removal of sulfur from coal, a technical advance toward a more efficient gas turbine power-cycle for making electricity, a pilot experiment in gasification of coal directly in the mine, the award of a major research contract for investigating a new solar energy process. And on and on. It takes time to carry a technological innovation from conception through pilot project to large scale plant installation, but there is little doubt of the trend, and the pace is accelerating. While no one can say with assurance that a particular process will pay out (though everyone seems to have his favorite), more efficient and less consumptive processes clearly are on the way. The technical methods involved are generally of a rather conventional sort, since the element that has been missing in the past is merely the will to try — stifled by our single-minded national preoccupation with the nuclear panacea. Having delayed so long in giving serious consideration to non-nuclear alternatives and being under the gun of the short term energy crunch, we face a cruel dilemma: whether to install dirty and inefficient but immediately available equipment, or to accept energy rationing and blackout episodes. The battle will be ferocious.

c. Our present regulatory system simply is not adequate to deal with the worst effects of the present archaic technology, or to hold off development until environmentally acceptable technologies are available, or to insure that superior technology will be utilized when it does become available. To cope with the problem we will have to be imaginative, and break entirely new ground.

4. **Land Use and Reclamation.** Our seminar was very much preoccupied with these issues, and several chapters in this report deal with them. Certain themes recurred persistently in our discussions, and I will try to address these here.

a. Reclamation, we agreed, has to be regarded as a process which is an intimate part of the entire mining operation — not merely a stage at the end. It consists, as Tom Foggin has expressed it, of all of those activities implemented before, during, and after the active mining operation that provide for the effective rehabilitation and management of the mined land ecosystem to a predetermined state of environmental stability and productivity. Thus, reclamation is a process, guided by explicit goals.

b. The Seminar did not, I believe, arrive at any concensus on what the goals of reclamation should be. Perhaps that was ruled out in any case by the present state of scientific ignorance about what in fact can be done. No one has claimed to date to have achieved the reclamation of high plains mined land, although naturally workers in the field would like to believe that they are progressing toward it. Many in the seminar equated reclamation with the reestablishment of the status quo ante, which to them meant restoring the underground aquifers, natural landforms, soil profiles, and biological communities. In the short period of five or ten years, this ideal can only be distantly approached. Others emphasized the continued responsibility for management, recognizing that man has long since intervened in the natural systems. There may be a conflict between restoring to a use, or productive function, and restoring to an ecologically defined state: we did not settle the issue. In a

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Cultural Clash in Canyonlands

Text and photos by Fran Barnes

The vast canyonlands country of southeastern Utah is both a joy and a sorrow to archeologists — a joy because of the rich treasure of early Amerind sites and artifacts still to be found there, and a sorrow because these irreplaceable traces of aboriginal American culture are so rapidly being destroyed.

It seems to be a part of the nature of man that each succeeding culture inevitably destroys all obvious, physical traces of earlier human cultures that occupied the same land. America is certainly no exception to this, and in fact is doing a far more complete job of destruction than any earlier, or even contemporary, culture has been able to do. The "barbarians" within this most "civilized" of all human cultures still follow this ancient human tradition, whether by deliberate intent or by simply not caring. Thus, despite the continuous efforts of more civilized Americans, most traces of earlier American cultures have long since disappeared forever, destroyed in ceaseless, mindless waves of "progress," or maliciously damaged or defaced by barbarous individuals.

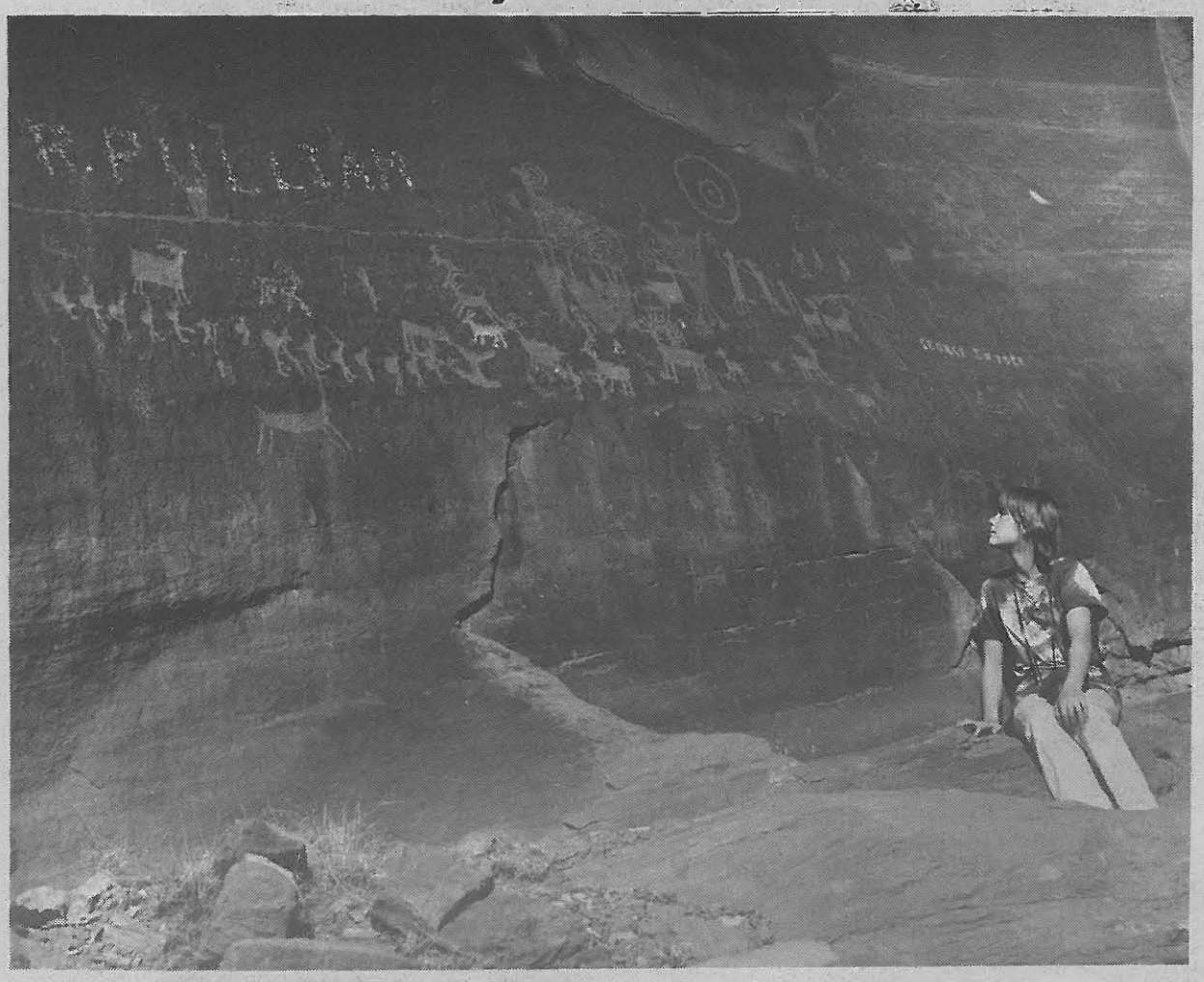
The chief instruments of the destruction of the few remaining traces of earlier American cultures have been the plow, the bulldozer, logging equipment, the dam, forest "chaining" equipment, and road building equipment. Thanks to these "tools" of modern civilization, virtually all traces of earlier Amerind cultures that existed on the east and central parts of this continent when the white man first arrived, have long since vanished, irretrievably destroyed by thoughtless, careless "progress."

In the American west, our archeological treasures have fared somewhat better because they were fewer, widely scattered and in many cases located in inaccessible, remote or unexplored country. In spite of these protective factors, however, western sites and artifacts are now fast disappearing. Several major factors are at work in this process.

The largest single factor in the destruction of Amerind artifacts and sites is, not too surprisingly, the federal government. Various federal land control agencies that still operate under outmoded laws, regulations and philosophies, or that are controlled at the decision-making level by economic interests, annually destroy hundreds, perhaps thousands, of archeological sites and artifacts. This, despite federal and state laws that supposedly protect these valuable remaining traces of earlier American cultures.

The Bureau of Reclamation and the Army Corps of Engineers promote the construction of dams and other projects that drown or destroy countless Indian ruins and other archeological sites, often for highly questionable economic "justifications." The construction of Hoover Dam and Glen Canyon Dam resulted in the drowning of literally hundreds of unique ruins, plus uncounted thousands of hunting camps, granaries, chipping grounds and other archeological sites.Surveys of the more obvious of these, performed on a rush basis by largely amateur teams of searchers directed by local universities, saved a few artifacts from the rising waters.

But the bulk of the scientific knowledge that might eventually have been gleaned from these sites, especially as more sophisticated research equipment and methods were developed, was lost forever. And every bit of the aesthetic value inherent in these sites was lost completely. Never will a thoughtful, civilized American be able to see these surprisingly well-preserved sites, be able to stand within them and try to understand and appreciate how the original American citizens lived their daily lives, and coped with their primitive environment. All that now remains of these hundreds of irreplaceable sites, these thousands of unique artifacts, these "nonrenewable resources," is a pitifully tiny fraction of the knowledge that was available, and a pitifully few artifacts, all now gathering dust in some university warehouse, where the scant knowledge they contain may or may not ever be extracted.



This photo shows only a small part of a 400-foot panel of very old petroglyphs found in a remote, difficult to reach area near Moab. The panel is along the base of an elongated, mushroom-shaped plateau, part of which bears the scattered remains of an Anasazi "fort" or stronghold. Some of the name-graffiti on the panel are relatively fresh, such as "George Snyder" and "R. Pulliam" in this photo. Others are old enough to be almost historic in themselves, such as "E. Jorgensen, 1900" near the bullseye in the photo. The relative ages of the petroglyphs, and grafitti, can be determined by the amount of "desert varnish" that has built up in the chipped or scratched marks. Very old glyphs may be as dark as the surrounding varnish.

The Bureau of Land Management, the Soil Conservation Service, and the Forest Service are also major culprits in the destruction of Amerind artifacts, as are several other federal agencies that have to do with agriculture, animal husbandry and watershed control, and of course numerous state agencies of the same sort play similar parts in the damage and loss of Amerind artifacts. Massive "chaining" projects, in which vast areas of public land known to contain archeological sites are leveled by teams of giant bulldozers dragging between them heavy chains, steel cables or rails, are performed on a regular basis within western states by the BLM and Forest Service.

The BLM and the Bureau of Indian Affairs also cooperate in the establishment of massively destructive industrial projects such as power plants and transmission lines, strip mines and coal slurry pipelines, mineral leasing and oil and gas pipelines. All of these destroy irreplaceable and valuable archeological sites within the Four Corners states. Yet seldom, if ever, are these highly destructive operations, which wreak massive environmental damage, preceded by the meaningful, objective environmental studies required by the National Environmental Policy Act of 1969. And seldom are they preceded by anything more than a cursory, lip-service scan of archeological values, even when it is known that numerous sites exist, this despite both federal and state antiquities laws which strictly forbid the destruction of such sites. If the sites are in the way of "progress," they must go!

To give two recent examples of this, in March, 1972, the BLM proposed to permit a millionaire cattleman who held grazing leases on 6500 acres of land adjacent to Natural Bridges National Monument, chain the virgin pinion-juniper forest on that land so as to "improve grazing" for some 600 head of cattle for about six weeks of use each year. The area was "surveyed" for archeological sites by an "old cowboy" in BLM employ whose qualifications certainly did not include an education in archeology nor, probably, anything above the grade school level. Many sites were found, many others were obviously not. But their importance was shrugged off. No environmental impact statement was prepared nor planned.

