The Outdoor and Environmental Bi-Weekly

High Country News

Vol. 4, No. 24 | Lander, Wyoming | Friday, November 24, 1972

The Shame of It!

Photo by Lynne Bama

The dead eagles of Wyoming still wait for justice to be done. (See editor's comments, page 3.)

HIGH COUNTRY

By Tom Bell

I never fail to be amazed by the power of the printed word. Two recent experiences brought it home again.

Last week, I got a call before I had even left for the office. It was a reader in New Jersey who called to tell me that the paper was of great value to him in learning what was going on in the West; that he had called a western game and fish department to protest as a result of an article in the paper, and that he had changed his vote from Nixon to McGovern because of what I had written. Needless to say, that call had made my day.

Being an editor is an excruciating process — at least of an environmental newspaper. There are so many critical issues that you suffer doubt and frustration as to which should have precedence. Some of them you don't feel qualified to write about because you want the printed information to be not only informative but factual. Some of them you just don't have time to adequately deal with because you don't have enough facts. It takes time — that you don't always have — to dig out the pertinent facts and set them in an order that a reader can understand.

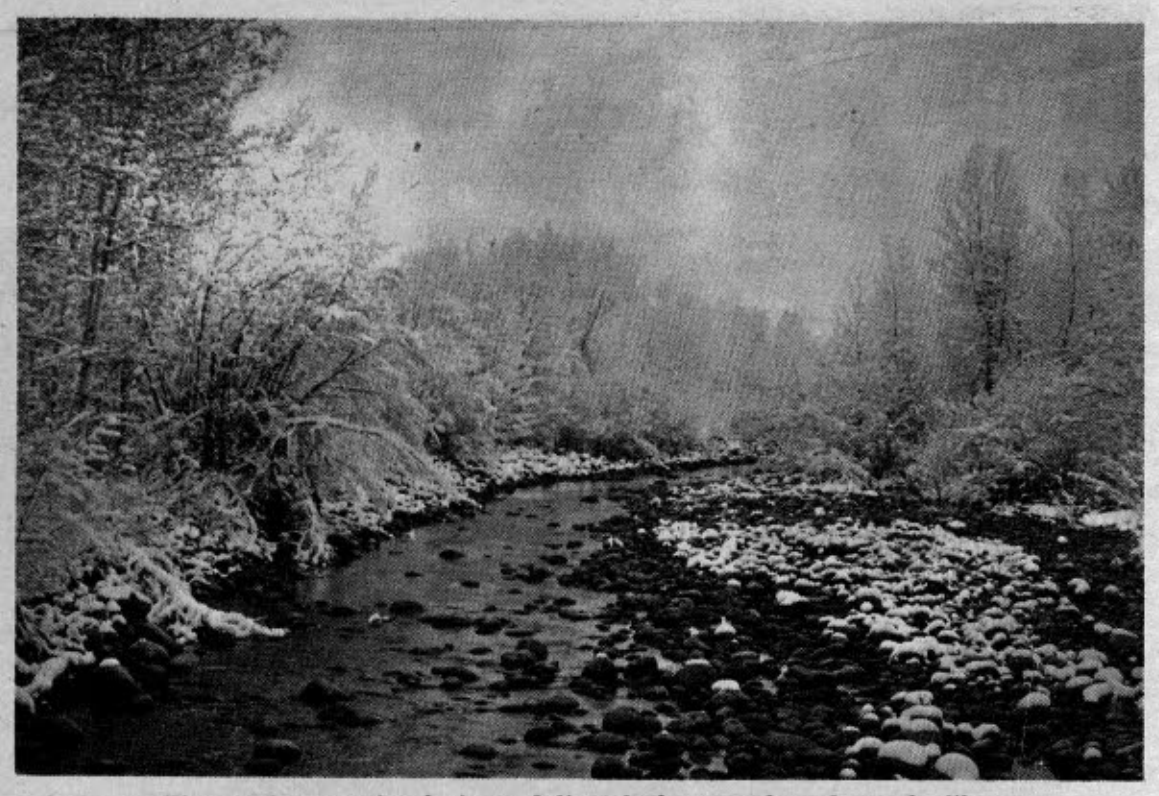
Sometimes you mistakenly or inadvertently get your facts in the wrong order or out of context. It happened last week to the local newspaper editor on an environmental matter. It raised a storm of protest and required a second article to get it set back somewhat straight. But often you can never undo the damage of the gut emotions evoked by the first article.

Sometimes you have to answer or rebut the assertions (and sometimes misinformation) of vested, special interests. This is particularly important in the environmental field. Power companies, or other air polluters, often get lots of front-page copy because they are also big advertisers. Therefore, when a headlining story comes out saying Podunk Power Co. has just installed a zillion dollars worth of air pollution control equipment, it is meant to satisfy. It is somewhat like the thick, spread-on stuff that used to be put out by Chesterfield cigarettes. And like the tobacco companies who strenuously objected to the requirement of telling the public their product was injurious to health, so too the power companies. They don't like to have it publicly known that the "steam" coming from their smokestacks also contains some deadly killers.

The mining companies in Wyoming and Montana are now busily hosting legislators to conducted tours. Such show-me tours make good copy. But what the reading public does not know is that they are often being shown the cosmetic demonstration areas. The company may have spent $10,000 an acre to make one small area look good. And then they will turn around and fight like Hell to keep the required state bonding for reclamation at $500 an acre.

Environmental reporting is a serious and important business. Every aspect of our lives is closely involved in environmental matters. It has always been so. But our proliferating population and the demands we make on our environment have suddenly become critical to our very well-being.

We need to know, and we need to know it straight. That's why I sometimes lie awake at night wondering if there might not be an easier life. And then I get a phone call from a concerned human nearly a continent's length away.



The ermine mantle of winter delicately frosts rock and woods alike.

Letters To The Editor

Editor:

After participating in the 1972 Youth Conservation Corps at the National Elk Refuge in Jackson, I was delighted to find, while going through some back files at our county library, that your September 15 issue contained an article about us and others like us. I only wish that I could say the same about my own local newspaper. Three of us from Sheridan were accepted for the program; two boys for the Forest Service camp at Bryan Flats, and myself for the Elk Refuge. But, not one word in our local paper!

So, I am very glad that the High Country News has such widespread circulation. For, if local papers do not publicize such programs as the Youth Conservation Corps, who will?

Steve Niles was right when he called the Corps "a good deal." Where else can a teenager work for eight weeks in one of the most breathtaking areas in the United States, and receive free room and board plus $300?

I only wish two things: that more people become interested in Y.C.C., and that I could afford to subscribe to High Country News, for it's the best newspaper of its kind I've ever read.

Thank you,
Cynde Georgen
Sheridan, Wyoming

Editor's note: Thank you for your letter, Cynde. I only wish we could afford to send High Country News to more of our young people such as yourself. As it is your high school only receives two copies of the paper. If you wish we could send another copy, if you will let us know. That copy could be directed to one of your favorite classes where you would have another opportunity to read it.

We will have more of the YCC because I am a firm believer in the concept. Meanwhile, you and others like you can help me publicize the program by putting down your own thoughts — what you learned, what you did, how you thought it helped you to appreciate our great natural heritage. We will find room for it in our pages.

* * *

Editor:

I want to use this letter to express my thanks to you for your defense of the Dead Indian alternative route in the now-infamous Clarks Fork Canyon Battle. I don't know how it has finally come out, but the Cody Chamber of Commerce endorsed it against the Powell Chamber's objections, which means that at least fifty percent of the pressure has been effectively applied. I hope, at the same time, that, assuming the environmental interests obtain victory, we in Wyoming are on our way towards an ecological consciousness. It will almost certainly be a tidal wave of commercial desire to develop our state's resources in the near future, which means, of course, in the long haul, since the land isn't ever brought back. Reclamation in no way resembles restoration.

(Please turn to page 12)

HIGH COUNTRY NEWS

Published bi-weekly at 140 North Seventh Street, Lander, Wyoming 82520. Tele. 1-307-332-4877. 2nd class postage paid at Lander, Wyoming 82520.

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

Subscription rate $10.00
Single Copy rate 35¢
Box K, Lander, Wyoming 82520

Guest Editorials

Reprinted from KETCHUM TOMORROW, Ketchum, Idaho, November 9, 1972.

Shall We Face Realities?

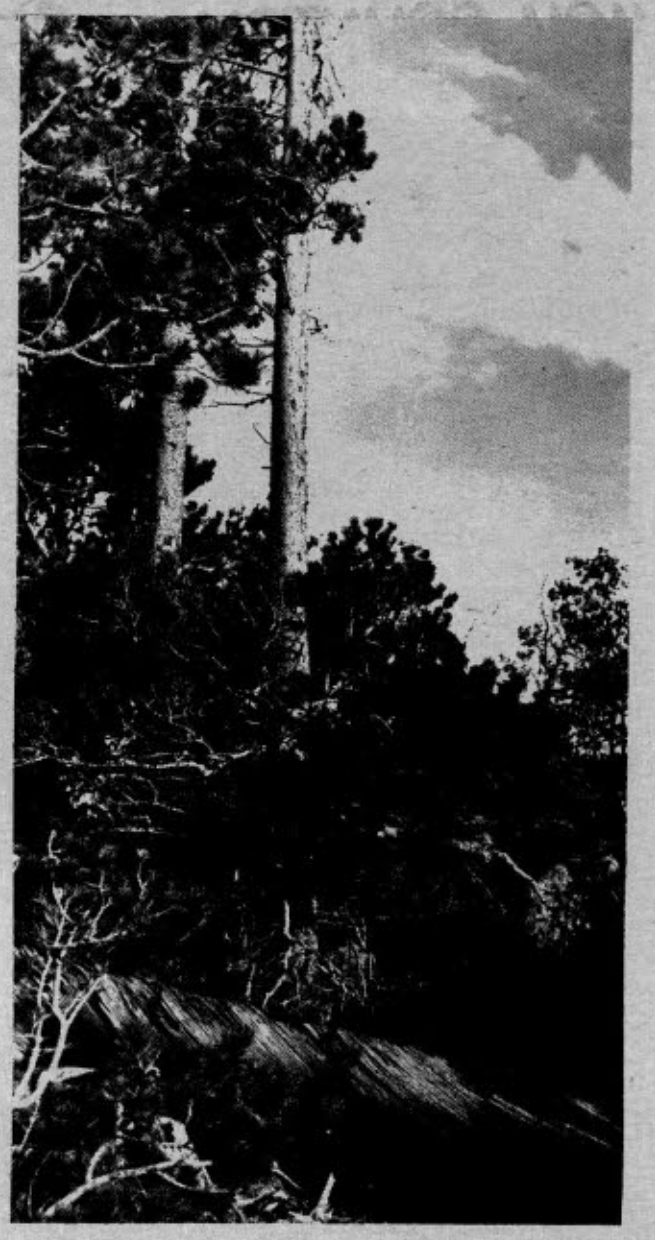
It will be interesting to hear the various analyses that will be made during the coming weeks on why the American voters cast their ballots so overwhelmingly for Nixon's re-election. Nixon and McGovern are two very different people both in personality and in philosophy. In addition, however, each voter wrapped the candidates in a special 'character image' which reflected that voter's concerns and his views of the issues.

There were many issues that arose during the campaign: the war, the economy, law and order, civil rights, the candidates' credibility and the candidates' supporters, etc. But on what issues or combination of issues did this landslide develop its momentum?

How important were the issues relating to environment in the minds of the voters on this election day? What does the landslide say about the mood of the people on environmental issues? Were these major issues in that mixture of influences that touched the voters? Did the voters support Nixon because he virtually ignored the recommendation of his commission on Population Growth and the Future of America (excepting to reject its recommendations about abortion)? Did the strong vote for Nixon say that the American public is rejecting the many warnings about the population explosion, is rejecting a goal of stabilizing the population, is rejecting the task of reevaluating the "growth ethic" which has been such a strong part of the American thought?

Did the voters support Nixon because of his interest in commercial and corporate development, in larger GNPs, in consumption, in materialism? Did the strong vote for Nixon say that the American public is rejecting any real re-ordering of personal and national priorities to use less of the non-renewable resources of the world, to conserve, to recycle, to live a simpler, less consumptive life so that there might be something left for the generation of Americans who may be celebrating (200 years from now) the nation's 400th birthday?

Four years of ignoring population growth and supporting consumptive growth right now will simply multiply the severity of the problems to be corrected four years ahead. It is tempting to say "so what the hell; I'll just get mine." But Human Beings aren't really made that way. Some develop the wry sense of humor, the keen perception, the sinuey character and the honesty that become the basis of resolve to face realities and to relate them to their ideals.



Reprinted from The CASPER STAR-TRIBUNE, November 13, 1972.

An Uncomfortable Truth

It is getting to be old hat to observe that the oceans of the world are increasingly polluted. Mention this in any reasonably well informed gathering, and someone is sure to recall Thor Heyerdahl's tale about encountering acres of petroleum blobs and other contaminants in the middle of the Atlantic. After a suitable show of concern and a few muttered "how awfuls!" the conversation tends to veer away to pleasanter and more zestful topics.

However natural this attitude may be, it begs a question of momentous importance to mankind. If that seems a bit excessive, consider: the oceans wash the shores of every continent, and industrial waste from every nation ultimately finds its way into those waters. No continent, no nation can long remain immune from the cumulative harmful effects of such pollution.

A restatement of the point came the other day from rather an unexpected source, a West German space scientist addressing the International Astronautical Congress in Vienna. Prof. Heinz Kaminski, director of the Sternwarte Space Research Institute in Bochum, told his colleagues that pollution of the North Sea, the English Channel and the Baltic "has reached an intolerable degree."

Kaminski made it emphatically clear that he does not regard oceanic pollution as merely a distasteful or moderately harmful nuisance, but as a grave threat to society. Declaring that "the present level of industrial waste in the seas is frightening," he added: "The once plentiful resources of the sea are not only in danger from industrial and domestic waste, but their whole existence is in question."

To clinch it, this scientist wound up a detailed presentation with this stern assessment of what confronts humanity: "The question is not the problem of getting rid of the pollution, it is a question of the existence of life on this planet."

