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Judge Calls Showdown in Montana

What may be a "showdown" in the best of Old West tradition could be in the making. Montana Gov. Thomas L. Judge has called the hand of Interior Secretary Rogers C.B. Morton. The outcome could have far-reaching effects on the rights of states to determine their own destiny.

Judge has taken an increasingly tough stand against high-handed industry and federal government initiatives in coal development. Recently, he wrote Secretary Morton to politely inform him that the state would take the lead in making decisions on coal-fired, electric generating installations. At issue was a decision by Morton to order an environmental impact statement on the large Colstrip complex of Montana Power Co. and four Pacific Northwest utilities. Judge said he had been informed that the job of making the statement had already been delegated to the State Bureau of Land Management Office in Billings.

The Montana governor told Morton, ". . . the state of Montana is unaware of any authority vested in Interior to justify the preparation of such a report . . ." He pointed out that Morton's decision could interfere with a state study now being done under Montana's Utility Siting Act.

The Montana Department of Natural Resources is doing a $1.2 million study, financed by the power companies and pursuant to the state law. The study is to be finished in 1975. Judge said his information indicated the BLM had a four to six month deadline which would put it ahead of the state study.

Judge chided Morton for the lack of a national energy policy. He said, "We are not aware of a clearly articulated, rational exposition of national or regional needs or impacts, from which policy positions may be drawn, or with which issue may be taken." He told Morton that he thought the Interior Department had enough to do in calculating national and regional energy needs, without getting into the impact statement.

At almost the same time that he was taking issue with Morton on the environmental impact statement, Judge was challenging the Interior Department in another area. This had to do with impending federal coal leases.

Judge said in response to a request from the BLM and the U.S. Forest Service, he was issuing a "preliminary position statement" on coal development. The statement was in particular regard to the Decker-Birney planning area of southeastern Montana. But Judge said, "For at least the initial five years of the (Interior Department) coal leasing program, Montana people and their government would assent to leasing of coal only if its combustion or conversion will take place near the nation's high energy demand areas. Consequently, both the lease terms and the characteristics of the coal deposits chosen for lease should dictate that the coal will be burned or converted at load centers."

Montana, like Wyoming faced with massive coal development, is taking a tougher stand against anything but mining. And so, coal mines like this one of Big Horn Coal Co. north of Sheridan, Wyoming, will proliferate across a wide area of both states.

In other words, Judge was telling the federal government that coal leasing in Montana should be conditional only upon the export of the coal and its burning or conversion at population centers where the demand was. He qualified this by saying, "This position can be modified only if it can be clearly shown that mine mouth industrialization is necessary to meet state needs."

The Decker-Birney study was done by the Bureau of Land Management and the U.S. Forest Service in cooperation with the State of Montana. But it was presented to Montana as a federal project and with various proposals for development. Only 26% of the land in the study area is federally owned and managed but 88% of the coal under those lands is federally controlled. Approximately 39% of the total study area is underlain by strippable coal. Only two per cent of the federal coal has already been leased. Approximately 285,000 acres of the study area contain some 15 billion tons of coal which can be strip mined.

The Decker-Birney study recommends the selective denial of leasing on about 166,000 acres of the total strippable area, containing some 8.5 billion tons of coal. Leasing is recommended for only 119,000 acres, containing some 6.7 billion tons of coal.

The Bureau of Land Management, which administers coal leasing, has said in effect that it has selected certain lands and values which would be severely damaged by mining. Those lands include 150,944 acres of rangeland, 6,919 acres of cultivated farm lands, and 6,820 acres of fossil areas. The values are those on 60 ranch operations, two historic battlefields, and wildlife habitat on most of the area.

Governor Judge also put other qualifications into Montana's stand on future coal leasing. He said leasing should only proceed ". . . in those areas where all resource values and land uses have been thoroughly inventoried. Only upon the conclusion of such studies (like the Decker-Birney study) can areas of highest conflict be avoided."

Judge went on to say, "This 'selective denial' concept is critical to sound resource management and presently can be implemented on a large-scale basis only in the Decker-Birney study area. Leasing of federal coal should not proceed in other regions of Montana until and unless studies of at least equal magnitude have been completed. The historic method of simply

(Continued on page 4)

HIGH COUNTRY

By Tom Bell

America has come to one of those great historic forks in the road. We are at a place and a time when monumental decisions must be made. The choices are not pleasant in view of the traditional American imperative.