A second example occurred in late 1972, when Forest Service officials announced plans to chain 1600 acres of pinion-juniper land in the foothills of the La Sal Mountains in southeastern Utah. A Forest Service "archeologist" found several dozen sites within this relatively small area, yet he concluded that ". . . . there is no archeological reason not to chain the area." He reached this "scientific" decision before the survey was more than 75% complete. The "archeologist's" report went on to recommend that several sites be studied both before and after chaining, to determine the extent of damage such an operation caused. This recommendation, after several decades of chaining and equally destructive clear-cutting in National Forests known to contain archeological sites, borders on the facetious, and can only be likened to "locking the barn door after the horse is stolen."

Of course, the Forest Service officials who planned the chaining operation did not conform to the requirements of the National Environmental Policy Act. A local rancher wanted the land chained, Congress in all its infinite wisdom had passed pork-barrel legislation alloting funds for "range improvement," so the Forest Service officials naturally had to do the chaining, however much archeological knowledge was lost in the process.

Even the Park Service is not beyond cooperating in the destruction of archeological sites. To give one example, in response to heavy pressures from local political and economic interests, officials of Canyonlands

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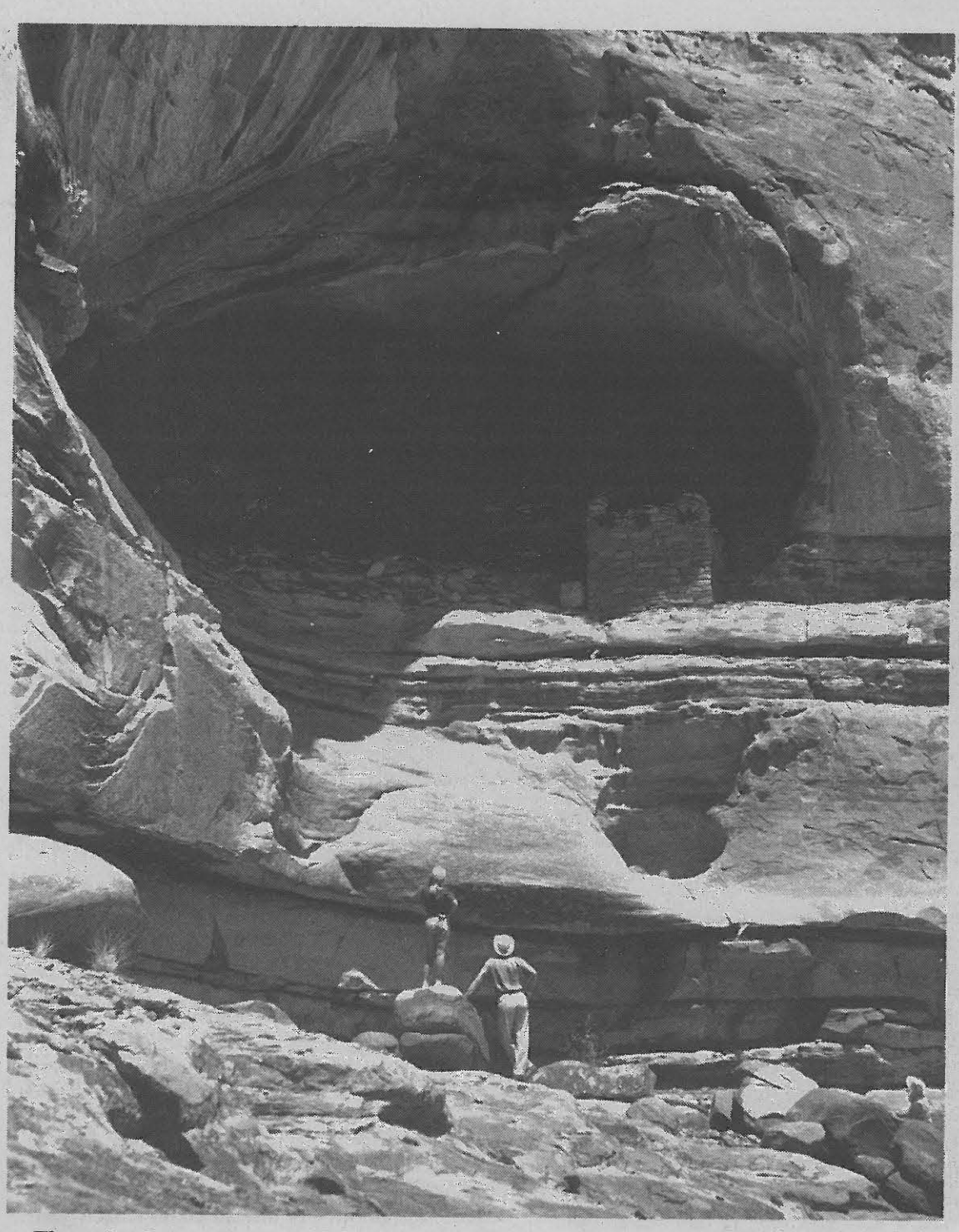
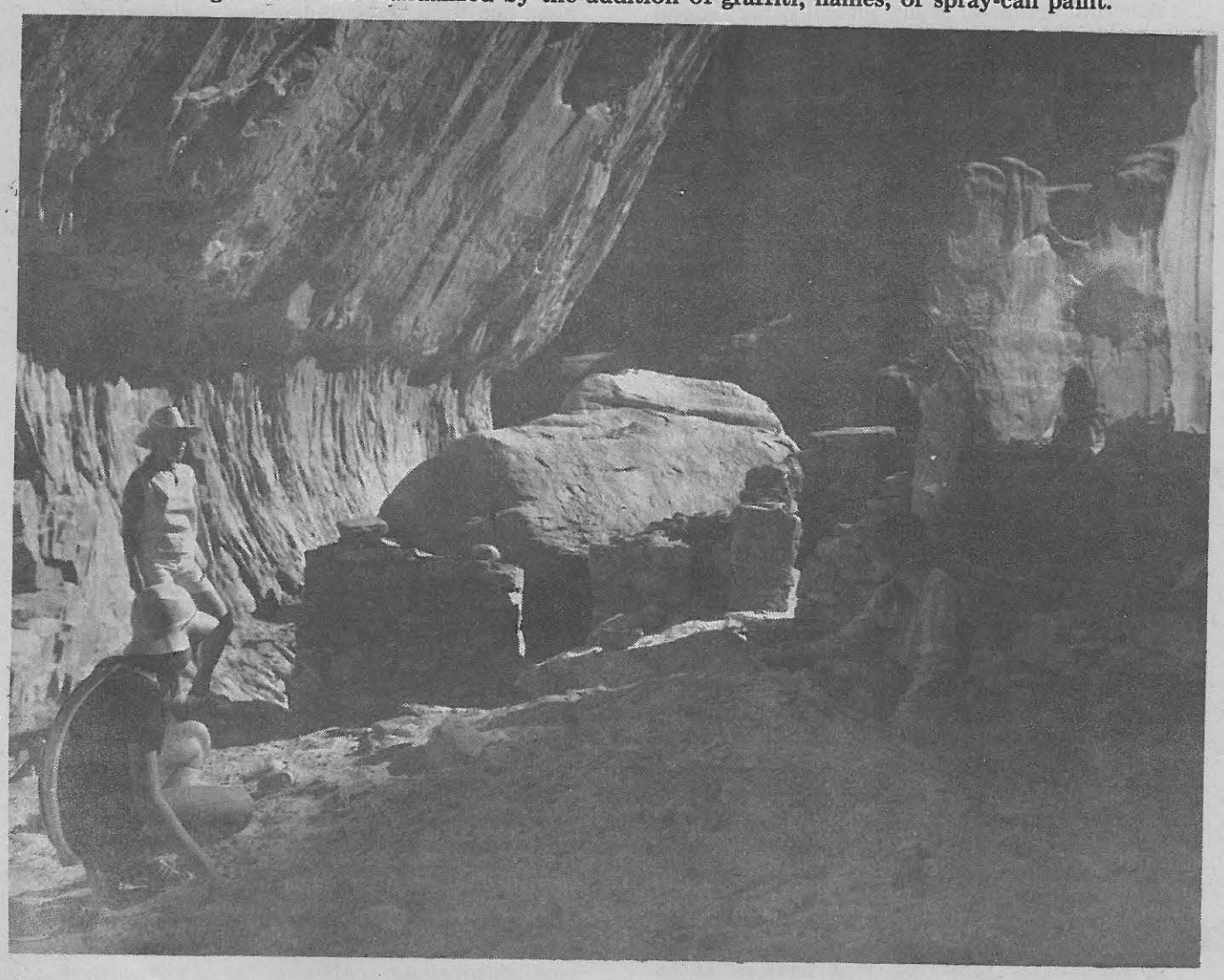
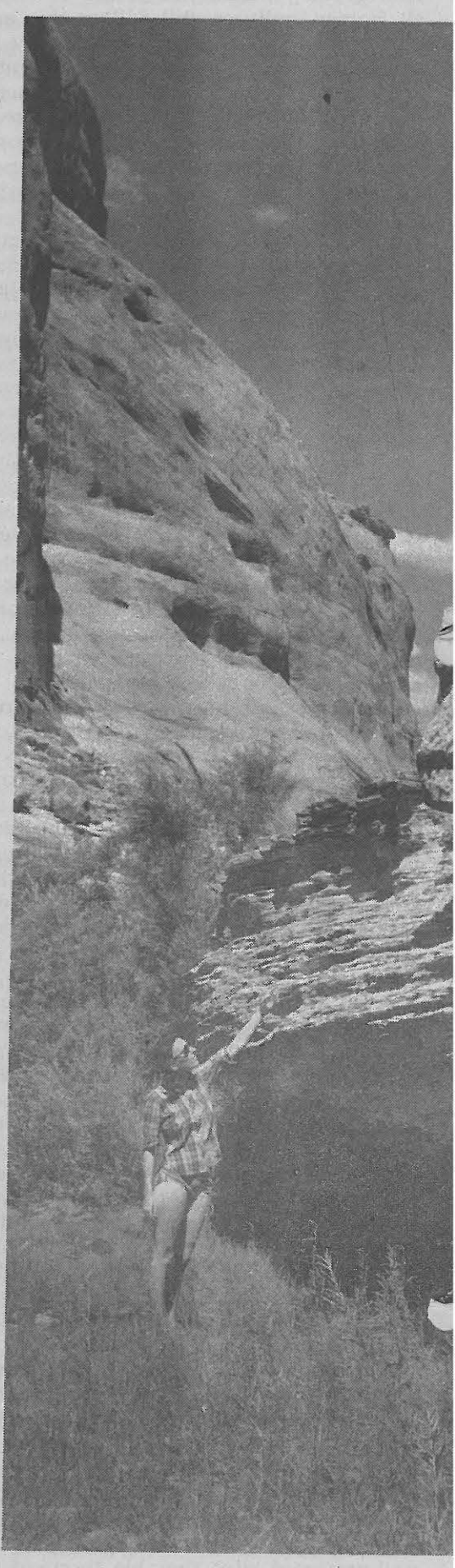
Many Anasazi and Fremont Indian ruins suc
borders of Canyonlands National Park, but tho
private land receive no protection at all beyond
many ruins within what is now Canyonlands Nat
official exploration party in 1952. Many artifact
1964, when the park was established, all these ru
virtually nothing of value for the first official scien
other archeological sites within the same general
during the same period. Such looting continues ev
the more bold collectors excavate the better know



The ruins below were annexed into Canyonlands National Park in late 1971, but too late to save them. This photo was taken just weeks before the annexation, showing evidence of fresh digging for artifacts. Mortared walls had been undermined and overturned in the digging. Earlier, a lovely clay pot was found on a hidden rock ledge near another ruins in the same canyon. The pot went into a private collection, unreported. Most such ruins have pictographs or petroglyphs near them. Generally, such "Indian writings" have been vandalized by the addition of graffiti, names, or spray-can paint.





