

High Country

The Outdoor and Environmental Bi-Weekly News

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Lander, Wyoming

Friday, Apr. 14, 1972



Here at Lake DeSmet in Johnson County, Wyoming, is the site of a proposed \$2.2 billion uranium enrichment plant. Reynolds Metals Co., owner of the seven-mile-long lake and a 1-billion-ton coal deposit has asked the AEC for the go-

ahead on a gaseous diffusion plant. Wyoming Governor Stanley K. Hathaway has said the industrial complex would double the tax base for the state.

Huge New Complex Proposed

by Tom Bell

Reynolds Metals Co. has announced a proposal to build a uranium enrichment plant near Buffalo, Wyoming, costing between \$2.2 billion and \$2.5 billion. Under the proposal, a consortium of private firms headed by Reynolds would construct, own and operate the plant. Reynolds has submitted its proposal to the Atomic Energy Commission.

The proposal is to construct a giant plant with a capacity of 8.75 million "separative work units." Such units are measurements devised by the AEC to gauge nuclear fuel production. A large, nuclear power plant requires about 250 separative work units a year for its energy production.

Three government plants using the gaseous diffusion process now produce 17.1 million separative work units a year in this country. Projections of demands by private nuclear power plants anticipate a requirement of 33.6 million separative units yearly by 1985.

There is serious speculation that the Japanese government will enter the consortium. It has been negotiating around the world for uranium enrichment capabilities for its own growing nuclear energy plants. The Japanese government has recently approved construction of two atomic reactors to be built by 1977.

The uranium enrichment complex would require vast amounts of electric power. Reynolds has announced that under its proposal,

a 3,600-megawatt coal-fired, steam-generating plant would be built to supply the power. The fossil-fuel plant would use coal owned by Reynolds on its property near Lake DeSmet.

Reynolds would have access to 100,000-acre feet (33 billion gallons) of water per year. The company has acquired all water rights in Lake DeSmet, and the water rights of many ranchers in the Sheridan-Johnson County area. Lake DeSmet, which is about five miles in length and over a mile wide at its widest, is located between Sheridan and Buffalo.

Reynolds began acquiring land and water in the area nearly twenty years ago. The lands around Lake DeSmet are estimated to contain more than two billion tons of coal. Nine separate beds of coal underlie the area. The most important is the Healy bed, lying mostly on the north end of Lake DeSmet. A U. S. Geological Survey Circular (No. 228) says, "A concealed coalbed that averages more than 100 feet in thickness and locally may be as much as 200 feet thick underlies an area of at least 2-1/2 square miles west of a normal fault at the north end of Lake DeSmet. . . . The top of the coal is less than 100 feet below the surface in much of the area tested by drilling and thus the coal is minable by stripping methods." The coal is estimated to rank as a subbituminous C with a Btu per lb rating of 7,940 (as received), a sulfur content of 0.7, as ash content of 8.1, fixed carbon of 34.0, volatile matter of 30.1, and moisture content of 27

percent.

A 3,600-megawatt plant will burn in excess of 10 million tons of coal per year.

The company has announced that it would employ 5,000 people. Johnson County, in which the plant would be located, had a total 1970 population of 5,587. Buffalo, the county seat, had a population of 3,394. Sheridan County to the north had a 1970 population of 17,852. The city of Sheridan had 10,856.

Following the announcement, Wyoming Governor Stanley K. Hathaway announced that the plant investment would nearly double the tax base of the entire state. The governor said that such a development would reduce the need for a state income tax which has been under consideration.

Reynolds Co. has set a timetable of project completion "about 1978 or in any event before the end of the 1970's."

Governor Hathaway has indicated that because of the proposed plant and Wyoming's number one ranking in uranium mineral ores, he would ask for state regulatory powers on radiation.

Robert Sundin, Wyoming's air quality director, has also stated legislation will be proposed. He said Wyoming was the only state in the region lacking legislation as an "agreement state" with authority to control uranium operations. The AEC presently does so.

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HIGH COUNTRY

By Joan Bell

Announcements of proposed or impending industrial developments in Wyoming now follow regularly, one upon another. So it was that a big one was made March 29.

Reynolds Metals Co. announced a proposal to build a \$2.2 billion uranium enrichment complex near Lake DeSmet. It would be powered by a 3,600-megawatt coal-fired, steam-generating plant on site. It would make use of some two billion tons of strippable coal. And Reynolds would use its own 100,000 acre feet of water in a lake five miles long and some 200 feet deep at its deepest. Within days, the governor of Wyoming announced that such an industrial investment would nearly double the tax base of the state.

Many Wyomingites greeted the news with awe and incredulity. An investment and concentration of industry of such magnitude was almost beyond belief. Most of us knew that something big was inevitable. Nothing this big was conceivable.

But along with incredulity came the sinking feeling of dismay and futility. It was not at all like the editorializing done by one of Wyoming's biggest newspapers when it said, "All of Wyoming welcomes the prospect of this industrial giant."

Few could fathom the impact on the entire state beyond doubling the tax base. Many echoed the feelings of Congressman Teno Roncalio when he said the state would never be the same again.

Accepting reality for what it is, where do we go from here?

Wyoming has an opportunity few have ever had before. Except for several scattered ranch houses, the area around Lake DeSmet hasn't greatly changed since the Sioux harassed the garrison at Fort Phil Kearny.

Planning and the will to make this development a model for all the world to see are the keys. We will only get one chance. If we muff it, history will record only that this was the scene of two great disasters. The first occurred just over 100 years ago when Lt. Fetterman led his command into a Sioux ambush and got massacred. The second was when an equally unskilled and naive governor of Wyoming led his people down a primrose path marked Wyoming Quality Growth Plan.

Governor Stanley K. Hathaway should call the Legislature into extraordinary session. In view of the fact that the Reynolds announcement said it was hoped "the project could be completed about 1978 or in any event before the end of the 1970's," Wyoming doesn't have much time.

And of course this announcement comes on the heels of revelations concerning plans for several 10,000-megawatt steam-generating plants in the same area. Concurrently, plans must certainly be on the drawing boards for several huge coal-gasification plants. Taken altogether, the impact of construction, mining, and operation of plants could be disastrous.

Wyoming has no laws on the books which could prevent unplanned growth and development. The state has not taken the initiative in land use planning. It is still not too late. In recent months, the governor of Michigan appointed a special Commission on Land Use. Wyoming's governor could do the same. In the meantime, he could ask the Legislature to give him the tools to deal effectively with the influx of thousands of people and the inevitable 'fast-buck' developers. The fact that land values in Buffalo and Sheridan doubled overnight when the announcement was made should be a good indicator of what is in store.

Wyoming's small towns and the local county governments have no way of dealing with the serious problems of mass migrations into their area, as well as the impact of mammoth industrial development. According to Roy Peck, former head of the Department of Economic Planning and Development and now a state representative, he and the governor knew of the distinct possibility of such a development since August 30, 1969. The question could well be asked, why, as responsible state officials, they did not start pressing for adequate zoning and land use measures from that time on.

Wyoming's environmental legislation is a joke. Only the recently approved air quality regulations could conceivably be adequate, and that is questionable in view of the vast amounts of air pollution which Wyoming will suffer.

A special session of the Legislature should deal with comprehensive land use planning, a stringent mine-land reclamation act, upgraded air and water quality acts, including controls of radiation, and a separate state department of environmental protection to deal with all the problems of air, water and land.

There are other more special pieces of legislation which should be considered. These would include an additional severance tax on minerals to go into a permanent trust fund for state use when minerals are exhausted, and a tax on all electricity transported out-of-state to be used by the State for increased services demanded by industrialization.

Wyoming should seriously consider its own power plant and transmission line siting act. A state which will have more than its share of huge power plants, with most of the electricity going out-of-state, should be in a position to say something about where these facilities are located.

With proper planning, Wyoming could point with pride to a thoroughly modern city built as a satellite project to the huge plant at Lake DeSmet. The 3,600-megawatt power plant alone will produce enough waste heat to completely heat year-round a city of 150,000 people.



It has been a long winter. Even the gulls are glad to be back to the freshwater lakes which dot the Rocky Mountain West.

Letters To The Editor



Family Planning



UNITED STATES 8c

Editor:

Enclosing check for our renewal. It takes the courage of papers such as yours and the Colorado Magazine to tell it like it is. Through your efforts perhaps a part of our great West and the beautiful wildlife it supports can be saved from complete destruction. Keep up the wonderful work.

Mrs. Alvin Forshee
Hale, Michigan

Editor:

Thank you for your excellent coverage of the environmental situation. It is very cheering to know that you and others have the courage and ability to expose the big companies and politicians for what they are. I don't drive a car and as a result walk whenever possible. My husband and I try to save on lights, heat, power and send back into recycling anything which is accepted. We toured your state in July 1970 and loved it. My husband expects to retire next year, then who knows, we may return. Keep up the good work, thank you.

Best wishes,
Mrs. Myron Rossow
West Allis, Wisconsin.

High Country . . .

Columbia, Maryland, is a completely planned community. Wyoming, working in conjunction with Reynolds Metals and such outstanding planners as Ian McHarg, could do no less. Such a city would relieve the impossible situation of small towns such as Buffalo and Sheridan having to provide for the tremendous increase in population. The state could undoubtedly receive federal assistance in such a project.

A large city is not called for even by the standards of the planned project. So another alternative use of some of the waste heat would be the development of greenhouse complexes. Dr. E. J. Hoffman, coal-conversion scientist at the University of Wyoming, has proposed an integration of coal and energy conversion with agriculture.

What could be a source of monstrous environmental degradation-waste heat - could be used advantageously if only planning is done. Most experts now agree that an energy crisis does exist. We are running out of fuels to heat our homes. Why not use waste heat instead of allowing it to become thermal pollution?

Wyoming is facing a crisis of unknown proportions. We need leadership with guts, wisdom and foresight of the highest order. If the governor does not take the initiative, legislative leaders should. There is no time to waste. If we do not intend to allow another man-made disaster area to occur in northeastern Wyoming, we should be moving now. The choice is ours.

Editor:

Enclosed you will find our check for renewal of our subscription. We enjoy the paper very much and feel that by continuing our subscription we will be aiding in a small way to help ensure your survival. We have spent quite a bit of time in your state on our travels but have never had the opportunity to visit your city. We above all do not wish to see the West destroyed by big business. Would appreciate more articles for the "Rock Hounds" when you can find space available. Keep up the good work.

Yours very truly,
Joel M. Benson
Madison, Wis. 53716

Critic of Air

In testimony submitted to the Air Pollution Control Agency for the hearing on Wyoming's proposed Air Quality Implementation Plan, State Representative John F. Turner of Teton County has called for a State Power Policy for Wyoming.

Considering the tremendous development potential of energy production for Wyoming, Turner believes that such a policy "would prove most beneficial to the state's present and future citizenry in consideration of the pending demands which are soon to be placed on Wyoming's air, water and land resources, as well as its social and economic framework." As an example, facts were presented on the ambitious power plant development in the Powder River Basin. He stated that it would seem appropriate for the Air Resources Council, the

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EDITOR	Thomas A. Bell
OFFICE MANAGER	Mary Margaret Davis
CIRCULATION MANAGER	Marjorie Higley
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Guest Editorials



Reprinted from the MAINE TIMES, March 24, 1972.

A Shattering Experience

by John N. Cole, Editor

If you agree that continuation of the growth principle and growth economics may do the world in, as a clutch of notable scientists and environmentalists argue it will, then a plane trip from New York to Boston on a clear day can be a shattering and educational experience. We are currently being told, by books, newspapers, television, et al, that the world life support system will be consumed unless the industrial nations of the globe, especially the United States, slow down the use of non-renewable resources - metals, coal, oil, etc. - and slow down population growth. It is a telling philosophy and a frightening warning, especially if you have young children and realize that children born within the past several years won't live much beyond 40 if the scientists are correct.

There are many voices who argue precisely the opposite. Even since the first flood of negative predictions about continued growth, opposing views have been presented by equally upset and qualified spokesmen. Some of you, we're certain, will be here in 2000 to learn who is right; but all of you probably agree that conditions in 1972 do not give cause for undue optimism. If indeed the Earth is finite, if there is a limit to its size, resources, mass, etc., as we know there is, and if an ever increasing amount of that whole is being used to keep the balance alive, then there must come a time when the last piece of pie disappears. As we have said before, this is plain mathematical logic.

If you accept the premise, you also accept the notion that current growth must be slowed, that humans must attain a more stable, balanced-growth "post-industrial" society. We've been talking about that so much lately, we're certain you know the argument. And it's an easy argument to make in Maine, where almost everyone also agrees that growth is not necessarily a good thing. Indeed, if some means can be evolved for making a living in Maine without growth, then the majority would be overwhelmingly for it. Maine seems so close

to that kind of system already that it becomes realistic to think it might be worked out, for real, in a Maine post-industrial community.

But one flight from New York to Boston on a clear day will upset any optimism and end all easy assumptions. No one, but no one, is going to be able to make that megalopolis stop growing by the year 2,000. There is too much momentum. A Maine person who has never seen Manhattan from the air could be excused for believing a post-industrial society could be possible elsewhere as well as in Maine. It may be true that non-growth could be compassionately and cooperatively achieved in this state; but it is definitely impractical to think the way of life could spread very far beyond Maine's borders.

From 10 thousand feet over LaGuardia Airport on a clear day, an Astro-Jet passenger can see the homes of more than 20 million souls - and that's 20 times the Maine population. Those 20 million have been incredibly busy. They have moved the earth, diverted oceans, spanned rivers, created lakes, built endless highways everywhere, put buildings tens of hundreds of feet in the air, and jammed eight million individuals into a space less than the town of Auburn, Maine. And the shocking thing to realize when you look down at the myriad of incredible structures is that almost none of them was there 72 years ago.

Almost every building, every house, every dock, every bridge, every wharf, every refinery, every skyscraper, every super-highway, every hospital, every airport, every swimming pool, every golf course, every race track, every movie theater, every railroad, every power station, every garbage dump, every lumber yard, every filling station, every factory, every warehouse, every bank, every Dairy Queen, MacDonald's, Ho-Jo's and Lum's that serves those 20 million busy little people wasn't there when your grandparents (if they're in their 70's) were born. Think about that; and think about what a short time 72 years is in the life of this Earth, and then look down from 10,000 feet over LaGuardia and



try and realize what's been done in that short time. It's enough to raise the hackles on anyone's neck, even if you've never been concerned about a no-growth economy or a post-industrial age.

And the building and changing and moving continue at a faster and faster pace. The signs are everywhere: scars in the earth, new roads reaching, lumber piled high in yards, steel beams stacked by the waterfront, barges laden with coal, new automobiles waiting like piles of colored candy in asphalt deserts by the piers . . . to think about slowing that avalanche of growth is to think about stopping a rock slide with a whisk broom. It reminds an observer of the two aging club members looking over passing pedestrians from their comfortable armchairs at the club's front windows. As a young woman walks by, one fellow turns to other and says: "Well, Arthur, skirts are going down; and I don't think they'll go up again in our time."

Just over the Maine border, growth is going on at such an incredible pace that we don't think any of us will see it slowed in our time. And that growth is edging closer and closer to Maine - all of which leaves us with a rather desperate desire to find an alternate solution for this state, even though we are under no illusions about how difficult that may be. One look at what's happened so quickly just a few miles to the southwest and most people would tell you Maine doesn't have much of a chance.

Reprinted from THE IDAHO STATESMAN, April 6, 1972

No Mining In The White Clouds

Idaho's White Clouds mountain area would be ruined for recreation by an open pit molybdenum mine, says a draft statement of a Department of Interior study.

The conclusion confirms what opponents of the mine have been saying ever since American Smelting and Refining Company's proposed mining operation became public knowledge.

An open pit mine more than a mile long at the base of the dominant scenic feature in the area, Castle Peak, with miles of tailing ponds behind big dams in the Little Boulder Creek valley, would be an immense, ugly intrusion.

This is low grade ore. More than 99 per cent of the material taken from the open pit would be waste, piled up in tailing ponds reaching for miles down the valley.