Let anyone who feels that is an exaggeration shrug it off if he will. Our conclusion, based not alone on this exhortation but also on many other warnings from scientists and conservationists in recent years, is that Kaminski is uncomfortably close to the truth of the matter.

Our editor says -

by Tom Bell

It's a shame! Federal statutes — the law of the land — have been callously broken. The eagles were shot from Wyoming's skies and lay dead for months before the public even knew. But it has now been 15 months since the facts were revealed. And the central figure in the whole matter, Herman Werner, jokingly (and smugly) walks the streets of Casper unprosecuted and unruffled by the whole matter.

I repeat, as I did last March, when will justice be served? When is Herman Werner even to have a trial date set?

At the present moment, even that formality is not being observed. The reason being given is that Werner's lawyer is ill. I wonder if I had been charged similarly if I could have escaped justice for so long by the simple expedient of retaining a sick lawyer.

It seems to me that if dilly-dallying by s(l)ick lawyers continues much longer, the 80-year old rancher may soon be able to plead senility. Such a heart-rending hardship case could hardly be expected to have justice meted out then.

And our conservative, law-and-order Governor should not be held faultless. Had federal violations occurred in the case of some long-haired pot-smoker, which brought reams of national publicity, you may be sure he would have publicly demanded a trial forthwith.

Just recently, the Casper **Star-Tribune**, in reporting Governor Hathaway's appearance before the Wyoming Farm Bureau Federation, said: Noting that many out-of-state residents write him complaining about "the mean, miserable people of this state who do not respect wildlife," Hathaway described many of the letter writers as "hypocrites."

It might lift the onus off some of us "mean, miserable people" if the **hypocrites** in our ranks took more action and spouted fewer platitudes.

Just when do we get action on the eagle killings from the foremost proponents of law and order?

Readers of **High Country News** might spur some action by writing Attorney General Richard Kleindeinst, Department of Justice, Washington, D. C. 20530 and requesting an early hearing on the case of Herman Werner. Copies of your letter could go to your respective Congressmen.

Oil Shale Development

A Colorado . . .

This is the second part of the article by Bruce Hamilton of the ECO Oil Shale Study Group at Colorado State University on oil shale development. The format of this article is the same as the first. Hamilton's article will be interspersed with remarks by Mr. Frank B. Friedman, attorney for Atlantic Richfield Company. In some cases, Hamilton then comments on Friedman's remarks.

by Bruce Hamilton

WILDLIFE

The economics of an oil shale plant is not the only factor to consider when contemplating the leasing of our public lands. The semi-arid, sparsely populated Piceance Creek Basin has much to offer besides oil shale. The rough terrain of this semi-wilderness region supports a diverse animal community that cannot be ignored. The Piceance Creek Basin game management unit (No. 22) has been the most productive in Colorado for mule deer hunters. Ten percent of the total harvest in the state has come from this unit over the past ten years. Industry in this area would probably interrupt the migratory nature of the mule deer herd causing unknown population problems and destruction of valuable winter range.

The Governor's Oil Shale Advisory Committee reported in 1971 that the winter deer range problems can be solved by (1) prompt revegetation of the mined lands, (2) range improvement practices on otherwise undisturbed wintering areas, and (3) substitution of alternate winter range. J. Allen White, a graduate research assistant in wildlife biology at Colorado State University points up the flaws in these plans in a paper entitled **Oil Shale and Big Game Management in the Piceance Basin.** He writes, "Revegetation of mined lands is a lengthy process, especially when woody species are needed. In the past it has taken up to ten years or more to effectively establish desirable quantities of browse species. Range improvements for big game as outlined by Plummer (1968) is also an expensive and lengthy undertaking. Also, it is doubtful if additional, alternate rangelands can be found as substitutes. In the past this technique has been tried with little success."

Mountain lion, bear, elk, sage grouse, and other game and non-game residents of the basin would also be significantly affected by man's increased activity in the area. The non-game species are not well documented because of their relative unimportance economically. This should be corrected if we are to evaluate the total cost of oil shale development on the natural environment.

VEGETATION AND LANDSCAPE

The main known threats to vegetation and the general landscape are posed by surface mining operations, and the problems associated with the disposal of tailings after the oil is extracted. To produce 50,000 barrels per day of crude shale oil from an oil shale deposit averaging 30 gallons per ton, will require the mining of a minimum of 70,000 tons of oil shale per day. To put this figure in perspective, the Climax, Colorado, mine of American Metals Climax currently mines approximately 40,000 tons per day of ore. It is rated as the third largest underground mine in the world. The largest underground operation, the Kiruna mines in Sweden, mined approximately 56,500 tons per day in 1970.

Of this amount of shale, 10-20% by weight is recovered as oil, and 80-90% must be disposed of as waste. This waste material expands when the oil shale is processed to 1½ times its original volume. Don McSparran, environmental coordinator for the industrial planning section of Colony Development Operation, estimates that "a single oil shale mining and refining operation would generate a volume of rock dust one mile square and 800 feet deep over its twenty year economic life." Present plans call for disposal of spent shale in the rugged, steep sided canyons that characterize the landscape.

[Friedman: The figure of 70,000 tons of oil shale per day is an exact figure rather than a minimum figure. Similarly, in paragraph 2, our figures indicate that 20% of the shale by weight is recovered as oil and that 80% must be disposed of as waste. Your reference to Mr. McSparran's comment was a result of a misquote by the **Rocky Mountain News.** Mr. McSparran's comment at that time was essentially, "If we put all of the processed shale in the canyon and none back in the mine, we would cover less than 500 acres of the 8900 acres of our property." This essentially would involve two plants instead of one.]

The presence of these spent shale deposits will pose serious problems for industry. Presently revegetation seems to be the most feasible, satisfactory solution to prevent erosion, air pollution, water pollution, scenic degradation, and to restore the land to a productive state.

". . . If it is intended that the three-volume statement under consideration serve as a guideline for the re-establishment of vegetation in the oil shale area, one can only comment that it is totally inadequate. It is not clear what should be put back where, how to put it back, nor how to monitor the success (or lack of it) against a standard."

Richard T. Ward, Ralph L. Dix
Professors of Plant Ecology
and
William Slauson, Plant Ecologist
Comments on Oil Shale Environmental Impact Statement

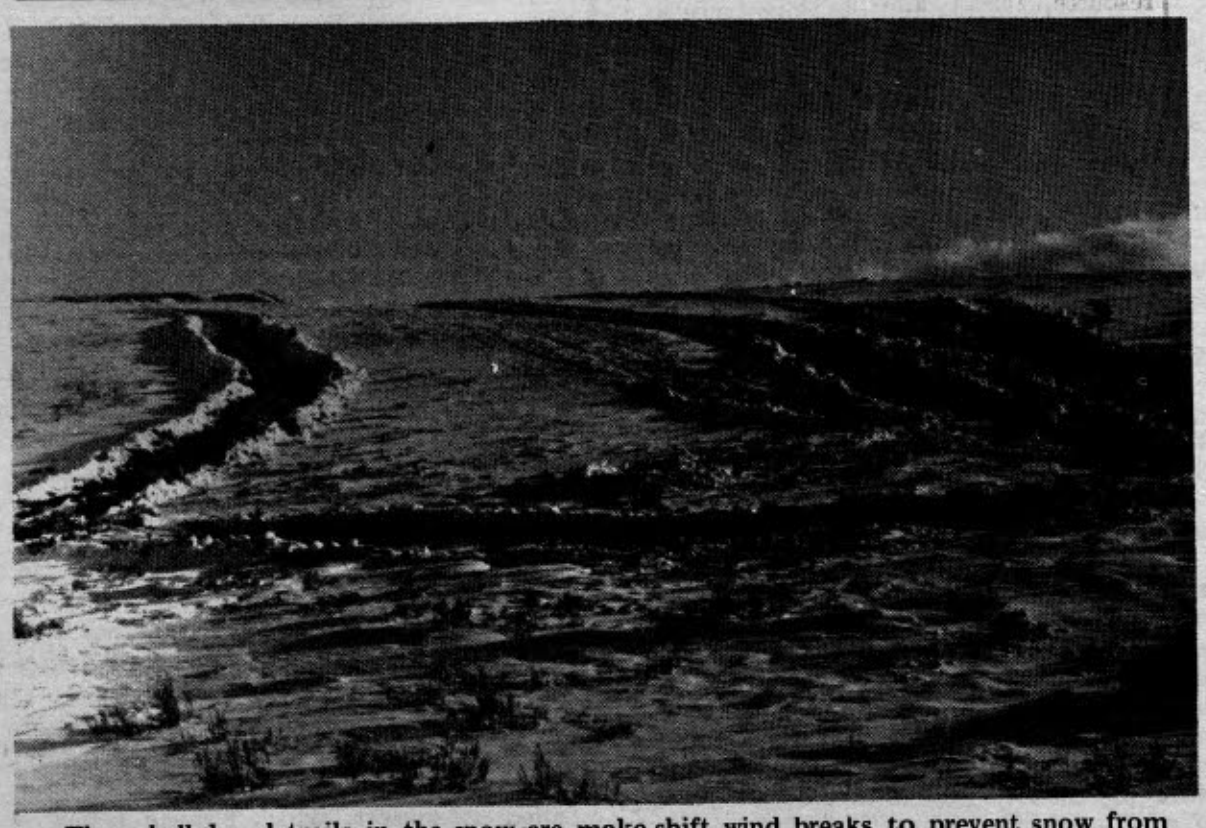
However, revegetation of spent shale is not an easy task. It is a very difficult material to work with. Some of the revegetation problems already known are as follows: 1) Spent shale has a slow rate of water infiltration, so that surface erosion, caused by rapid runoff, could be severe. 2) Chemical analysis of spent shale reveals that the material is highly saline, highly alkaline, and low in available phosphorous and nitrogen. All these conditions are detrimental to plant growth. 3) The dark color of the spent shale may cause lethal temperatures for germinating seeds. Greenhouse tests have shown that unshaded spent shale reaches 140 to 150 degrees F. at about ½-inch in depth. 4) Irrigation water will be required to establish plant growth since the average annual precipitation in the Piceance Basin is eleven inches. Continued irrigation might also be needed in some areas to maintain sufficient vegetative growth to control wind and water erosion. More research needs to be done in this area of revegetation. Then careful guidelines should be drawn up to ensure the re-establishment of desirable, productive, lasting vegetation.

[Friedman: Your comment that "spent shale is a very difficult material to work with" is not borne out by our experience with this material. It can certainly be compacted properly and revegetated without any unusual difficulties.]

[Hamilton: Ask anyone who has worked with it an who isn't working for you to compare it to other substrates!]

[Friedman: We do not see "surface erosion" and "rapid run-off" as being major environmental problems. Surface run-off can be contained by the simple expedient of installing a catch dam at the bottom of the pile to catch the run-off. Moreover, the processed shale forms a natural crust which is not broken by rainfall. Indeed, in order to revegetate the processed shale it is necessary to break this crust. Our studies also indicate that irrigation is necessary only for a limited period of time and that continued irrigation is not necessary to sustain plant growth. Annual precipitation

(Continued on page 5)



These bull-dozed trails in the snow are make-shift wind breaks to prevent snow from drifting on access roads to oil and gas wells in Wyoming's Sublette County. Such activity on the public lands could be duplicated many times over if "in situ" oil shale development becomes a reality. The "in situ" process would call for hundreds of miles of access roads and a network of gathering pipelines. Bulldozer operators generally have scant concern for the land, and the damage they do will persist for years.

. . . Perspective

figures in the Piceance Basin average 11 to 14 inches. However, it should be noted that at the 8,000 foot level, the permanent height of the revegetated area, precipitation averages 17 to 20 inches.]

AIR

Any oil shale plant would have to meet regional, state and federal air quality standards. Still, several unregulated atmospheric alterations might occur. For instance, even if emission standards are met, ambient air quality limits might be exceeded in areas of poor circulation such as the north-south running valleys and canyons. These areas of poor circulation might very easily become concentration points for pollutants such as hydrocarbons and nitrogen oxides given off by an oil shale industry. These two pollutants mentioned are the constituents of photochemical smog. At present, Colorado has no regulations governing either of them.

Another air quality problem might arise with uncontrolled particulate matter such as the fines. Fine particulate matter could become airborne from mining operations, processing plant smokestacks, and spent shale storage piles. These particles could modify existing weather conditions significantly. Suspended sub-micron sized particles could present a hazard to human health since some preliminary studies indicate that they may be toxic. Also, these fine particles are the main cause of light scattering which leads to poor visibility. These problem areas need to be reviewed critically and then controlled stringently.

[Friedman: Your comments on air pollution assume certain unregulated "atmospheric alterations." In view of new federal requirements under the Clean Air Amendments of 1970 and the regulation of new stationary sources, it seems extremely unlikely that there will be any significant emissions from any industrial facility that will not be closely regulated by 1975. Moreover, it is a virtual certainty that Colorado will have regulations in this area.]

". . . The impact statement does not consider the negative aspects of destroying this resource, (clean air) a factor which has figured prominently in the public opposition to additional power plants in the Four-Corners region. . . The pilot study proposed here will cause a significant deterioration in environmental quality, and this must be weighed against the benefits from additional energy resources by assigning priorities to them in an overall national planning effort. Until such an overall plan is formulated, it is impossible to determine whether we really want the development of oil shale to proceed at this particular time."