Here, two huge, age-darkened boulders are vir
grace a ledge in a canyon system near Moab, Uta
purposes. These and other petroglyphs will be d
for public hearings, to discuss this and other as
and local authorities, even though at least tw
Management and the Corps of Engineers.

ES UNDER ATTACK

Photos by F. A. Barnes

left) are now protected within the
er archeological sites on public and
ate and federal antiquities laws. The
first given a brief survey by an un-
and left, in place. Between then and
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the University of Utah. Hundreds of
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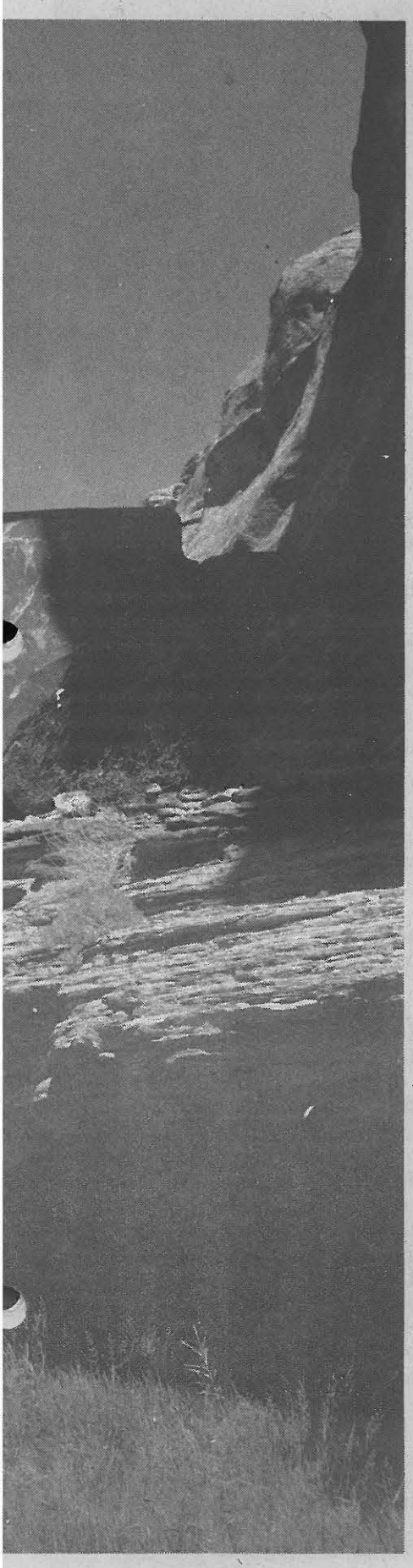
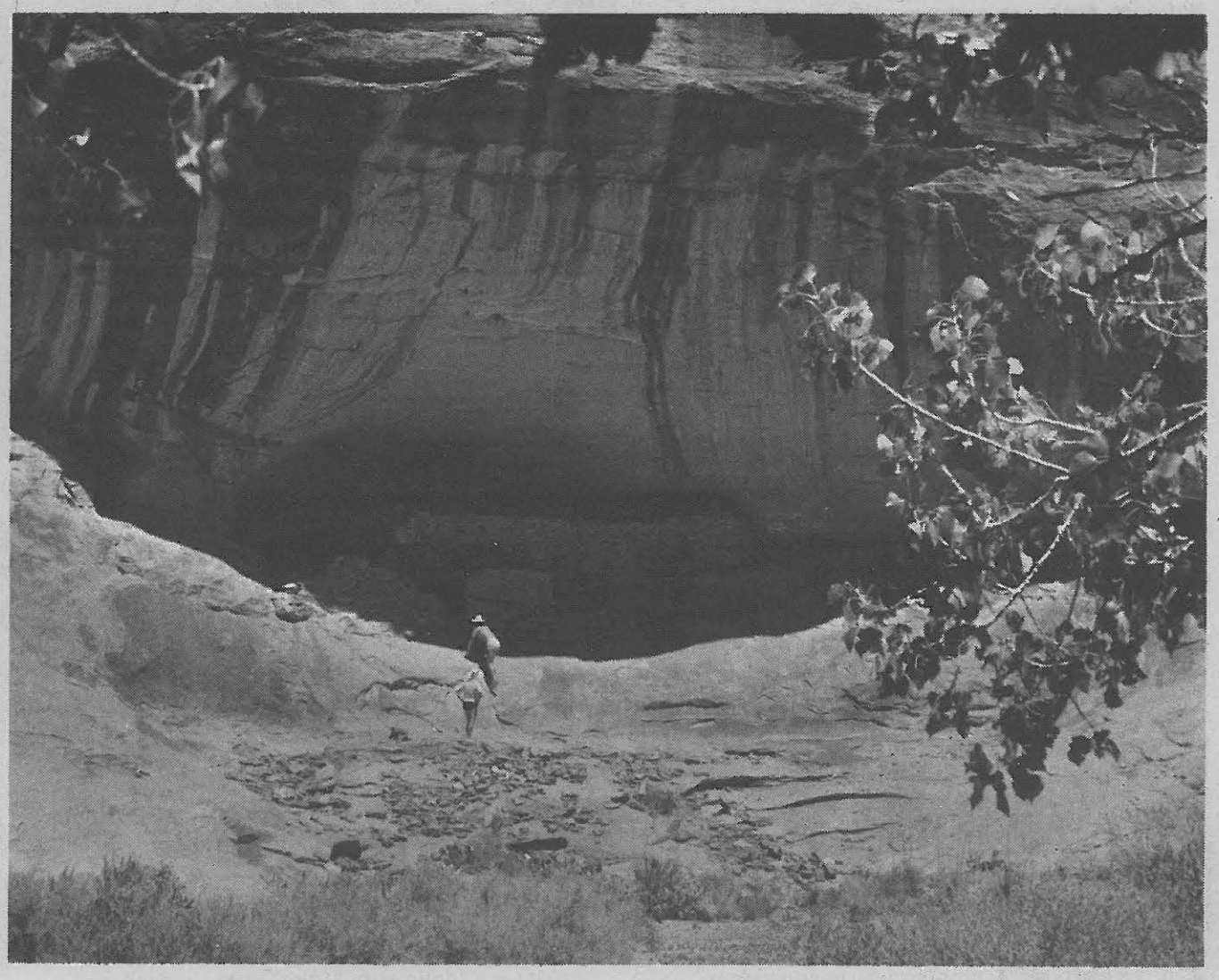
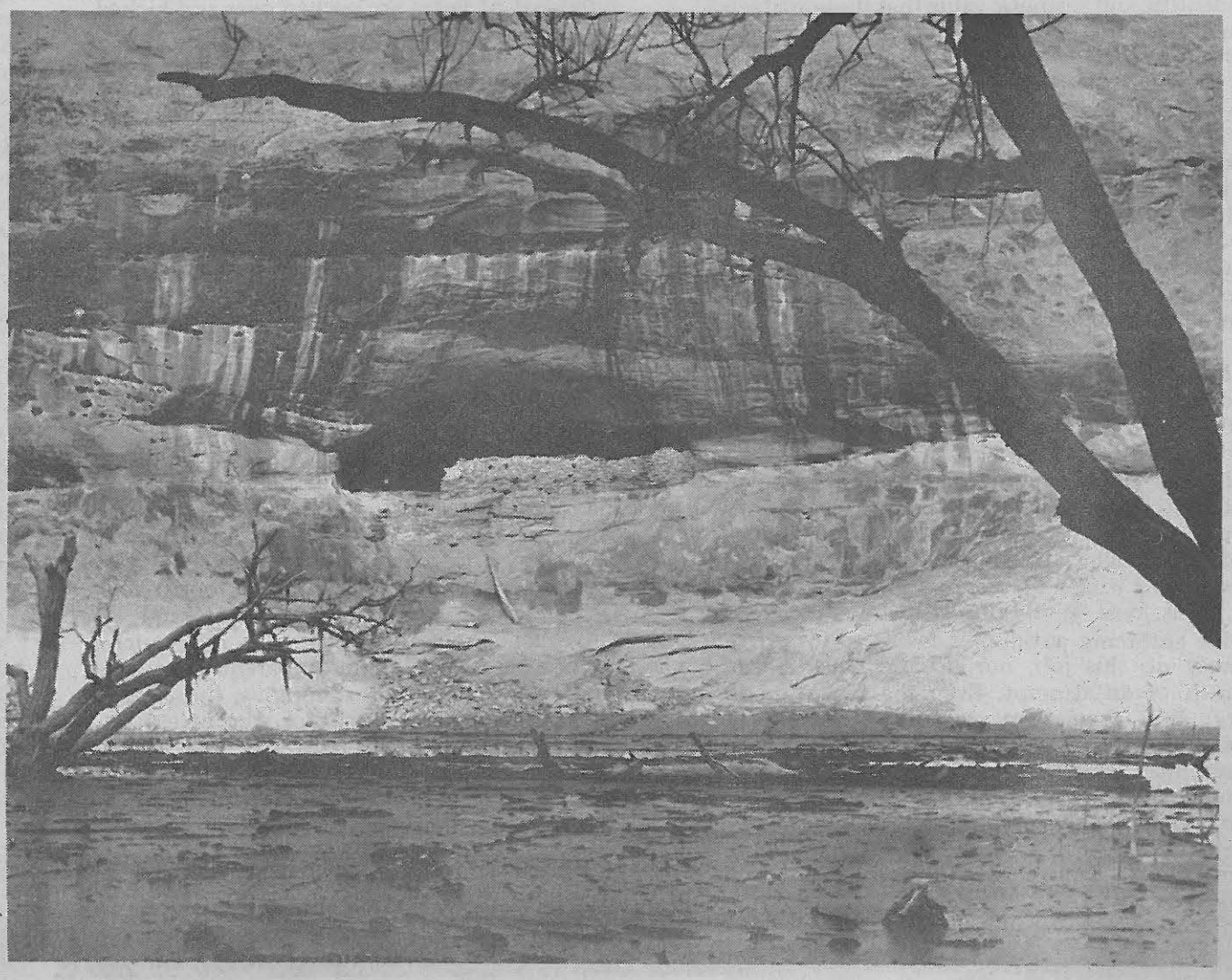


l with very old petroglyphs. The boulders
rities plan to dam for highly questionable
ined by the reservoir waters. All requests
dam project, have been rebuffed by state
ncies are involved, the Bureau of Land



Here is a sad example of cooperative industrial/Bureau of Reclamation vandalism. Hundreds of archeological sites have already disappeared beneath the waters of Lake Powell. This site, and several others up Lake Canyon near Bullfrog Basin, will be the next to go. The first photo was taken a couple of years ago, when it took a hike to reach the site. The second photo was taken in November 1972. At that time the rising lake waters had killed all the ancient cottonwood trees that filled the canyon below the alcove ruin, and the canyon was choked with driftwood and other debris. As the waters rise still farther next year and the next, this small but lovely archeological site will be drowned and destroyed, lost forever, along with countless other such sites that stand in the way of industrial "progress."



Clash . . .

National Park are planning the construction of a ten-mile spur road within the unique "Needles" district of the park. The expense of building the road is exorbitant, it will do considerable damage to local terrain, be difficult to maintain, take four years to complete, and even then will go only to a viewpoint of moderate interest. The construction of new roads within National Parks is also contrary to clearly stated Park Service policy. Construction of the road will also destroy fifteen known archeological sites.