The report points out the threat of pollution of the East Fork of the Salmon River, an important salmon spawning stream. It notes pollution from a similar mining operation in Colorado.

"Information so far available indicates mining could cause the total loss of the primitive-type conditions, along with severe adverse effects on anadromous and resident fish, wildlife, aesthetics, recreation and water of excellent quality."

Since a molybdenum mine would ruin one of Idaho's most beautiful areas, there is no necessity for it. The report points out that molybdenum supplies are presently abundant and suggests that future needs should be met elsewhere.

So long as the country's needs can be met from areas of less scenic and recreational quality than this one, why should it be sacrificed?

Aside from what mining operations would do to the area, there are other important reasons they should not be permitted. Public opinion in Idaho is strongly against it. The people are awakening to the fact that they don't have to surrender their best scenic and recreation area. They can resist further destruction of fish and game habitat.

If the White Clouds area is not worth saving, then few areas in Idaho or the U. S. are worth

saving. If it is worth saving - and it is - then federal agencies should see that it is protected.

This study is a reminder that mining interests haven't changed their intentions to mine the White Clouds. They have a foot in the door because of the outdated provisions of the mining laws.

A Sawtooth National Recreation Area bill passed by the House includes the White Clouds area. It does not provide the protection from mining the area needs. An effort will be made to strengthen it in the Senate.

The mining industry is important to the nation. But it runs into public opposition when it insists on a "mine anywhere" philosophy that takes in the most scenic and fragile areas - particularly when there are other abundant sources of the mineral in question.

As the wealthiest nation in the world, the U. S. can afford to preserve and protect its best scenic and recreation areas for this and future generations.

The report concludes that the long-term value

of the area for recreation exceeds the short-term value for mining. It is interesting that the number of visitors in the area doubled in 1971 over 1970, to 4,700. Areas like this one, with its scenic mountains, numerous clear lakes and quality fishing, face increasing public demand. They are not in surplus. Molybdenum is.

This is an encouraging report because it faces the issues squarely. It doesn't accept any flim-flamery about possibilities of protecting the area while carrying on a gigantic open pit operation. It says that mining should not be allowed until pending studies are completed.

Those studies are likely to add further weight to the obvious case against mining in the White Clouds. Federal agencies and elected officials should be working toward a goal of complete protection for this area.

That is the key question. A danger remains that the area will be lost to mining despite the overriding case against it and strong public opposition.

The Cost Is To Care

by Walter J. Hickel

ANCHORAGE, Alaska - There are those in business who say we cannot afford to care. These are the ones who, knowingly or unknowingly, would destroy both the environment and business itself.

Take the whaling industry. If current whaling practices are continued, that industry will soon be as extinct as the animals it exploits.

Or pay a visit to the Houston Ship Channel. The very same industries which turned it into an open sewer are moving away. It is such a stinking mess they can no longer use it.

In the long run, it costs industry more to disregard the needs of the environment than to protect it. Caring for the land, air and water is a part of the cost of doing business. It's that simple.

How does this become standard practice

nationwide? It takes a federal government which really cares. It's so easy to create artificial agencies for artificial reasons. It's so easy to say this can be solved at the local level.

The first is a deception. The second is a copout.

The new Environmental Protection Agency cannot act with any more authority than the intentions and motives behind the act which created it.

Any agency which is set up to "police" the environment is an artificial agency unless it also guides resource development. Once the crimes are committed, what are the penalties? If a mountainside is desecrated by strip mining, will a monetary fine reclaim that area? Will a slap on the wrist, after the fact, restore a forest which has been wrongly clear-cut? Protection and

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The Environmental Effects of Nuclear Power

This is the concluding article of a series of four by nuclear scientist Pete Henault of Idaho Falls, Idaho. The author's views are his own and are not to be construed as reflecting those of his employer.

Henault's series on The Environmental Effects of Nuclear Power first appeared in The Intermountain Observer, Boise, Idaho. They have appeared here through the courtesy of the author and Observer Editor Sam Day. High Country News wishes to express its gratitude to both.

Shortly after the series ended in the Observer, Senator Bob Packwood of Oregon placed the four articles in the Congressional Record. Interest in the series was such that the Observer published a reprint.

Senator Stuart Symington, in a letter to The Intermountain Observer, said: As a member of the Joint Committee on Atomic Energy, I can say without reservation that they are the best articles on this subject that have come to my attention.

by Pete Henault

The liquid-metal fast-breeder reactor, or LMFBR, is really not very different from any other nuclear reactor. It is a fission reactor, like all other nuclear reactors in the country today, deriving its power from the heat of the split atom and using the heat to produce steam which drives a turbogenerator. It does, however, have several important differences.

The term "liquid metal" refers to the fact that a liquid metal, like mercury, is used as the primary reactor coolant. The primary coolant is simply the fluid which passes through the reactor and enables the heat of fission to be collected and transferred to the boiler where the steam is produced. Some reactors in use today are gas-cooled but most are light-water, thermal reactors meaning that ordinary water is used as the primary coolant. Use of a liquid metal, usually sodium which is molten above 208 degrees F. and weighs about as much as water, makes it possible to operate the reactor at a much higher temperature, thereby improving the thermal efficiency of the whole system.

The term "fast" implies nothing about the speed of the reactor but rather refers to the fact that it operates on fast, high-energy neutrons rather than slow, or thermal, neutrons. (Hence fast reactor as opposed to thermal reactor.) Neutrons, remember, are one of the subatomic particles that make up all atoms and keep the fission process going by bombarding and breaking up the heavy uranium and plutonium atoms.

The use of fast neutrons makes it possible for "breeding" to take place.

The only fissionable material occurring in nature is uranium-235, the lighter of the two uranium metals. Uranium-238 makes up 993 out of every one thousand naturally-occurring uranium atoms and is not a fissionable material. Nearly all reactors today use uranium enriched in the lighter, uranium-235 component. The enrichment process requires vast amounts of energy and leaves a lot of waste. It is not very different from using only a rare species of some tree, and only in a certain size, to fuel a wood fire. Obviously, it is not a very efficient way to use uranium, and nuclear engineers, and scientists have long been searching for a way to use the more plentiful uranium-238.

As nature would have it, uranium-238, when bombarded with fast neutrons, undergoes a nuclear change and eventually decays to plutonium, a fissionable material which does not occur naturally. By putting a "blanket" of uranium-238 around a "core" of uranium-235 fuel, enough fissionable plutonium can be recovered from the blanket (over a period of about 20 years) to more than replace the original uranium-235 fuel. Technologists refer to this process as "breeding" and widely publicize the fact that "a breeder reactor can produce more fuel than it consumes."

No one can deny that the fast breeder reactor is one of man's most ingenious developments. It eliminates the need to use large amounts of energy to concentrate the rare uranium-235, it eliminates the wasting of more than 99% of all naturally-occurring uranium, and it extends the potential lifetime for nuclear reactors as a source of energy from about 300 years to about 30,000 years.

The fast breeder has a number of environmental advantages, too—advantages which many environmentalists have not been recognizing. Allowing more efficient use of the natural resource is of course one. Another important advantage is the higher operating

temperature made possible by the liquid-metal coolant. This results in a much higher operating efficiency for the whole plant, as high as today's conventional, fossil-fuel plants, and thereby reduces thermal pollution greatly. Still another advantage is the fact that the release of radioactive effluents is much more easily controlled. President Nixon, in fact, has directed the AEC to design fast reactors such that no radioactive effluents will be emitted and steps have already been taken to reduce such effluents from experimental breeder reactors to zero.

But the always-pessimistic environmentalists are looking at the bad points of the LMFBR rather than the much-publicized good points. As usual, they are about the only ones that are. And while Congressman Hosmer, the power companies, and many other nuclear power enthusiasts, prefer to write them off as "extremists", "disaster merchants", and "soothsayers of doom", this fast-reactor technologist finds a lot of justification for their pessimism!

Plutonium, remember, is the extremely hazardous material that collects in the bones, causing cancer, leukemia, and half-a-dozen other diseases, and takes hundreds of thousands of years to decay. If this plutonium is not contained and kept away from man and his life processes, it could make Earth uninhabitable. If we follow the course that President Nixon has set for us, we can expect, in 30 years or so, to be producing thousands of tons of plutonium annually.



Photo credit Argonne National Laboratory

Experimental Breeder Reactor Number 2 is the nation's only operational fast breeder reactor. Located on the plains of southern Idaho near Arco, it produces only about one-fiftieth of the power which will be produced at the demonstration plant soon to be built in Tennessee. This is the prototype of the fast breeder reactors discussed by Henault.

Can we contain all this plutonium and keep it away from man's environment for half a million years? We've never done anything like it before, of course. The Pharaohs did a pretty good job with their pyramids, keeping things out of man's reach for 25 centuries or so. We've done a pretty good job of containing our gold at Fort Knox for 100 years or so. And we've done a pretty good job for the last 30 years of keeping our weapons, some of which are just as harmful as the plutonium from nuclear reactors, from adversely affecting the environment. But half a million years is a lot longer than 30 or 100 years or 25 centuries.

One way in which some of this plutonium might escape into our living environment is through the consequences of a major nuclear reactor accident.

No one knows how severe the consequences could be because we do not yet know what the worst possible accident is. A number of irresponsible journalists and nuclear-power critics have given the impression that a nuclear reactor can explode like an atomic bomb but this is impossible. A nuclear reactor cannot explode because the fuel is too dilute, just as dynamite or gunpowder, if we mixed it with the right amount

of sand, might burn but would be too dilute to explode.

The question of what the worst possible nuclear reactor accident might be has been studied and researched since before the first experimental reactor was conceived on a drawing board. The AEC has probably spent more effort on this aspect, trying to determine the ultimate consequences, and designing reactors to prevent such accidents, than any other government agency has ever spent on any other concern relating to public safety.

Some scientists think the worst possible accident would be one in which the reactor temperature increases rapidly and uncontrollably, causing the primary coolant, possibly even the fuel itself, to boil, flash to vapor, and eventually make the reactor blow itself apart much as a pressure cooker might blow apart if it becomes too hot. If this thermal "explosion" was great enough to eject fuel components through the structure of the building which contained the reactor, the surrounding area would be contaminated and people in the area might be killed.

Whatever the worst possible nuclear reactor accident is, this environmental writer does not believe it belongs in a discussion on the environmental aspects of nuclear power.

The probability of such accidents happening is so low, or can be made so low, that they will only happen very infrequently. Infrequent reactor accidents, and we believe they can be kept to one serious accident every 100 years or so, are not going to alter our environment or

adversely affect our ecosystem.

When we discuss the environmental effects of automobiles, we do not discuss the 50,000 lives that are lost annually. When we discuss the environmental effects of airplanes, we do not concern ourselves with the threat of two Boeing 747's colliding over the Rose Bowl during half-time on New Year's Day. The risk is there, of course, but we look at it as a safety problem rather than an environmental problem and we try to reduce the risk as much as technology will allow us, and then we accept it as a way of life.

We may be wrong, of course; the serious accidents could happen every year or two. If this occurs, then the plutonium and radioactivity leaking to the environment would create an ecological problem. But based on what we know, we just don't think this is a real threat. Many critics of nuclear power do not agree with us.

There are other more probable ways by which plutonium might escape and contaminate our environment. If the time comes when our electrical power comes mainly from the LMFBR, we will have thousands of shipments of plutonium in transit at any one time, hundreds of thousands of shipments each year. With so much

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Part 4: The Fast Breeder - Least of the Evils?

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plutonium in transit and in inventory, can we be sure that there will be an acceptable low number of accidents in which plutonium is permanently lost?

And what about the possibility of diversion by criminal or alien forces? Although plutonium for reactors is too dilute to explode, it can be concentrated and used to make bombs and we therefore have to face the possibility that some unfriendly party will be willing to pay a high price to gain access to it. Can we prevent all this material from getting into irresponsible hands?

We are a pretty responsible nation and it is likely that we can do a pretty good job of preventing plutonium from contaminating the environment. But if we develop the fast breeder, other nations will follow suit. Can we expect them to be as concerned about the environment as we are?

Another aspect of the fast breeder that we might be concerned about is the effect on radioactive waste. We already know that the permanent storage of nuclear reactor waste is a serious environmental problem. Will the fast breeder make the problem worse?

In a sense, yes. A good deal of the very-long-lived waste consists of plutonium not completely removed during the fuel reprocessing stage. But the used fuel from water reactors contains only the tiniest fraction of plutonium. Used fuel from the breeder will be primarily plutonium and so the waste after reprocessing is bound to have a much greater percentage of plutonium. Whether or not this makes the breeder "worse" environmentally, depends on how well we contain the waste and permanently isolate it from the ecosystem. If we contain it all, then it is no worse. If we only contain some high percentage, then indeed, the fast breeder may be a greater environmental threat in this respect.

The Four Corners plant is one of America's larger power plants -- 2,075,000 kilowatts -- more than all the power being generated by Idaho's dams. It is a lot of power from a single plant and it is only one of several new plants in the area either already in operation or under contract. There are the Mojave plant near Bullhead City, Arizona, and the Navajo plant near Page, Arizona. There is the San Juan plant in New Mexico. There are the Huntington Canyon and Kaiparowitz plants in Utah.

The Four Corners plant is near Fruitland, New Mexico, and is the first of six plants to be completed in the Four Corners region, that part of the United States where Colorado, Utah, New Mexico, and Arizona all come together at a single point. When the last plant goes into operation in 1977 the six plants will have a total generating capacity of about 14,000,000 kilowatts, about 40 times the capacity of Hells Canyon Dam. By 1985 the plan calls for increasing the capacity to 36,000,000 kilowatts. That's about 100 times the capacity of Hells Canyon Dam.

The radioactivity released from each of these plants will probably meet the AEC standards but, biologically, the harmful effects will be greater than the radioactivity coming from most of today's nuclear plants.

The water needed to cool these plants is staggering: 34,000 acre feet per year for the Four Corners plant alone; 225,000 acre feet per year for the whole complex.

But the valuable southwest water used to cool these plants is only a fraction of the total environmental impact of these six monstrous power plants and the radioactivity released to the environment is only a small footnote at the bottom of a long list. For these six plants are not nuclear plants but conventional, coal-fired plants. From this writer's viewpoint, they are the most environmentally devastating electrical-generating nightmares ever created by man.

The Four Corners plant alone consumes 22,000 tons of coal per day, the equivalent weight of nearly 1,000 Volkswagens every hour. Unlike nuclear plants, the fuel that goes into a coal-fired plant must come right back out. At the Four Corners plant, it comes out as 320 tons of fly ash, 385 tons of acid producing SO₂, and about 200 tons of nitrogen oxides every day.

The radioactivity released consists of naturally occurring radon gas normally locked in the tons of coal burned every minute. It is very small in quantity, but because the biological effects of radon are much more harmful than the effects from gases of the type released from a nuclear plant, the health hazard is about comparable to a nuclear plant with the same generating capacity. The Four Corners plant is more than twice as large as today's largest nuclear plants.

Altogether the six plants will bring a profound environmental change for the worse to more



Photo by Lee Turpin

The fight is on to preserve the crystalline air clarity of southern Utah and nearby Four Corners areas. Several massive coal-burning power plants are now being planned or built in this region. Three will be near lovely Lake Powell. One of these is now under construction not far beyond the high butte in the far center of this photo. Together, these plants threaten to completely drown Lake Powell and the Four Corners region in a dark pall of smoke and fumes, especially in the dead calm, virtually windless months of September through February. Then, vistas like this will vanish.

than 100,000 square miles of our land in the southwest -- our land now advertised by the tourist industry as the Enchanted Wilderness of the Colorado Plateau. The air, water and landscape will be affected, as well the environmental quality of six national parks, 28 national monuments, 2 national recreation areas, scores of national historic landmarks and state parks, and 39 Indian reservations.

Already the blanket of dirty brown smoke spewing forth continuously, every day, from the Four Corners plant contains more particulate matter than is let loose by all the stationary sources of air pollution in New York and Los Angeles combined. At times the pollution hangs over an area of 10,000 square miles, creating an ugly, smoky haze over the Rio Grande Valley and reaching as far away as Santa Fe and Albuquerque. At other times a thick, filthy plume extends like a wall across the multi-colored desert for 150 miles. This writer had an occasion to see the Four Corners plant recently, with its tons of smoke obscuring the mesas outlined against a setting sun. It was a very depressing sight.