The choices are between a continuation of the wasteful, extravagant, affluent American life-style, or a conversion to a more simple, restrained, want-not waste-not lifestyle. The first would allow us a few more years or even decades of the rich life to which we have become accustomed. But then our resource base will have become completely exhausted and there will be nothing to sustain our system.

The simpler lifestyle would allow us time to come to grips with the reality of our finite planet. We might be able to make additional adjustments up or down to reflect our current knowledge of available resources. This choice might allow us to continue as a viable society for another 200 years.

In actuality, we may have no choice. The die may already have been cast and we may be committed to a drastically reduced lifestyle brought about by inflation and scarcity. The warning flags are up around the world.

Corporate interests and a crippled national leadership may have already led us down a long, blind alley. The push for development of all possible fossil and nuclear energy sources is beyond comprehension. And because the push is a fragmented effort without clear direction, it stands to be as wasteful of natural and economic resources as any action this country has ever taken.

Take energy independence as an example. The declarations of President Nixon on achieving such a goal by 1980 are as phony and hollow as most of his declarations have been on clean air, clean water, land use and other matters.

James P. Gannon, in an article in the **Wall Street Journal** (March 6, 1974), says, "Talks with key energy and economic officials of the Nixon Administration clearly indicate that nobody knows just how the goal of energy independence is to be achieved, and most of these officials doubt that it can be reached by 1980. The costs — in price increases, taxes, government spending and environmental damage — are even harder to calculate."

In the same article, Gannon also says, "The American people probably have only scant understanding of the 'extraordinary things' that Project Independence may demand. Achieving energy self-sufficiency by 1980, or even 1985, would impose serious strains and huge costs on the American economy. Project Independence has sweeping implications for the cost of living, government spending, the quality of the environment, and the nation's economic ties to the rest of the world.

"The long-range implications have barely been studied or debated within the government, much less outside. In rallying round the goal of self-sufficiency, the American people haven't yet seriously asked two crucial questions: How? And at what cost?"

Gannon continues, "Another near-certainty on the road to self-sufficiency: unprecedented demand for money by the energy industries. This staggering need to borrow funds to finance new power plants, mines, refineries and such "will probably test the flexibility and responsiveness of our financial system as it has seldom been tested before,' a Federal Reserve Board member, Robert C. Holland, commented in a speech not long ago.

"Mr. Holland says the energy industries, which had total capital outlays of $198 billion between 1961 and 1971, would probably need at least $700 billion in capital for the period 1971-1985. The industry's capital spending, which averaged 21% of all business capital spending in the 1961-1971 decade, would swell to more than 30% of the total in the following 14-year span, he estimates.

"The energy industries' need to command a growing share of the nation's capital raises the prospect that some other borrowers will get elbowed aside in financial markets. Mr. Holland has warned that the nation must be careful to 'preserve a sense of balance' among competing priorities for money so that other needs don't get shortchanged."

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Letters

Dear Editor,

This past week two copies of **High Country News** were given to me. The articles about coal and the evident concern for a tax on this non-renewable resource prompted me to write.

During the recent legislative session in Montana I was the chairman of a sub-committee to present a bill to tax coal. My philosophy was that this non-renewable resource should leave a cash legacy to posterity from taxes levied on coal based on a percentage of each ton per BTU rating. The bill passed the House and did not pass the Senate because of the pressures brought by the coal companies, including the old saw of "anti-business." However, one point that was almost valid was that the neighboring states had such low taxes that Montana could not raise their tax too high at this time.

Today the Arabs have the oil and Montana and Wyoming have the coal. The energy hungry world is watching and waiting to pounce. With five coal companies operating in 1974 the lobbying efforts were vigorous, but with as many as 25 operating within a short time the pressures on legislators will be formidable.

I returned home determined to see support from the neighboring states for a united front in taxing coal. Also to persuade them that a percentage on the price of coal is justified so that the public will benefit as profits rise. We must present a united effort.

Yours very truly,
Ora J. Halvorson (Mrs. Stan)
State Representative
Kalispell, MT

* * *

Dear Bruce,

Thank you for the copies you recently sent of the March 1 issue of **High Country News**, containing the articles on North Dakota's problems with coal and Garrison. I was very pleased with your copy and photo layout on the Garrison story — the committee has received contributions from as far away as California in response to your story.