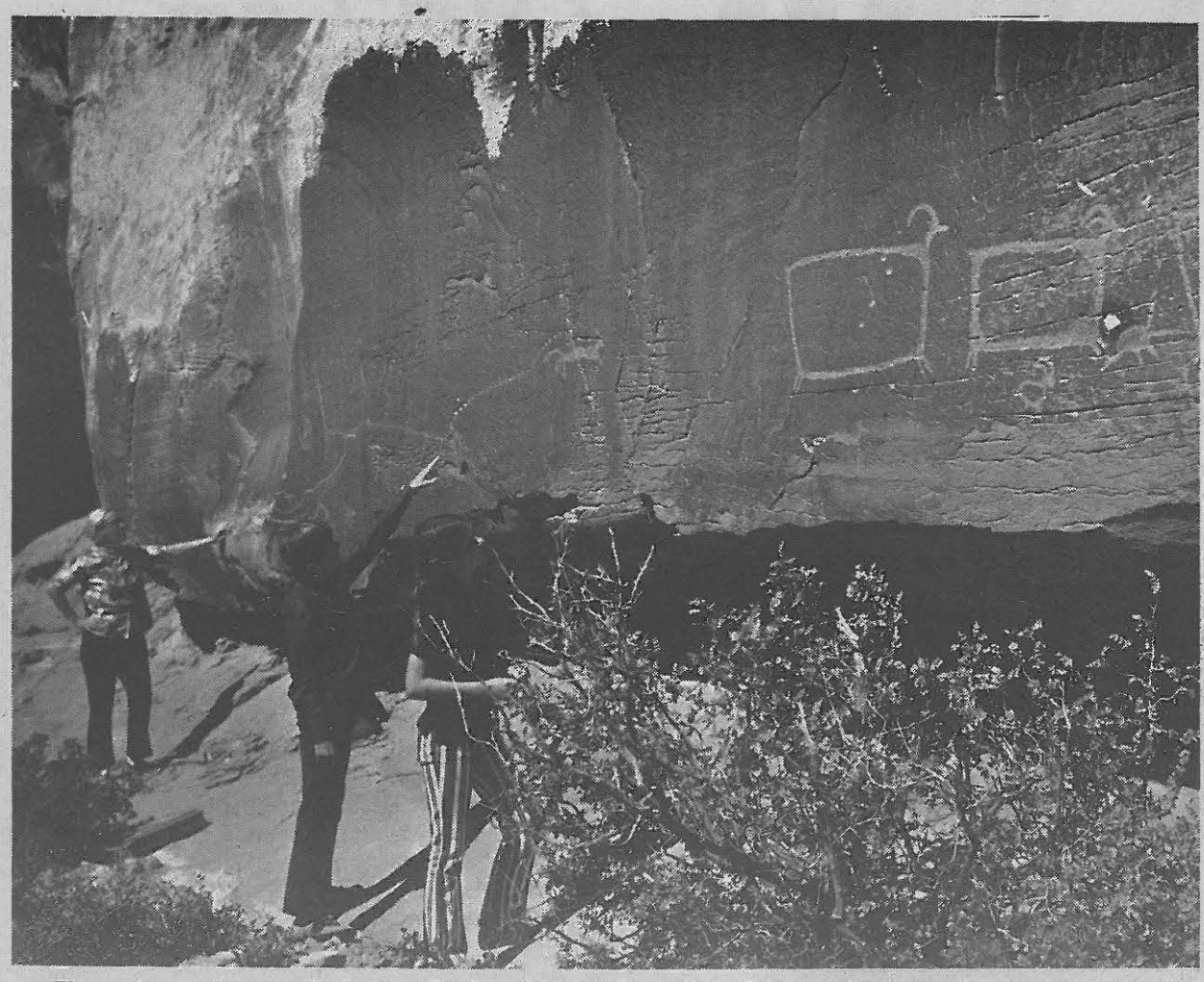
But local politicians, under the influence of local road building contractors and other economic interests want the road, so the Park Service is going to build it, despite all logic to the contrary. In this case, an environmental impact statement was filed, but public comments pointing out the many obvious weaknesses in the proposal are being ignored, including pleas to save the archeological sites and develop them for interpretation for park visitors.

While no amount of destruction of archeological treasures by private citizens can begin to match the wholesale, organized destruction regularly performed by our state and federal agencies, private citizens and businesses nonetheless constitute a big factor in the loss of Amerind sites and artifacts. Despite laws which are applicable to antiquities on both public and private lands, private land holders develop lands having archeological value without even slight concern for such values. Plowing and chaining on private land have destroyed unknown thousands of archeological sites within canyonlands country, and collectors, both private and commercial, have systematically stripped most of the known ruins in this vast region, even those within National Parks, Monuments and Recreation Areas. Other collectors, largely amateurs, have gathered countless scattered Indian artifacts such as arrowheads and spearheads, ax heads, corn grinders, pots, baskets, human mummies and other still rarer items. These have been added to private collections that are in some cases horrifyingly large, and any historic, scientific and aesthetic value that these artifacts may have had are totally lost to the scientific world and the American public.

Federal agencies responsible for the protection of archeological material, themselves the worst culprits, are not in any position to enforce existing antiquities laws. In the first place, enforcement would be hypocritical. How could a local BLM office "throw the book" at a collector for picking up a few arrowheads, while at the same time planning to utterly destroy several hundred ancient dwelling sites?

In the second place, all too many such "hobby" collectors, and even commercial collectors, live in the same community as the BLM officials, and may thus be friends or acquaintances of these officials. Further, local old-west philosophies, still in effect in much of southeastern Utah, see nothing wrong with "picking up a few points," and an "outsider" who thought otherwise would soon be ostracized within the community.

Thus, local federal officials who are charged with enforcing antiquities laws cannot effectively do this job, nor do they even make much of an attempt. Even the few who do try, find themselves severely hampered in canyonlands country. Violations of federal laws must be tried in federal courts, and there are no federal magistrates available for southeastern Utah. A federal judge in Salt Lake City is too jealous of his prerogatives to delegate any such authority, so every case has to be tried in Salt Lake City, an expensive, time-consuming process that has quite definitely discouraged and hampered enforcement of the federal antiquities laws in canyonlands country. As a result, only the most blatant of violators are apprehended and tried, while hundreds of others, both local and from out of state, go on stripping the land of its few remaining archeological treasures.



These strange box-bodied petroglyphs of desert sheep are within plain sight of a road near Moab, Utah, and have suffered accordingly. Notice the several bullet holes that mar the larger image. Bullet pocks and scratched names are the commonest forms of defacement suffered by the many petroglyph sites in canyonlands country. Virtually none have escaped vandalism.

Nor is "collecting" the only hazard to archeological sties from private citizens. Vandalism also plays a part. The barbarians among us still pursue their ancient impluses to totally destroy what they can, and deface what is not easily destroyed. Unique and irreplaceable Anasazi and Fremont Indian dwellings and granaries made of fitted and mud-mortared rock are senselessly damaged, often just for "fun." Stone walls that have withstood time and the elements for many hundreds of years are pushed over and kicked to pieces. Fired-clay pots, now rare but still occasionally found in hidden places, are broken into worthless shards by those who do not realize their value. Pictograph and petroglyph panels hundreds, even thousands, of years old are defaced with spray paint, rock hammers, bullet pocks and scratched graffiti and names. Even scientific research teams, hired by federal agencies to "survey" archeological sites, leave them in sad condition. Ruins are dug up without restoration, rare and unique pictograph panels are marked with paint to aid "scientific analysis" and well-hidden sites are marked with signs, making them obvious to the collectors and vandals who come later.

And again, even the few conscientious federal officials who would like to enforce the antiquities laws find this difficult because of lack of local federal magistrates.

What can be done to stop this inexorable and accelerating loss of the irreplaceable archeological treasures that still exist in canyonlands country? Probably not much, because it seems quite apparent that the vandals, the barbarians among us, those who would deliberately destroy or who care little about anything but dollars, vastly outnumber the relatively few Americans who are more civilized and consider other factors on a par with economic factors. We who care are too few and too weak — those who do not care are too many and too influential. In most of this broad nation, the fight was lost before it even started. A bare pittance of the archeological values that were here when our forefathers landed on this continent still remain in the rest of the country, and a clear majority of those that were within canyonlands country are now already lost. And what remains is going fast, as modern American culture washes in ever-growing waves into the last remote regions of the southwest.

Stop the destruction of the few surviving remains of our predecessor culture? This is not possible, given human nature as it is, with its ingrained, traditional, xenophobic, perhaps instinctive hate, fear and distrust of earlier peoples and cultures, and its innate, insatiable lust for material wealth and progress. But perhaps if the few of us who are civilized enough to place other values on a par with, or above, the modern cultural goals of "progress," "development" and "economic gain" — or if those few of us who are human enough to rise above our more destructive, selfish, animalistic instincts — can make ourselves heard in the right places, maybe, just maybe, we could slow down this destruction for awhile. At least for long enough to permit some larger fraction of the potential knowledge still remaining to be gathered, if not for long enough to permit our children, and children's children, to derive any aesthetic enjoyment and appreciation from what little is left of the first American culture.

Those who would like to try to save what tiny bit is left of our American archeological heritage, should do everything possible to discourage the various federal and state agencies from doing anything to destroy archeological sites and objects. They should promote in every way full enforcement of existing antiquities laws. They should insist that officials responsible for the enforcement of these laws do so, despite social and economic pressures to the contrary. They should cooperate in the establishment of public museums and displays, in the formation of qualified field research teams and in the restoration and protection of damaged ruins and other archeological sites. They should encourage private hobbyists to put their collections on display in public museums on "permanent loan." They should act as "citizen police" to discourage and prosecute those who vandalize.

Yes, there are things that can be done, many things. But there are all too few of us who care enough to do them. Are you one of those few?

Impact on Montana

brief essay in our chapter on Reclamation, Professor Melvin Morris offers some wise observations of a very practical nature.

c. Varying degrees of skepticism were expressed in the Seminar about the likely effectiveness of proposed reclamation laws. It was stated that "reclaiming for wildlife" could be a "bugout," since it would be achieved without the leveling or compacting of spoil-banks. Similarly the much touted "recreational lake" might be only a euphemism for the steep-sided final-cut trench left at the end of the stripping operation. We examined the dismal history of attempts in Appalachia to impose "stringent" reclamation laws — a failure over 20 years and more — and wondered about the easy optimism of State officials in Montana. We were divided in our own proposals. Our Government Group experimented with a "model reclamation law." Others favored the proposed "moratorium" on new mining, urging that this remain in effect until present operations have demonstrated the degree of reclamation which will in practice be attained. (The burden of proof should be on the mine operator.) Some favored outlawing strip mining altogether and relying, instead, on underground mining. There is in fact plenty of deep coal in Montana and nationally to meet energy needs for many years to come, but the economics of its recovery come into play.

Probably most seminar participants — like most Montanans — are prepared to give reclamation a chance. We will judge it on the terms proposed by Carl Bagge of the National Coal Association, ". . . by the best we can do rather than the worst we have done." Montanans do not yet know what that best may be, nor whether we will find it acceptable. Certainly if the coal companies show the callousness and bad faith in Montana which has characterized their activities in the East, finally we will all be made Abolitionists.

d. Our Land Use Group's report is a comprehensive portrait of the land, and the Social Group tells us about the people of the coalfield region. We did not, in the Seminar, approach the larger issues of land use planning — that will be a major focus for our attention when the Seminar resumes in winter quarter. We see real promise in several ideas that have been proposed: zoning that would keep the mines out of rich bottom lands and scenic natural areas, state authority over the site location of power plants and transmission lines, state authority for the planning of "New Towns," a public development corporation with broad authorities. If development approaches anywhere near the 300 to 600 thousand population level which we prophesy, then Montana will have its hands full. The issues of comprehensive land use planning are among the most profound and politically sensitive of any that the State will then have to face.