None of this pollution is good for man, of course, nor his animals, nor his soil, nor the intangible things in his life. A number of recent studies, including one by the National Air Pollution Control Administration, provide evidence that a dangerous health situation and damage to vegetation are already facts of life in the area.

To fuel these monstrous plants the power companies are strip-mining coal from the surrounding Indian reservations and from anywhere else they happen to find it. Much of it will come from Black Mesa, a magnificent 3,000 square mile "island in the sky" in northeastern Arizona. The mesa, rising 1500 feet above the surrounding Navajo Indian countryside, is an arid place, like all the region, and water is a precious commodity. Springs and wells scattered on the mesa top are carefully used by the Hopis to tend their corn and bean fields and by the Navajo who graze sheep and cattle in the north.

The rims of the mesa are black with juniper and pinon. To the Hopi and Navajo it is a sacred land of shrines and spirits where man comes close to unity with nature and the supernatural. It is an awesome and timeless region of solitude, wonder, and beauty not experienced in man's more populated areas. Black Mesa, to the Indians, is their Life.

"If the mountains are damaged," traditionalist Navajo leaders warn, "the Navajo Way will be doomed."

The power companies, caring more about profits than ancient Indian ways, have moved in and, with the help of the Interior Department

Coal-fired electric generating plants in the Southwest will bring profound environmental changes to the many national parks, monuments, and recreation areas in four states.

The National Parks are Grand Canyon and Petrified Forest in Arizona; Zion, Bryce Canyon, and Canyonlands in Utah; and Mesa Verde in Colorado. The National Monuments affected are Grand Canyon, Marble Canyon, Canyon de Chelly, Navajo, Wupatki, Pipe Spring, Sunset Crater, Walnut Canyon, Tuzigoot, and Montezuma Castle, all in Arizona; Aztec Ruins, Chaco Canyon, El Morro, Bandelier, and Pecos, all in New Mexico; Rainbow Bridge, Arches, Natural Bridges, Capitol Reef, Cedar Breaks, and Timpanogos Cave, all in Utah; Hovenweep, in Utah and Colorado; Black Canyon of the Gunnison, Great Sand Dunes, Colorado, and Yucca House, all in Colorado; Joshua Tree in California; and Lehman Caves in Nevada. The National Recreation Areas are Lake Mead in Arizona and Nevada, and Glen Canyon in Utah.

and Bureau of Indian Affairs, have convinced the tribal councils to lease their lands for strip mining. Sixty-five thousand acres on the mesa top have already been leased to get at the hundreds of millions of tons of bituminous coal lying in seams up to 8 feet thick near the surface and perhaps up to 65 feet thick a little lower down. With giant drag line and huge buckets that scoop up overburden, piling it in towering ridges of dirt and rocks beside the gaping trenches, and then the coal itself, the power companies will obtain their coal for the Mojave plant 275 miles away -- ten tons of coal every minute, five million tons every year.

To get all this coal to the Mojave plant, located on the Colorado river near Boulder Dam where the power companies can find enough water to cool the plant's condensers and then distribute the power via the already-built transmission routes, the coal is pulverized, mixed with water, and then pumped as a slurry through an 18-inch underground pipeline across Black Mesa and across northern Arizona. The water to make the slurry comes from wells more than 2,000 feet deep in the mesa. It is removed from the Navajo's and Hopi's underground water table, a source which has taken ages upon ages to build up, at the rate of 2,000 to 4,500 gallons per minute. The Hopis are not just a little bit worried about what may happen if the springs

(Continued on page 6)

Part 4: The Fast Breeder...

and wells begin to dry up because of all the water being removed for the coal. If the Hopi cannot grow their corn and beans, they will have to leave their present villages and all that is Hopi will cease for the spiritual base of their existence would disappear.

The Hopis are among the oldest people in the Southwest and they have lived on Black Mesa for centuries, long before the Navajo migrated from the Northwest. For their coal, they will receive about 25 cents a ton, for their water, \$1.67 per acre foot. The Navajos, newcomers who have only lived on the mesa for 500 years, did a little better, about \$1 per ton and \$5 per acre foot.

There are many other environmental impacts of the coal-fired conventional plants in the Four Corners region -- from the homes that must be moved to make way for the strip mines to the transmission lines that will string like nets across sacred Indian lands -- but they are too numerous to list here.

It is easy to speak of the bad points of something or the good points. It is not so easy to put all the good and bad into their proper perspective.

Are nuclear plants bad for the environment? We don't think the Hopi would say so.

We have been discussing these past few weeks the environmental bad points of nuclear power as we see them today and even some of the faults of the AEC which oversees the development of nuclear power. But we have been presenting a very one-sided story. And we have been discussing the bad that is, not necessarily the bad that has to be.

We aren't going to present the good side -- the power companies, the AEC, the Congressional Committee on Atomic Energy, the nuclear industry, the chambers of commerce, and a lot of others are doing that.

But there is a good side and anyone who accepts the privilege, or right, to voice a judgment for the public, or even for himself if he is going to use it to make a choice in the ballot box, should accept also the responsibility of looking into that good side. Too many critics of nuclear power have not accepted that responsibility.

On the other hand, we have seen far fewer proponents of nuclear power accept the responsibility of looking into the bad side before

they offer all sorts of judgments for the public's benefit.

But apart from the good and bad, and their relation to other goods and bads, there are a whole realm of other questions we ought to be concerned about.

Do you really need all that power? Does more power necessarily mean a higher standard of living? Higher for whom? The power company executives? Us? The Hopi? What is a higher standard of living anyway? Is the bad that we see an inherent fault of the technology or a fault of the men that control the technology?

If we really do need all that power (and incidentally, the answer to that question is that we do not), are the options that the power companies are presenting to us the only options?

At the beginning of this series, we asked a number of questions. Although they are only a few of the hundreds of questions we all ought to be wondering about, as our leaders manipulate and mold our destiny, we think a few answers are in order.

"Is the LMFBR a hazard and is its development premature as FOE (Friends of the Earth) claims?" Yes, it is a hazard but its development is not premature. The first reactor ever to produce electricity, remember, was a fast breeder reactor. The breeder has been studied and researched exhaustively during the past 20 years.

"Is it an undeniable fact that the U. S. is running out of power as Congressman Hosmer claims and would it be 'suicidal' for the nation not to develop the fast breeder?" No, it is not an "undeniable fact" and, in fact, this writer is among the many who deny it. And it would, of course, not be suicidal for the nation to abandon the fast breeder. Congressman Hosmer is apparently one of the irresponsible critics who makes all sorts of judgments for the public without wondering about the bad side.

"Is the breeder really our 'best hope' for 'economic clean energy' as the President has claimed?" Yes, if we are talking about the next 30 years, and if we are willing to accept the risk of producing all the poisonous, radioactive

waste which may make Earth uninhabitable in a thousand or ten thousand years, then President Nixon is right. The alternatives which promise to provide so-called "clean" energy (they include solar power and fusion power) cannot be developed as soon as the LMFBR. Our own guess is that 30 years, even if we spend the money we ought to be spending, is a reasonable time in which to expect good usable alternatives.

Producing radioactivity in a nuclear power plant, whether we think of the plutonium for other power plants or the plutonium for bombs, or whether we think of all the fission products and waste that must be "disposed" of, is an awesome responsibility. It raises a long list of social implications that this writer is not willing to pass judgment on. Debating whether or not we should produce the radioactivity in a fast breeder reactor or a thermal water reactor is really not very significant in comparison.

We know we can do a lot of good for mankind, today, by producing the radioactivity while at the same time we are creating the risk of making Earth uninhabitable for future mankind. We must remember, though, that it is only a risk and not a certainty, and that we may anyway be already making Earth uninhabitable by some other means.

We know also that a very few technologists and profiteers are making nearly all the decisions today. Thanks to a few environmentalists who are beginning to ask some questions we all should have been asking, questions which might not always be too valid or politely asked, but nevertheless should be asked, there might yet be a chance for us all to participate in making the decisions. And maybe if enough of us, with all our different insights, have an input to those decisions, we may even make the right decision.

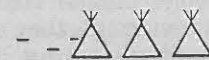
"..Noted & Quoted.."

Our best hope today for meeting the Nation's growing demand for economical clean energy lies with the fast breeder reactor. Because of its highly efficient use of nuclear fuel, the breeder reactor could extend the life of our natural uranium fuel supply from decades to centuries, with far less impact on the environment than the power plants which are operating today.

President Richard M. Nixon
Special Message to the Congress on Clean Energy
June 4, 1971

If we think ahead realistically to the economic and environmental conditions that face us in the decades ahead, the breeder takes on a new significance. It becomes far more than a technology designed to provide incremental improvements in our social and economic system. In a world of natural resources being rapidly depleted and degraded, of an environment perhaps being irreversibly stressed and of societies committed to raise the quality of life of their peoples, such an energy system could perhaps be a key to ultimate survival.

Commissioner William O. Doub
U. S. Atomic Energy Commission
At the 20th Anniversary of Nuclear Power
Idaho Falls, Idaho
December 13, 1971



Roads to Open

Glacier National Park officials have set tentative opening dates for park roads. Some of the target dates are a week later than last year because of heavy snow packs.

William J. Briggie, Superintendent of the park, said, "If we do not have weather or equipment problems, all the roads in the park will be open by June 9."

Tentative opening dates on the east side of the park are: Two Medicine, May 26; Many Glacier, May 13; and Chief Mountain, May 15. On the west side, the North Fork Road is scheduled to open May 26.

The Going-to-the-Sun Road on the west side will be open as far as Avalanche Creek April 29, and to the Loop by May 6. On the east side, the Road is scheduled for opening to Rising Sun by May 13.

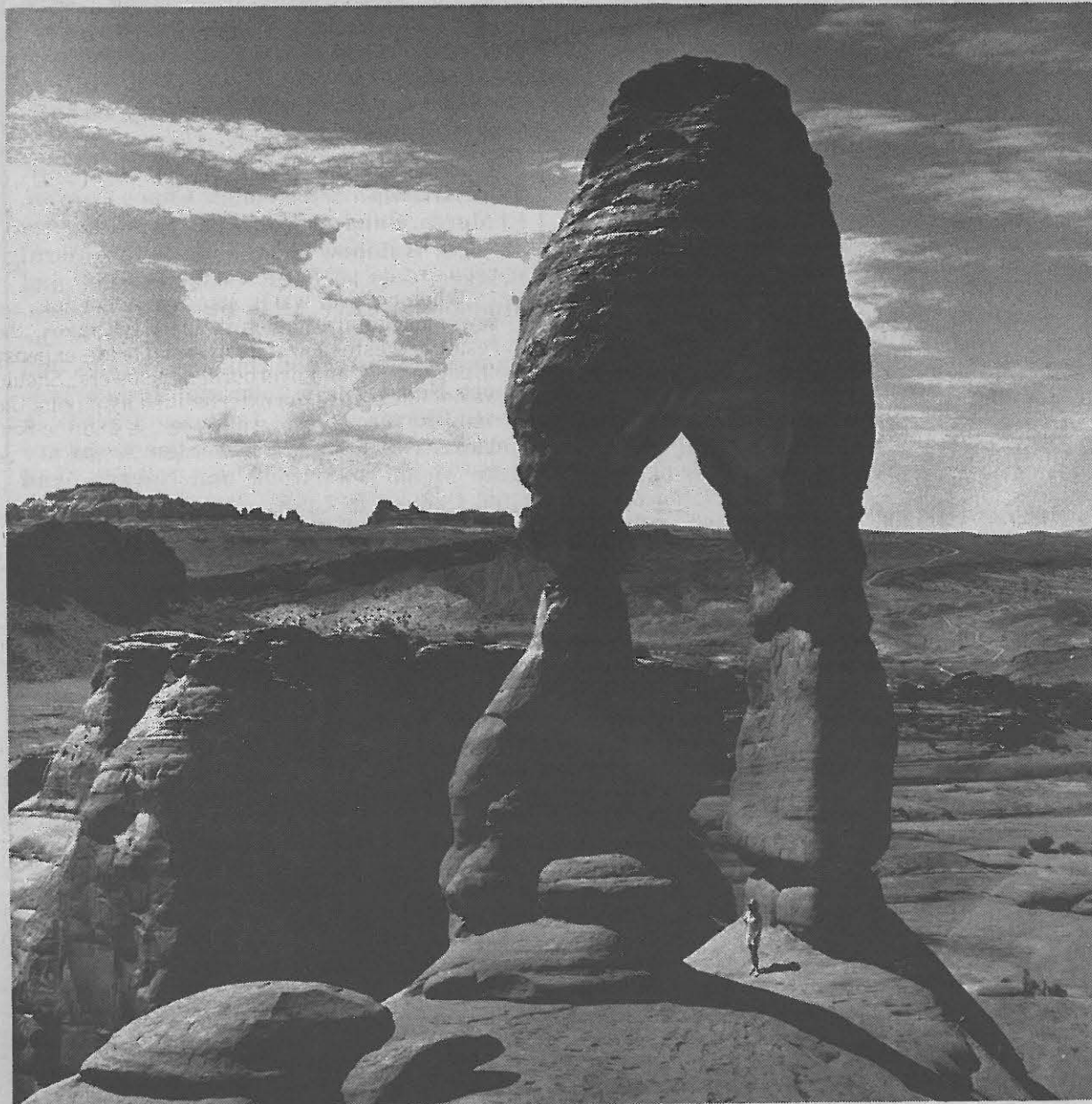


Photo by Lee Turpin

Arches National Park also has lovely panoramic views to preserve. The towering red sandstone arches, windows and other structures within Arches are normally visible from many miles away, and from viewpoints within the Park. Intruding power plant smog could severely detract from the unique natural beauty that abounds here.

The Limits to Growth

by David W. Hacker

Mark March 2, 1972, on your calendar as a day that history may record to be as important to mankind as the Council of Nicaea in 325 and Martin Luther's tacking his 95 theses on the church door in Wittenberg, Germany, in 1517.

This was the day *The Limits to Growth* was unveiled to the public. This report by a team of youthful researchers - average age just over 26 - assembled at the Massachusetts Institute of Technology says, bluntly, that unless man repents and changes his habits and life styles, civilization will reach its growth limits within 100 years and then collapse.

The basis for this forecast is a revolutionary new way of looking at man and society: a mathematical model. This model deals with five factors: population, industrial output, agricultural production, depletion of natural resources, and pollution. Based on present trends, the study's authors found that when they fed all sorts of variables into their computer, only disaster came out.

Alarm in Britain

Warned the study's director, Dr. Dennis L. Meadows, 29: Stop economic and population growth now, or the world will not live even long enough to regret it. World population is increasing at the rate of 2.1 per cent a year, and now is doubling every 33 years. The rate of industrial growth shortly will use up available resources.

A similar death knell was sounded in January by 33 scientists in Britain in "A Blueprint for Survival." In this startling document they said Britain must cut its population in half, stop building roads, and tax the use of raw materials and energy. This should be a world goal too, said this report.

Visible in both the British report and in *The Limits to Growth* is the hand of the Club of Rome, an informal gathering of about 75 leading world industrialists and scientists, organized by Aurelio Peccei, an executive of the Fiat and Olivetti empires. *The Limits to Growth* is subtitled: "A Report for The Club of Rome's Project on the Predicament of Mankind." (Potomac Associates, distributed by Universe Books, New York City. 205 pages. \$2.75 paperback.)

The predicament? The world, said Meadows and his colleagues, is finite.

Their report was released at a remarkable gathering at the Smithsonian Institution here in Washington. The several hundred guests included such diverse figures as Wernher von Braun, the father of rocketry and space exploration, as well as the ambassador of India, diplomats, army generals, economists, priests, and many of the nation's leading scientists.

'We are a Spaceship'

Said von Braun: "The report is very profound and it raises the most important question of our time. Our space travel has shown how vulnerable life-support systems are. The astronauts gave us that picture of the earth that showed we too are a spaceship."