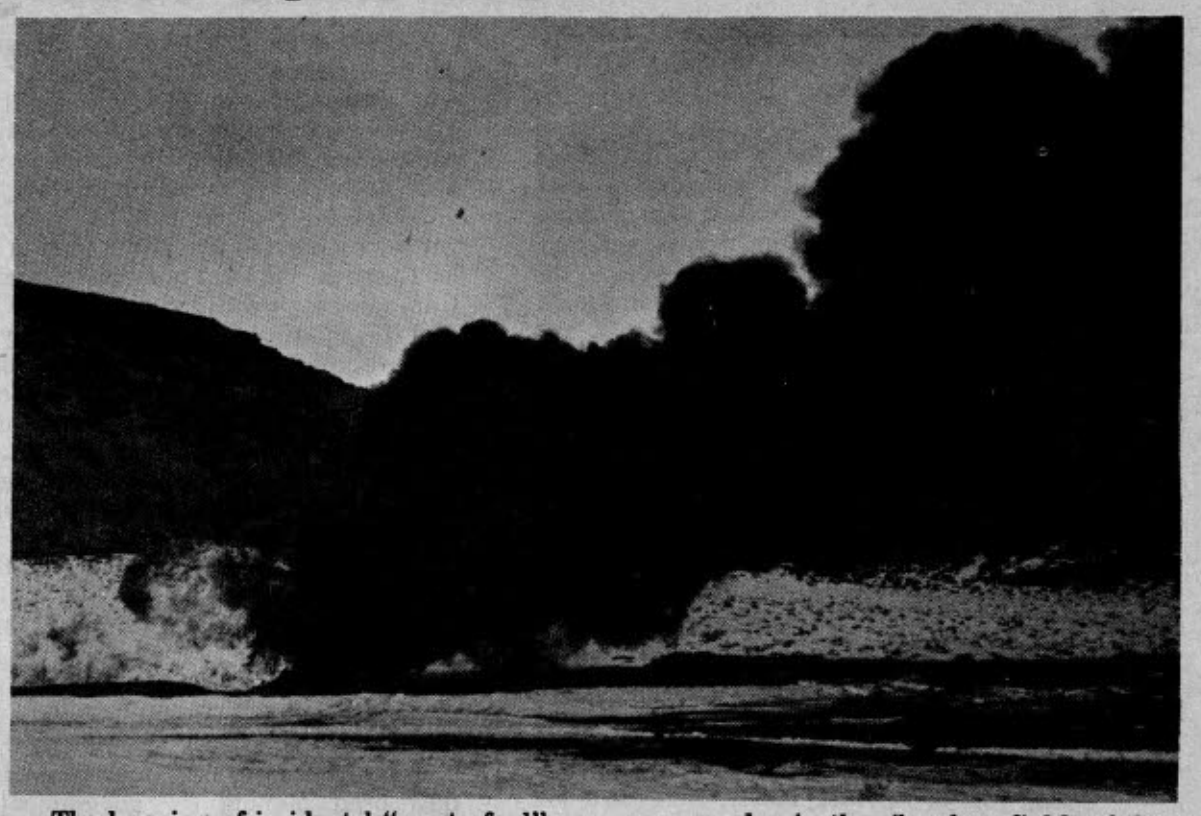
Dr. E. R. Weiner
Speaking for Colorado Citizens for Clean Air
Comments on Oil Shale Environmental Impact Statement

WATER

Water is always a concern to Coloradoans, and water demands posed by an oil shale industry should be reviewed carefully. A single commercial oil shale operation would consume at least three million gallons of water daily. None of this water would be returned to natural streambeds. John Hutchins, manager of Colony Development, feels oil shale development in Colorado will be limited by the water situation, but he claims that Colony has enough water rights to go commercial. Water for an oil shale operation would have to be piped in from other areas on the western slope of Colorado since there would not be enough year around available water in the immediate locale of a plant. The water containment and diversion necessary to supply sufficient water to a plant site, and to protect streams in the production area from contamination, would significantly alter the local and regional watersheds. Water quality problems will also arise from precipitation on the spent shale.

[Friedman: I am not clear on the basis for your assumption that "The water containment and diversion necessary to supply sufficient water to a plant site and to protect streams in the production area from contamination would significantly alter the local and regional watersheds." In view of the fact that there will be no discharge into the local streams and no change in the ground water, I am not clear as to how this will alter local watersheds. Similarly, there should be no water quality problems from precipitation of the spent shale if catch dams are installed to catch the precipitation.]

[Hamilton: Water diversion projects are scheduled for a number of drainages that will supply water for oil shale. As you have said, "Water will be a limiting factor." So all possible sources will probably be tapped and, consequently, many streams diverted. (See map of proposed dams and diversions.) Elk Creek, near Newcastle, is threatened with a series of dams and diversion pipes to supply water to oil shale country. This is a significant alteration of the watershed. Similar projects for other drainages have been filed in the State Engineer's Office.]



The burning of incidental "waste fuel" goes on every day in the oil and gas fields of the Rocky Mountain area. Sometimes great black smudges cover an entire area. The question might well be asked, how can anything with a possible energy potential be intentionally burned as "waste"? A further question might be, how much burning of "waste material" would go on as a result of a developed oil shale industry in this same region?

OTHER GEOLOGIC RESOURCES

Oil shale is not the only potential geologic resource that has attracted industry to the Piceance Basin. The Atomic Energy Commission has plans to explode a series of underground nuclear blasts to stimulate natural gas in a project known as Rio Blanco. These explosions, if they occur, might seriously alter oil shale plans in some sections of the Piceance Creek Basin.

Certain minerals in the basin also merit consideration, especially nahcolite and dawsonite. Dawsonite is a sodium aluminate that can be used to remove phosphates from domestic sewage. Sodium and aluminum can also be used separately for other purposes. Nahcolite has a potential for absorbing sulphur and nitrogen pollutants from power plant stack emissions.

Irvin Nielson, a consulting geologist, claims that, "The chemicals are a lot more valuable than the oil shale, and we need them now. To destroy the aluminum ore to get the oil from shale is insanity."

Again it becomes apparent that we are desperately in need of a sensible oil shale policy that can incorporate all these factors.

[Friedman: You quote Mr. Nielson's assumption that there are large amounts of aluminum in the oil shale which should be recovered. It should be noted that as aluminum ore, oil shale is extremely low-grade and that there are numerous other ores that contain very low-grade aluminum. Moreover, the amount of power necessary to separate the aluminum from the oil shale, which presently cannot be done commercially, in and of itself raises some serious questions of environmental trade-off.]

[Hamilton: As an aluminum ore it is poor, but as an anti-pollutant it is rare and very valuable according to Yankee Gulch Associates.]

SOCIAL IMPACT

One final consideration that should be mentioned briefly is the impact of oil shale development on the social environment. The Department of the Interior estimates that their proposed prototype leasing program would increase the tri-state area population by 47,000. This number includes both temporary construction workers and longer term plant personnel. This means that the Piceance Creek Basin population increase would be around one-third of that figure or 15,700. This influx of people would put increased demand upon existing towns and cities in the immediate area, as well as presently uninhabited areas. Positive results such as new employment opportunities and an increased tax base need to be weighed against negative results such as increased pollution, increased pressure on recreation areas and the temporary nature of a mining operation. A plant's economic life would be around 20-25 years.

[Friedman: You assume a "temporary nature of a mining operation." While each

(Please turn to page 6)

Oil Shale Development

Wildlife Range . . .

by David Sumner

At first glance, the 800,000-acre Piceance Basin in northwestern Colorado is mean, uninviting country. Once the floor of an ancient sea, the area has long since been first heaved and then carved into a rough, irregular network of ridges and valleys. Rainfall is light, in some places as little as 12 inches a year, and temperatures extreme — over 100 degrees in the summer, down to -40 degrees in the winter. Dense knots of pinon, juniper, oakbrush and mountain mahogany contrast sharply with open parks and bottoms of greasewood and sage.

A few settlers tried ranching in the Piceance, and most didn't make it. Now most of the Basin is BLM land, still used for livestock grazing but otherwise largely shunned.

However, if this forbidding country repulsed most of the pioneers, it has for much longer been one of the truly great wildlife ranges in the entire West. North America's largest migratory mule deer herd — some 30,000 animals — winters here. So do numerous bald eagles. In the spring and summer, many golden eagles and red-tailed hawks nest and raise their young in the Piceance Basin. Here, too, are wild horses, mountain lions, bear, coyotes, bobcats and large numbers of smaller mammals and birds. A recent inventory of the area by the Colorado Division of Wildlife turned up a grand total of 291 distinct wildlife species — everything from hummingbirds to elk, from the ubiquitous robin to the endangered peregrine falcon. This total does not include amphibians, reptiles or invertebrates.

It would be heartening to report that the future of this remarkably productive habitat is bright — or at least relatively secure. It is not.

The reason: a curious, deep-gray, stratified, "rock that burns," sometimes at the mere touch of a match. Commonly known as oil shale, this rock is now on the brink of luring a major industrial boom to this remote land that has long been the province of the animals — but rarely before man.

Oil shale has experienced a strange history. Though its potential as an energy producer was known 50 years ago, it was not until the 1950s that serious efforts at development took place. All along, the major problem has been technology, or rather the lack of it. Engineers simply could not figure out how to get the rock out of the ground, and the oil out of the rock — at least not economically. Many (including some within the petroleum industry) feel this situation is unchanged today.

Nevertheless, on June 4, 1971, the irresistable promise of a vast, untapped energy source finally prompted President Nixon to give oil shale development the green light. A mere three and one-half weeks later, the Department of Interior officially announced the details of an elaborate prototype oil shale leasing program on the public (BLM) lands of Colorado, Wyoming and Utah. Interior also created an interdisciplinary Oil Shale Task Force, authorized test core-drilling in the oil shale region, issued a clockwork timetable for development, and began circulating a draft environmental impact statement.

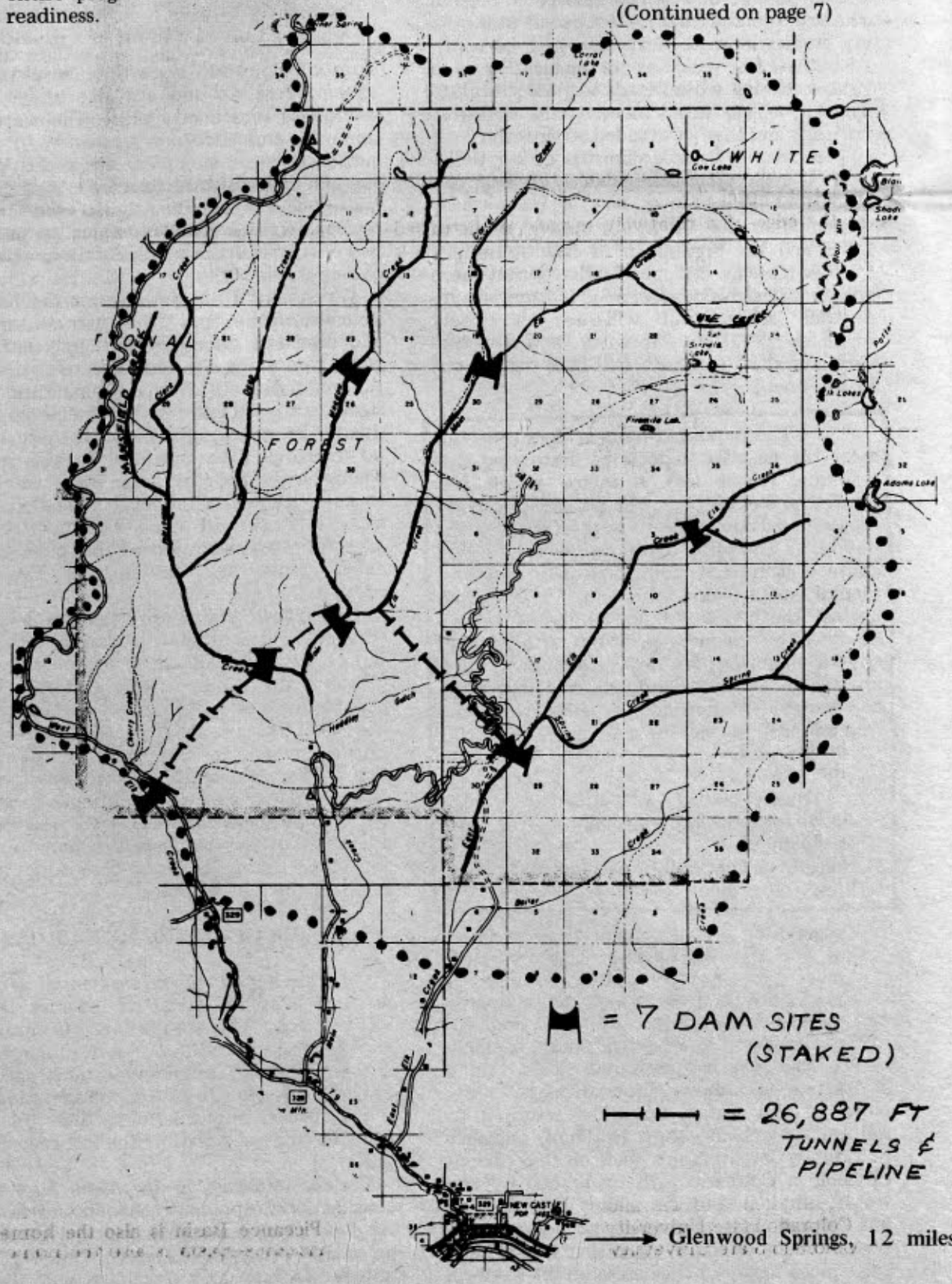
It happened that fast because oil companies had been pushing for government aid for years. By 1971, the groundwork for shale development had long since been laid, and the entire program was in an advanced state of readiness.

The production of oil from shale is a complex and unavoidably disruptive process. Today's most advanced technology starts with either underground or strip mining. The extracted rock is next crushed, and then cooked to about 900 degrees F. to produce a raw oil, which in turn must be "upgraded" to a commercially useable level.

All these operations are expected to take place at the mining site. In addition, massive quantities of waste, "spent shale," must be disposed of; this substance is the consistency and color of fireplace soot (powdery and black) and will be produced by the cubic mile. Finally, the entire procedure will consume immense quantities of water in a region that ranges from semi-arid to desert.

At present, the eventual extent of this major energy program is unknown. In the tri-state area of Colorado, Wyoming and Utah and some 11 million acres (or 17,000 square miles) of land containing commercially extractable shales. Eight million of those acres are public (BLM) land. When and if this massive development runs its course, sometime in the 21st century, all this land could be mined. If technology improves, as it certainly will, then more acreage, containing shale deposits that are now economically "marginal," will be added to the list.

(Continued on page 7)



. . . Perspective

plant might be temporary, the industry itself is by no means temporary and after reaching its maximum of 750,000 to one million barrels per day (it) will continue at that plateau for many years to come, even after the introduction of new, more exotic energy resources. Thus, the assumption that the industry is temporary simply because each individual plant is temporary is not correct.]