5. A Control Strategy for Montana. The proposals that follow have not been checked by serious study in the Seminar: there simply was not time for that. My hope in presenting them is that they will be provocative and will inspire further debate. Of course, none of the proposals is entirely new — but some seem not to have attracted notice within the State.

a. Reclamation should be given a chance, but only under the most precise controls that can be devised. This means we must have (i) a good **Federal reclamation law** to insure controls on public lands as well as (ii) a good State **Reclamation law.** There have been many suggestions made concerning the provisions of such laws, and I will not repeat these here. We also need (iii) **State zoning legislation** to outlaw the strip mining of prime agricultural land, aquifers and surface water resources, outstanding scenic recreational lands, and other lands whose special vulnerability makes them a poor risk for successful reclamation. **Until this controlling legislation has been enacted, Montana lands should be protected by a Moratorium on the issuance of new strip mining permits.**

Montana should enact a **severance tax on coal,** initially $2.50 per ton, as the state's fair assessment against these mineral-rich properties.

b. The state Legislature should impose a two or three year **moratorium on the construction of energy conversion plants** — coal gasification plants as well as electric power plants. This delay would give time for rapidly evolving technology to begin to settle down, and time also for enacting and implementing improved air pollution control regulations.

The State Health Board should adopt **rigorous air emission standards** for nitrogen oxides, toxic substances such as flourides, radioactivity, and hydrocarbons — any of which might result from the operation of energy conversion plants. (Standards can be promulgated only after a hearing procedure, and require approval by EPA.)

The State Legislature ought to pass an **effluent tax,** similar to that proposed by Senator Proxmire: I suggest 20 cents per pound of emitted sulfur and 10 cents per pound of nitrogen emitted in oxides. Such a tax would encourage utilities to wait for improvements in technology before installing new facilities, and to continually upgrade pollution control on existing facilities. Such a tax would help to solve the problem of dealing with multiple sources, such as envisioned in the NCPS, where cumulative pollutants tend to build up to unacceptable levels.

The State Administration should consider joining the suit, now pending before the U.S. Supreme Court to make operational the language in the Federal Clean Air Act which insures the **non-degradation of clean air regions.** The State Legislature should amend the **Montana** air pollution law to include a **non-degradation statement.**

c. Ways must be found to insure that the energy companies switch to low water consumption technologies in their power plants and coal gasification plants. One way to achieve this might be to upgrade the status of in-stream values of water, protecting them from the adverse effects of consumptive water diversions. Passage of the Natural Resource Department's proposed **Montana Water Use Law** seems to be the important first step. It would authorize public agencies to make in-stream water reservations, would recognize recreational values, and would require applicants for new water rights to demonstrate to the Board that their diversions would not harm prior appropriations.

Perhaps a means could be devised for **taxing wasteful water consumption.** The idea would be to compensate the public for the degradation of in-stream and shore line environmental qualities, which would result from consumptive diversions. (It is wryly amusing that power plants in other parts of the country cause severe **thermal pollution** problems by the return flow of heated waters to lake or stream. In the West that problem is being circumvented by a simple expedient: the diverted waters are never returned to the stream, but are instead totally evaporated into the air! This is not officially pollution, even though it clearly results in depletion and thereby degradation of the stream.)

d. The State Health Board should be aware of **potential water pollution** from coal gasification and liquefaction facilities. The newly revised **Federal Water Pollution Control Act** provides the necessary authority to control it.

e. As many have suggested, the State needs to provide for the regulation of **siting of transmission lines, pipelines, railroads, as well as power plants and other energy conversion facilities.** This authority must include the **right to deny construction anywhere in the state of facilities intended to serve out-of-state power needs, if the total environmental impact of the generation and delivery systems is judged to be unacceptable.**

f. The State should also assume authority over the **Siting and Design of New Towns.** The Canadian provinces of Alberta and British Columbia have had such legislation for some time, and their experience may serve as a useful guide.

Trains Run

by Norma Hentges

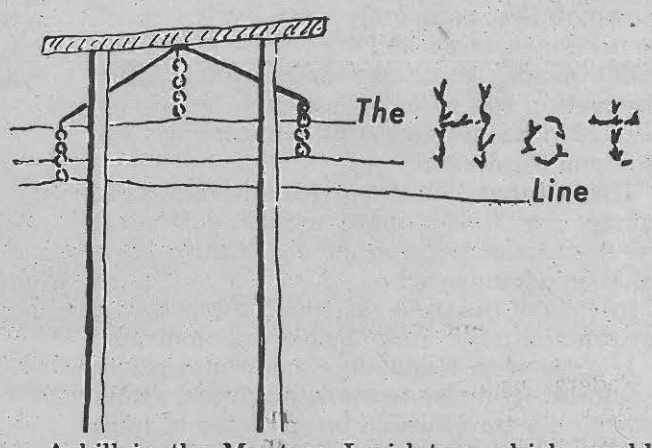
The new Black Mesa & Lake Powell Railroad (BM&LP) in northern Arizona, has the first all-electric, 50,000-volt locomotives in the world.

Three of the new E60 locomotives will haul coal trains from the strip mines at Black Mesa near Kayenta, Arizona, to the 2.31 million-kilowatt Navajo Generating Station near Page, Arizona.

These new monsters weigh 426,000 pounds each and are rated at 6,000 horsepower.They were built by General Electric and are said to be pollution-free and fully automated.

The once-beautiful Black Mesa is now being stripped of it's coal at a fantastic rate. The new trains will be loaded in as little as 80 minutes. The run will be completed in two hours and 20 minutes. Unloading at the Navajo Station will take only 20 minutes.

Joint owners of the Navajo Generating Station are the Arizona Public Service Co., Tucson Gas and Electric Co., Los Angeles Department of Water and Power, Nevada Power Co., and the U.S. Bureau of Reclamation. The station is run by the Salt River Project.



A bill in the Montana Legislature which would prohibit promotional advertising for electricity or natural gas has drawn fire from utilities. But proponents of the bill cited statistics to show Montana Power Co. spends five times as much on advertising and sales as it does on research. Such expenditures are paid for by consumers. The bill would provide for fines up to $1,000 a day.

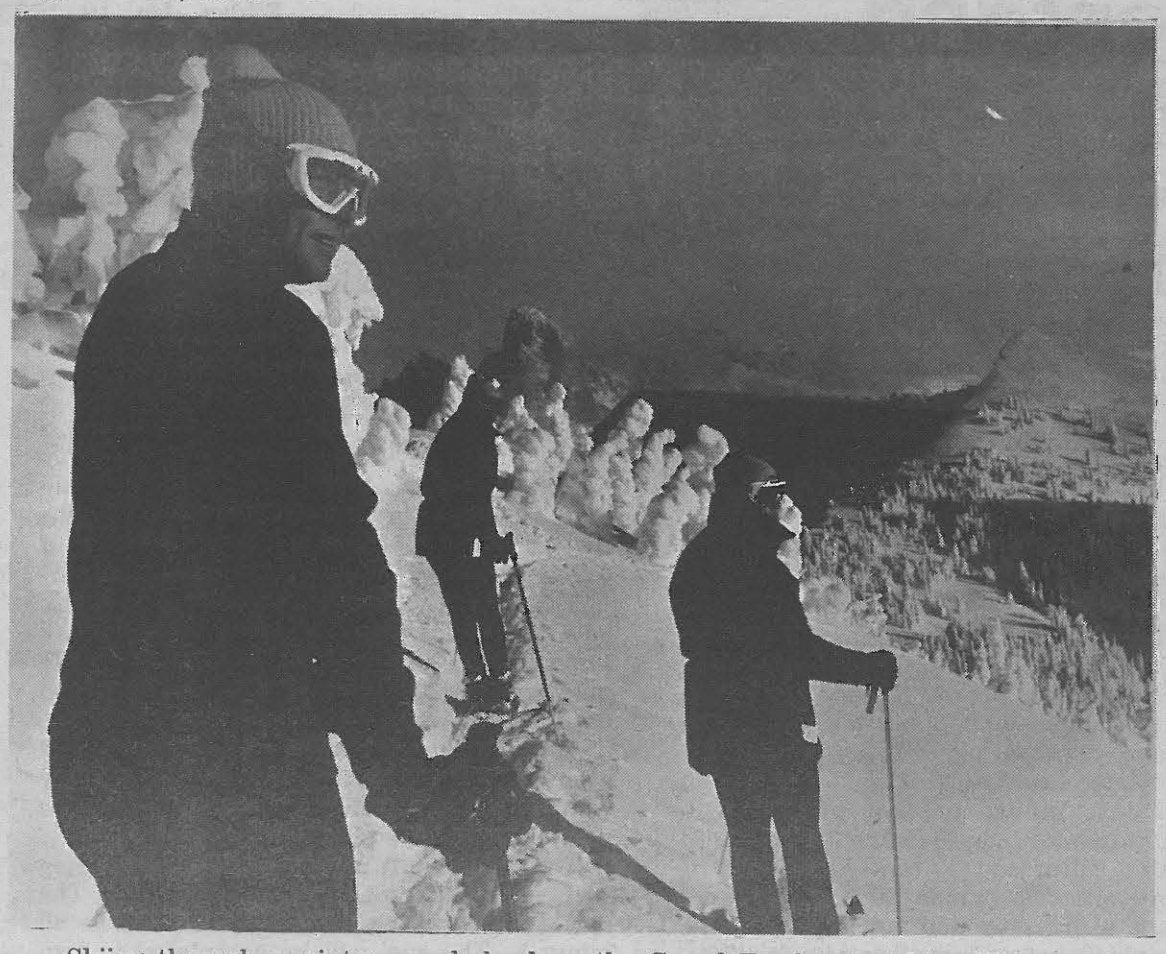
* * *

Aluminum Co. of America has announced the development of a new process to refine aluminum which could reduce electricity consumption by 30 percent. The new process would eliminate the need for fluorine. It can also use ores such as anorthosite. Aluminum Co. recently bought 8,000 acres of Wyoming land north of Laramie which contains the ore. The Wyoming deposit covers some 200 square miles in Albany and Platte Counties. The ore would be strip mined.

* * *

Experts studying the world potential for energy from geothermal sources say that vast underground pools of hot water and steam could fulfill all electrical needs for the United States by the year 2000. The study, in which former Interior Secretary Walter Hickel participated, says geothermal sources could save the United States billions of dollars. It would be an environmentally clean source of energy.

Photo by Idaho Dept. of Commerce and Development



Skiing through a winter wonderland on the Grand Targhee in Idaho. This area is under consideration as a wilderness.

Snowmobiles Reviewed

In characteristic American fashion, the snowmobile boom has outraced environmental studies and regulations. With some 60,000 snowmobilers competing with backpackers, ice fishermen, skiers and wildlife on Montana's public lands, conflicts are inevitable. This observation was recently made by the Department of Fish and Game in its official magazine, **Montana Outdoors.**

The feature article notes that environmental damage by snowmobiles including seedling tree destruction, erosion and aminal disruption has been documented.

In view of the snow machine's threat to the environment, the state agency recommends:

1. Areas with fragile big game winter ranges should be off-limits to snow machines. Other snowmobile travel would be restricted to trails and snow-covered roads. A few special trails are already available. The Lincoln district of the Helena National Forest has 12 snowmobile routes ranging in length from 5 to 16 miles of marked trails near Garnet, Montana. South of Bozeman, the Gallatin, Big Sky Snowmobile Trail offers a scenic path that leads to Yellowstone Park.