Our committee will be soon involved in another major effort in Washington to cut funding for the Garrison project, and I would like to distribute copies of your paper to key Congressional aids who will be helping us with the issue.

Thanks again for your help on the issue, keep up your good work.

Sincerely,
Richard Madson, Chairman
Committee to Save North Dakota

P.S. The March issue of **Audubon** has an editorial, page 108, on Garrison that I think you would find of interest.

High Country . . .

A House Interior subcommittee staff finding recently said it would cost $1.2 billion of capital investment in coal gasification to displace even one per cent of U.S. gas demand. The vice president and director of the energy economics division of the Chase Manhattan Bank, John Winger, says the petroleum industry is going to require $1.4 trillion by 1985 just to keep up with demand.

But in addition to all of these incredible sums, there is another factor. Earlier this year, the World Bank issued a report entitled, "The Implications of Rising Petroleum Prices." In essence, it raises the alarming spectre of so much money in Arab hands from sale of oil that the world financial system could break down. The massing of some $800 billion in Arab hands by 1985, the words of the report says would "present a radical turning point in the outlook for the world economy."

Inflation is already eroding away our dollars. Recession seems to be a grim prospect. And still we continue on our merry way. Maybe only when we are on our knees will we look up and thank the Lord for the small, simple amenities which are all we need to sustain our lives.

Editorial

Sellout Isn't Limited

It is no wonder that Americans are disillusioned with their government and what is happening in Washington. The President's ardor for the environment which sustains us has now cooled. In true Machiavellian fashion, we are now told that clean air must give way to our insatiable appetite for energy. That strip mined land is one of those victims of the "energy problem." That Montana, North Dakota, Wyoming, Utah and Colorado can be national sacrifice areas until we get this country back on the energy binge.

But the sell-out to the energy industry isn't limited just to the President. It is going on every day in the halls of Congress. (See Lee Catterall article, page 10.) Strip mine legislation — essential to the orderly taking of vast amounts of coal — is now being debated in the House Interior Committee. The paid, fat-cat lobbyists of the National Coal Association and the American Mining Congress and the individual companies are joined with the biostitutes from the University of Wyoming and other institutions of higher morality. They wait like jackals to pounce on any opportunity to weaken or neutralize or castrate the very essentials of a good strip mine act.

Witness the performance of one of Wyoming's "good-guy" companies. AMAX (American Metals Climax, a subsidiary of the giant South African conglomerate, De Beers Consolidated Mines) holds itself up to the public as enlightened industry at its best. But for the last week or so, AMAX has had a man literally camped in Wyoming Rep. Teno Roncalio's office. The reason is not hard to guess.

Amendments offered to the federal strip mining act (HR 11500) being considered by the House Interior Committee would directly affect AMAX's Belle Ayr Mine near Gillette, Wyo. Specifically, amendments covering the protection of underground water would require AMAX to modify its mining plan. That would cost money.

The National Academy of Sciences study of the possible detrimental effects of strip mining in arid areas pinpointed water as a critical problem. The study pointed to the need to preserve the hydrologic integrity of the water bearing formations when mining on alluvial valley floors. That means that underground water tables over a wide area are conceivably subject to effects from a localized disturbance such as a strip mine. In northeastern Wyoming and southeastern Montana, the best aquifers are the coal seams themselves or are closely tied to the coal seams. If the hydrologic integrity of those aquifers is not preserved, it could mean dry wells and springs at some distance from the mine. Hydrologists are almost unanimous in agreement that it is a critical problem.

Mr. Christopher Erskine, exploration geologist for AMAX Exploration, Inc. of Denver, recognizes the problem and says preserving the hydrologic integrity in an active stripping operation could be extremely difficult and costly but that it could be done. He told his superiors so in a memo. Nevertheless, Mr. Peter

Kepler, a young AMAX attorney, has been literally force feeding amendments to Mr. Roncalio. The effect is to replace strong language protecting the water resource with innocuous, unenforceable language.

Mr. Roncalio offered the first strong amendments pertaining to water and water courses. And he has taken a generally strong stand against weakening amendments — all to his credit. But he has allowed himself to be used by industry on specific points affecting at least two companies operating in Wyoming. And that is to his discredit. Now we will be waiting to see what he does with his own amendment, at the instigation of AMAX, when debate resumes on April 24.