CONCLUSION

There is some doubt as to whether or not our oil shale resources should or will be developed according to the government's timetable. The government has called for lease sales with a full scale commercial plant in operation by 1980. Compliance with this timetable, or any timetable depends upon the economic, social and environmental factors outlined above.

Whether or not oil shale's time has come is the current question. Coupled with that question is the urgent need to know what to do when we are faced with development. It would, perhaps, be naive to demand that no development ever occur so that we can remain in ecological harmony. To quote Harvey Wheeler from the **Saturday Review**, "Complete ecological harmony is impossible to achieve, but the 'trade-offs' necessary to approach it as closely as possible must become known." We are presently concerned with understanding these 'trade-offs.' From that point on, the choice is ours.

. . . in Jeopardy

The more immediate prospect is small by comparison only. Interior's blueprint for development is a careful step-by-step plan. The first stage calls for prototype mine and processing installations on six 5,120-acre tracts — two each in Colorado, Wyoming and Utah. These tracts will be leased to private industry for development and profit.

Already, the six sites have been selected from a number of tracts nominated exclusively by various petroleum interests; there was no other public input. The lands are described in varying detail in Interior's second draft Environmental Impact Statement issued in September 1972.

Though all six of the tracts have drawn criticism, one in particular is in the process of becoming a storm center. Known as Colorado site "C-a", it lies deep in the heart of some of the best back-country wildlife habitat in the entire Piceance Basin, straddling four intermittent stream drainages.

Presently, the area around and including tract "C-a" supports an average of 52 wintering mule deer per square mile — an unusually heavy density possible only under excellent range conditions. As the impact statement notes, the tract also "bisects important deer migration routes." In addition, this is an area much used by wild horses, and it also serves a healthy community of mountain lions, coyotes, bobcats, rabbits, hawks, grouse, eagles, doves and other wildlife. A substantial portion of this premium habitat value stems from the remote location of the area; as the crow flies, it is a full ten miles off the beaten path (the lightly used Piceance Creek highway).

The significance of this wildlife area is underscored by the fact that, back in the 1940s and 1950s, the Colorado Division of Wildlife started buying land here specifically for mule deer winter range. Though Interior's latest impact statement says "The tract lies on the edge of a relatively remote, undisturbed habitat area managed by the Division (emphasis added)," site "C-a" actually includes 520 acres of State-owned wildlife land, plus a private hunting camp.

Furthermore, paved access to this tract — especially if developed over the existing 16-mile rough road along Yellow Creek — could cut a busy industrial highway through as many as 2,500 additional Division of Wildlife acres. All of this is the same land that was purchased with public money (Pittman-Robertson funds) years ago — expressly for game range.

Interestingly, Interior's selection of site "C-a" stands in direct contradiction with its own stated policy on land use. "Fish and game experimental or management areas," the impact statement asserts, "have been excluded from the proposed prototype (oil shale) leasing program." At this date, it is not known how this contradiction will be resolved. However, two obvious courses seem open: either the Department drastically redefines the boundaries of tract "C-a" or else it simple repudiates itself.

Legally, Interior is entitled to mine almost all of the Colorado Division of Wildlife's acreage in the Piceance Basin. In most cases, the state game and fish agency purchased only surface rights, while the U.S. government holds the mineral rights. The decision to mine site "C-a" appears to be one of simple technological and economic utility. Rich, high-yield shales underlay the tract in a way that makes open-pit (or strip) mining particularly practical. The site received more industry nominations than any other in the entire three-state region.

Likewise, in Utah and Wyoming, the site selection process ran roughshod over the environment. The impact statement notes that the Utah tracts, on the White River near the town of Bonanza, contain "important eagle (bald and golden) nesting and roosting sites. . . a healthy association of wildlife species. . . (and) unusual and interesting scenery on the rugged canyon walls along the White River." The two Wyoming tracts south of Rock Springs support "a broad variety of wildlife species;" in addition, the scenic Kinney Rim bisects the two sites which are also located in the heart of historic Shoshone and Comanche Indian country.

"We know that there are other significant resource values in the oil shale region, not the least of which are the wildlife, and we do not intend to permit those values to be lost," said Interior Secretary Rogers C.B. Morton when he announced the program on June 29, 1971.

The location of all six sites "must be looked on as a bad omen for the program intent of 'minimizing' environmental impacts," concluded Glenn D. Weaver for the Conservation Foundation in a recent review of Interior's Impact Statement.

The Piceance-White River mule deer herd numbers approximately 30,000 animals — with variations from one year to the next. Annually, it is the source of some of the finest deer hunting in Colorado — and, indeed, anywhere in the West. Game Management Unit 22, which generally follows the boundary of the Piceance Basin, regularly tops the State list when deer harvest figures are tabulated. In 1972, an estimated 7,000 hunters flocked to this one unit on opening weekend of deer season — accounting for close to 15% of the entire State-wide kill. The Piceance Unit is but one of 114 game management units for deer in Colorado.

Wood Available

Wood-burners all over the West know that for a minimal fee they can obtain a permit to cut firewood on national forest or BLM land, but in Utah, a state largely under BLM and National Forest control, there is another source of free firewood: the Division of Wildlife Resources.

Wood that has been knocked down in land rehabilitation programs (junipers and pinyon pines have been chained, that is, torn out by the roots by a chain dragged between bulldozers) is available to the public at the rate of two cords of wood per person per year. All you need is a permit from the Wildlife Resources regional office or from the state office in Salt Lake City.

Duchesne County in particular has a goodly supply of the dead wood created by man's improvement on nature.

"It is concluded that the economic prospects of shale oil are marginal at best. The proposed leasing program will not by itself significantly improve this outlook or accelerate oil shale development. With the present state of technical knowledge, shale oil neither is nor appears capable of significantly contributing to 1980 or 1985 fuel requirements — the likely time span of the impending "energy crisis." As a result, the argument for quick development of this predominantly publicly-owned resource, as an important part of the answer to the forecasted petroleum shortages, tends to lose its force. Consequently, the best strategy should consist of accelerated research and development efforts and keeping all relevant options open until the oil shale issues are better understood and future developments more clearly point to particular courses of action."

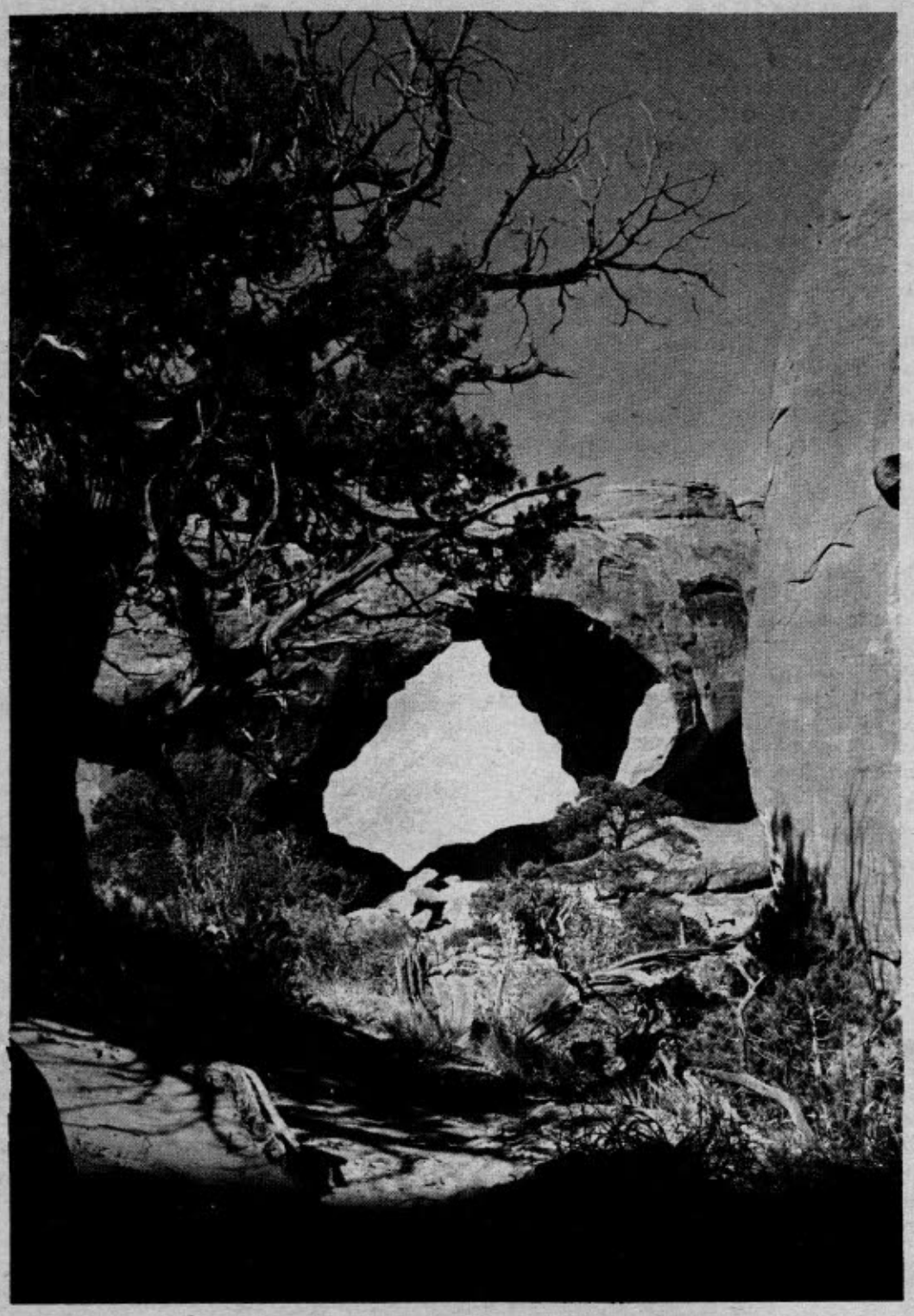
Dr. Theodore J. Ellis
in The Potential Role of Oil Shale
in the U.S. Energy Mix: Questions
of Development and Policy Formulation
in an Environmental Age.
from unpublished Ph.D. dissertation
Department of Economics
Colorado State University

Photo by Rusty Gooch

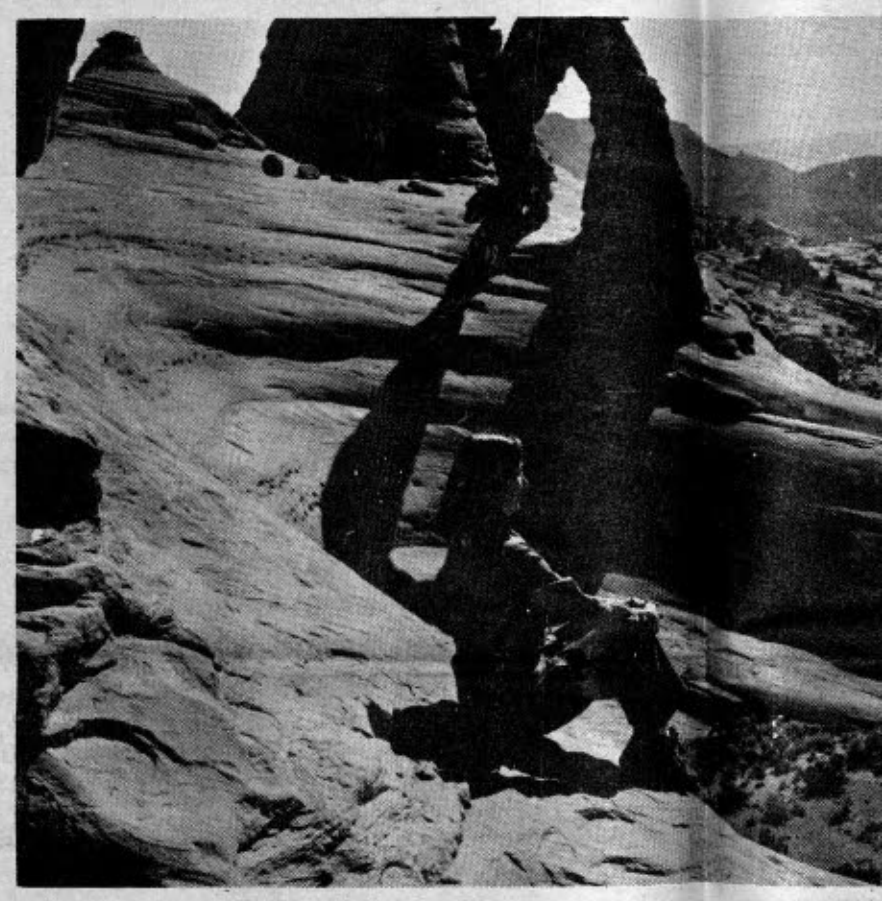
The welfare of thousands of mule deer will be jeopardized by oil shale development in Colorado, Utah and Wyoming. Colorado will be particularly hard hit because the rich Piceance Basin is also the home of one of the world's largest deer herds.