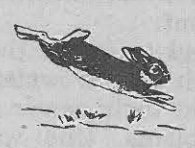
2. Manufacturers should be pressured to produce quieter and safer machines. (Montana law has established a noise level of no more than 85 dB-A at 15 feet for snowmobiles sold after June 30, 1972. Most snowmobiles manufactured prior to the 1973 models exceed 85 dB-A at 50 feet. A large power mower is also in the 85 dB-A range.

3. It is now unlawful to discharge a firearm from a snowmobile. In the feature, author Gene Colling notes, "Firearms of any type should be prohibited on the machines."

4. Oversized serial numbers should be imbedded in the tread to leave an impression in the snow. This would discourage vandalism, littering, and wildlife harassment.

A major complaint about the machines involves harassment of wildlife on winter ranges. Wildlife harassment is generally unintentional, the result of trying to get a photograph or a closer look, but cases of intentional damage are also reported each year. State laws forbid "driving, rallying, or harassing any of the game animals, game birds, or furbearing animals of the state" with snowmobiles.

The Department of Fish and Game stresses that like hunting, snowmobiling is often judged on the actions of a few. Thoughtless acts of littering and vandalism can give the entire sport a bad reputation in the public's eye.



Reprinted from the DESERET NEWS,
Dec. 4, 1972.

Endangered

If present trends continue, the rare little Utah Prairie Dog is not long for this world.

Unhappily, there won't be many to mourn his passing. But that's as much a reflection on them as it will be on the deceased.

The Utah Prairie Dog, a unique species found only in south central Utah, was reasonably abundant in nine counties in 1937. Now it is found in only four.

There has been a particularly precipitous decline since 1970. During this period 22 prairie dog towns have been wiped out by poisoning and shooting, leaving only 39 in existence.

If this species is to be saved from extinction, the Utah Prairie Dog should be restored to the U.S. Department of Interior's Endangered Species List from which it was inexplicably removed in 1970.

In all frankness, the prairie dog is a serious pest to farmers and cattlemen because it eats grasses and roots — especially alfalfa and grain — and because it digs open burrows. A running horse or cow that steps into one of these holes may break a leg.

So why save the Utah Prairie Dog?

One observer explained it best when he compared the extinction of any species of animal to ripping an entire chapter from a rare old book.

It's doubtful that modern man is wiser than the author of the book that includes the Utah Prairie Dog as one of its chapters.

THE WILD WORLD

by Verne Huser

Have you seen the Proposed Back Country Policy recently suggested for the Targhee National Forest in eastern Idaho and those parts of Wyoming adjacent to Grand Teton National Forest? It seems to have been an outgrowth of the nation-wide review of unroaded areas in national forests.

Frankly, I'm not sure at this point whether the move is good or bad, but let's look at the various aspects of it.

Philosophically the proposed policy is intended to do three things: 1) provide national forest areas which afford opportunities for high quality, near-primitive dispersed recreational opportunities away from public roads and most other developments, 2) offer a wider range of recreational experiences than is permissible in wilderness, and 3) help relieve the recreation pressures threatening overuse of wilderness.

Certainly, we are loving many of our wilderness areas to death, especially in country near large population centers, and much wilderness use is concentrated — we could use a little dispersal.

And yet isn't this new designation — Back Country — one of the very things that the Wilderness Act set out to clarify? We had so many different designations for varying degrees of protection — wild areas, wilderness areas, primitive areas, etc. — that it was confusing and inconsistent. The Wilderness Act was designed in part to clear up the confusion and provide some consistency.

Now we circumvent the intent of the Wilderness Act with enclaves in National Park Wilderness, and we hear talk of "administrative wilderness" and near-primitive areas and near-natural areas and a dozen other designations. Where will it all lead?

Perhaps such designations really are necessary. They may seem like sops to the anti-wilderness nuts who use snowmobiles and tote-goats, power boats and 4-wheel-drive vehicles, but these forces are part of the general public who own the national forests as much as we conservation nuts — and they might stand in the way of some important wilderness designations if we ask for too much.

Yet, how much is too much wilderness? I don't believe we can have too much, and we lose more every day — even through traditional wilderness uses like backpacking, horse packing, and hunting and fishing: too many people in the wilderness leaves it less wild.

So we're back to the population problem. I'm a great believer in the national recreation area concept: sacrifice certain areas for mass and intensive recreation for the sake of preserving other areas as pristine. After all, some recreationists seem to enjoy elbow-to-elbow camping in vehicles that bring home to the woods; they seem not to mind fishing off Fishing Bridge in Yellowstone or waiting to launch their power boats on Lake Powell or Ross Lake.

But by providing such areas for the brute creation of American affluency, we can perhaps save the true wild world for those who can appreciate it on its own terms. If only 5% of the nation's people want the true wilderness experience — the true re-creation of the human spirit through contact with nature in its natural state as Thoreau suggested, then should not 5% of the land be preserved as Wilderness?

Perhaps not, because there may not be that much left that is true wilderness. And just what is TRUE WILDERNESS? Perhaps the Targhee concept is sound. "Scenery and natural landscape are maintained and protected, and wildlife values are maintained or enhanced. Unlike Wilderness, in Back Country, the natural ecological succession need not always be encouraged. Manipulation is permissible." Is not even wilderness under the Wilderness Act manipulated?

Enhance wildlife values? Yes, re-introduce elk or grizzly bear where they have become extinct; perhaps even the wolf and the cougar. That is manipulation.

But for all of its varied designations and rationales for excluding forest lands from wilderness protection, the Targhee does seem to find 172,000 acres suitable for such designation in what they call Area No. 8 — West Slope Tetons. Let's hope that the portion of the Targhee adjacent to Grand Teton National Park will some day soon be given official wilderness protection — it is a fantastic area, a true wild world that deserves protection.

Western..... Roundup

Concern Expressed

Regional Forester Vern Hamre, Ogden, Utah, today expressed concern about some significant aspects of the possible selection of Salt Lake City and the Wasatch Front area for the 1976 Winter Olympic Games. He pointed out that a number of the Olympic activities would undoubtedly be carried out on National Forest lands in the vicinity of Salt Lake City, if the local proponents' proposal is accepted by the International Olympic Committee. He stressed the need for considerable additional information and extensive environmental studies to determine the full impact that the Olympics would create in the Wasatch Front area, before any irreversible actions are planned or taken there.

"In view of the urgent need for such information if the Salt Lake City proposal is accepted, I believe it would be essential that a site evaluation committee be established promptly, for at least the downhill ski events," Hamre said. "Such a committee should include representatives of the Forest Service, the Utah Department of Natural Resources, the Utah Ski Association, the Mayor of Salt Lake City, and the local Olympic Committee."

"We are encouraged by the position taken by Salt Lake City proponents that no additional facilities for the Olympics should be built in the canyons and that the Games should be scaled down in size and returned to amateur competition," said Hamre. "However, even without construction of additional major facilities in the canyons, the environmental impacts created by an event such as the Olympics could be immense. Among the major problems involved is providing safe and adequate public transportation into narrow canyons such as Little Cottonwood Canyon. Predicted use in this area, even without the Olympics, may already surpass what the environment can tolerate unless strict limitations or controls are initiated. Based on past records, unrestricted attendance at the games could be expected to exceed a hundred thousand people at one time."

"The possibility of avalanches in Little Cottonwood Canyon disrupting the tight schedules for Olympic downhill ski events, along with possible hazards to the contestants and spectators, also should not be overlooked," Hamre continued. "Pollution of and damage to Salt Lake City's watersheds are other possible significant impacts which would need to be avoided."

"Some system would be needed to assure that the thousands of skiers living in and visiting the Salt Lake City area are able to continue to enjoy daily use of most of its ski facilities, during the Olympic period. This, too, could pose a major problem," he said.

Hamre pointed out that, historically, the cost of providing facilities for the Olympic Games has surpassed original estimates.

Compliance with the National Environmental Policy Act will be necessary for any site utilizing National Forest lands that might be selected for the Olympics. This will require preparation of an environmental impact statement by the Forest Service and submission to the Council on Environmental Quality. "Public input, including hearings if appropriate, is an essential ingredient of any environmental impact statement," said Hamre.

Hamre pointed out that the Forest Service is charged with the protection of the environment on the majority of the mountainous lands along the Wasatch Front. The Forest Service also is basically responsible for public use of National Forest lands and facilities.

Turned down by Colorado, the Winter Olympics may now go to Utah. But once again the impact on natural resources is being debated, and public support is being evaluated. (See editorial, page 3.)

Environment Bills Predicted

A state senator from Denver says he believes twelve pieces of environmental legislation will get to the floor of the Colorado Legislature in the present session. They are bills that would provide for:

— A coordinator of long-range resources planning in the governor's office.

— Twelve regional resource districts.

— A front range commission superimposed over existing governments and with taxing powers.

— An environmental policy.

— Incentives to revitalize economic life in rural areas.

— A conservation trust fund similar to the highway users trust fund.

— A department of transportation.

— A state water-management policy that would involve the state in all water use.

— Statewide land use or zoning.

— Placement of monitoring devices in plant smokestacks.

— The regulation of auto emissions.

— A state housing financing authority.

Hunt Reported

The 1972 grizzly bear harvest report recently completed by Wyoming Game and Fish Department biologists show four of the huge bruins were taken by sportsmen last year.

A total of 16 grizzly bear hunting permits were issued last year for the spring and fall seasons, down from the 24 permits issued in 1971. Twelve grizzly permits were issued for Park County while Teton County hunters received the remaining four permits. Persons successful in the 1972 bear hunt reported all four grizzlies, two males and two females, were taken in Park County.

Hunters responding to the harvest questionaires reported spending an average of 11 days in the field and sighting an average of seven grizzlies while hunting.

Rivers Protected

A tough bill to protect several California rivers and their tributaries has been signed by Governor Ronald Reagan. The bill establishes a "California Wild and Scenic Rivers System" on the Eel, Klamath, and Trinity Rivers and parts of others. Dam building on the Eel will be prohibited for 12 years and on the others indefinitely.

Thoughts from the Distaff Corner

By Marge Higley

Man is superior to nature's other living creatures because his technology covers everything from A to Z. Right? Well, maybe! Just for fun, let's examine some of man's accomplishments, starting with A.

A — Aerodynamics. No doubt about it — the birds did it first, and still do it better.

B — Barometer. Animals seem equipped with built-ins. They don't need to watch a needle to decide when to plan a picnic.

C — Camouflage. Man hasn't yet perfected this to the same degree as the chameleon.

D — Dams. Man builds 'em bigger, but the beaver has sense enough to build a semi-permanent dam — when he's through with it, the stream can revert to its natural state.

E — Electric generators. The electric eel does this without burning an ounce of coal or oil or gas!

F — Factories. A honey factory is a well-managed operation, and it doesn't pollute the air, either.

G — Gardening. Did you know that there are ants that grow mushrooms? It's organic, too — they use decaying flower petals for fertilizer.

H — Hi-fi. It'll never sound as good as a meadowlark!

I — Illumination. Fireflies and glow-worms managed this long before Thomas A. Edison's time. They don't even have to flip a switch!

J — Jet propulsion. There's a small tropical fish who uses this idea to propel himself right out of the water to snag a tasty insect from an overhanging bush.

K — Kleig lights. Night-time animals don't need them, and day-time animals time their activities to the rhythm of the sun.

L — Lenses. The eyes of birds and insects are far more complex than any lens man has come up with so far.

M — Man-made fibers. There are certain spiders who can still spin silk that is stronger than nylon.

N — Navigation. Birds don't use road maps or a compass, even if they've never been there before!