—TB

Dear Tom,

About your Western Roundup item on "Colorado River Clean-up" in the March 15th issue: A quicker method of getting sweet water to Mexico would be to knock down the multitude of dams on the Colorado and its tributaries and restore it to a free flowing condition!

The article did not mention the real reason for the concentration of minerals in the Colorado, which render its waters unfit for human consumption. Or for agriculture or industry unless mixed with copious quantities of pure water from other sources (like Northern California!).

The great reservoirs behind the huge dams act exactly as do the commercial salt ponds along the coast and some of our inland lakes. Evaporation caused by solar heat dissipates pure water to atmosphere and leaves the salt behind. This is particularly true in the hot Southwest, where perhaps 100,000 acre feet of water annually is lost by evaporation, exclusive of the so-called bank storage, from Lake Powell alone.

Yet there is still a clamor to build more dams in the Colorado river system. We don't seem to be able to benefit from our own experiences, let alone those of the ancients of China, Mesopotamia and the Old World. Elmer T. Peterson's "Big Dam Foolishness" is no doubt long out of print but should be required reading for anyone in any way connected with a plan for water development on the rivers.

Sincerely, and best regards
Elgin B. Hurlbert
Pacific Grove, Calif.

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Guest Editorial

Reprinted from The Idaho Statesman, Friday, March 15, 1974.

Roll Out the Pork Barrel

Pork barrel politics still live in Washington. Chairman Joe Evins of the House Appropriations Committee has told the Army Corps of Engineers to get busy, spend some money, build some dams, and forget about fish and wildlife.

The Evins message gives you a clue as to why so many expensive and environmentally destructive dam projects have been built in the past.

Evins was complaining that the Corps wants to spend $1.9 million for the steelhead hatchery at Dworshak and $1.2 million for a deer winter range area.

Dworshak dam cost $150 million. It flooded 50 miles of the North Fork of the Clearwater River, where steelhead used to spawn. It flooded critical canyon habitat for deer and elk that is vital to their survival in winter. The result is fewer elk and fewer deer.

So Evins is upset that the Corps is willing to spend a little to make up for the damage. He wasn't upset about the $150 million that went into the dam.

There are better ways to create jobs than to spend tax money on environmentally destructive dam projects.

Pork barrel politicians like Evins apparently see the energy shortage as a golden opportunity to get back to the good old days — when you didn't pay much attention to cost-benefit ratios (Is the dam worth building?) and ignored the destruction of fish and wildlife habitat.

The people of the Northwest aren't so callous about remaining rivers, or so stupid, that they are likely to accept that kind of logic.

Idaho has no shortage of power. Oregon and Washington were temporarily short because of a year of light runoff, but overcame the problem. This year's heavy snowpack means much more power will be available. There are additional generators to be installed in existing dams, and nuclear plants under construction.

We don't need a revival of pork barrel dam building in the Northwest. If Congress has that kind of money to spend, let it provide some tax relief, rather than indulge in a new pork barrel orgy.

Wyoming Coalfields - Scene of Conflict

The Burlington Northern and the Chicago Northwestern have applied to the Interstate Commerce Commission for a permit to build a new 120-mile rail line between Gillette and Douglas. Additional short spur lines to all the various mines would also be built. Projections have been made that as many as 50 unit trains a day, composed of 100 cars each, would be leaving the area for other parts of the country.

In addition to ICC approval of the rail line, the right-of-way crosses federal lands administered by the Bureau of Land Management and the U.S. Forest Service. This also requires federal approval. So a federal task force has been assembled and closeted at the Hitching Post Motel in Cheyenne, working on a crash basis to provide a draft environmental impact statement by May. (The task force has been there since January, housed and fed at taxpayer expense.) After allowing only a 60-day review period, a final impact statement could lead to full-scale development of federal coal leases in Wyoming.

The Sierra Club and other national and regional citizen groups view these proposed developments, and similar ones in other Northern Plains states, as part of a regional federal plan to facilitate coal development. They took their case to court, arguing that these interrelated pending actions should be preceded by a comprehensive regional environmental impact statement on coal development in the Northern Plains.

The judge ruled that a regional impact statement was not required by the National Environmental Policy Act because no regional plan for coal development had been formally proposed. He said the government's plans to prepare an impact statement on a national coal leasing program and individual impact statements on individual mining-related proposals in the region were sufficient to meet the letter of the law. The plaintiffs argued unsuccessfully that this approach represented inadequate, piecemeal planning. It is now anticipated that efforts to force region-wide planning will come from legal attacks on such individual developments as the railroad, water supply, and rights-of-way for pipelines, aqueducts, and powerlines. These cumulative actions could eventually accomplish what the larger suit was intended to do.