ARCHES

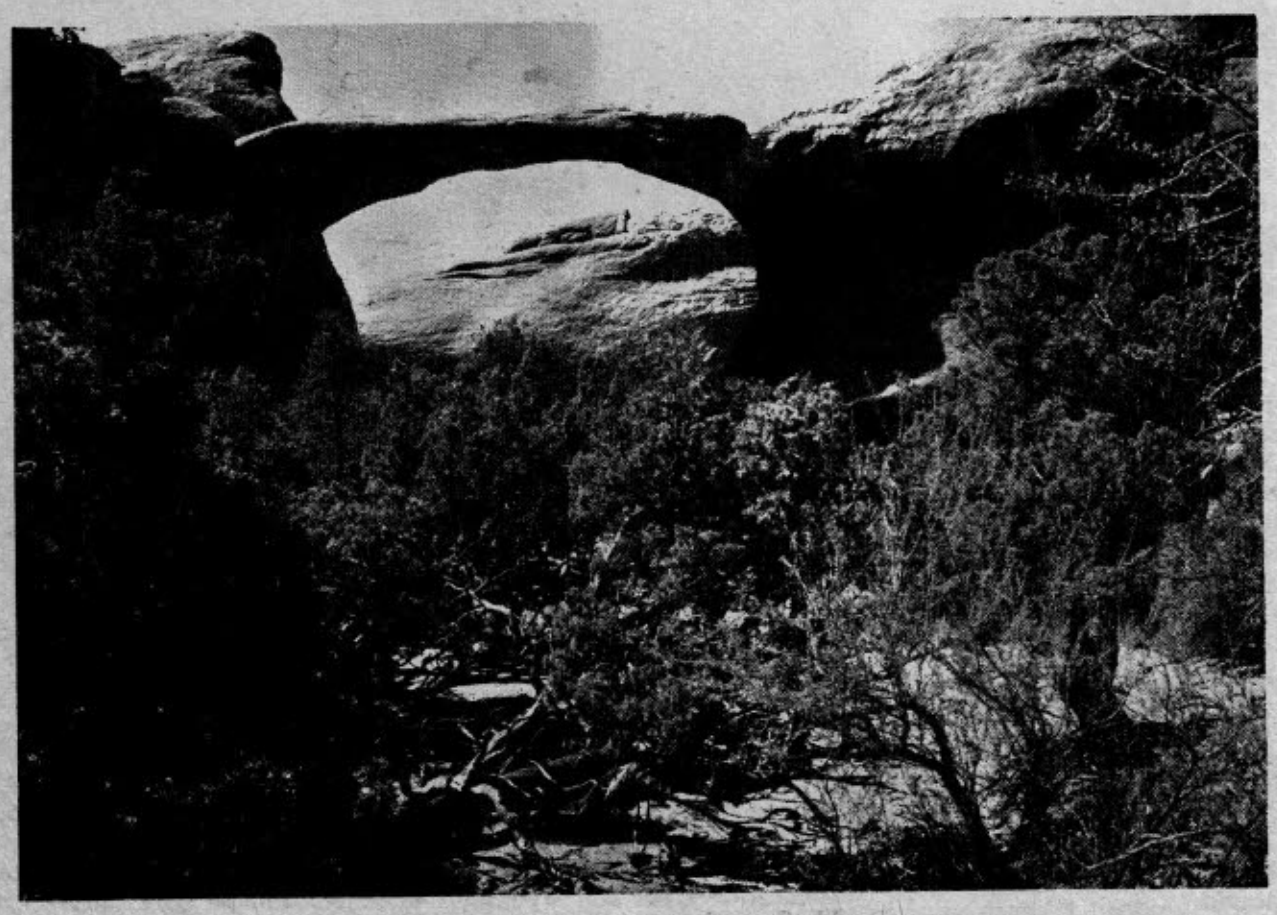
NATIONAL



Arch behind the campground.



Early morning at Delicate Arch



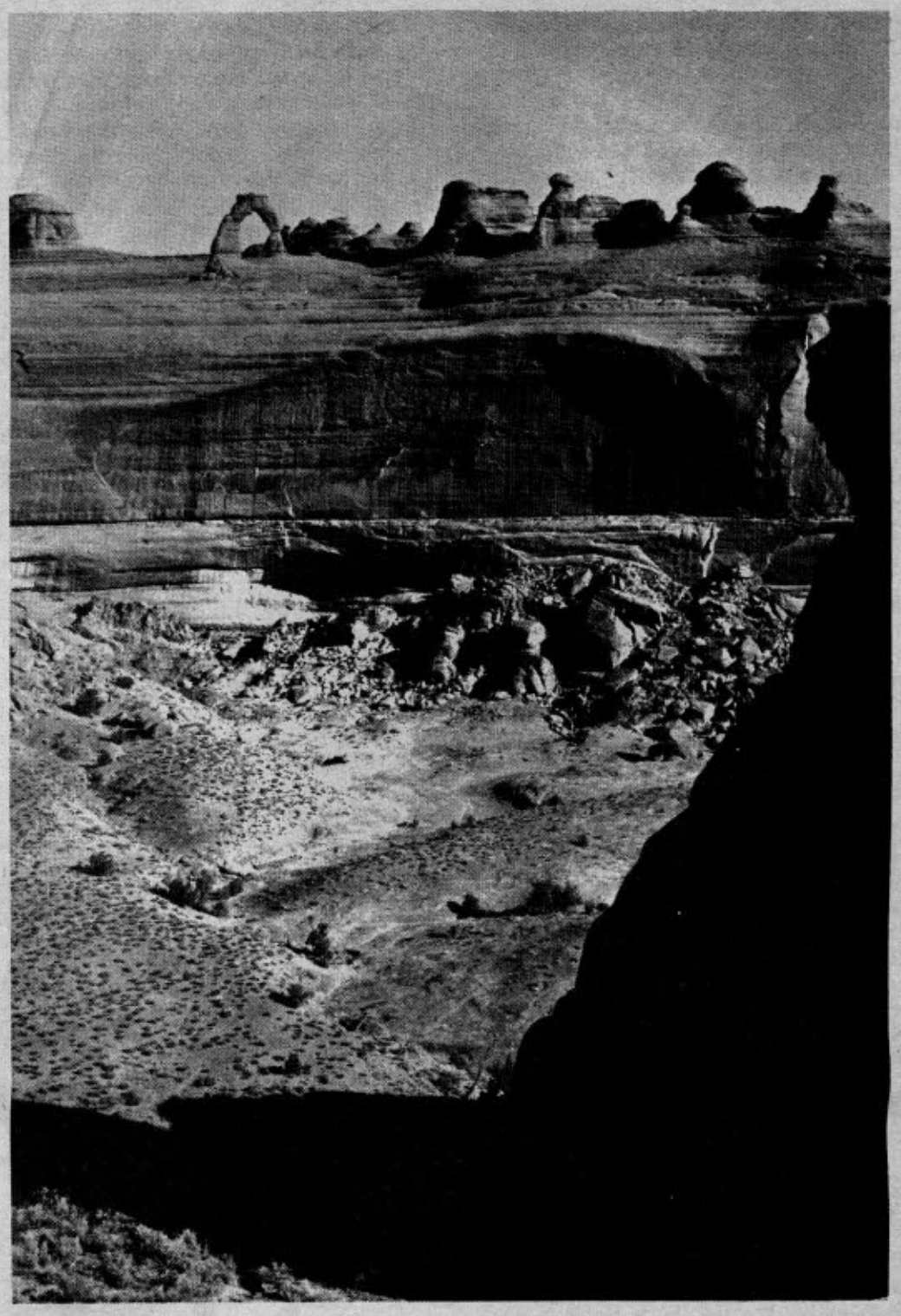
Upper part of Double-O Arch

Photos by Verne Huser

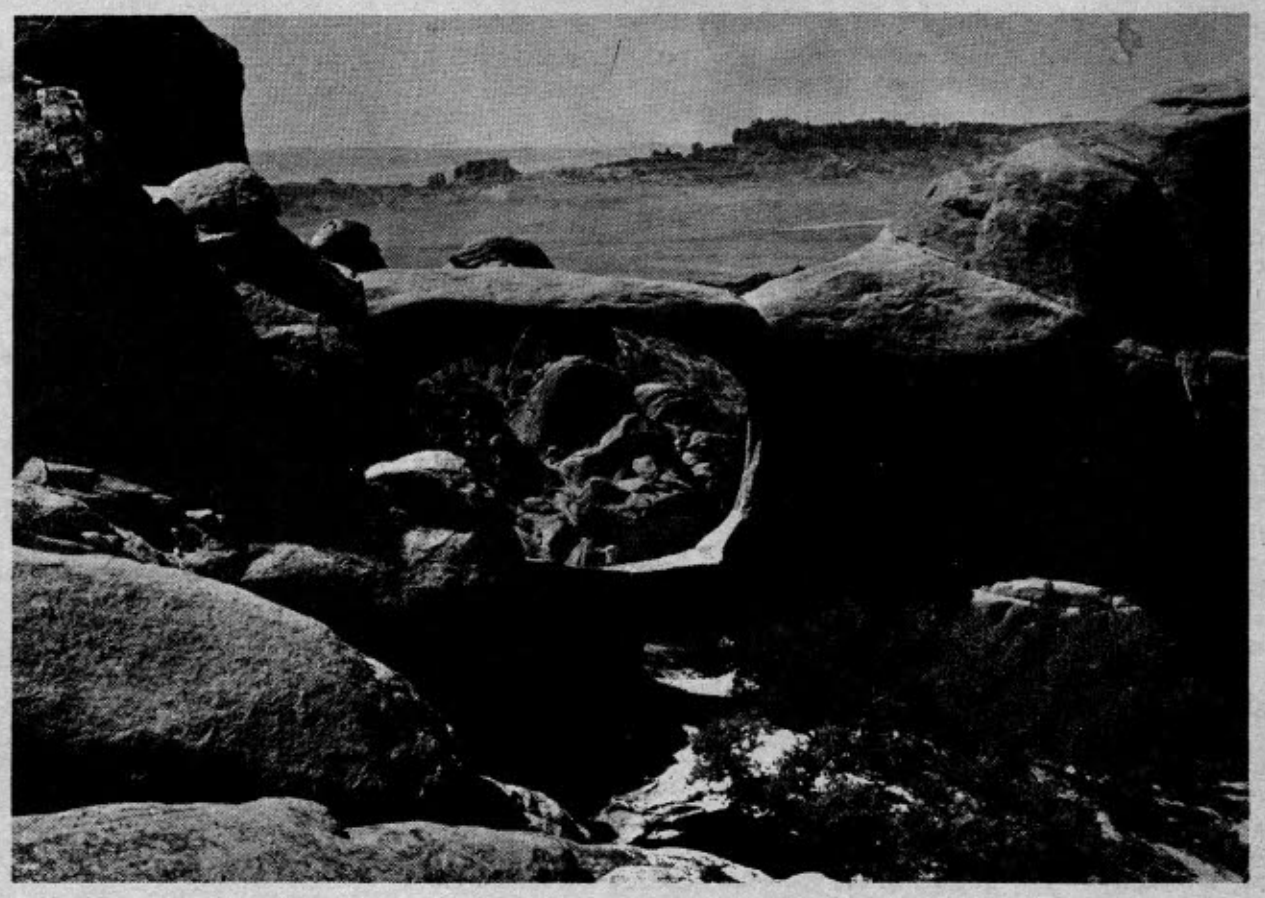
RCHES

IAL PARK

morning at Delicate Arch



Distant view of Delicate Arch



Double-O Arch

Photos by Verne Huser

Watch Your Job!

by Ed Will

Perhaps in watching the struggles of newly formed African nations attempting to bridge the gap between tribal life and electronic civilization we are overlooking the far more amazing leap in evolutionary cycles occurring right under our noses. Some of our four-footed wildlife denizens are apparently advancing a couple of million years in the evolutionary scale with astonishing ease. In fifty years they might be taking over some of our jobs.

Take ordinary mule deer. In 1962 a couple of hunters near Pinedale, Wyoming, were on opposite sides of a dense thicket. Now a human penned in such a thicket between two enemies might give up, but not Mr. Buck, the big mule deer hidden in the brush. Wily Mr. Buck first showed himself briefly on one side of the thicket, rushed to the other side for another very brief exposure, then, while two hunters stalked each other in the thicket, leisurely strolled out in the open and headed for safe timber. What a diplomat that buck would make! When it comes to getting your enemies shooting at each other instead of you he even topped the British diplomats of the last century.

Deer can adapt to the finer aspects of our civilization, too. In 1964 I took my wife deer hunting. (never mind the cracks, I know that anyone taking a wife deer hunting deserves — The heck with it! I'm not going to justify myself — I took my wife deer hunting!) On the way out to the bush I smelled something and looked at her. She was applying perfume behind her ears! On a deer hunt yet!

"I suppose you think that stuff will lure some nice big buck out of the brush?" I said. She ignored the sarcasm.

"It might," she said, in that knowing way only a wife can use. I snorted and started to tell her some facts of life about wild animals but gave it up as useless. Two hours later we were beating the brush in the Dishpan Buttes area when I heard her call my name in a panicky way. I whirled around. There was a big buck standing and sniffing within inches of her! Don't try to tell me following a dame using Chanel No. 5 isn't getting into the higher reaches of civilization!

Violent outbreaks caused by deep-seated resentment of a degraded social status are not limited to urban ghettos. Pete Haler, a Wyoming Highway Patrolman, learned that. In September, 1966, just a few days before opening of the antelope season, a certain Mr. Pronghorn finally had too much. Not only was he fenced out of those lush alfalfa fields that those stupid cow critters, that had sold out to men, grazed in, but now once more he was about to run the gauntlet of loud bangs and whizzing metal pellets for the amusement of these two legged animals. So when Mr. Pronghorn saw Haler bending over, looking under sagebrush for clues to an auto accident, he gave way to the urge and bowled Haler over. It was a direct hit on the inviting posterior. When Haley scrambled angrily to his feet and whirled around, Mr. Pronghorn let him have it again — in the stomach. Haley grabbed the antelope's horns and hung on. Mr. Pronghorn seemed to enjoy this. To the tune of wind whistling through the nearby wires of the highway fence, they did the Pronghorn Frug until Haley's brother patrolmen came to his aid.

The antelope was tied securely with ropes and, protesting vigorously against police brutality, was taken away by a game warden to be released in a remote area. But he had made his point, had proved even antelope can acquire the approved civilized methods of protest against mistreatment of minorities.

Now take moose. In the early 1960's they were satisfied with occasional strolls through towns to see what was happening to the land they had lost to two-legged critters. Like one that strolled through downtown Thermopolis, Wyoming on July 25, 1961. Or another taking a similar stroll through Buffalo, Wyoming three months later. But as more and more moose-land was taken over, the moose resorted to force. In 1964 workmen building ski tows in moose-land in Jackson Hole were frequently run off the job by moose racial riots. The climax came when a moose housewife took a stand in Togwotee Pass, Wyoming, on November 29, 1966. The highway across the pass had been widened, occupying more land. Perhaps influenced by recent settlements to Indians whose land had been taken, Mrs. Moose decided to occupy the new highway and force a settlement. When Emerick Huber, of Casper, Wyoming tried to use the road Mrs. Moose objected violently enough to wreck his car and slightly injure him and his family, although Mrs. Moose herself perished in the outbreak. But she had achieved the civilized status of being able to kill herself to prove a point.