The fears raised by Meadows' pioneering studies result from what is known as exponential growth. Ordinary growth, for example, might be likened to eating a peanut a day. Exponential growth, however, is like doubling one's consumption of peanuts every day. Eat one the first day, two the second, four the third, and so on. In a few days one's peanut consumption has skyrocketed.

And so it is, says the Meadows team and other worried environmentalists, with many of our natural resources - fossil fuels, minerals, even population. Since the world is a closed system, as population increases, more and more people ultimately have to make do with less and less.

Meadows, in fact, is not convinced that technology can ever answer all of the problems. "It can only buy us a little time" he says. "To avoid collapse we need social changes in laws and social values. Technology is only a short-term answer."

What the Meadows model proposes is a state of equilibrium where population and capital investment are, more or less, constant. And the key to this, he indicates, is giving up the notion of acquiring material goods as a basis for the good life and a measure of success.

In studies unrelated to the Meadows work, panelist Dr. Lester R. Brown, author of *The Green Revolution* and an expert on world food problems came up with the same conclusion. "We've got to change life styles, eat less, and move down the food chain," he said.

More Grain, Less Meat

Moving down the food chain has become a personal decision of Dr. Jay Martin Anderson, a chemist and member of the Meadows team. "My family is eating more grain, less meat," he said. "We're sharing a house with another family, feeding five now for what it costs to feed only three."

The Limits to Growth already is highly controversial, for expansion has been the basis for Western economic, social, political, and even religious development. To change this would require one of history's major revolutions of thought - a turning point for mankind equal to the Council of Nicaea and to Luther's manifesto.

Elliot Richardson, Secretary of Health, Education, and Welfare, delivered the major guest address, warning his listeners against "leaving this room and going out and hurling yourselves in front of growth."

Philip G. Abelson, editor of *Science* magazine, all but dismissed the Club of Rome report. He said pollution is not a global problem, nor even much of a problem at home. "The chemical industry has found its problems are just problems of poor housekeeping," he said.

Philippe de Seynes, a high United Nations economic-development official, sees a danger in putting a scientific model such as the Meadows model, to ideological uses. "Growth is desirable and necessary to correct the negative effects of growth," he said. Then he asked, "When do you start stopping?"

'Pretty Sad'

An Italian diplomat said, "The report's conclusion is pretty sad. It means a slow decay. Population has to adjust to depletion. It isn't a retreat, where you give up the car for the bicycle then give up that and start walking. Pretty soon you're lying down and dying."

Meadows and his team acknowledge that their model has flaws and *The Limits to Growth* repeatedly asserts this. The report says: "The model we have constructed is like every other model, imperfect, oversimplified, and unfinished. We are well aware of its shortcomings, but we believe that it is the most useful model now available for dealing with problems far out on the space-time graph. To our knowledge it is the only formal model in existence that is truly global in scope that has a time horizon longer than 30 years."

The assumptions in the report are only implicit, says Anderson. The explicit statements will be published in a few months in detailed reports.

Says the report: "Every assumption we make is written in a precise form so that it is open to inspection and criticism by all. Second, after the assumptions have been scrutinized, discussed, and revised to agree with our best current knowledge, their implications for the future behavior of the world system can be traced without error by computer, no matter how complicated they become."

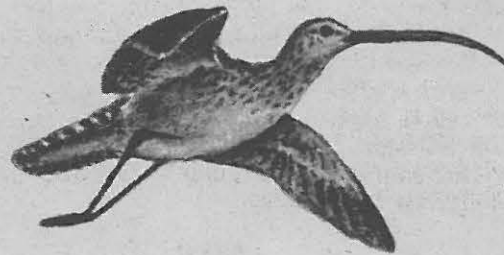
The report says that although the trends indicate the world will reach its growth limits within 100 years, these trends can be changed: "The state of global equilibrium could be designed so that the basic material needs of each person on earth are satisfied and each person has an equal opportunity to realize his individual human potential. If the world's people decide to strive for this second outcome, rather than the first, the sooner they begin working to attain it, the greater will be their chances of success. These conclusions are so far-reaching and raise so many questions for further study that we are quite frankly overwhelmed by the enormity of the job that must be done."

World-wide Distribution

No one recognizes the size of that task more than Dr. Peccei, who founded the Club of Rome in 1968. He said the report will be printed in 10 languages and distributed to 12,000 selected people throughout the world, including decision makers. "The majority, though, I guess have never asked or dared to ask themselves whether what besets human society in these glorious days of knowledge, science, and technology is just a passing malaise or instead a real crisis," he said. "The mismatch between the ever growing and more demanding human species and the finite and limited earth's carrying capacity must and will stop in a foreseeable future. Either humans will correct it, or they will be crushed."

Said Antonie T. Knoppers, president of Merck & Co., one of the world's largest pharmaceutical

makers, in skeptically weighing the implications of *The Limits to Growth*: "I'm a growth addict. Such an equilibrium society would be a heavily controlled society." He drew laughter and nods from both sides of the fence, though, when he summed up the controversial report: "The Book of Revelation is sort of a poetic version of the Meadows report."



Clean Water Costs

The following is excerpted from an address by Dr. Athelstan Spilhaus, immediate past-president of the American Association for the Advancement of Science.

The very use of air and water in our bodies or in the industrial organisms we engineer entails dirtying them. Nature has ways of cleaning air and water but can no longer keep up with the rate at which we in our multiplied numbers get them dirty. This means that, just as we grow, use and regrow food, we must continually clean, use and reclean our air and water. To the culture of our renewable plant and fiber crops which we call agriculture, we must now add "atmoculture" and "hydroculture"—a continuing job of renewing used air and water to good quality for reuse.

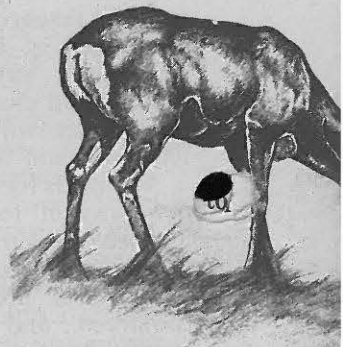
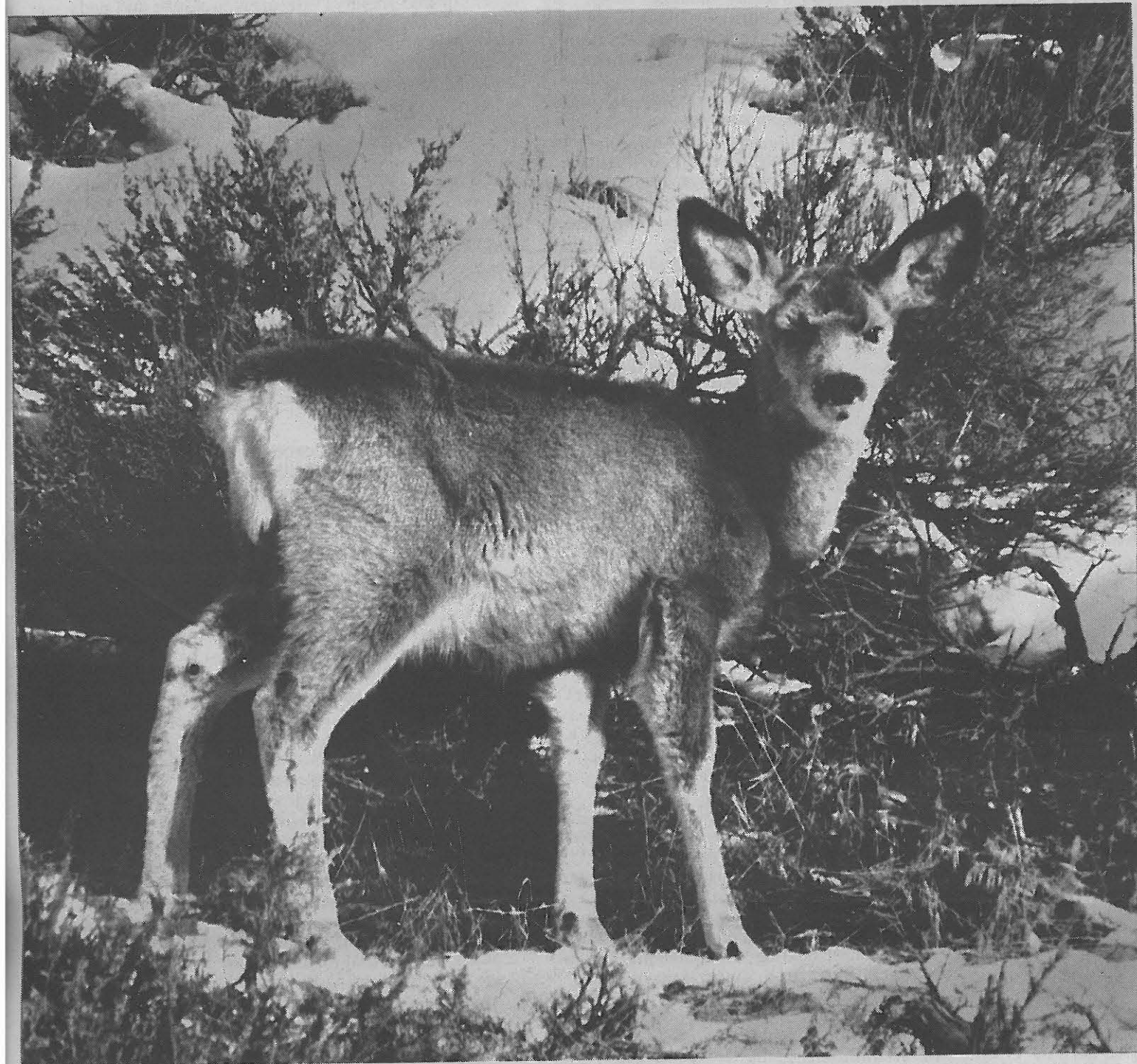
Air and water then become essential commodities which, after use, have to be reprocessed by "manufacture" for further use. Containment and separation of pollutants is probably easiest at the source of pollution, right at the factory that dirtied the air and water. The cost of reprocessing to clean the air and water can then be properly added to the cost of the product of that factory . . . We have a more difficult problem with individual users. The real costs of man's basic need for a decent outdoors are obscured when people gain the impression that a clean environment can be a political gift. Any political gift simply means that costs are hidden; when people do not know what the real costs are, they have no incentive to be sparing. There is no feedback to cause them to make choices that prevent escalation.

When costs of water, garbage collection and sewer usage are hidden in inclusive taxes, the result is waste of water, overelaborate expense of packaging, and overburdened sewers. Should we not internalize the externalities by paying the real cost per gallon of water we use and the real cost of the collection and reconversion of our wastes by the amount we generate? We only have to think of how saturated the telephone service would be if unlimited use and abuse were permitted by hiding the costs in a blanket tax instead of by direct payment per call.

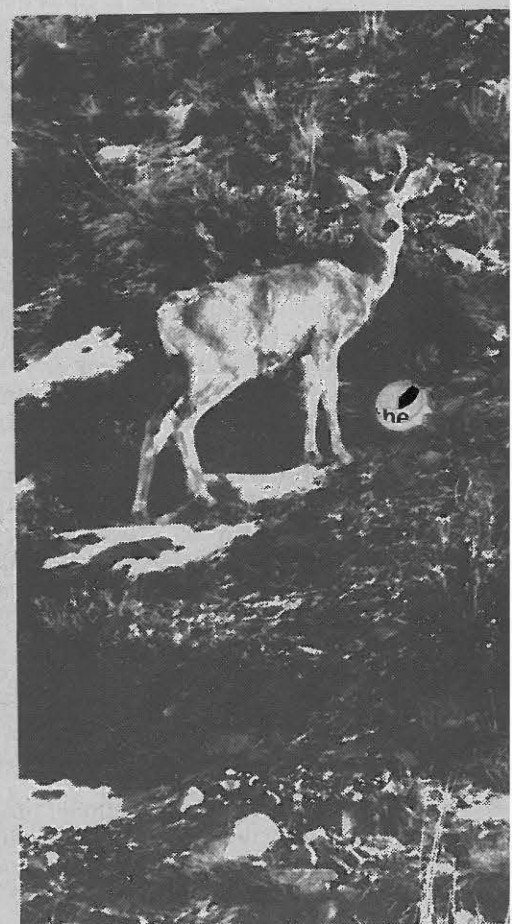
The same thing applies to energy. Air and water are as essential as the fuels in the manufacture of energy . . . When energy is kept to an artificially low price, then not only are individual users wasteful of it, but industries using cheap power will produce things at less than real cost and people are encouraged to use more than they otherwise might. The difference between artificially low prices and real cost must be paid somewhere, usually in some blanket assessment or tax. Thus we strip the thrifty person of his choice to reduce his use of water or power and to use the saving for something he values more than leaving a tap running or all the lights on. Of course, if we allow the price of these "new commodities" to reflect the real costs and thereby help protect the environment, there is an essential and simultaneous social development required—namely, to increase income maintenance for low-income sectors of society at an adequate rate to offset the increases in the real costs of these "new commodities."

Perhaps thrift in energy will dictate that our technology should change in order to lead to a change in our attitudes so that we may extend the useful life of things and once again have pride in the preservation of a more beautiful piece of machinery that need not be recycled so often.

AFTERMATH OF WINTER



Snow banks are fast receding in southwestern Wyoming. The pho Fork Valley near Kemmerer shows remaining in March. Hip bones are in Nugget Canyon west of Kemmerer a long, hard winter. Wyoming there has been considerable loss may not be as bad as they were e

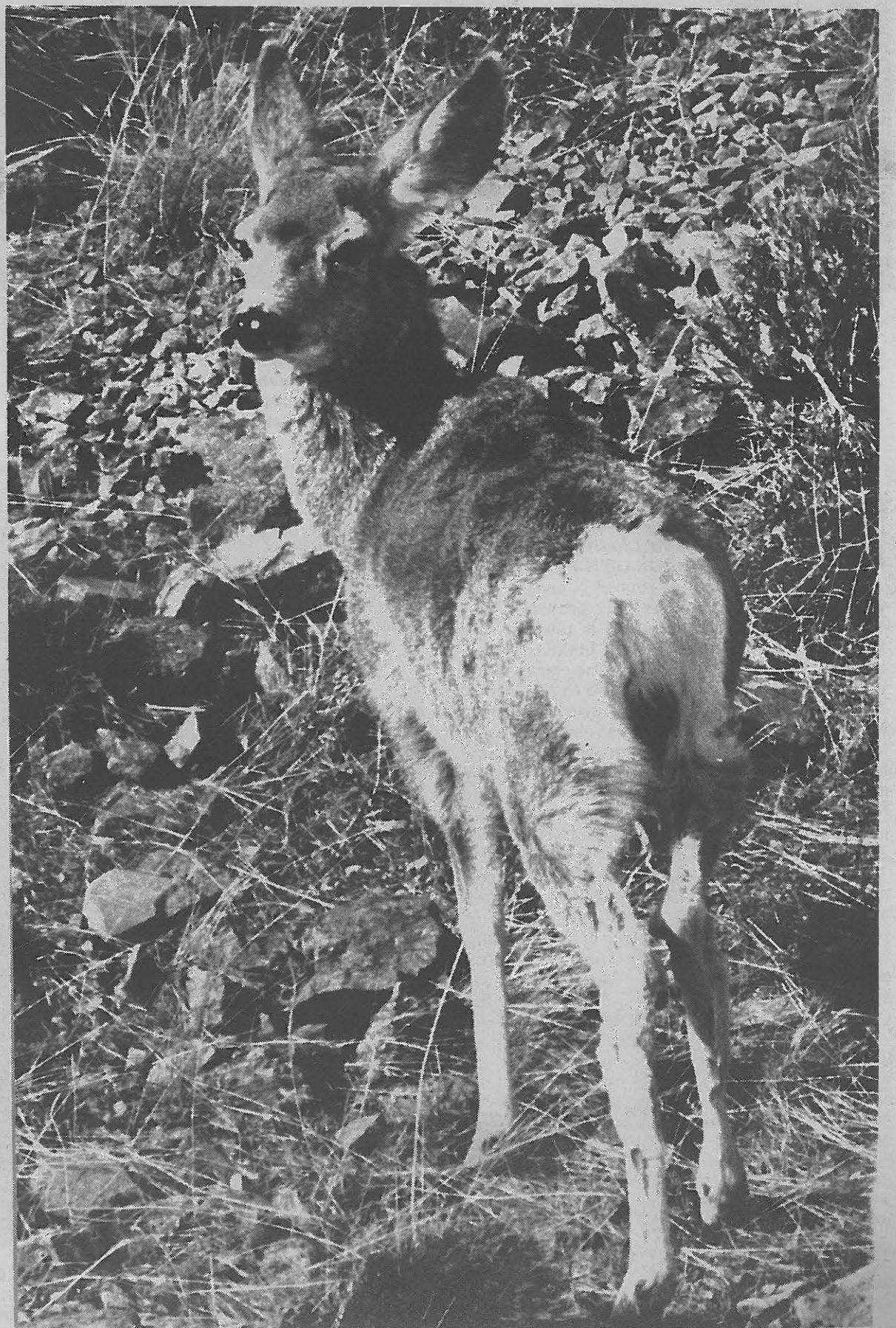




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Photos by Don Hinton



Whose Air? . . . Whose Responsibility?

by Lee Turpin

Traditionally, and to varying extents legally, a man owns the air above his property "to the sky." This concept is still in force in this country in many ways, although it often is modified, compromised, overridden or ignored in the exigencies of modern civilization.