A former planner with the Wyoming department says he thinks DEPAD is not only in error in its projections for Johnson County but is far too conservative. Rich Douglas, county planner at Buffalo, says the state planners have not taken into account the big companies sitting on resources of both coal and water.

He points to Texaco and Carter Oil, a subsidiary of Exxon, both of which hold huge reserves of coal and water either readily available or easily developable. Both could be considering gasification plants. Two other large firms are said to be securing water and coal rights in the area.

Douglas says the construction phase of one gasification plant could bring in 5,000 workers. The total county population is now around 7,500.

Wyoming's Powder River Basin seems destined for massive coal development. But such development may not come about until some bruising court battles have been fought over how and where it should take place. Wyoming does not have the leadership of a Montana Governor Thomas L. Judge and a state government apparatus geared to protect state interests against huge corporate interests. (See story, page 1.) So the pressure is building to pull the stops on federal coal leasing in Wyoming. Companies already holding leases or purchased coal deposits in the Gillette-Douglas area are rapidly moving toward full-scale development.

A recent report from Wyoming's Department of Economic Planning and Development casts new light on such developments. For Campbell County alone, in which Gillette is located, the Department says a projected three gasification plants last August is now set at four. Only one steam-generating power plant was known last year. Now another is projected. Four coal mines were either in operation or planned last August. Now there are 12 proposed.

Southern Campbell County also has large uranium reserves. At least one mine was projected in the fall. Now there are two, and with the additional mine a uranium processing mill is now projected.

People impact — the sudden rush of thousands of construction workers into an area of energy development — is causing rising fears throughout the West. The scene above is in Sweetwater County, Wyoming, near Rock Springs. Large trailer camps have sprung up almost overnight in the wake of construction for a large steam-generating electric plant, the expansion of trona mines and plants, the re-opening of coal mines, and the accelerated search for oil and gas. The area still faces the possibility of oil shale development. Similar scenes will be repeated across the West as oil shale and coal come under intensive development.

Showdown in Montana . . .

(Continued from page 1)

responding by leasing in the areas of greatest corporate interest should not be resumed."

Judge's decision to limit Montana's development to an 'export only' policy effectively limits mining in the Decker-Birney area. The BLM said the 'export only' alternative should limit development to six mines with a maximum production of 10 million tons each.

The other alternatives which Judge declined were: low development — three mine-mouth generating plants and one export mine; medium development — three mine-mouth generating plants, two gasification plants and four export mines, and high development — three power plants, nine gasification plants and 12 export mines.

BLM projection figures indicate permanent population increases of 1,590 people for each export mine; 6,131 people for each gasification plant, and 2,100 people for each 1,000 MW power plant.

Judge also said no more water should be sold or allocated to companies as a part of a coal lease. A federal leasing program is said to be contemplating the allocation of Bureau of Reclamation water in conjunction with coal leases. Both power plants and gasification plants require huge amounts of water.

Judge said the state takes the position that compliance with all state laws should be required as a condition of a federal coal lease. He specifically cited the Montana Strip Mining Act, the Strip Mining and Reclamation Act, the Utility Siting Act, the Coal Conservation Act, and the Water Use Act. And he said any further coal leasing should take into account "the 1.7 billion tons of federal coal currently under lease in Montana, extensive Indian coal leases, the 32,775 acres of state coal under lease, and the vast reserves of privately owned coal committed to development."

Citing still other important factors of coal leasing and development in the five and one-half page "position statement," Judge concluded by saying, "The State of Montana wishes to reiterate its desire to help meet the essential energy needs of our nation. However, we believe a careful distinction must be drawn between "energy needs" and "energy demands," and we do not believe that one region should be asked to bear a disproportionate share of the social and environmental costs of meeting nationwide needs."

Living Filter Treats Sewage

by Gregory Paul Capito

In the rolling countryside of central Pennsylvania, a quiet revolution has taken place. Here, an interdisciplinary team of scientists from Pennsylvania State University have pooled their knowledge and developed an alternate method of discarding treated sewage.