The bobcat is sometimes used as a symbol of the ultimate in wildness, but even they can yield to the civilized desire for softer living. A certain Mr. Bobcat, after a hard winter on the open range, moved into the town of Rawlins, Wyoming, in the spring of 1962. It was not only a question of finding food easier, what with garbage cans and small kittens and puppies roaming alleys (they were much easier to catch than fleet wild game), but there was also the fact that the yapping toy dogs of town were something to

laugh at — nothing like those lean and efficient ranch hounds that meant business when they smelled bobcat. Mr. Bobcat waxed fat in town but began to believe in segregation. Those drab front streets, with their smooth pavement, sidewalks and neatly clipped lawns were for those inferior two-legged animals. But the back alleys, with their delightful odors, garbage cans, high weeds and hideaway holes were for the bobcat elite. On that June night when two girls, 13-year old Melinda Mottoman and her eight-year old sister Barbara, invaded his alley domain searching for the kitten that had provided his supper, Mr. Bobcat proceeded to stage a one-cat race riot, during which Barbara was clawed up. After this super-civilized tactic of overrunning an innocent bystander, Mr. Bobcat asked for a change of venue by lamming it out of town.

The lordly mountain lion, once a denizen of the most remote wilderness, is on the move for better housing, among other things. Albert Hornecker and son John lived in a nice mobile home in the middle of a farming area, far from the mountains. One night John came home to find a cougar climbing the electric pole by the trailer that offered a view of the interior of the trailer home. Mr. Cougar fled, but months later, in May of 1964, Albert was awakened by a tremendous thump against the house, followed by a terrific roaring and barking of dogs. Opening the door, Albert came face to face with Mr. Cougar on his doorstep! Unfortunately Mr. Cougar had neglected to acquire those social graces conductive to inducing hospitality. Albert hurriedly closed the door long enough to get his rifle before opening it again to shoot his visitor.

A California cougar would naturally be farther advanced in the social graces than one from wild Wyoming. When Leopold Cann was a slightly injured survivor of a small plane crash in the Sierras of California and his partner had gone for help, Cann dozed off. He woke to find a mountain lion watching him speculatively. Cann greeted him with a friendly "Shalom" and the cougar responded with an amicable expression. But when Cann tried to entertain his visitor with rock and roll the cougar began to snarl. Cann hurriedly switched to old Hebrew songs and the cougar showed his preference in culture by becoming amicable again. This continued until help arrived. Don't be surprised if the next time you enter a pawnshop a cougar is there learning the business.

If the ultimate test of a civilized attitude is a sense of humor, Mr. Bruin, a furry citizen of Yellowstone National Park has proved his qualifications. His humor had probably been too much for the rangers and had earned a classification as an ursine delinquent. He was shot with a tranquilizer dart in preparation for removal to a remote area, but Mr. Bruin was not to be cheated of his last practical joke. Fighting off unconsciousness until he made it to a highway, he reared in a pose no camera bug could resist. Then, just as a tourist snapped a camera at him, he happily relaxed and let the drug take effect, collapsing. The results were all he could hope for, the tourist gaped at the fallen bear, looked at his camera in sudden awe, then, as he saw two rangers running towards him, leaped into his car and burned rubber getting out of there.

But that unfortunate legless creature, the rattlesnake, has found no place for itself in this new order and has taken to committing mass suicide. In this it is facilitated by the hundreds of thousands of core drill holes left by uranium prospectors. Being small in diameter and straight down, a snake crawling in one can neither back out nor turn around, making suicide easy. Anyone know anything about snake psychiatry? The need is urgent.

Don't scoff because I have used some seamy sides of civilization to illustrate these four-legged advances. I once knew an immigrant kid that could only swear in English, and mispronounce even those words. Know what he is now? Professor of English at a big university. So don't sell these animals short.

I gave up last summer when I stalked a beaver to take its picture, only to find it had swam way upstream. But seeing the camera, it returned, climbed out on a sandbar and posed both in full face and profile for me. I silently slunk away before I got a bill from the Animal Photo Model Association.

Oil-shale Policy Rapped

Oil-shale development on Federal public lands should be deferred at least until the Interior Department pursues a policy of energy conservation with the same vigor it now uses to promote oil production, the Conservation Foundation said this week.

The Foundation, a non-profit research and education organization based in Washington, D.C., expressed this view in its comments on a draft environmental-impact statement prepared by Interior on its proposed oil-shale leasing program. The organization took particular issue with the Interior Department's assertion, in the statement, that a policy of conserving energy by reducing public needs for oil would be "extremely difficult" to implement. Interior's position in this area, the Foundation noted, directly contradicts that of another Federal agency, the Office of Emergency Preparedness (OEP).

An OEP report on "The Potential of Energy Conservation," issued in October, says that the use of several practical conservation techniques could reduce the projected demand for petroleum by 6 million barrels per day by 1985. This is six times the daily yield of shale-oil that the Interior Department hopes to produce by 1985.

In view of the OEP report's conclusion, the Foundation said, "the federal government, including the Department of the Interior, surely bears the responsibility to pursue a policy of energy-demand reduction with the same vigor with which it is now seeking to increase supply."

The Foundation said it could find no evidence, either in the statement or elsewhere, to indicate a change of the Department's philosophy from one limited solely to increasing supply to one that includes the conservation of energy.

The Foundation also recommended that the following steps be taken before any development goes forward:

1 — The Secretary of the Interior and the Administrator of the Environmental Protection Agency should jointly appoint an advisory commission on the environmental effects of oil-shale development. Such a commission, the Foundation said, "should be representative of all the significant public interests in the federal oil-shale lands, and should not be dominated by any private or regional interests." Its purpose should be to recommend specific environmental terms and conditions under which oil-shale development ought to go forward.

2 — An ongoing Federally-supported environmental study of oil-shale development, now scheduled for completion in 1974, should be completed. This study is to focus on some of the major environmental "unknowns" of oil-shale development, including the effects on water resources.

3 — The governors of the states directly involved should commit themselves to regulating uses of nearby non-federal lands to meet federal environmental criteria and standards so as to prevent adverse off-site impacts caused by the proposed program.

The Conservation Foundation's comments included a paper by Dr. David B. Large, an electrical engineer on the Foundation staff, which spells out opportunities for energy conservation. These include:

— Dramatically increasing funding for public transportation systems, discouraging single-passenger automobile commuting, and placing "environmental impact taxes" on the sale of high-horsepower, low-efficiency automobiles.

— Tightening federal building insulation standards.

— Altering rate structures for electric power to encourage conservation rather than waste.

New Sources Are Explored

"New" energy resources are being tapped in the form of two old geologic phenomena — geysers and hot springs. The sources are well-known ones. The problem has been the detection and frequent inaccessibility of these geothermal sites. Dr. Robert B. Smith of the University of Utah recently reported discoveries that may help solve both these difficulties.

Now being proposed for inland use is the same method long employed to detect subterranean hot water or steam in areas of aquatic proximity, such as island arcs. This is the frequent indication of geothermal sites by the occurrence of myriad tiny earthquakes.

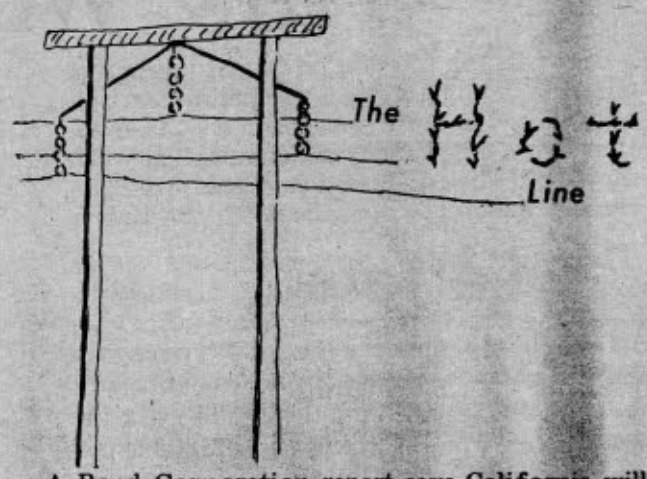
In addition, it is now thought that these earthquakes may also mark the location of extremely hot, dry rock close to the earth's surface. This may be a potential power source for use in converting surface water to steam. To date, all power generation via geothermal sources has been from naturally occurring steam or hot water.

Power companies are hesitant to utilize these "new" resources for several reasons. The initial cost of geothermal plant construction is prohibitive — but once built, the "fuel" is free. This type of power generation is less efficient than present methods. Natural steam and hot water are simply not as hot as that produced artificially for industrial use, requiring greater input for less output.

Extraction presents another problem. "Dry" geothermal power in the form of hot rock is widely abundant. However, only in certain areas is it close enough to the surface to make its use economically feasible. One such area, estimated to be 5 miles wide and only one mile beneath the surface, is believed to be near Helena, Montana.

Hydrofracturing is one extraction method which may be adapted from the oil industry. By this technique, highly pressurized water could be pumped into the ground to crack the rock and allow surface water to penetrate. The hot water or steam created would then be piped back to the surface to generate power plants.

These geothermal energy sources are not completely pure since salts and sulfur compounds are frequent pollutants.



A Rand Corporation report says California will face increasing power shortages, depletion of fuel reserves, and a deteriorating environment unless consumption of electricity is sharply curtailed. The "think tank" report recommends a "reasonable objective" of 60 per cent of projected demands by the year 2000. The report says the state must soon institute measures that would lead to the use of alternate power sources and conservation of energy.

* * *

Jack Gage, Wyoming representative to the Missouri River Commission and a newly elected state legislator, says "Intelligent development of Wyoming's coal resources will mean the state will be a lot better off. . . The proper plants can be built within Wyoming that would mean more investment for the state and new jobs for Wyoming's people." The Missouri River Commission is a newly formed group to give state direction to economic development.

* * *

A spokesman for Consolidation Coal Co. said the company is developing plans for a coal gasification complex on the Northern Cheyenne Indian Reservation in Montana. A landowners association on the Reservation has cautioned against the plant saying it would bring in some 10,000-30,000 workers. Such an increase in population would create a non-Indian society approximately three to nine times the present Reservation population.

* * *

The president of Idaho Power Company, Albert Carlsen, told the Boise Kiwanis Club that the energy crisis is the result of unrealistic governmental regulations. "These range from delays of drilling permits and mining permits to plant siting, kinds and qualities of fuels permitted, transmission line right-of-ways, unrealistic tax policies and rate regulations," he said. (Editor's note: Idaho Power regularly advertises for all-electric homes.)

Louise Cross, chairman of the Committee on Natural Resources and Agriculture at last year's Montana Constitutional Convention, says the state is faced with a basic decision. She says, "There is not enough water in Montana's rivers and streams to satisfy demands for water for Montana's agricultural and stock raising needs, and for strip mining as it is planned as described in an October, 1971, North Central Power Study." And then she asks, "Are farmers and ranchers aware of this?"

"Increased demand and public concern for environmental protection require new technological approaches and possibly new rate designs to reflect the environmental costs of producing and distributing large quantities of electricity."

Albert Brooke, Jr.
Member, Federal Power Commission

Law Workshop Set

A workshop focusing on recent legal developments and changing concepts in environmental law will be held Nov. 27-29 at the University of Wyoming in Laramie. The workshop will be sponsored by the Wyoming Human Resources Confederation, the University of Wyoming College of Law and the Western Branch of the American Public Health Association.

The workshop, "Ecology, The Law and Public Policy," will be geared to individuals working in the area of environmental problems, or whose jobs relate to environmental concerns.

Among the featured speakers during the session will be Wyoming Attorney General Clarence A. Brimmer and John F. Turner, state representative from Teton County.

Other featured speakers will include: Calvin Ragsdale, UW law professor; Kenneth Diem, UW zoology professor; Keith Becker, executive director of the Wyoming Outdoor Coordinating Council; Arthur Williamson and Robert Sundin of the State Division of Health and Social Services; Floyd Bishop, state engineer, and Jack Speight, a Cheyenne attorney.

Faculty members will include: George McKray, an attorney and lecturer in public health and medical administration at the University of California; Jan Stevens, assistant attorney general and counsel to the Air Resources Board of the State of California; Nicholas Yost, deputy attorney general for the State of California and counsel to the Environmental Quality Study Council, and Cassandra Dunn, legal counsel for environmental protection in California.

The registration fee for the three-day course will be $10 for members of the Wyoming Human Resources Confederation and $15 for non-members. Registrations will be accepted up to and including the opening day of the conference.

Additional information is available from E. Lucile Tihen, Division of Public Assistance and Social Services, State Office Building, Cheyenne 82001.

Letters . . .

I think the opportunity for Wyomingites and probably a couple of her neighbors is great in this regard. Until the right to vote has been taken from us, there is considerable per-capita clout carried by Wyoming's citizens. Another way of expressing that is: for every Wyoming citizen there is more natural resource (not to mention natural beauty, which is immeasurable) than for most people anywhere else in the world. To the extent a voter in our state uses his voice, he wields respectable decision-making power in a day and age when most of this country's citizens feel impotent. If Wyoming's voters choose to opt for the easier path of apathy and indifference they may never miss a meal, but, to use Tom Paine's words they will have made "a whore of their soul."

With this in mind I should return to my original expression, one of gratitude, to a person and a paper with some old-fashioned guts during obsequious times. Kenneth Boulding, the famous University of Colorado historian, has wondered if perhaps the most dangerous pollution isn't information pollution, and my wonderings can't help but parallel that. If we can, with organs of the public interest, keep the air tolerably clean, there is bound to be some genuine hope for the country and the world.

I continue to support you in your task, which is certainly not an easy one, one which I'm convinced will not get any easier. Keep the faith and send me a subscription blank.

Truly yours,
Bill Waldo
Lacey, Washington

Editor's note: Thanks, Bill. As a former school teacher (in my case 10 years), you never cease to be delighted at how ornery little boys grow to be men of great maturity and perspicacity. Such is the case with Bill Waldo. When I knew him last, he was a fine boy — with a lot of ginger. It appears he still has — and I am still delighted to have had him as a student.

Bulletin Board

Population growth and birth control will be the major topics of a one-hour televised film to be shown by the Public Broadcast Service on November 29 at 8:00 P.M., Eastern Standard Time. The film is based on the findings of the Report of the U.S. Commission on Population Growth and the American Future. It will be followed by an hour of panel discussion with members of the Commission including Commission Chairman, John D. Rockefeller III.