For example, I know a man — a well-known aerobic pilot — who owned a tiny plane so tricky that the FAA refused to license it or to

clear, but because big industry can afford powerful lawyers, dragged-out law suits, and various "gamesmanship" tactics that will usually defeat the private citizen, the laws against violation of property rights notwithstanding.

True, a growing number of private citizens these days are winning air-pollution abatement suits against some of the worst industrial offenders, but more lose than win, and even the

winners suffer heavy financial and personal losses in the process. A private citizen just hasn't a chance in the courts against big industry, or against municipal, county or state governments who also get into the air-pollution act directly (trash dump burning) and indirectly by encouraging, condoning and even inviting pollution-prone industries to "move in" and promote "progress."

There is a possible answer to obvious and blatant air pollution, however, one based upon PRESENT LAWS CONCERNING OWNERSHIP OF AIR SPACE OVER PROPERTY, and upon PRESENT AND LONG-EXISTING FEDERAL REGULATIONS! All that is needed is ENFORCEMENT — by a Federal agency that is in an excellent position to do so, but which, unfortunately, is not exactly renowned for its pioneering zeal, initiative or bravery under fire.

However, if this particular Federal agency WERE to start consistently enforcing its own regulations, most if not all of southern Utah's air pollution problems would suddenly cease and desist — and the new ones that are threatening to overwhelm that area in the all-too-near future would go sneaking off like whipped curs!

What is this remiss Federal agency? And what existing Federal regulations would stop or prevent air pollution?

Let's sneak up on the subject with a few questions. You furnish your own answers, if you don't care for mine.

What if you were to deliberately throw a bunch of trash on the ground in a National Park Service administered campground — with a ranger watching? He would probably take you by the ear and insist on an instant cleanup, then give you a scolding. Why? Park Service regulations just don't ALLOW cluttering up a National Park, Monument or Recreation Area!

What if you did the same thing again the next day? And again the next? Want to bet against a stiff fine — with also maybe a few days in the nearest pokey?

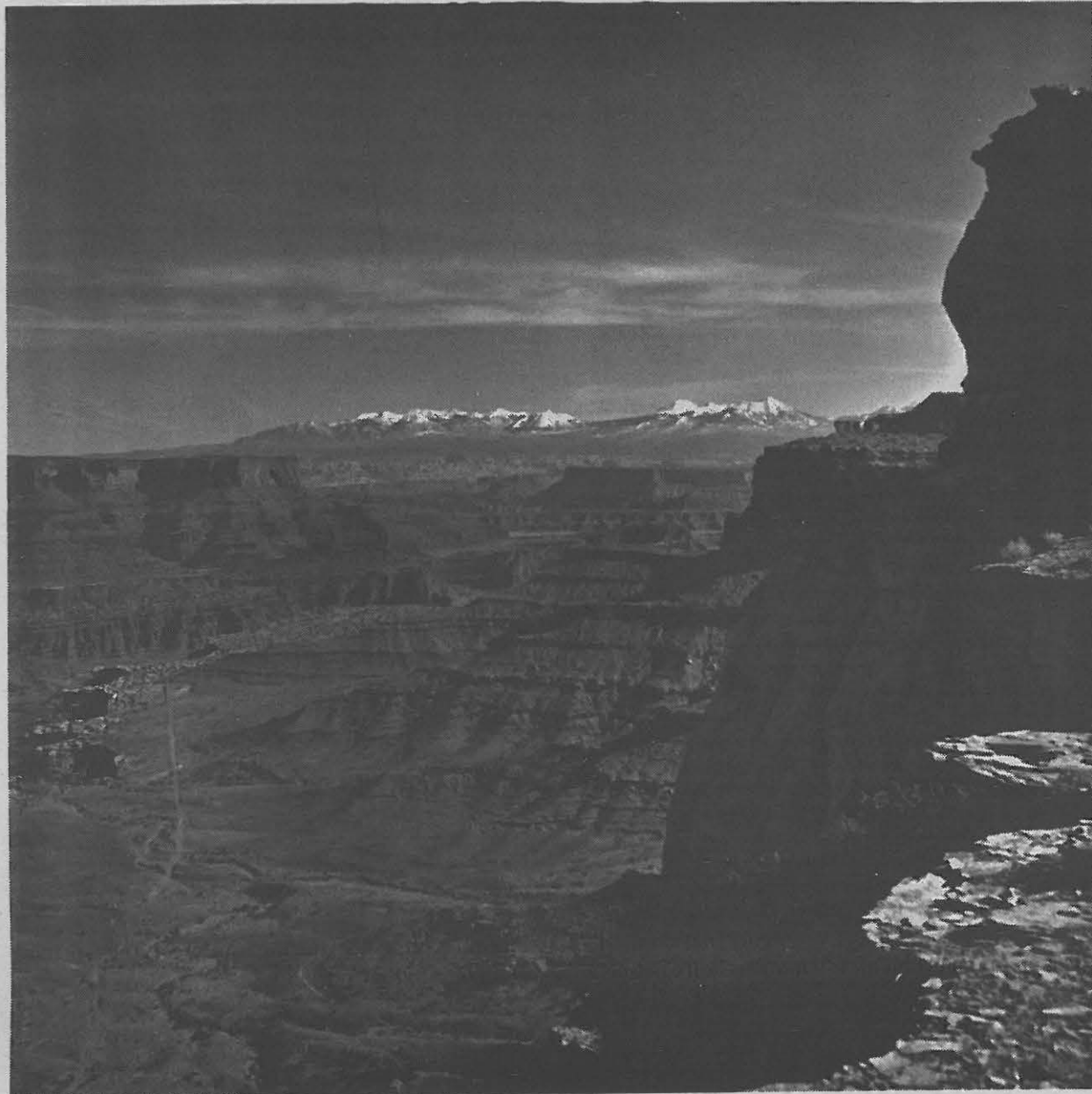
So now let's haul a huge truckload of rotten garbage, dead animals, reeking chemical wastes and other assorted noxious material, into a National Park and dump it on the Park headquarters lawn.

Then we are off to jail and a BIG fine, without further ado! Why? Park Service regulations don't PERMIT such acts. But why not? After all, the trash and garbage were ABOVE the Park land, not IN it, just like the AIR is above the Park, not in it.

Think that kind of logic would buy you anything in the court that tried you for polluting a National Park? Not much! Why not? Because the law tacitly or specifically gives the land owner — in this case the Park Service — jurisdiction over not only the land itself, but THE AIR ABOVE IT, TOO!

So let's enter a National Park with a flatbed truck, and start burning old tires on the bed of

(Continued on page 11.)



In southeastern Utah's magnificent canyonlands country, Canyonlands and Arches National Parks, and a number of other state and federal parks and monuments, would be ruined by any air pollution. Their scenic value rests largely on vast, clear panoramic views such as this one, taken from The Neck, on the Island-in-the-Sky, in the northern section of Canyonlands National Park. This photo, taken with normal air clarity, clearly shows the LaSal mountains, some 35 miles away. From other viewpoints within Canyonlands National Park, other mountain ranges more than 100 miles away are usually visible.

Photos by Lee Turpin

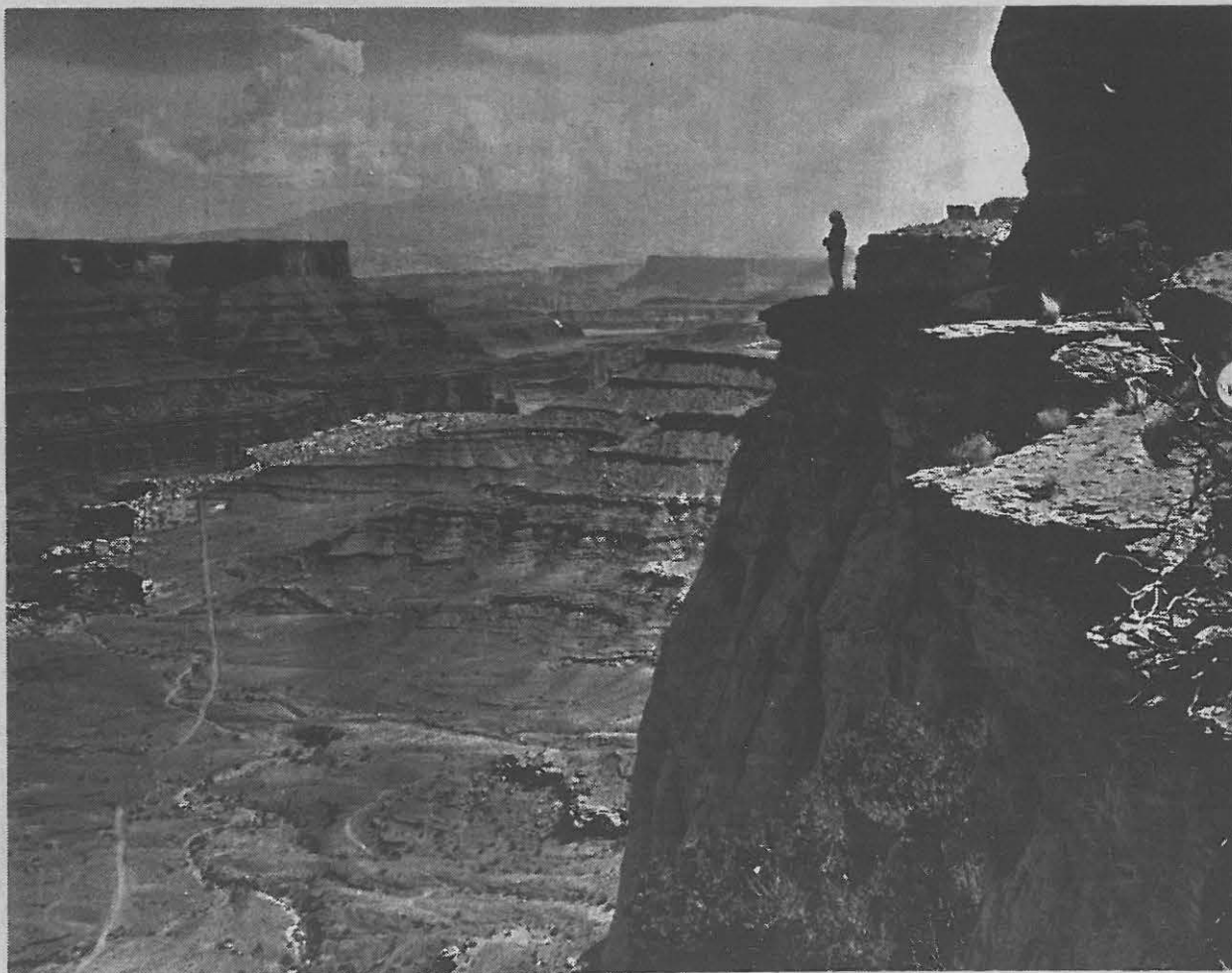
permit it to fly from public air fields. So the man bought a big piece of property, scraped out a dirt air strip and was thus able LEGALLY to fly his unlicensed plane OVER HIS OWN PROPERTY.

Another example. A property owner may build up into the air above his property — a house, a high-rise apartment, a 1000-foot TV antenna — subject only to local building codes, and perhaps FAA regulations if the construction is tall enough to become a hazard to air traffic. And where is the law that says — given the desire and ability — a man couldn't build on his property to the very limits of the atmosphere? The law tacitly or specifically recognizes that the air above real property belongs to, or is accessible to, the owner, and ONLY the owner. A man's ownership of his property DOES NOT STOP JUST ABOVE THE SURFACE OF HIS LAND!

Recall the case of the high, mushroom-shaped revolving restaurant in Las Vegas that, due to an architectural error, overhung adjoining property? The opening and usage of that building was held up for YEARS in the courts. The building violated adjoining "air space," air space that DID NOT END JUST A FEW INCHES OR FEET ABOVE THE GROUND!

By extrapolation, then, and not very far at that, if someone dumps trash in your yard, do you have recourse under the law to make him stop? Obviously, the answer is YES. What if someone burns a tire in his backyard and the black, noxious smoke drifts into YOUR yard and house. Does the law protect you? Again, yes, but on what basis? Upon the basis that your property AND THE AIR SPACE ABOVE IT ARE YOURS, AND NOT SUBJECT TO THE CARELESS WHIMS OF OTHERS.

But what if the "trash" cluttering up the air in your yard is industrial smoke or fumes? Ah-ha! Now law enforcement gets a bit more wishy-washy! Why? Well, not because the law is less



Same scene as above but on one of the days when some traces of air pollution from the Farmington, New Mexico, power plant have drifted north. Visibility is about half of normal, even though the Farmington plant is almost 150 miles away, and Utah is not normally downwind of that plant.

Complex proposed...

Hathaway has consistently maintained that Wyoming's mined-land reclamation act is adequate to protect the state. Most knowledgeable observers emphatically dissent. Conservationists have asked for major revisions of the present act to bring it more in line with tougher laws of other states.

Wyoming does not have legislative authority to conduct statewide or regional land and water planning. Some counties have adopted countywide zoning but none are required to coordinate planning for developments such as the proposed Reynolds project.

Many observers also agree that Wyoming's air and water quality acts are not adequate to effectively protect those resources. Governor Hathaway has only recently proposed that air and water quality and strip mine authority be placed in one integrated department of environmental protection. At the time of his proposal, Hathaway said he believed the water and air standards were sufficient.

The naivety of Wyoming people was summed up by a Buffalo tavern owner. He said, "I don't think there will be any environmental problems. People in Buffalo are all friendly and they get along good."

The mayor of Buffalo, Sam Rosenthal, said they were already making plans; that there was

city, county and joint area-wide planning boards at work.

He said, "The City of Buffalo is presently at work to prepare a bond issue for the complete reconstruction of the town's water distribution system that dates back to 1895."

C. H. (Cliff) Davis, mayor of Gillette and a state legislator, reacted to the news by saying, "I think it's wonderful. It's another move for northern Wyoming. I look for a great development in my area, too," Davis is an automobile dealer.

The cost is to care...

development must go hand-in-hand, so that guidelines can be established before desecration takes place.

We must have a department of natural resources and environment, responsible for "wise use without abuse" of all our resources. And this leadership must come at the top, because no individual, industry, city or state can do it alone. A person cannot clean up the air in front of his home. He cannot clean up part of a river. The company that invests in antipollution equipment, while its competitor pollutes, is at an economic disadvantage. And the crusading mayor or governor discovers that the polluters will move across the line, to a community which is lax.

The Environmental Protection Agency won't work until it is free to tell the vested interests that seek the ear of the White House: "We are going to do the job - either with your help or without it - but we're going to get it done." And it must know that when that White House telephone rings, the message will be: "Get the job done," not: "Slow down, back off."

If men in government are really going to accomplish anything, they've got to be free to be angry, for the public good. Angry at what happened in the past. Angry at things that could happen in the future.