Traditionally, sewage was collected from the university and the nearby town of State College and piped to a centrally located waste treatment facility. There, the waste water was given primary and secondary treatment. The remaining chlorinated effluent was discharged into Thompson Run, a tributary of Spring Creek.

In the past, Spring Creek was a fisherman's dream; rich in aquatic life, clear and full of plump trout. As the university and adjacent town grew, the volume of treated sewage dumped into the creek increased and the watercourse slowly changed from prime trout water to a grossly polluted stream fit only for rough fish.

This story is a familiar one. The increased loads of nitrogen and phosphorous from the waste treatment facility simply taxed nature's own purification system. Thus, the stream deteriorated, a loss mourned by all who understand and appreciate the complexity of an aquatic ecosystem.

Faced with this problem, researchers at Pennsylvania State University devised a system which would recycle the by-products of human activity back into the environment. By working within the ecosystem, scientists employed soil and plants as part of a natural treatment facility they termed the living filter. This approach was intended to eliminate the harmful side-effects of conventional waste treatment.

To accomplish this end, sewage was treated as before. However, after primary and secondary treatment, the effluent was piped to an experimental site near the university. Here, the waste water was sprinkled on two study areas, one heavily forested, the other an agricultural plot. The object of this experiment was to determine the effectiveness of soil and plants in reducing the amount of nitrogen and phosphorous in the treated effluent, while at the same time, improving the quality of the waste water. In addition, the project was to determine whether the sprinkled waste would increase the productivity of farm and forest. Another aim of the program was to test the effectiveness of the living filter in naturally recharging the underground water table of the valley, which had been seriously depleted by human consumption and seasonal drought.

The effects of sprinkling treated waste water on the experimental plots over a five year period were amazing. Production on the farm dramatically increased with yields of alfalfa, corn, and oats more than doubling. On the forest land, notable increases in growth were indicated on stands of white pine, Norway spruce, European and Japanese larch. In addition, the natural filter of soil and plants reduced the phosphate load by 98% before the effluent had percolated more than one foot. Nitrogen was reduced on the agricultural area from 60-90%. Ground water samples of nitrogen taken on the plots remained well below the standards demanded of quality drinking water.

Questions regarding the ability of the living filter to eliminate disease-carrying bacteria were crucial. The percolating waste water was monitored at depths of 12,18, 24 and 28 inches. Of 19 samples taken, fecal-type bacteria were virtually nonexistent at depths of two to four feet. The average coliform count for the entire sampling averaged only one per 100 milliliters. The project was also successful in recharging the valley's depleted ground water reservoir. The water table, which had dropped 60 feet in three years, was stabilized.

Despite the success of the living filter in central Pennsylvania, the program does have certain limitations. First of all, areas under consideration for the living filter program must be carefully studied with special emphasis placed on soil permeability and storing capacity. In addition, a temperate climate is necessary in order to permit maximum percolation of water and assimilation by plants. Also, there is the problem of obtaining space for the sprinkling plots. In most instances, sprawling metropolitan districts would not quality. The project is better suited to cities and towns located near rural areas.

Perhaps the single greatest consideration is to carefully analyze all of the above factors before determining the suitability of a project site. In short, employing the living filter system requires an in-depth understanding of the biosphere and the complex cycles of which it is an integral part.

Energy Prophet M. King Hubbert

by John Heritage
Christian Science Monitor News Service

The fickleness of public opinion and the malleability of energy facts are dramatically illustrated by geologist M. King Hubbert's decades-long battle to find an audience for his oil shortage forecasts.

No one listened when he foretold today's shortages. Will we listen now to his forecasts of graver shortages tomorrow?

The peaks and valleys in Dr. Hubbert's oil and gas production curves reflect a tough fact of life in energy affairs: The black gold that has powered the drive to unprecedented affluence and industrial power will only be a "blip" in U.S. and world history. In about 30 years American oil will cease to be a major energy source, and in 50 years the world's supply will have run its course, according to the Hubbert projections. The evidence indicates a similar short life span for natural gas.

Dr. Hubbert argues that the highly touted Alaskan oil field will only slow the downward U.S. supply trend and that a frequently predicted oil bonanza in the Atlantic Ocean off the American East Coast is mere speculation. While Dr. Hubbert once favored nuclear energy as the long-term alternative energy supply, he has been increasingly concerned about its environmental and health dangers. He now thinks solar energy has a greater potential.