A free booklet on the findings of the commission is available from the Public Information Office, National Audubon Society, 950 Third Ave., New York, N.Y. 10022.

* * *

Volume No. 8 of the Interior Department's Conservation Yearbook series is now available to the public for $2. The 1972 Yearbook covers recent environment legislation, energy problems and policies, Indian affairs, wildlife protections and park-wilderness-recreation programs. Write for S/N 24000751 from the Public Documents Distribution Center, Pueblo, Colorado 81009.

* * *

For a layman's guide to the various methods of controlling major industrial pollutants and pertinent federal legislation write: Research-Cottrell, Bound Brook, N.J. 08805.

Post Mortem

by Lee Turpin

Everyone knows that politicans don't always say what they mean, or mean what they say, but somehow Utah seems to have set a new record for extreme honesty and extreme dishonesty in its recent election campaigns. For a change, the honest politician won and the dishonest one lost, although from an environmentalist viewpoint both should have lost.

Sherman Lloyd, in his losing fight for re-election to Congress, repeatedly ran large newspaper ads proclaiming himself to be a "responsible environmentalist." This despite being one of the "dirty dozen" politicians whose voting records have shown them to be consistently against measures favoring the environment, and for those promoting uninhibited development and commercial exploitation.

In the other extreme, Calvin Black, in his campaign to gain a seat in the Utah State House of Representatives, freely passed out printed cards saying **"Help Fight Ecology Nuts — Vote For Cal Black."** Sadly, Mr. Black seems to know and represent very well the thinking of his constituency. He was elected to represent San Juan, Wayne and Garfield Counties, even though one San Juan County resident took him to task with a letter to the local newspaper, the San Juan Record.

the San Juan Record
October 12, 1972

Letters To The Editor

Dear Mr. Editor:

In view of the coming election, Calvin Black is busy passing out cards stamped "Help Fight 'Ecology Nuts'."

To make a campaign slogan against something so vital as our natural resources to me insults my intelligence. I don't believe we can stick our heads in the sand and pretend ecology is someone else's problem.

I cannot stand by while someone I admired advocates the four freedoms no one has--Freedom to Litter, Freedom to Pollute, Freedom to Befoul, Freedom to Waste.

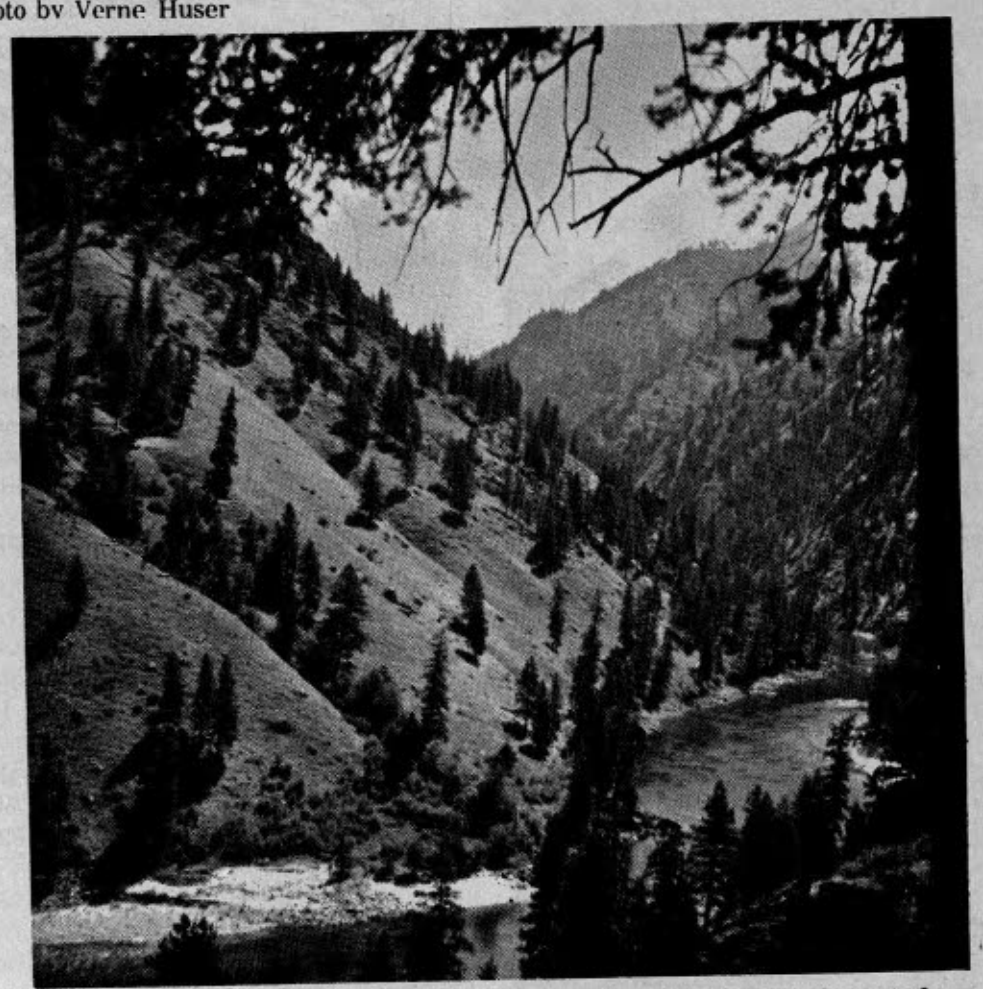
Having lived most of the last eight years in California with its smog, pollution, litter, befouled beaches, and general waste of God's natural resources, I have become a real Ecology Nut.

I would like to be at least one nut that cracked back.

LaRae Black

Western..... Roundup

Photo by Verne Huser



Idaho's River-of-No-Return, the Salmon, almost became an impacted area in the summer of 1972. Commercial float trips battled and raced for campsites as float-trip traffic increased by five-fold.

Eagle Killers Being Fined

Legal gyrations continue in the cases concerning mass eagle slaughters in Colorado and Wyoming. However, convictions, such as they are, are now being made.

Most recently, a Colorado rancher, Dean Visintainer of Craig, was fined $1,700 and placed on six months probation. Joe Evans of Baggs, Wyoming, a Carbon County deputy sheriff, was fined $500 and given six months probation. Both had earlier been charged with shooting 62 golden eagles during December, 1970, and January, 1971. Last month, both men pleaded guilty to killing five eagles. Each count against them carried a maximum penalty of $500 and six months imprisonment.

U.S. Attorney for Colorado Theodore Halady said Visintainer had reportedly paid the Buffalo Flying Service of Buffalo, Wyoming, $10 per eagle. Evans was hired as a gunner to shoot the eagles from the air.

When first accused, Evans had denied any knowledge of eagle shooting. He was first implicated in testimony given by James Vogan, a helicopter pilot on the eagle shooting missions. It was Vogan's testimony before a Senate subcommittee in July, 1971, that drew national attention to the mass killings. Vogan also implicated Wyoming sheep rancher Herman Werner, the Buffalo Flying Service, and Doyle Vaughan of Story, Wyoming, then manager of the flying service.

Late last month, Vaughan was fined $500 and placed on six months unsupervised probation after pleading guilty to killing 74 eagles and conspiring to kill eagles in Wyoming. He still must face charges in Colorado where he has pleaded guilty to conspiracy charges.

Vaughn had been charged, along with Herman Werner and the Buffalo Flying Service, in a total of 374 counts. They were accused of shooting 363 golden eagles, three bald eagles, and seven Canadian geese, and conspiring to kill eagles.

Federal District Court Judge Ewing T. Kerr said he decided that since Congress had made the crime a misdemeanor he did not think the court should "elevate it beyond what Congress has done." Vaughan could have been fined $37,500 and been sentenced to six months imprisonment on each of the 366 eagle killing counts.

In presenting his case to the court, U.S. Attorney for Wyoming Richard Thomas told the judge that he thought Vaughan was one of the most culpable defendants because he knowingly participated as both a gunner and helicopter pilot for profit. The government has charged that Herman Werner paid the Buffalo Flying Service a sum of $15,000 for so-called predator control.

Werner, meanwhile, has pleaded innocent to any of the 374 charges brought against him. The government says he conspired to kill eagles and that he was involved in the killing of 363 golden eagles, three bald eagles, and seven Canadian geese. The government alleges that the shootings took place over Werner's Bolton Ranch in December, 1970, and up until April, 1971.

No trial date has been set for Werner. His attorney, William Brown of Casper, is ill. But his attorney has filed motions to dismiss the charges, quash search warrants, and suppress evidence in a bill of particulars.

Air Dirtied

Albuquerque, New Mexico, has no dirty, polluting industry. But it has 350,000 commuting drivers who travel an estimated 4.5 million miles a day. And it therefore has an imminent air pollution problem. Last winter, the city had eight days of no wind and the makings of a crisis. This winter, officials fear there will be more air pollution alerts. And the city renowned for its clean air will be just another American city with an air pollution problem.

Road Rejected

Emotionalism was charged by an adult after spokesmen for a junior high school class spoke against a proposed canyon highway. Powell, Wyoming, junior high schoolers voted 112 to 16 against the Clarks Fork Canyon Highway in northwestern Wyoming. (See **High Country News**, October 27, 1971.) They then sent spokesmen to present their views.

The junior high schoolers were followed by spokesmen from the Powell High School who also spoke out against the canyon route.

The Powell Chamber of Commerce and the Park County Commissioners were the only two groups to speak in favor of the canyon route. The Cody Club (Chamber of Commerce) had earlier voted 148 to 48 for a highway route over the existing Dead Indian Hill road — and therefore against the canyon route.

Representatives of Montana Chambers of Commerce were unanimously against putting a new highway through the canyon. Environmental groups including the Wyoming Outdoor Coordinating Council, the Sierra Club, and the National Audubon Society were in accord in their opposition to the canyon route.

Briefly Noted . . .

Wyoming's Weston County Bicentennial Commission has recommended the establishment of a Prairie National Park. The park would be created from a segment of the 2,808 square miles of the Thunderbasin National Grasslands in northeastern Wyoming. The lands are now administered by the U. S. Forest Service.

* * *

Nevada's Paiute Indian Tribe won a significant victory in a suit with the Department of Interior's Bureau of Reclamation. A federal district court ordered that water diverted for a reclamation project be returned to the lake to maintain its present level. Water diversion from the Truckee River which feeds the lake has allowed the water level to drop 70 feet since 1906.

* * *

A report by a seven-man National Water Commission was roundly criticized by the National Water Resources Association. The Association directors denounced the report as being unrealistic, academic, and dictatorial. The report recommends that engineering, design and construction activities of the Bureau of Reclamation be phased out. The Commission, five of whose members were appointed by President Nixon, brought out the 1,100-page report after five years of study at a cost of $5 million.

* * *

A resolution by the county commissioners of Lincoln County, Nevada, asks for the repeal of the "Wild Horse Act." Grounds for the resolution were that: The wild horses do not contribute to the diversity of life forms of this nation, and the wild horse does not enrich the lives of the American people. Two of the commissioners are cattlemen. Spokesmen for the National Mustang Association call the resolution "shocking."

The clouds that gather round the setting sun
Do take a sober coloring from an eye
That hath kept watch o'er man's mortality.

WORDSWORTH: Intimations of Immortality

Reprinted from MICHIGAN-OUT-OF-DOORS, November, 1972.

Some Stress May Be Necessary

Humankind faces the stress of environmental decay and may lose its own evolutionary battle, said Michigan State University scientist while addressing the Virginia Education Association.

"It may be nature's way to achieve a steady population state," says Dr. Maynard M. Miller, MSU geologist and director of a quarter century of research on the Juneau Icefield in Alaska.

"As the population growth dilemma increases around the globe," said Dr. Miller, "and numbers multiply and hunger increases, the gross national product of many lands grows at but a fraction of the population pace."

Education suffers, he said.

"With lowered capabilities for economic strength, the growth of educational facilities must also substantially lessen," he pointed out.

The increasing illiteracy, he said, breeds frustration which leads to divisiveness, increasing suspicion, hostility and anger, with greater irrationality, violence and conflict.

We are faced with another trend, he told the Virginia educators, that of the "let George do it" pattern of living.

"Too often when the going gets tough," said Dr. Miller, "we allow ourselves to retreat into selfish niches. We are tempted, for personal protection, to close our eyes to stress on all sides.

"Under stress, others are tempted to develop a "doomsday apathy" equally dangerous.

"Under the pressure of our times, some have been tempted by a third option: the searching, vainly and frantically, for simplistic solutions — ones usually too simple, too neat, and too wrong!"

The right balance of stress helps creativity, he said.

"We should begin to work toward that personal kind of stamina under stress that makes us take ourselves less seriously," said the MSU scientist, "and our public citizenship and our professional jobs more seriously.

"We must gird ourselves with 'creative patience' that outwits frustration and does not let us be stampeded into the wrong set of answers in the face of crisis."

Dr. Miller cautioned that "the value of stress as a growth impetus fails when the stress level is so high it kills, as fully as it fails when so low that it leads to apathy and inaction."

The trick is to use the right amount of stress for the right amount of personal growth, he said.

"I call this creative stress," said Dr. Miller. "Martin Luther King understood it as 'creative tension.' Regardless of the semantics, it is essential for progressive evolution and we must learn to recognize it."

Thoughts from the Distaff Corner

By Marge Higley

With Thanksgiving here and Christmas soon to come, most people have an occasional sentimental feeling connected with memories of holidays long past. I experienced just such a nostalgic moment the other day. Indirectly, it may have come about by turkey thoughts, but directly and horribly, it was caused by the dismaying fact that my oven needs cleaning! (Of all the household chores I know, cleaning the oven is the one about which I can wax most unenthusiastic!)

My oven is an ordinary, middle-aged electric wall oven which just happened to come with the house. It has no fancy gadgets with which to turn itself on or off. I turn it on by setting a knob to the proper temperature. It has no fancy timer, either. It does have a buzzer with such a raucous voice that I drop, instantly, whatever I'm doing to hurriedly twist the dial back to the OFF position. It doesn't have fancy removable wall liners or door, to facilitate cleaning. And the very fanciest thing it doesn't have is the ability to clean itself!