We can afford a clean environment. We can pay the price. We pay for the cost of safety in our electrical appliances and in our automobiles. What is more important than the long-range safety of our water, air and land? If these costs are made mandatory by a truly national approach to the problem, it will eventually not be a cost of government, but a cost of doing business.

Initially the Government must help pay the cost of catching up, but then, with regulations, industry must keep up. To say that we cannot clean up our rivers in less than ten or fifteen years is to lie to the public. We can do it. It all depends on how much we really care. We won't clean up the whole environment just by creating agencies. We've got to want to do the job, not just say we want to do it.

What will it cost? The cost is to care.

The National Industrial Pollution Control Council was created by Executive order to advise the President on pollution problems.

Gillette is in the center of an area proposed for development under the North Central Power Study plan. Statistics indicate that 42 percent of the Campbell County land area in which Gillette is located would be disrupted by future strip mining. A cluster of 10,000-megawatt plants is projected as a possibility.

Recent announcements have also indicated that northeastern Wyoming and especially the area around Buffalo could be the location of large coal-gasification plants in the 1970's.

The council is composed of 221 of the top corporate chiefs in the country, with the chairman of the board of Minnesota Mining and Manufacturing Company serving as council chairman.

Now, twenty-some months after its creation, what has the council really achieved? Is it a vehicle for action - or a vehicle for inaction? What is really behind the confusion over phosphates, for example? What is the public to think when some of those on the council are among the worst polluters in the country?

The polluters must stop playing politics. And the politicians must stop playing around with those who pollute.



Fishing Uncertain

Oregon sport fishermen who angle for spring chinook in the Willamette and Columbia rivers can expect one of the shortest angling periods ever experienced unless water conditions undergo a drastic change within the next week or so.

Both the Columbia and Willamette rivers have been high and muddy for weeks and, with the heavy snowpack in the Cascades and elsewhere, the high water is not expected to change for some time to come. Runoff from rain and melting snow is also expected to keep both streams off color during much of the spring chinook angling period.

Generally sport fishermen hit chinooks well beginning in early March in the lower Columbia as well as the Willamette through the Multnomah Channel and from Milwaukie to Oregon City. This year so far, only a few chinook have been reported caught and these in February prior to the high, muddy water period.

Generally the peak of the spring chinook sport fishing takes place from mid-March through mid-April. Unless the springers are also being held up by the unusual water conditions, most of these big salmon may get by the anglers before the two streams clear enough for effective sport fishing.

Whose Air?...

the truck. Woops! Out we go again! But again, why? Our fire was not on Park land, and our smoke was ABOVE the Park! "So what," says the judge, "Five hundred bucks or 30 days, and don't let it happen again!"

Okay, now let's park our truck just outside the Park boundary, upwind, and burn a ton of old tires, letting that black, odious smoke drift into the Park's air space. Note, now: our pollution (trash) is not IN the Park land, just ABOVE it, in its air space. Do we get away with this? Not on your life, we don't, NOT IF THAT PARK SUPERINTENDENT WANTS TO STOP US, AND HAS THE GUTS TO ENFORCE EXISTING PARK SERVICE REGULATIONS THE HILT!

Now ask yourself: what is the difference between a man deliberately burning old tires just outside of a National Park boundary --- polluting that Park's air, damaging its lovely views, annoying its visitors and rangers --- and a big coal-burning electrical power plant producing the same results?

Of course, industrial apologists and the kind of state and local authorities who encourage such power plants, will quickly chorus "the INTENT is different." But so what? The RESULTS are the same --- a National Park, Monument or Recreation Area polluted, contaminated, damaged aesthetically, rendered less valuable to the public which owns it. AND IN BOTH CASES, A PARK SERVICE REGULATION HAS BEEN VIOLATED!

Conclusion? Federal Park Service regulations, together with longstanding laws concerning proprietorship over air space above real property, could, if properly and fairly interpreted, and consistently enforced, prevent almost all air pollution in southern Utah.

A dream? Maybe, maybe not! It all depends upon the Park Service.

Would a power company DARE foul up the air, knowing that a Park Superintendent of Zion, Bryce, Capitol Reef, Canyonlands, Arches, Grand Canyon, Glen Canyon Recreation Area, or any of 20-odd National Monuments could --- AND COULD --- get a permanent injunction against its operation the first time any smoke or fumes drifted into one of these Park Service areas?

And note: the Federal Government can't be worn down in protracted court battles, like a private citizen can. The shoe is on the other foot, in this case!

How to prove in court that a particular power plant is the culprit? Easy! Have you ever seen any of those satellite photos that show finely detailed segments of states? Such photos can and do show smoke trails, pointing like accusing fingers at their sources!

Now, Mr. George B. Hartzog, Jr., National Park Service Director, let's hear all about how your regulations can be used to keep a private citizen from fouling up a National Park, but can't be used to keep big industry from doing the same thing on a massive scale! Go ahead --- we are all listening!

Or better still, tell us how you are now going to require that all Park Superintendents interpret and enforce Park Service regulations to prevent ALL types of fouling of the Park lands being held in trust for us, INCLUDING the crystal-clear air above them that now prevails in southern Utah!



Ayshire Collieries Corporation (a subsidiary of AMAX) will open a huge coal strip mine at this site in Wyoming's Powder River Basin. Here, the storage and loading facilities are under construction at the end of a new 18.2 mile railroad spur. The mine is about 20 miles southeast of Gillette. Low sulfur coal will move east to existing power plants.

Western..... Roundup

Task Force Recommends No Mining In White Clouds

A Federal agency task force has made public preliminary findings of a report which recommends no molybdenum mining in Idaho's White Cloud Mountains. Six Department of the Interior agencies, the Environmental Protection Agency, and the National Marine Fisheries Service, along with Governor Cecil Andrus' representative, Pete Henault of Idaho Falls, composed the White Clouds Task Force. The U. S. Forest Service and the Idaho Fish and Game Department acted as consultants.

The recommendation was for no mining until "a national need has been demonstrated."

Governor Andrus, who was in Tokyo when the

announcement was made, called the report a "victory for Idaho's people who have overwhelmingly favored preservation of the high-altitude, pristine White Clouds Mountains."

An abstract of the findings and recommendations said it "has not yet found any significant evidence to indicate that the area can be mined without seriously impairing the high quality environment."

"Information so far available indicates mining could cause the total loss of the primitive-type conditions, along with severe adverse effects on anadromous and resident fish, wildlife, aesthetics, recreation and water of excellent

quality.

"Preservation of the area, on the other hand, would not only retain these valuable qualities but would produce long-term economic benefits far outweighing short-term mining benefits."

The report notes that molybdenum is in surplus supply with some 48 million pounds stockpiled.

Briefly Noted...

An oil spill in a tributary of the Paria River in southern Utah may undo the efforts of Arizona biologists to save the endangered woundfin fish. The silvery 3-inch fish naturally exist only in the Virgin River and its tributaries in Utah, Nevada and Arizona. Fish were planted into an isolated section of the Paria to assure a surviving population in case of accident in the Virgin River. A crude oil spill had traveled over 30 miles down river and near the primitive area of the Paria before biologists heard of the accident.

The recent session of the Idaho Legislature effectively curtailed many environmental programs on the state level. The Water Pollution Control Section received about \$20,000 less than was appropriated last year and although the Air Pollution Control Section received \$5,000 more, it will not be enough to save two staff-men. Observers say not enough money was appropriated to maintain anti-pollution efforts at present levels.

Wyoming Governor Stanley K. Hathaway has recommended creation of a state environmental protection agency. In a recommendation to the State Commission on Legislative and Executive Reorganization, Hathaway said existing agencies dealing with air and water quality and surface mining should be drawn together for better enforcement.

The new department would be headed by a director appointed by the governor with the consent of the Senate. The governor would also name a nine-member council.

The Oregon Environmental Quality Commission has voted to force action from the federal government to eliminate gas bubble disease. The disease results from a high concentration of nitrogen in waters of the Columbia and Snake Rivers. The gas enters the water as it pours over high dams built by the Army Corps of Engineers.

Biologists have predicted that unless the nitrogen supersaturation problem is solved, salmon and steelhead trout may be all but eliminated from the two great rivers.

The Sheepmen's Action Committee on Environment met recently at the Cosmopolitan Hotel in Denver. The goal is to develop a nationwide information program to acquaint the public with what the stockman is doing as an active conservationist.

Assistant Secretary of the Interior Nathaniel Reed told a House subcommittee that speedy greyhounds and airborne hunters are expected to replace poisons in coyote control programs in the West.

Western governors and congressmen adamantly opposed proposed new standards for water resource programs in hearings before the Water Resources Council. The attack was concentrated on the proposed raise in the discount rate for computing a water project's benefit-cost ratio.

Harry Aleson, grand old man of the Colorado River, passed away in the hospital at Prescott, Arizona. Aleson pioneered in float trips on the Colorado. He started before World War II, specializing in trips through Glen Canyon. When the canyon was flooded, he went to the McKenzie River in Canada.

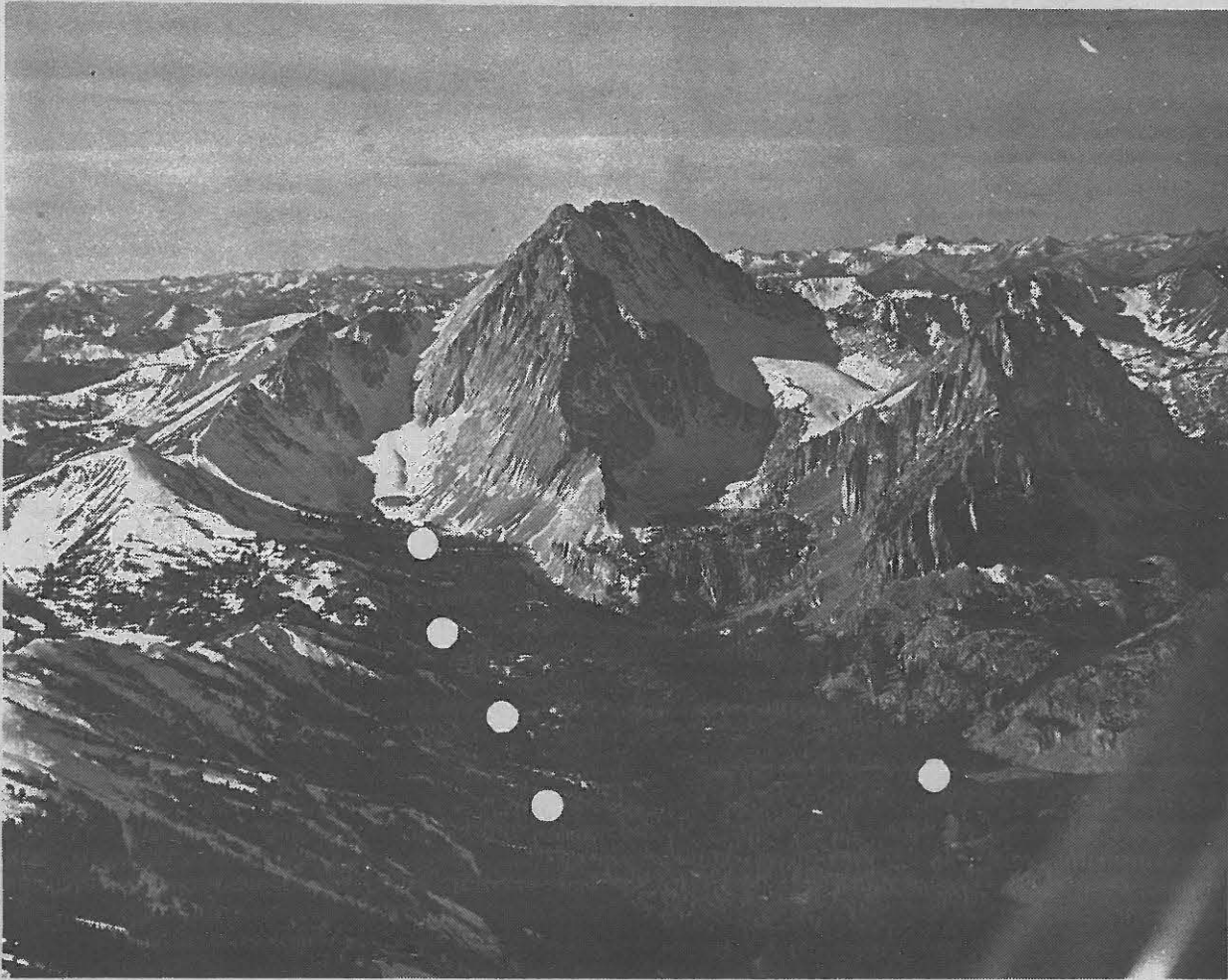


Photo by Ernie Day

Castle Peak and Little Boulder Creek in the White Clouds Mountains of Idaho. Dots mark claims and projected area of open-pit molybdenum mine. A special White Clouds Task Force has issued a preliminary report recommending no mining until a "national need has been demonstrated."

Fight Back! Sheepmen Told

The executive secretary of the Wyoming Woolgrowers has urged his members to fight back. Bob Bledsoe called on state sheepmen to "deny access to your private lands for recreational pursuits."

He said, "Members of the environmental, wildlife, sportsman and 'do-gooder' organizations invade your private property to enjoy the outdoors and the environment you have created and maintained - then they bad-mouth you as a spoiler of the land."

Bledsoe also urged a boycott of firms and individuals who oppose the sheep industry, and "a firm commitment from each political candidate before you contribute to his campaign or cast your vote for him."

The sheep industry spokesman said that at recent hearings in Washington, industry

representatives were ridiculed and called liars while the "experts" were representatives of the wildlife and environment groups.

He said, "As a result of all the bad press and the accusations by 'experts,' the sheep industry has had coals of fire heaped upon its head."

Meantime, the Colorado Cattlemen's association has announced that its members in 11 eastern counties have closed their lands to all public hunting, and others are likely to follow.

Ralph Yoder, Association president, said, "We figure that if we give the coyotes more game to eat, maybe they won't bother our livestock."

Yoder said the action was a reaction to the banning of predator poisons. He said, "We hope the hunters will join us against the government and the environmentalists in getting the predator poisoning program reinstated."

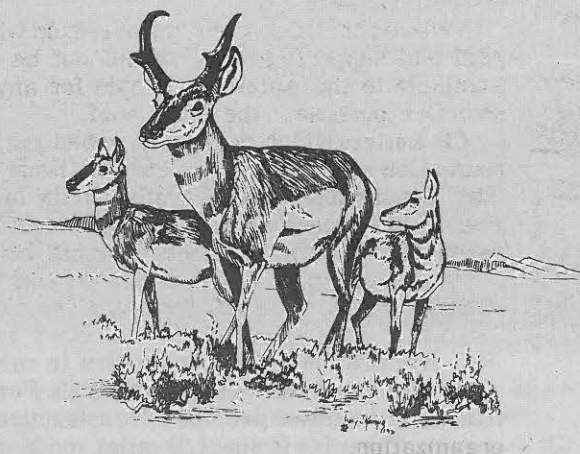
But a veteran Colorado sportsman said, if anything a lot of hunters would take the attitude that if stockmen wanted to lock up their lands, they should be asked to remove their livestock from public lands.

Guidelines Issued

Senator Frank Church's Subcommittee on Public Lands has issued guidelines to regulate the practice of clearcutting on public lands. At a press conference, Church said the subcommittee had "done what the Nixon Administration backed away from doing - issued a definite set of guidelines regulating the practice of clearcutting in national forests."

The guidelines, which are without legislative force, are meant to curtail abusive clearcutting. Conservationists look on the guidelines as a good first step in the right direction, but see the eventual need for legislation to relieve industry pressure on the Forest Service. Church has urged conservationists to "keep their feet to the fire."

The guidelines provide for allowable harvest levels, set our harvesting limitations, provide for where clearcutting should be used, and specifies that all timber sale contracts should contain certain minimal requirements to protect the environment.