It was at an American Petroleum Institute symposium nearly 18 years ago that geologist Hubbert began to propound. He predicted that finite natural reserves would force domestic U.S. oil production into a permanent, inexorable downturn by the late 1960 s. The oil-supply decline would raise "grave policy questions with regard to the future of the petroleum industry," Dr. Hubbert argued. The Shell Oil Company, then Dr. Hubbert's employer, deleted the warning from the scientist's paper when the conference proceedings were published.

In a 1962 special National Academy of Sciences report to President Kennedy, Dr. Hubbert again projected the end of the era of bountiful American oil and urged the development of a new energy supply base. Initially, only 500 copies of the committee report were printed. The public and political impact was as tiny as the ripples from a pebble thrown into a pond.

Throughout the past decade, Dr. Hubbert's predictions were continually overshadowed by much more optimistic reports from the government's chief energy resource advisory agency, the U.S. Geological Survey. While Dr. Hubbert was estimating that recoverable U.S. crude oil reserves in the lower 48 states would ultimately total about 170 billion barrels, published survey estimates, including specific circulars and reports in 1962, 1967, and 1972, were ranging from 400 billion barrels.

Statistics now indicate that the historic turning point for production of U.S. oil was reached in 1970, two years later than the Hubbert forecast. In the January issue of the "Oil and Gas Journal" a chart shows the production level climbing year after year until that date, then beginning an ominous swing downward.

The ending to the story of Dr. Hubbert's forecasts is unknown, however. The unsettled question is whether the profound lessons in the scientist's mathematical curves will permanently improve U.S. energy understanding and planning, or quickly be forgotten now the flow of Arabian oil is restored.

STRETCH Saves Timber Resources

The U.S. could be saving at least four billion board feet of timber. Jerry Saeman, reporting on Project STRETCH of the U.S. Forest Products Laboratory in Madison, Wis., says this savings can come about by greater utilization of trees at the logging site and the sawmill, by veneer and particleboard processes, and by more efficient building practices.

Arnold Bolle, a professor of policy and administration at the University of Montana school of forestry, says, "Project STRETCH comes out as the best alternative to increasing allowable cut. This may be why the National Forest Products Association (NFPA), unbelievably, protested the project last year."

"The low price of timber depresses our reliance on innovative technology. In fact, a good friend of mine in the industry was very unhappy with a recent order for accelerated cuts because he said it acted as a deterrent to innovation," says Bolle.

Bolle visited the Madison STRETCH project a few months ago and said he was told the four billion figure is conservative and the real savings may be twice that size. He said, "There is a further potential saving of six to eight billion board feet by diverting saw logs now used for pulp."

Udall Bill Makes Feeble Comeback

House Revives U.S. Land Use Bill

When the House Rules Committee voted to keep the year's major piece of federal land use legislation off the House floor "the bright light of freedom shone across the country," according to one legislator. Another legislator grumbled that, to the contrary, the Rules Committee action was despicable — just a part of "immoral White House double dealing."

The bill that stirred such a range of emotions in legislators was Democratic Rep. Morris Udall's Land Use Planning Act of 1974, HR 10294. Once thought to be dead, it looks like the battle-scarred bill will rise up again, sometime in May.

At the beginning of the year, nearly everyone agreed that land use planning was critical for the U.S. In his State of the Union message, President Richard Nixon said that national land use legislation was of the "highest priority." Twice, he had praised the land use bill passed by the Senate last June, S 268, which is parallel to the House bill. An unlikely coalition including the National Governors Conference, the League of Cities, the National Association of Counties, the National Association of Realtors, the National Association of Home Builders, and environmentalists voiced support for the House bill.

The bill, HR 10294, had passed out of the Interior and Insular Affairs Committee with bi-partisan support — 26 for, 11 opposed. Then, before it had a chance to stand the test of floor debates, the House Rules Committee torpedoed it. Lobbyists representing the U.S. Chamber of Commerce and some construction labor unions had pressed the committee hard. The President's apparent withdrawal of support may have been the last straw.

The Rules Committee sunk the measure by a 9-4 vote on February 26. The bill was indefinitely postponed.