Since reading the **Consumer Report** on oven cleaners (July, 1970) I hesitate to don face mask and rubber gloves, and open wide all the doors and windows; so when I deem it absolutely necessary, I use scouring pads, dull razor blades, and good old "elbow grease." Should I, perhaps, yield to the temptation of one of those shiny, expensive, power-consuming self cleaners?

By now, you must be wondering what all this has to do with my sudden feeling of Thanksgiving nostalgia — but I'm coming to that.

As a young wife I spent my winters in the southern part of the Red Desert. (Not to be confused with the hot sandy deserts of the great southwest. Where we lived, winters were cold and the snow was deep!) Our electricity consisted of a 32-volt "Windcharger" with paddles that turned when the wind blew, and stored up energy in a row of batteries lined up on a shelf in the shed. Needless to say, we didn't cook electrically! We used coal and wood for both cooking and heating.

After I got acquainted with it, I loved that old coal stove! It had only two drawbacks — hauling the coal into the house, and hauling the ashes out. Other than that, I can't think of any way that a modern stove can beat it. Admittedly, the heat was not as instantaneous, but on the other hand, it was continuous. If neighbors dropped in the coffee was ready, because it was always on the back of the stove. (The nearest neighbors were about 20 miles away — a trip that normally took about an hour, but during a winter storm or a spring thaw could take as long as three or four hours.) There's nothing that warms up chilled toes as satisfactorily as propping them up on an open oven door while sipping that good hot coffee! Nothing really unsanitary about that, either, for the coal stove had the original self-cleaning oven!

At night, we would "bank" the fire by closing the drafts and putting in a few largish-sized chunks of coal. In the morning, the drafts were opened, we'd give a quick shake of the grates, and add a few sticks of cedar kindling. Soon the griddle was hot enough for sourdough pancakes, and the house was warm and filled with the smell of fresh coffee and bacon.

Thanksgiving morning was different. The evening before, I would get the turkey ready by plucking the pinfeathers and filling the bird with stuffing. (I don't remember pin feathers lately — do they breed them differently now, I wonder?) The turkey was placed in the big oval-shaped blue enamel roaster with the high-domed lid, and put into the

(Continued on page 15)

Environmental Eavesdropper

LOONEY LIMERICKS

by Zane E. Cology

It still makes the news, now and then —
They've even named some of the men.
But those eagles are dead,
With a price on their head.
Just WHO'S going to pay WHAT — and WHEN?

* * *

A new international convention aimed at controlling the dumping of wastes at sea was agreed upon by 91 nations at a conference in London. The convention must now be ratified by the individual governments. The agreement lays down strict international controls for dumping any toxic or dangerous wastes.

* * *

The discharge of sewage into the Mediterranean Sea has created a crisis situation. Medical research shows that one in 10 people living along the Mediterranean coast-line had changes in their blood showing exposure to the hepatitis virus.

* * *

Visitors to the International Trade Fair in Plovdiv, Bulgaria last month saw an unusual and revealing display in the U.S. exhibit by the United States Information Agency — a slide-show illustrating the nation's pollution.

* * *

Japanese scientists have discovered two methods of making PCB, the dangerous chemical compound used in man-made plastics, harmless. Observers cite advantages and disadvantages to either method. Common merits include low cost, freedom from the danger of using radioactivity or the creation of any secondary pollutant, and the complete dechlorination of PCB. Since both methods require irradiation by ultraviolet rays from a mercury lamp, they share a common disadvantage if the PCB is colored. It must first be decolored to allow the penetration of ultraviolet rays.

* * *

Distaff . . .

oven after the fire was banked. We would awaken Thanksgiving morning to the wonderful aroma of turkey which had been slowly cooking throughout the night. When the fire was stirred up for morning, the bird browned beautifully, and by noon, when friends and relatives arrived, it was done to a "T."

Meanwhile, the top of the stove was no mere four-burner surface. There was room for several cooking pots, plus the ever present teakettle and coffee pot. Over and above all this was the warming oven — one of the most useful things ever invented by man! When the roaster came out of the oven it was placed toward the back (meaning the coolest) part of the stove (oh yes — there was still some room there!) and the rolls were popped in. Dressing, potatoes and vegetables were dished up and placed in the warming oven. By the time the gravy was made, the rolls were done, appetites were ravenous, and we were all ready to enjoy the feast!

No, I don't believe I want one of those new-fangled self-cleaning ovens. What I'd really like is an old-fangled coal burner!

Book Review

Man In The Landscape

By Paul Shepard

Reviewed by Judy Legerski

Paul Shepard, in his foreword to **Man In The Landscape**, states that "a primitive form of this book was accepted as a doctoral thesis at Yale University." The reader does not need Mr. Shepard's admission to reach this conclusion. **Man In The Landscape** exhibits the author's familiarity with the world of letters from the ancients through Schweitzer; the history of art and its subjects are also an integral part of the book. Shepard's book is often wordy, but always erudite — in the manner of an early 20th century history book.

Each of the seven chapters seem to be a complete entity — a separate essay which can live without any relationship to the rest of the book. It is in this manner that Chapter Three, "The Image of the Garden," makes the drudgery of portions of the book worth while. Mr. Shepard explains his belief that our present admiration for "scenery" and "nature" involves not only a spiritual relationship to the primative life from which we came, but also a practical debt to years of conditioning through paintings and literature.

What we have learned to see as natural beauty has definitely been determined by our conditioning, mainly the pastoral tradition of the Western arts. Except for hunting, pastoralism is the only life in nature that does not require arduous labor. "The main elements of the pastoral remain visible: freedom to discourse, think, make music, dance and make love." Pastoral scenes and gentle landscapes have long been favorite subjects of artists. Ergo, the term 'picturesque.' Shepard postulates that artists paint scenery, and we then accept this type of scenery as a standard for what is beautiful. Man has learned to fit nature into a "pretty as a picture" setting, seeing it through the artists' eyes, admiring that which the artist has taught us to admire.

Literature, too, affects our perception of natural beauty. Shepard quotes from Huzinga:

The pastoral genre was a school where a keener perception and a stronger affection towards nature was learned. . . . Out of the simple words of exultation at the joy caused by sunshine and shade, birds and flowers, the loving description of scenery and rural life gradually develops.

Man's view of nature is far more than mere perceptual images. It has been conditioned by centuries of art, literature, formalized gardens, religious belief, and survival necessities. Shepard explores these influences thoroughly. The few conclusions drawn in **Man In The Landscape** seem to be oversimplifications. Not all feeling of union with nature can be traced to our literary, artistic, and evolutionary heritage. The elements making up the development of man's perception of his environment are the focal point of the book, and there are many points well made. Perhaps it really is useful to be instructed as to the reasons we enjoy the wonders of Yellowstone Park. Perhaps it is simply an exercise in pedantry.

"..Noted & Quoted.."

"The lost regions of the West have been rediscovered by the other America — the industrial America. . . We have been more fortunate than wise. Geographic isolation, the peculiarities of economics, climatic conditions and other factors have combined to preserve much of the environmental quality of this region. . . We must (now) begin to develop a philosophy of Western states' rights. In considering the development of this region in the future, we must demand appropriate compensation for the wealth that is taken from the land. . . We must have plans adequate to assure that environmental degradation resulting from industrial development can be controlled and corrected."

Forrest Anderson
Out-going Governor of Montana

* * *

". . . the two worlds of man — the biosphere of his inheritance, the technosphere of his creation — are out of balance, indeed potentially in deep conflict. And man is in the middle. This is the hinge of history at which we stand, the door of the future opening on to a crisis more sudden, more global, more inescapable, and more bewildering than any ever encountered by the human species and one which will take decisive shape within the life span of children who are already born."

A definition of the environmental crisis from **Only One Earth: The Care and Maintenance of a Small Planet** by Barbara Ward and Rene Dubos, Norton Publishing Co. $6.

* * *

"The time has come to inquire seriously what will happen when our forests are gone, when the coal, the iron, the oil, and the gas are exhausted, when the soils shall have been still further impoverished and washed into the streams, polluting the rivers, denuding the fields, and obstructing navigation. . ."

Theodore Roosevelt
President of the United States
1908

* * *

THE WILD WORLD

Text and photos by Verne Huser

I'd tried to visit Arches National Monument once before, but in early April it wasn't open — or at least that's what the sign at the entrance station had said — so I drove on, seeing weird and colorful formations in the distance at sunset.

I had read Ed Abbey's **Desert Solitaire**, one of the bibles of the most ardent conservationists. And I wanted to visit the source — so to speak — of that great book, which I believe was conceived while Abbey was a seasonal park ranger in Arches. (He left because it became — for him — overdeveloped.)

So it was with mixed emotion that I first visited Arches National Park. (During the past year federal legislation has changed the status from monument to park.) My wife had been there before, once later in the season when it had been frightfully cold, and again in the heat of August, when it had been beastly.

We hit Arches at just the right time — mid-September when the nights were cool and pleasant and the days were warm without being hot. In the shade of the arches and spines of rock, it was pleasantly cool, but there was some heat to the sun overhead, blazing in a cloudless sky.

Driving from Salt Lake City after school, we arrived after dark, fascinated by the moonlit towers and spires. They loomed above us as we drove in the 18 miles to the campground on a road that Abbey had tried to thwart by pulling up the surveyer's stakes by the light of an earlier moon.

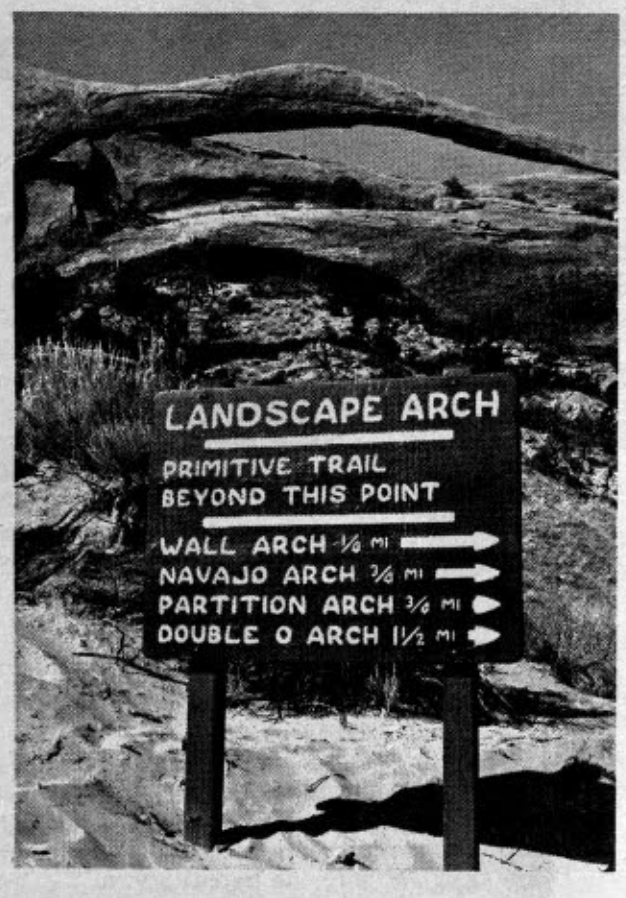
We found a site and settled in for the night with the moonlight reflecting off the bright metal of a dozen campers and trailers. The light from the nearby toilet facility shone brighter than the moon, and a radio from one of the trailers blared out the 10 pm news.

We did sleep, however, and awoke as dawn's rosy fingers slowly pushed night away to the west. We found ourselves in a wonderland of standing up country, too civilized in this little enclave but wild as the day of creation beyond the fringe of the campground. An arch less than a hundred yards behind our camp beckoned us to explore, but we had a bacon-and-egg breakfast before we responded.

The campground lies along a spur road, a branch off the one-way loop at the end of the road. The loop leads to a parking area at a trailhead for hikes into the desert where several arches lie in wait for the tourist (park visitor?). The lot was nearly full this Saturday morning as we launched our hike, carrying gorp, apples, oranges, and water plus the camera. Shadows were still long, and the morning was cool.

The trail led between two spines of beige sandstone, one in sunlight, the other in shadow. Late purple asters bloomed here and there, and subtle yellow flowers that I didn't know added their color to a pastel landscape of greys and greens, of yellows and browns. Juniper and pinion pine, mountain mahogany and rabbitbrush dominated the floral scene; chipmunks and groundsquirrels, scrub and pinion jays and a single jack rabbit were the only wildlife we saw.

Rounding a curve in the trail, we saw what almost seems to be an arch, but its planes and cracks blended into the background rock in such a manner as to give the appearance of half-arch, half-solid rock. Then we spied a double arch higher and to the right. This, we later learned, is called Partition Arch. And as we approached the enigmatic arch, it broke away from the wall behind and became Landscape Arch, a huge (nearly as long as a football field) thin (only six feet thick at one point) lovely arch. It occupied our interest and imagination for nearly an hour.



But the sun climbed higher and grew warmer. We moved on toward Double-O Arch, 2½ miles from the parking area, following dinosaur tracks painted on the rock and an occasional sign with an arrow to point out the route — offensive to some but certainly necessary to lead the masses of visitors, most of whom were over fifty, to the various arches. We found them useful ourselves, but still they grated.

Thus, we spent several hours, resting occasionally in the shade, eating an orange, taking a picture, exchanging a word with a passing couple, enjoying a vista, climbing a rock, and finding half-a-dozen major arches. (11-year-old David found a short-cut route from Partition down to the base of Landscape that saved us half-an-hour and gave us the best views of that spectacular arch.)

Driving into Moab to shop, we detoured down the Potash Road to see the ancient Indian petroglyphs along the Colorado River (and we stumbled into the rigging operation for a float trip down Cataract Canyon). Here we also saw unique Jughandle Arch and a real dinosaur track, perhaps the model for the painted tracks in the park.

Sunday we drove to the overlook for viewing Delicate Arch, then from another parking area, hiked to the arch, photographing it through a natural window and exploring its base, marred by hundreds of initials carved into the delicate rock. Paved paths also marred the rock but were probably justified to prevent erosion; human traffic had actually carved a path into the solid rock in places.

Heading home, we detoured to a Utah state park at Deadhorse Point overlooking Canyonlands National Park. And in the distance, we could see the confluence of the Green and the Colorado — another wild world that we have