O — Oceanography. Man has studied this for years. He might expedite matters by learning the language of the undersea creatures.

P — Paper. Wasps were using paper-mache before man could read or write.

Q — Quadrant. Man invented this method of measuring altitude. Birds "eye-ball" it, and seldom crash-land.

R — Radar. Bats used it long before man suspected that there was such a thing.

S — Sanitation. Well, if leaves came individually packaged, giraffes would have a garbage-disposal problem, too!

T — Tunnels. Rodents have built millions of miles of them. (But they don't build them under a mountain just to keep from going over or around!)

U — Ulcers. Definitely a by-product of man's technology. Can you imagine a Rainbow Trout having to go on a milk diet?

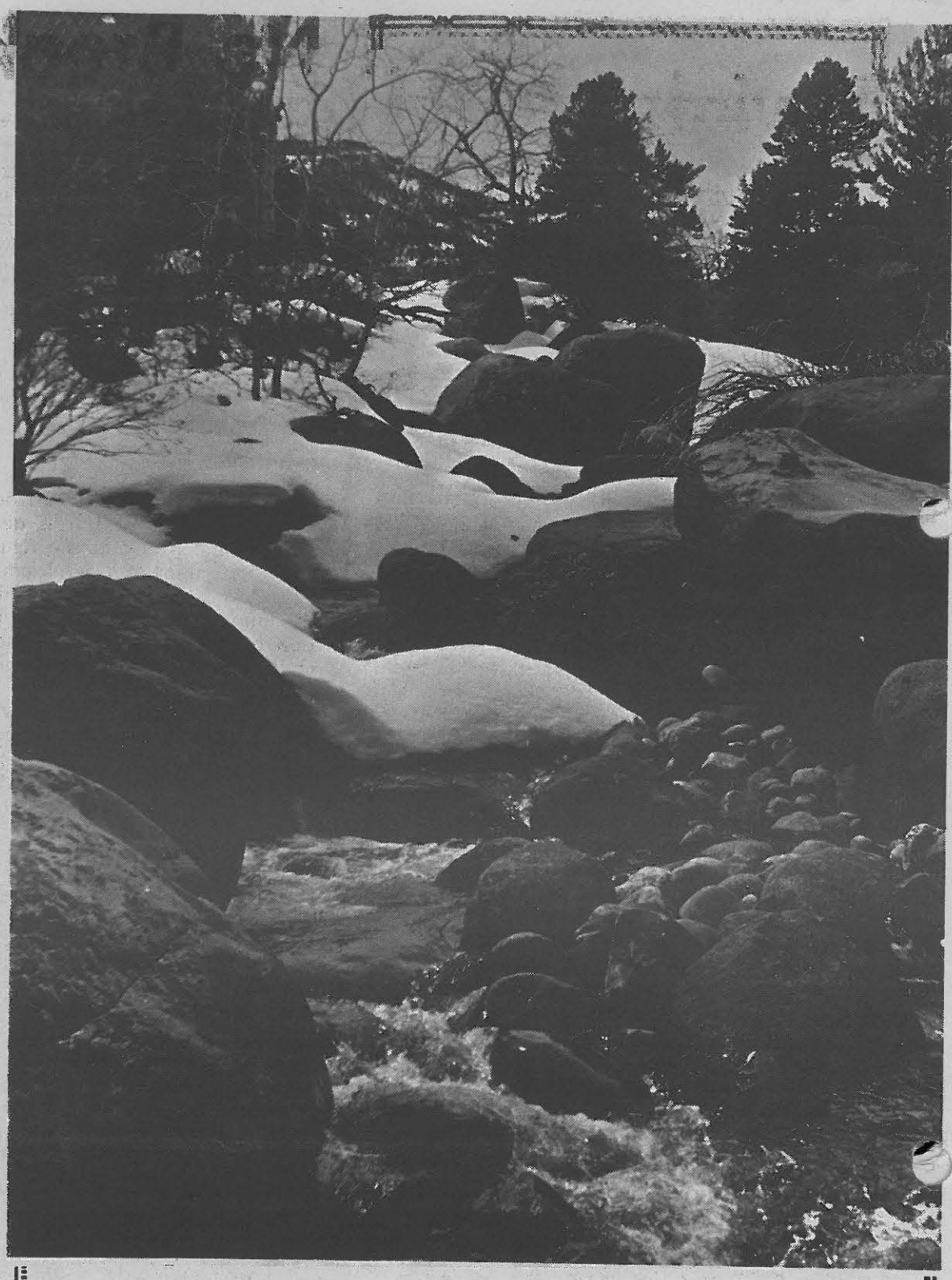
V — Vacuum. The elephant doesn't have to hunt for a convenient wall-plug before he can blow in or out, or hot or cold.

W — Weapons. Man's are more sophisticated, but wildlife accomplishes all that's necessary with teeth, claws, horns, paws or talons. As for chemical warfare — just consider, if you will, the skunk.

X — Xylography. (I finally found one!) That's the art of engraving on wood, and grubs and insects have been doing some pretty modern-looking artwork along this line for ages.

Y — Year. Man has divided this into twelve fairly equal segments, but the swallows of Capistrano don't need a calendar!

Z — Zoo. At last we come to a clear case of Man's superiority! No other living creature captures and cages another species for purposes of display!



Was somebody asking to see the soul?
See, your own shape and countenance, persons, substances, beasts, the trees, the running rivers, the rocks and sands.

WALT WHITMAN: Starting from Paumanok

Helpful Hints For The Office

by Dorsey Connors

Many ecologically-minded ladies, who recycle cans and bottles at home, turn off their save-the-Earth sound waves when they go to the office.

Glamour magazine has come up with some super ways to eliminate waste at work.

Spread the good word to your associates, and the boss might recognize you for the good Earth angel that you are:

(1) Use all space on inter-office envelopes. Don't throw them away after each use.

(2) Reuse file folders — just turn them inside out. Stick labels on top of old writing or labels.

(3) Use both sides of a sheet of paper when drafting letters or speeches. (Most sheets get used this way at HCN.)

(4) Copies of articles for distribution should be limited to the minimum.

(5) Turn off lights when leaving an office.

(6) Encourage the kids in the lunchroom to use pottery mugs instead of paper cups.

(7) Keep a mesh shopping bag in your purse so you can put purchases in it, instead of using paper bags.

(8) Cut down on noise pollution in the office. Most office phones have a volume adjuster on the bottom. Select a soft ring instead of an ear-splitter.

Tax On Autos?

by Norma Hentges

Arizonans may find that taxing of second and additional motor vehicles owned by the same family will be necessary in order to reduce auto pollution. People will be asked during January how they feel about this method of restricting unnecessary use of cars.

The proposal was advanced by a consulting firm which said that the anti-pollution devices ordered by the federal government for cars will not be adequate to meet the national air quality standards for photochemical oxidants by 1975 and carbon monoxide by 1977. It is especially true of the Greater Phoenix metropolitan area.

A public hearing will be held on January 25, 1973. If accepted the application of the plan will be on a statewide basis.

Environmental Eavesdropper

LOONEY LIMERICKS

by Zane E. Cology

Howled Californian David Dineen
"They can't ration MY gasoline!
Inconvenient indeed —
I don't see the need
This air (cough!) is plenty (cough!) clean!"

* * *

Many Americans are suffering from malnutrition due to mineral-poor foods, reports a nutrition expert. Dr. Melchior Dikkers, 72, is a retired professor of bio-chemistry at Loyola University of Los Angeles. He says mineral-depleted soils, chemical fertilizers and preservatives, and food refining processes are at fault. Dr. Dikkers was disturbed by the depletion of "trace chemicals" in foods. Iron, zinc, copper and others serve as chemical activists for "the other 99%" of the body's chemical functions. He was especially critical of the use of nitrates in food preservatives. These can endanger health by changing to toxic nitrates and entering the bloodstream.

* * *

Wisconsin Senator Gaylord Nelson has introduced in the Senate a resolution to designate the week of April 9 through 15 as Earth Week, 1973. His intention is to encourage the continued concern for the environment by the new 93rd Congress and by all Americans through education, legislation, and personal committment.

* * *

Industries which lack adequate pollution controls face the loss of insurance protection. The Insurance Co. of North America and several other major national insurance companies are beginning to pressure industries into gradual clean-up campaigns. CNA said industries' fear of losing insurance protection is a more effective clean-up incentive than local tax breaks, low interest loans, or partial subsidies tried by various levels of government.

* * *

New sewage disposal systems are being innovated by industries. Chrysler Corporation suggests the use of recyclable mineral oil as a substitute for fresh water in the disposal of sewage. Chrysler says its system can save 30 gallons of fresh water per person normally used in flushing and can reduce the amount of waste to be treated by 98%.

* * *

The city of Atlanta, Georgia, plans to transport its solid wastes to disposal sites by train. The city decided to close down its incinerator when faced with a federal order to either close or improve its waste disposal facilities. The incinerator will be converted into a facility for shredding and baling trash to be hauled by train to abandoned mines in central Georgia. Nearly one third of Atlanta's trash is to be disposed of in this manner, the rest will go to local landfill areas. The system, which was proposed by Southern Railway, is scheduled to begin in 1974.

* * *

For intrepid gourmets, the future may hold the promise of such delicacies as sautéed tire. According to a study sponsored by the Firestone Tire and Rubber Co., discarded tires can be used to condition poor quality soil, to purify water — and to make a high-protein (although rather tasteless) foodstuff.

No Break on Taxes

Sub-division developments are being promoted in many areas throughout the West. They are not always the boon to a community that developers would lead others to believe. Without an accompanying industry tax base, some communities will find themselves worse off. The following is an explanation of why this is so. It is reprinted from Maine Environment, Bulletin of the Natural Resources Council of Maine.

by Sterling Dow III

Development of land into house lots is viewed generally as an asset to a community. "Broaden the tax base," is often heard. There's good reason to broaden the base in most Maine towns. But is development the answer? Let's look at the figures.

To determine if a development is going to pay its way, follow this procedure: (1) divide the number of school children into the education budget to obtain the education cost per child; (2) multiply (1) by approximately 2.5 children per family to find the education cost for an average new family; (3) divide the town's population into the remainder of the municipal budget to get the per capita cost for municipal services; (4) multiply (3) by 4.5 people per family; (5) add (4) and (2) to get the service demand price of each new residence; (6) apply the tax rate to an assumed assessment based on the applicable zone and you find the expected tax revenue from a given ratable; (7) the difference between (6) and (5) is the effect on the local budget.

To illustrate, in one Maine Coastal town, the figures went like this: (1) school budget = $468,000; number of school children = 650; cost per child = $468,000/650 = $720. (2) $720 x 2.5 = $1800 = education cost for family. (3) remainder of municipal budget = $250,000/town's population = 2000; cost of municipal services per person = $250,000/2000 = $125. (4) $125 x 4.5 = $563 = cost of services per family. (5) service demand per family = $1800 + $563 = $2363. (6) tax rate = $25/1000 (100% assessed value) assume a $50,000 house tax would be $50,000/$100 x $25 = $1250. (7) effect on local budget of a $50,000 house is $2363 minus 1250 = $1113 deficit! Note break even point is $2363/$25 x $1000 = $94,500 house!

Note also 25 $50,000 houses would yield $31,250 in taxes but would demand $59.075 per year in services leaving a deficit of $27,825.

One can readily see why that town would do well to purchase land slated for development.

Letters . . .

I wonder if you would publish this letter in your paper and possibly I would hear from someone who would want a partner.