In a recent column I mentioned the approaching elections in relation to a proposed road project in Oregon, a political pork barrel that hopefully will remove an anti-environmentalist from his position as Speaker of the Oregon House of Representatives. (I could be wrong, of course: the residents of Southern Malheur County may be willing to sacrifice their wild world for litter and noise—we'll see).

And I'm reminded once more of the column that columnist Mike Royko wrote several years ago in which he suggested that we must make our politicians toe the mark. We must make them do our bidding because they are our representatives, and if they don't do their jobs—that is, if they don't represent us—then we should get rid of them.

Now, political machinery is powerful, but it is not so powerful as the individual vote. And this year we'll have the youth vote, the voice of the 18- and 19- and 20-year-old voters who are pretty well disgusted with what our generation has done to the environment in the name of progress and the almighty dollar. It should be an interesting election.

Many of the young people, however, are so disenchanted with the system (particularly after the farce of a Democratic National Convention in 1968) that they may not be inclined to register to vote. I believe it is vital that we get the youth vote poised to strike, that we encourage the young people to register and to vote—they can swing an election. They have done so in several elections already.

For example, the State of Oregon recently passed an increase in cigarette tax that passed by a narrow margin. In Eugene, home of the University of Oregon—heavy with youth voters—the tax increase passed by a 2-1 vote but in non-student areas of the state, it failed 3-2. The youth vote very obviously tipped the scales (revenue will help public schools and environmental movements).

How can we convince the young people that their vote does matter? So many politicians fail to fulfill their promises: former President L. B. Johnson said in his campaign speeches that he'd never send American boys to fight an Asiatic war, but he escalated the Vietnam War tremendously.

Gov. Stanley K. Hathaway campaigned—in certain areas—on an environmental platform but turned his back on the environment time and time again during the Legislative session immediately following his re-election. He failed to provide important leadership on several environmental bills, and he fought tooth-and-nail for the environmentally degrading Green River Dams Bill.

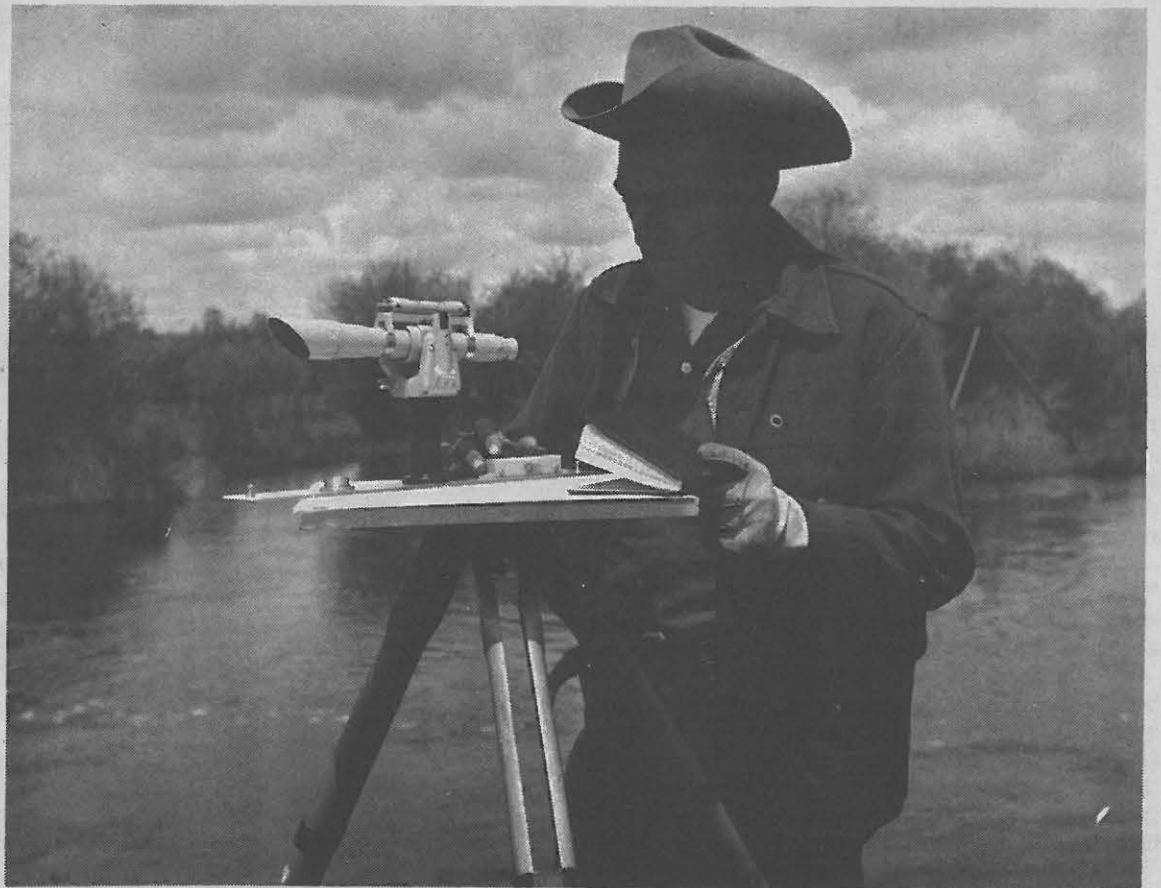
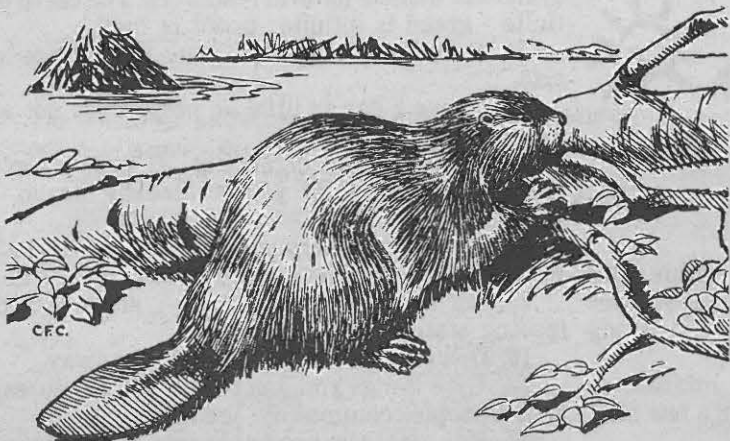
Even Senator Gale McGee, with a fair environmental record, destroyed the faith of Wyoming environmentalists by voting for the SST (he'd courted the environmental vote, but he ignored a preponderance of constituent mail opposing the SST to support the administration boon-doggle).

So how can the young people have faith in their vote? I believe the change will be evident this fall, the change in people's attitude toward and concern for the total environment. Lip service will no longer be enough. Politicians will have to put their money where their mouth is, so to speak—so to be believed by the young people who now have the vote.

Do you follow Mike Frome's Conservation column in *Field and Stream*? He does a great job of keeping the public informed on what's going on in Washington. He said in his August column "The first step toward effective citizen action is to become informed and stay informed . . . Ask your Congressman to keep you informed on environmental legislation and his position." Where do your representatives stand?

Frome had little good to say about Secretary of the Interior Rogers Morton and the administration environmental record in a more recent column, and the firing of Howard A. Cohen in January gave further evidence of Nixon's lack of environmental concern. (The 30-year-old EPA legislative director lost his job for "leaking" the fact that Nixon wanted to weaken environmental bills, especially those relating to pesticide controls, to insure his re-election—another policy that could backfire).

The elections are months away, to be sure, but some of the primaries will be coming up before you realize it. Are you registered to vote? Do you know where your representatives stand on environmental issues? You owe it to yourself and to your children to find out, and it isn't too early for that—from the lowest office at the local level all the way to the top spot in the nation.



Dr. Luna Leopold

Leopold To Participate

Dr. Luna Leopold, internationally noted authority on water, will be one of the featured speakers at Wyoming's Third Environmental Congress. General theme of the environmental meeting is to be water and its uses, land and water planning, and the socio-economic-political considerations of water decisions.

Governor Stanley K. Hathaway will be luncheon speaker while Leopold will be banquet speaker. Dr. Leopold will also appear on the program to discuss alternatives for objectives of water use.

An afternoon panel on land use planning and its relation to water will feature such speakers as

Howard Arnett of Pacific Power and Light Co., State Representative Roy Peck, and Wyoming Stockgrowers vice president Kim Krueger.

A legislative panel will discuss legislation concerning water, and the place of the public in determining water uses and planning. State Senators Bob Novotny and Tom Strook, and State Representatives Jim Willox and John Turner will participate.

The Congress, sponsored by the Wyoming Outdoor Coordinating Council, is a public forum for information and education of Wyoming citizens. The meeting will be held at the Holiday Inn of the Waters in Hot Springs State Park at Thermopolis. The one-day meeting will be May 13.

The Congress comes at a time when the State of Wyoming is seriously considering transbasin diversion of water from the Green (Colorado) River to the Big Horn (Missouri) River or the Powder River (Missouri) via the North Platte River. Such water would be slated for use in the vast coal fields for the Powder River Basin.

Land use planners in Colorado are pointing to available water as a means of manipulating population centers. Conservationists hope to gain more consideration of water quality, protection of wild, free-flowing streams such as the Upper Green River, and more comprehensive planning of all water projects.

Flash! Flash!

Verne Huser reports from Oregon that anti-wilderness forces are out in great numbers to defeat every proposal for any more roadless area studies for wilderness. We need letters to Mr. John R. McGuire, Associate Chief, U. S. Forest Service, Washington, D. C. 20250. Ask for an extension of time on roadless area consideration and more public hearings to be held in population centers. These are your lands, too. Express your feelings.

Huser also reports there is concerted effort throughout the Northwest to get President Nixon to rescind the executive order banning poisons on public lands. Only an outpouring of public sentiment may persuade the President to hold fast. Write President Richard M. Nixon, The White House, Washington, D.C. 20500 and commend him for his action.

Finally, Huser reports he was the only sympathetic witness to give oral testimony at a recent hearing on the proposed rules and regulations for Oregon's new Scenic Waterways Act. Six rivers totalling some 496 miles are being proposed. The rivers are: the Minam in its entirety, and parts of the Owyhee, Rogue, Deschutes, John Day and Illinois. He supports the act and the proposed rules and regulations as being in the best public interest. Give him some support by writing Oregon Highway Commission, Oregon Highway Building, Salem, Oregon 97310.

Foundation Sues

The Conservation Foundation today announced that it will file suit under the Freedom of Information Act to obtain the release of a nationwide report on outdoor recreation which the Administration has long suppressed.

The Foundation reports in the latest issue of its monthly publication, *CF Letter*, that it has made repeated but fruitless efforts to secure access to information contained in the Nationwide Outdoor Recreation Plan.

The five-year study of outdoor recreation needs was ordered by Congress and completed in 1969 by the Bureau of Outdoor Recreation. It has reportedly been withheld from the public by the Office of Management and Budget because of the large price tags it carries. A principal recommendation is for the expenditure of \$6.3 billion in federal funds over a five-year period to meet urban recreation needs.

In a recent letter to Interior Secretary Rogers C. B. Morton formally requesting the plan, Conservation Foundation President Sydney Howe pointed out that the Foundation needs the information to prepare its forthcoming report and recommendations on National Parks for the Future, a project the Foundation is doing for the National Parks Centennial Commission under contract with the National Park Service.

The plan is being suppressed even though preparation of it has cost the taxpaying public some \$6.8 million. Howe said that withholding it could result in duplication of effort on the Foundation project and a waste of federal funds. He noted that the Park Service and Bureau of Outdoor Recreation are sister agencies in the Interior Department.

"We cannot think of any valid reason why the plan and supporting data should not be made available to the American people for any constructive purpose," the letter said.

CF Letter, which deals with urban park and recreation problems in its current issue, says that "despite lofty federal oratory in the last few years about meeting the park and recreation needs of inner-city residents — about bringing parks to the people . . . the federal agencies which could be playing a major urban park and recreation role generally have moved in that direction with glacial slowness."

The Conservation Foundation is a Washington-based, non-profit environmental organization.

Thoughts

from the

Distaff Corner

By Marge Higley

Remember Aladdin? He was a character straight out of the fables of the Arabian Nights. That was ages before anyone even thought of electricity, so people used oil lamps — and thereby hangs a tale. (Perhaps not quite as you may recall it!)

Aladdin lived with his mother in a shabby dwelling at the edge of town. They were poor, but he managed to pick up a dinar here and a riyal there by doing odd jobs for the tent-makers and camel drivers.

One day his mother's fat brother came to him and said, "I'll pay you well if you will do one small favor for me. I know where there's a lamp that I think I can sell, but it's in a cave with such a small opening that I can't seem to get it."

Aladdin thought there was something fishy about it, because Uncle Whats-his-name was hardly the type to run around peddling second-hand lamps. But money was money, so off they went to the cave, and Aladdin crawled through the narrow opening and found himself in a huge cavern with many chambers and tunnels. When he got the lamp he brought it near the opening so he could examine it.

"Why, it's nothing but an old beat-up-looking every-day lamp," he thought. "I'd better make him pay me before I hand it over."

But Uncle Whats-his-name had other ideas. So Aladdin, half in anger and half in jest, ran back into the cave, not really looking where he was going. Naturally, he got lost in the maze of tunnels, and was angry with himself for getting into such a predicament over a worthless old lamp. Accidentally, he brushed his arm against it and suddenly a great pillar of black smoke rose above him and there appeared a Genie who said, "I am your Genie. My name is Power, and your wish is my command!"

Aladdin didn't really believe it, but after all, what had he to lose? So he rubbed the lamp, and wished that he were safely at home. Sure enough, he found himself in his own house, clutching the lamp under his arm.

His mother looked up from her darning, or whatever, and said, "Aladdin, where have you been, and what are you doing with that dirty old lamp?"

"Don't knock it, Mama" he replied. "This lamp is power — and power means wealth beyond our wildest dreams. Here, let me show you."

He rubbed the lamp and immediately the Genie appeared — again, in a dense cloud of smoke.

"Get that thing out of here!" cried Mama. "The air's getting so thick I can't breathe!"

"Breathe, smeahe!" muttered Aladdin. "So who cares about the air when now we can have all the things we didn't even know we ever wanted?"

He made a wish that their humble shack become a castle, complete with all the latest automatic gadgets. The Genie went to work on it instantly, and even Mama was impressed.

In a very short time she became accustomed to all the luxuries provided by the powerful Genie, so she hardly noticed that big cloud of black smoke each time he was called upon to make his appearance.

One day Uncle Whats-his-name came knocking at the door, and as soon as he saw Aladdin, and looked around at the fancy castle, he knew that Aladdin had the magic lamp. Naturally, he called Aladdin a thief, and Aladdin called him a murderer, and soon they were fighting bitterly over possession of the lamp. About that time, Mama came home from her daily shopping spree.

"Quit the fighting, you dummies!" she cried. "If you men would just use your heads, we can all have power and riches. Aladdin, you just call your Genie and order another lamp just like this one, so your uncle can have one, too!"

Pretty smart gal, that Mama — huh? So Aladdin called on the Genie, and soon there were two clouds of black smoke in the air.

Well, one Genie led to another, and before long Uncle Whats-his-name's brother-in-law Whoosis had his own private Genie. Before long everyone in the country was living in great style. Hundreds and thousands of mass-produced Genies were working day and night to keep the populace happy. The air was constantly filled with dense clouds of black smoke. The trees turned brown and died; the few birds and animals that managed to survive soon left for greener lands.

Most people seemed completely unaware of what was happening, even though they almost choked at times on the thick air. Finally, one morning, Mama realized that she couldn't really tell if it was day or night.

"My eyes are watering, and I can hardly breathe," she gasped. "I think maybe we've overdone this Genie thing."

A few others dared to complain, too, and so a town meeting was called. Someone suggested that all the Genies be used only for real necessities. That idea sounded pretty good, but no one could agree on what were luxuries and what were necessities. By then they were all used to the good life, and each seemed to think that someone else was at fault. The din of angry voices was deafening, but Aladdin finally managed to make himself heard.