Sincerely,
John A. Whittington
Route 2, Box 228
Columbia, Louisiana 71418

* * *

Editor:

In response to the offer, we will be pleased to receive 3 copies of the newspaper on our one subscription. They can be sent to me and I will distribute them promptly where they will be useful.

Thank you.

Sincerely,
Letitia Johnson (Mrs.)
Librarian
Missoula County High School
Missoula, Montana

Editor's note: Our thanks to Mrs. Johnson for taking advantage of our offer to supply all school subscriptions with three copies of the paper. We have been very gratified with the response of our readers to make the paper available to schools through gift subscriptions and to the many schools for making the paper available to their students. For those who are still not aware of our policy, we will send three copies of the paper to any subscribing school which requests them — to be sent to the librarian or to be directed to specific departments or teachers. We will send two copies to any public library when requested.

Budget Cut

Vern Hamre, Regional Forester for the Intermountain Region of the Forest Service, says that action is being taken to try to maintain quality resource management within the current budget.

"New legislation resulting from growing environmental concern requires increased planning and interdisciplinary studies to improve the quality of National Forest management. At the same time, forest use has increased. While our budgets have remained fairly constant, the cost of doing business has gone higher."

Hamre explained that it is necessary to reduce overhead staffing as one action to cut costs. In line with this action, a significant reduction will be made in Ogden Regional Office personnel. A study is now underway on the consolidation of some national forest supervisors' offices. Staffing reductions will be attained primarily through normal attrition over the next several months.

"During the last two years the number of ranger districts in the Intermountain Region has been reduced from 120 to 94 through consolidation," said Hamre. "We have moved in this direction in order to improve resource management effectiveness and efficiency. Larger ranger districts require a lesser proportion of staffing to perform the overhead and management functions."

Studies of Forest consolidations and reduction in Ogden Regional Office staffing are aimed at getting more dollars and personnel for on-the-ground work, such as campground maintenance and cleanup, winter sports administration, timber sales, livestock range management, watershed improvement, and wildlife management.

Controversy in Jackson Hole

by Anne Turner

Is nothing sacred anymore but our irrational lust for the dollar at all costs? The congressional and presidential decision to finance a $2.2 million airport expansion to accommodate jets in Grand Teton National Park certainly says so.

This controversial issue is well on its way to becoming nationally significant, and well it should. It is our public lands and national heritage that are at stake.

The Jackson Hole Airport in Grand Teton National Park is the only airport existing on public park lands. The 760-acre tract in the park's southern extremity has been leased by the Airport Board from the Park Service for $50 a year since 1955.

The existing airport is in flagrant violation of stated park policy which promises to "conserve the scenery and the natural and historical objects and the wildlife therein. . . for the benefit and enjoyment of the people." An expansion of the airport on park lands would not only give the Park Service a black eye. It could set a precedent for further betrayal of public trust in the use of federal (publicly owned) lands.

The present runway is 6,300 feet long. Frontier Airlines is the only commercial airlines now serving the area. Many private planes now fly in and out of Jackson Hole. The Airport Board and commercial interests in the tourist-dependent town of Jackson want the runway expanded 1,700 feet to a total 8,000-foot length to accommodate Frontier's Boeing 737 jets. If the runway were lengthened, the Boeing 737 jet could replace the propeller-driven Convair 580 now servicing the area. The expansion proposal also calls for the construction of taxiways and other airport improvements.

Pro-expansion interests anticipate increased tourist trade if bigger planes with larger carrying capacities are serviced by the airport. Despite such expectations, a recent Park Service report stated that "the vast majority of visitors arrive by private automobile." Of the 3.3 million people visiting Jackson Hole in 1971, less than 1% came by Frontier Airlines.

Jackson's economy is thriving without the benefit of jet traffic. Gross retail sales increased by 8.8% during the last fiscal year despite a drop in the GNP.

ENACT, an environmental protection organization in Jackson, considers the expansion to be an unnecessary and undesirable threat to the environmental and social health of the community. While opposing any increase in runway length, ENACT favors the construction of needed safety facilities, including a parallel taxiway.

ENACT has also raised a larger question — that of growth for growth's sake. They maintain that the concept of growth must somewhere be challenged. And they feel the airport in their own backyard is a prime candidate for challenge.

Frontier Airlines maintains a neutral position in the controversy. It said it will continue Convair 580 service to Jackson Hole indefinitely if that is what the public wants. The Convair 580 is by no means obsolete. Parts and service are still readily available. Frontier only began use of the model in 1964 and anticipates its continued use for the next 5-8 years.

A sobering thought is the statement by Marvin Stevenson of the Wyoming Aeronautics Commission that an 11,000-foot (rather than the proposed 8,000-foot) runway is needed to accommodate a fully laden 737 jet on an overbooked day at the Jackson Hole Airport.

If the 1,700-foot expansion is permitted, how long will it be before an 11,000-foot runway is demanded, and even further expansion becomes "necessary" to accommodate ever-newer jet models, ad infinitum?

Wyomingites have apparently decided in favor of the airport. Wyoming Senators Gale McGee and Clifford P. Hansen and Governor Stanley K. Hathaway bowed to commercial interests to lobby for the expansion.

Jackson's Mayor Lester May has taken his stand on the issue. "What a lot of people don't understand is that I'm a park enthusiast, but we've got to provide a way for everybody to see these parks, not just a privileged few."

Who but "just a privileged few" will be flying in by jet to see the parks?

According to the Park Service's new master plan, over-population in both Grand Teton and Yellowstone Parks already requires the use of strict park controls. The accommodation of the Boeing 737 jets with twice the carrying capacity of the Convair 580's would only aggravate this condition.

Over-crowding is not the only threat from the expansion proposal facing Grand Teton National Park and the lovely valley of Jackson Hole in which it is nestled. Environmental degradation and devaluation of "the park experience" will be considerable. It is likely that few people will derive much satisfaction from a wilderness, no matter how beautiful, from which all serenity has been driven by the ear-splitting shrieks of jet traffic overhead. Jet streams scarring the face of the mountains are neither pretty to view nor photograph.

It is reported that an environmental impact statement has been prepared but not yet released to the public. Senator Hansen has urged its immediate release but for reasons other than those supported by non-expansion interests. Furthermore, it now appears that the time available to study the draft statement and prepare comments will be limited.

The Council on Environmental Quality states that no administrative action subject to the environmental impact statement can be taken within 90 days after the draft is made available to the Council, appropriate agencies, and the public. The President and the Congress have seen fit to ignore this ruling by having already appropriated funds for the airport's expansion. Apparently public opinion in this matter is of no concern to the administration or the peoples' representatives.

What are the alternatives? No airport expansion at all with the construction of whatever safety improvements are considered necessary seems to be the sanest course of action. Pro-expansion interests have simply not clearly demonstrated either the necessity or overall desirability of airport expansion to the environmental, social, psychological — or even economic — needs of the area.

If the public decides that expansion must, after all, take place, it should be mandatory that this occur to the south rather than further north. Expansion in either direction lies within park boundaries, but southward expansion would usurp less public park land.

At present, the Park Service is holding to the position of lengthening the runway only 300 feet to the north and 1,400 feet to the south. This would necessitate the purchase of 40-45 acres of private land owned by one or more land developers for a "clear zone" at an estimated cost of $300,000.

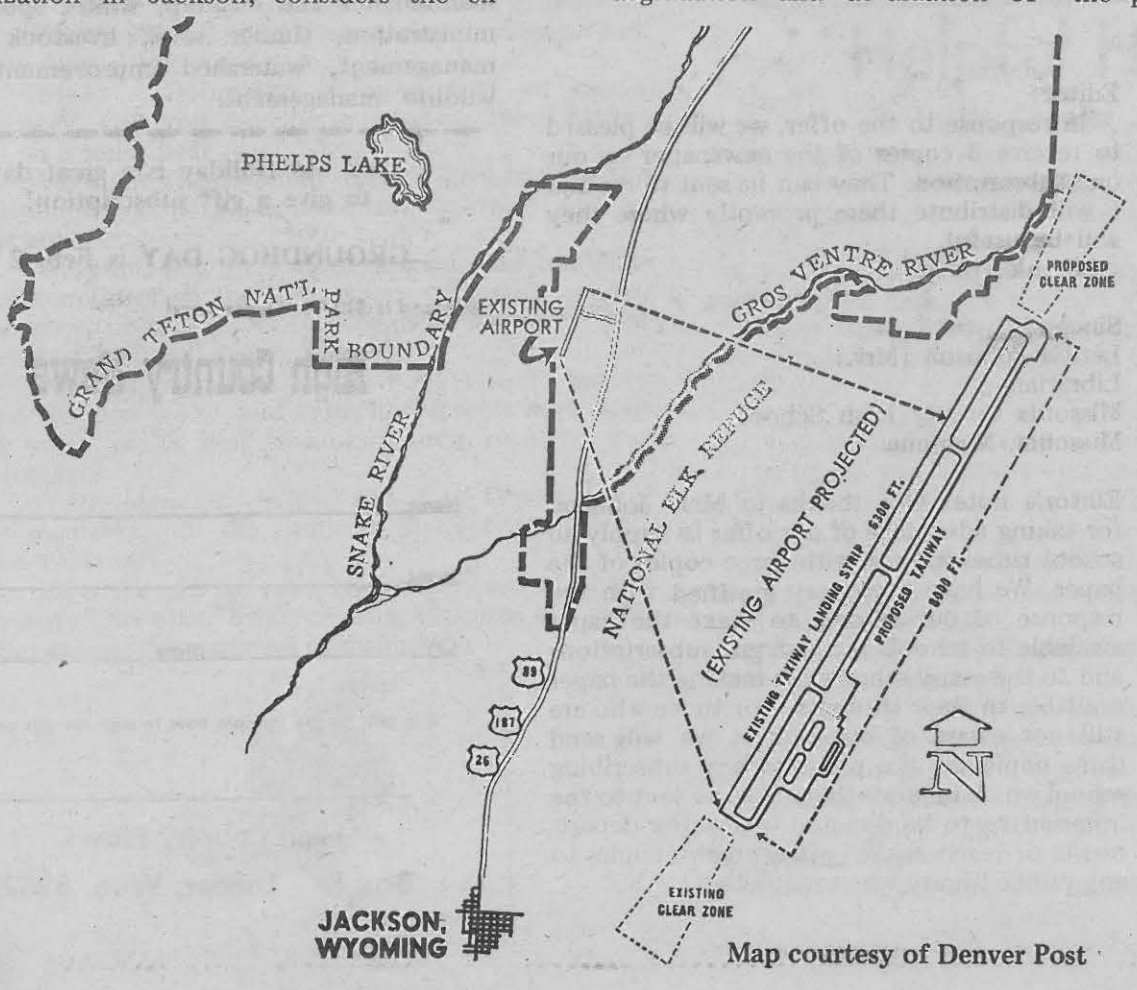
Pro-expansionists — commercial and land interests — don't like this idea. Said Ralph Moulton, one of the land owners involved, "We just figure it would devalue our land."

Ninety-five percent of Teton County is public land. Is our land — especially national park land — any less valuable?

A real estate agent for the land owners said, "It's an intrusion on some very delightful and scarce private property." Grand Teton National Park was set aside to be preserved for future generations because of its "delightful" quality.

Strangely enough, although Moulton complained that the noise would probably stampede his cattle, the real estate agent said of the park's wildlife, it "doesn't care if it's (jet activity) there. They accommodate it much better than homo sapiens."

Where will it all end — this blind desecration of all spiritual, moral, and aesthetic values? Maybe when there's nothing left and we have fulfilled T.S. Eliot's vision of hollow men in a sterile waste land of our own creation, we will appreciate what we have destroyed. Remorse is the most futile of emotions — and the most tragic.



Map courtesy of Denver Post