For lo, the winter is past, the rain is over and gone;

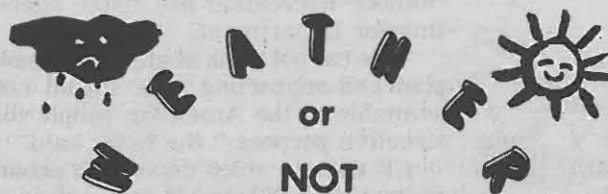
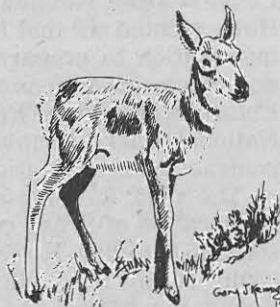
The flowers appear on the earth; the time of the singing of birds is come, and the voice of the turtle is heard in our land.

Song of Solomon 2:11-12

"I have an idea," he said. "Let's put all our Genies to work cleaning up the air and bringing back the flowers and trees and animals. I'll count to three, and we can all make the wish at the same time."

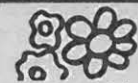
Everyone was so pleased with this idea that they didn't even stop to think it over. At the count of THREE there arose such a column of smoke, you just wouldn't believe! Up, up, up it billowed. All the people stared skyward, waiting for their Genies to appear so they could make their wish. But of course, by then, it was too late. That great final burst of power sent all the Genies soaring upward, and out of reach forever.

And what about Aladdin and all the rest of the people? Well, there was this huge cloud of dense black smoke that settled down . . . and down . . . and down . . .



	High	Low	
Sun.	64	31	Blue skies
Mon.	57	35	Grey skies
Tues.	62	38	Windy

So far, in April, we have had a mixture of March winds, April showers, and even a few May flowers. Typical Wyoming spring!



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New Life Style

The Goal: To create new life styles which reduce the waste and destruction of our environment. Since Americans consume more, per capita, than any other country, we have the worst impact on the planet's life support system.

1. Use soaps low in phosphate.
2. Do not use DDT and other pesticides with long residual effects.
3. Use natural predators - not pesticides.
4. Recycle wastes - paper, glass, aluminum (contact Tom Regan, %, Ecology Action Education Institute, Box 9339, Berkeley Calif.)
5. Refuse to buy products in non-returnable/ reusable containers.
6. Keep a compost heap of grass and garden clippings and biodegradable garbage in your yard. No need to buy fertilizers.
7. Begin or tend a park.
8. Be vocal about waste and pollution. Write or phone those responsible and those charged with our protection. And keep informed.
9. Sponsor neighborhood cleanups.
10. Fight those individuals and companies which profit by the sale, use, or manufacture of products which are harmful to the ecological system or deplete natural resources. The earth is finite - greed is infinite; profit is theft.
11. Resolve now to limit your future family size.
12. Drive a car as little as possible or not at all.
13. Don't smoke cigarettes! If you haven't started — DON'T. If you've already begun — STOP.
14. Any unnecessary pavement in your yard? We need more greenery . . . you know what to do.
15. Bring back the birds . . . start a bird feeding station.
16. Don't use plastics - they don't go away.
17. Give things you don't need to free stores, needy people, community centers.
18. Buy what you need at second hand stores.

Environmental Eavesdropper

LOONEY LIMERICKS

by Zane E. Cology

As power plants are increased
A lot more waste heat is released.
We strongly protest
More plants in the West,
To air-cool the buildings back East!

A strip mine act said to be one of the toughest in the nation has been signed into law by Ohio Governor John J. Gilligan. Passage of the act followed 15 months of study and debate. At one time Hanna Coal Co. threatened to close all of its mines if the act were passed.

A U. S. District Court in North Carolina has stopped a channelization project on Chicod Creek. The project is to ditch, dredge and straighten more than 66 miles of the natural watercourse. The court said the Soil Conservation Service had violated the terms of the National Environmental Policy Act by failing to issue an environmental impact statement. The case is a precedent.

An assistant administrator for planning and management in the Environmental Protection Agency, Thomas Carroll, told a meeting of Denver businessmen that clean-up of air and water pollution will cost \$52 billion by 1976. However, he said benefits would far outweigh costs, with most of the benefits accruing to the poor who live in the inner cities.

Forty-five of the nation's governors have confirmed they will proclaim Earth Week, April 17-23. Senator Gaylord Nelson, who was largely instrumental in gaining recognition for Earth Day, 1970, has urged the broadest possible support. Nelson said actually restoring and protecting the environment will be a matter of decades, requiring a sustained commitment by all citizens and institutions.

Industrial wastes dumped into the Mississippi River in Louisiana pose a threat to the drinking water of 1.5 million people, may make fish unfit to eat, and threaten to change the ecology of the Gulf of Mexico. That is the substance of a draft report by the Environmental Protection Agency. The report says dumping of heavy metals and organic compounds are the primary sources of concern.

London has become known as the sterilization capitol of the world. Great numbers of European men are coming to Britain because of opposition or illegalities in other countries. Many English couples are also deciding to be childless or to be sterilized after one child because they think Britain is overpopulated.

President Nixon drinks bottled water. The Army Corps of Engineer's Baltimore District water specialists are responsible for the periodic testing of the water to assure water quality.

The Oklahoma Senate killed a liberalized abortion bill. The author of the bill said affluent women can go out of state to obtain an abortion while poor women cannot.



Life and Politics

by Anthony Lewis

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LONDON, Jan. 16 - Anyone who reflects these days on the relationship of man and earth must eventually find himself operating at two levels of awareness.

He worries about his house and his car, his income and his possessions in the usual way. He gets angry at politicians when the power fails and his air-conditioner stops. He hopes his union will get that wage increase, or the company whose stock he owns will sell more of its new gadgets.

But all the time he knows that the premises of that life are false, that before long it must give way. For even a little serious thought will have made him aware that all the "progress" and "growth" of modern economic life are based on the plundering of a finite environment. And the thin crust of earth and air and water that sustains us is near its limits.

A recent coincidence of events showed how our political life deals with the unpleasant reality of environmental crisis in the same way, by operating in separate compartments.

In London, 33 distinguished scientists supported a "Blueprint for Survival" to avoid ecological catastrophe in our children's lifetimes if not ours. Instead of industrialization and growth, it said, we must move toward a "stable society" with limits on population and the use of resources. We must learn to think of everything we do in terms of effects on the environment.

In the same week it became known that the Stockholm Conference on the Environment, long planned for next June as the first great worldwide event of its kind, was in danger of foundering on a diplomatic issue. At the insistence of West Germany and its allies, East Germany was being excluded - and the Soviet block therefore threatening to stay away. And this exclusion despite the fact that East Germany is a major industrial power and is likely to be a United Nations member by the time of the conference.

"Diplomacy against biology," one scientist said - "It is absurd." He might better have said: Politics against life.

Politicians are like the rest of us enlarged. They underestimate, or perhaps they hide from, the gravity of the ecological crisis and the speed with which it is coming. They tinker with this pollution or that, they pass a useful law, but they do not face the essential truth that a revolution of attitudes is needed.

The Ecologist, a British magazine, published the "Blueprint for Survival." First it set out the reasons for urgency. For example, resources are

running out under the pressures of exponential growth: Ecological demand will multiply by a factor of 32 over the next 66 years at present growth rates. Can anyone imagine the earth meeting such a requirement? Even if we stop population growth completely in developed countries in thirty years, and the rest of the world in seventy, world population will stabilize at more than four times present numbers. One may argue over this figure or that, but it is impossible to resist the conclusion that a crisis is coming.

The Blueprint proposed an integrated program to meet the crisis. It rested on a call for abandonment of some basic human ideas: the instinct for fertility, the worship of economic growth, the tendency of our culture to become more industrialized, urbanized, centralized.

Those are demands for the most immense changes in human attitudes. Consider the matter of "growth" alone: How easy is it to imagine politicians giving up their promises of faster growth and higher incomes and heavier investment, and instead promising work for all at lower levels of income and productivity and investment and resource-use? But that is a minimum part of the necessary future.

Barry Commoner, in his new book, "The Closing Circle," puts it honestly and in moving words:

"The world is being carried to the brink of ecological disaster not by a singular fault, which some clever scheme can correct, but by the phalanx of powerful economic, political and social forces that constitute the march of history. Anyone who proposes to cure the environmental crisis undertakes thereby to change the course of history."

What makes "The Closing Circle" such an impressive book is that Commoner rejects pessimism. He does so not by fleeing from reality, or by responding to facts with despair, but by thinking in hard terms of what has to be done. He says calmly and quietly, for example, that over the next generation the United States must spend more than \$40 billion annually on ecological reconstruction. That would mean almost all of our capital investment.

Can it conceivably be done? If we begin to think about it, begin to read the newspaper stories and the blueprints and the books, a sated and weary society might even welcome the challenge. Commoner would say that America, richest and also most inventive of countries, offers the world its best hope. The first step is for politicians to take the issue seriously: the whole problem, the philosophical challenge. Who will begin?

Turner criticizes air statute . . .

Governor's office, the Public Service Commission, Wyoming's Washington delegation, and other related parties to begin discussion and development of such a policy.

In relation to pending growth in the power industry, the Republican state representative suggested that such a Wyoming Power Policy could address itself to some of the following areas of concern:

--For present and future planning in power development, establish important priorities and goals for Wyoming people.

--Attempt to inventory and budget what the Wyoming landscape, including its complex of renewable and non-renewable resources, can sustain over a long period of time.

--Estimate projected social and economic costs and benefits on local Wyo. communities in relation to such items as tax structure, school systems, sustained employment, welfare programs, law and order and environmental quality.

--Define costs and benefits over an extensive time period which will be placed on other Wyo. industries not directly related to power production.

--Analyze available Wyo. work forces and estimate how many workers will have to be imported to sustain different levels of energy development.

Turner said he realizes that this will require a difficult and massive effort but that such a policy "will be necessary to insure Wyoming will not plunge itself into a situation of almost unsolvable problems which have paralyzed so much of the nation because of a lack of planned and thoughtful growth." He also stated that he thought a Wyoming Power Policy would provide a needed framework of guidelines for individuals and agencies now working in the area of power production.

"It would also serve as an important educational process for presenting the positive and negative aspects of certain energy expansion to the citizens of Wyoming, thus giving

them the opportunity to provide their input into the desirability of such projects," Turner declared.

The Teton Co. legislator made eleven other suggestions to the Council more closely related to the actual Air Quality Control Program which he defined at present as "a dictate to allow degradation of Wyoming's quality air shed." He said he did not intend this to be a reflection of the Air Resources Council which has done a "commendable" job considering their "severe limitations" which include "inadequate funding, statutory restraints, lack of adequate knowledge and technology and a minimum of public participation."

Turner stated that perhaps the most crippling restriction was a clause in the state statutes which says that Wyoming's air standards can't "exceed federal standards." He pointed out that federal standards, both secondary and primary, are established as a compromise toward the national average and that Wyoming's current quality air will have to be polluted considerably to be in violation of such standards.

Wyoming is the only state in the union which has this restriction. Some of Wyoming's neighboring states have adopted air standards which are much tougher than federal ones.

Teton Suit Filed

Conservation groups have refiled an application for a court order to halt construction of the Lower Teton Dam in Idaho. Trout Unlimited, the Sierra Club and others have asked that construction activity be halted because that activity is in violation of a previous court order.

The groups seek eventual court review of the entire environmental impact. The dam would flood 17 miles of desirable trout stream and inundate winter range from some 1,000 mule deer. Water from the reservoir would provide for irrigation of 17,000 acres of new land.



When Spring bursts on the lowlands, the warmth reaches up to the ski slopes. Here, at the top of the world in

Colorado, or elsewhere in the high country, sparkling skies and scenic backdrops make for a photographer's paradise.

Skiing the West's High Country

The skiing mystique -- the peaceful, tranquilizing stillness of the morning, the brisk tingle of an exhilarating race down the powdery mountain slopes, the warm glow of an apres-ski fireside evening -- is Colorado and the high Rockies in winter or spring.

Majestically beautiful scenery, combined with challenging slopes, makes Colorado's ski resorts favorites for a top-of-the-nation vacation. But, when those fun-filled days are over and your tan face and aching body are but fading recollections, what better way to relive a vacation than through pictures. Vacation photos can vividly recall the pleasant personal memories of snow-blanketed beauty and carefree skiing with an imaginative touch of originality.

Just follow several rules of thumb, and you'll soon be on your way to creating a well-rounded book of picture memories.

Ski slopes give you an excellent opportunity to pose your subjects against the sky by shooting up at them. The blue satin sky makes a plain, undistracting background.

For action, shoot when the skier is coming toward you to minimize blur. Even a simple nonadjustable camera should be able to stop action coming at you.

To give your pictures that "extra special" quality, try varied lighting effects. Shooting with the sun behind the subject rather than yourself provides a backlit, halo effect. Sidelighting with the sun at right angles to the camera, will create more effective pictures by providing interesting shadows.

When shooting a snow landscape, backlighting or sidelighting will bring out textures and sparkle in the snow. This lighting difference will transform that winding river into a shimmering stream of silver and make the icicles hanging from the roof of the lodge sparkle like diamonds.

To use these two lighting effects properly, care must be taken to protect the lens of the camera from the direct rays of the sun. The shadow of your hand or a tree will do. Or, if you don't mind the extra bulk, bring along a lens hood. Shadows on snow under a brilliant blue sky will appear blue in your pictures. A skylight filter will minimize this effect if you wish.

When taking pictures of people or objects outdoors in winter with an adjustable camera, set your exposure for those subjects rather than the snow which reflects bright light. This will assure pictures that aren't underexposed and washed-out. The light is very bright at this altitude and sunlit scenes will take 1/2 to 1 full stop less exposure than you are accustomed to using. The slight extra cost of exposing 1/2 stop over and under on each scene will be repaid in perfectly exposed slides.

Remember that, while those sunny Colorado days are best for snow pictures, overcast days soften colors and are good for people pictures.

Camera experts remind you that no matter how beautifully sunny the day, extreme outdoor cold may present problems for your camera. Its

lubricants thicken, slowing down its mechanism. Film tends to become brittle and subject to electric static charges which will mark the film. Prevention is simply a matter of keeping the camera in your pocket or under your coat between uses. Rewinding the film very slowly should reduce the danger of static electricity.

The welcoming warmth of the ski lodge fire is as much a part of skiing as the crisp run down the slopes. Remember to bring a supply of flash bulbs to capture this part of your photo-memory album.

Film for instant-loading cameras is available almost anywhere, but you will save time and trouble by stocking up before you leave. On a mountain top, the nearest film dealer may not be so near.

Campers Looking for Comfort

Today's campers are making it clear that they'll bypass campgrounds without modern facilities. Results of a recent survey among camping families nationwide showed that 86 per cent of those interviewed look for fully modern or semi-modern campground destinations.

The average camping family spends more than 34 days camping each year, according to the study by the 3M National Company. An increasing number of camping families prefer private campgrounds to state or national parks because of the conveniences they offer, such as full hookups, hot showers, laundries, grocery stores and swimming pools.

The rapid growth of camping -- up 22 per cent in South Dakota in the past two years -- has created one of the camper's biggest problems: finding a campsite. Of those questioned on the 3M survey, 49 per cent said they had trouble finding campsites in national parks, while 34 per cent have had the same problem in private campgrounds.

Statistics from the 3M survey also show that many campers now bypass the attractions of large cities not necessarily by choice, but because of difficulties in finding convenient campgrounds. When unable to stay with friends or relatives in or near metropolitan areas, 26 per

cent stay in motels; 9 per cent avoid cities altogether.

Who are campers? The study shows that camping is a family affair -- and that the family is middleaged (45 years of age or older), educated (13.3 years of schooling) and financially secure (more than half were white collar workers who make more than \$12,000 per year). There are 4.1 persons in the "average" camping party.

These data correlate closely with a South Dakota visitor study last summer. Age and income averages were similar to those in the 3M survey, and the average party size was found to be 3.8 persons.

The South Dakota survey also showed that 47 per cent of all out-of-state travelers were camping.

Campers are extensive travelers as well. The average vacation trip taken by non-retirees involves 15.4 days away from home and a distance of more than 2,600 miles. Nearly half of those interviewed by 3M (47 per cent) said they plan to do more camping in the future; another 47 per cent said they will camp just as much.