Urban sprawl gobbles up vast acreages of the nation's farmlands, while in the West ranchlands give way to second-home subdivisions. This pastoral scene in Wyoming's Wapiti Valley near Cody is slated to give way to a developer's dream. It is a scene destined to be repeated until land use planning forces us to look at the cost of land lost to the speculators for a quick buck. Photo by Lynne Bama

THE OPPOSITION

Those testifying before the Rules Committee had three reasons for opposing the Interior Committee's bill. Some were afraid that property rights were threatened. Some were afraid that states' rights were in danger. Construction labor feared that development might be delayed by the legislation.

"The bright light of freedom shone across the country" when the land use bill was killed, said Rep. Gary Ingram, a Republican from Post Falls, Idaho. The "cooler heads prevailed" said Sen. Cliff Hansen (R-Wyo.).

Nixon had inexplicably cooled off about the urgency of the House bill. Nixon's appointed Secretary of Interior, Rogers C.B. Morton, had already come out in favor of HR 10294. Despite that Administration position, the day before the Rules Committee vote, Nixon reportedly told House Republican leaders to work out a compromise. The new bill was to be a mixture of the committee bill already passed and the so-called "Chamber of Commerce Bill" introduced by Rep. Sam Steiger (R-Ariz.).

By making the sudden shift, some observers thought the President had jeopardized the enactment of any land use bill at all this year. But at the end of March, House Democratic leadership, the Rules Committee and Rep. Morris Udall agreed to allow the bill to re-emerge. Further hearings on the bill are now scheduled for April 23 and 25. Rules Committee reconsideration of the measure will not come before May 7.

Two Arizona Republican congressmen, John Rhodes and Sam Steiger, take credit for the President's apparent change of heart. Steiger claims that Nixon had endorsed only the concept of land use planning, not the House Interior Committee's bill. Both congressmen had visited the White House just before the Rules Committee vote and voiced their fears about the bill.

Determining the Administration's exact stance is difficult. Although Steiger said that the Administration supported his bill, an Interior Department legislative official said Interior supported the Udall bill. Nixon appointee Russell W. Peterson, chairman of the Council on Environmental Quality, said that he was disappointed by the Rules Committee action and that "it is of major importance to the nation to have a strong land use bill this year." John Quarles, deputy administrator of the Environmental Protection Agency was "dumbfounded" by the Rules Committee action.

Outside of the Administration, Udall (D-Ariz.) called the unexpected turn of events "the kind of immoral White House double-dealing we've come to expect on environmental issues."

INSIDE THE BILL

Exactly what is this bill that gained such broad-based support and such fierce opposition? What has provoked some congressmen's fears of eclipsing private property rights and the powers of the states?

Rep. Teno Roncalio (D-Wyo.) sees no threats to freedom in the bill. He calls it "an excellent piece of modest legislation which leaves local policy to be determined by local officials and represents years of bi-partisan effort of the committee."

If it is not a threat, neither is the bill an environmentalist's dream. It provides no substantive requirements for the states to follow and no punishment for states who refuse to initiate a land use plan.

The bill does establish a framework for land use planning and provides the money to build it. Under the Udall plan, the Secretary of Interior would make annual grants totaling $100 million over eight years. The bill requires that states set up a land use planning agency and an intergovernmental advisory council. The bill also requires that states develop policies about areas of critical environment concern and about projects of regional concern such as airports, shopping centers, subdivisions and other large land developments. Only states that established an agency, a council, and policies to deal with state concerns would receive a piece of the $800 million land use pie.

The major lobbyists against the bill in committee were those working for the U.S. Chamber of Commerce, the Farm Bureau, the American Mining Congress and the Forest Industries Association. Rocky Mountain congressmen who voted against the bill in committee included Democrats Harold Runnels of New Mexico and John Melcher of Montana.

The original alternative, Steiger's HR 11325, provided $200 million for state planning, with fewer strings than were attached in the Udall bill. State concerns were not spelled out. David Calfee of the Environmental Policy Center called it "merely an infusion of federal funds for business as usual with local planning and zoning."

Meanwhile, aided by the Administration, Minority Leader John Rhodes has drafted a compromise bill to be used as a bargaining tool if the Udall land use bill reaches the House floor. The Rhodes bill offers federal grants only to states that have a land use policy in effect and an agency to administer it. The Udall bill, on the other hand, provides grants for making the land use plan, as well as for implementing it.

The Rhodes bill would provide $50 million each year over a six year period, considerably less than the Udall bill.

The Rhodes bill would require an inventory of land and identification of critical environmental areas. The Udall bill requires a similar inventory, but adds that definite policies to protect these areas must also be formulated.

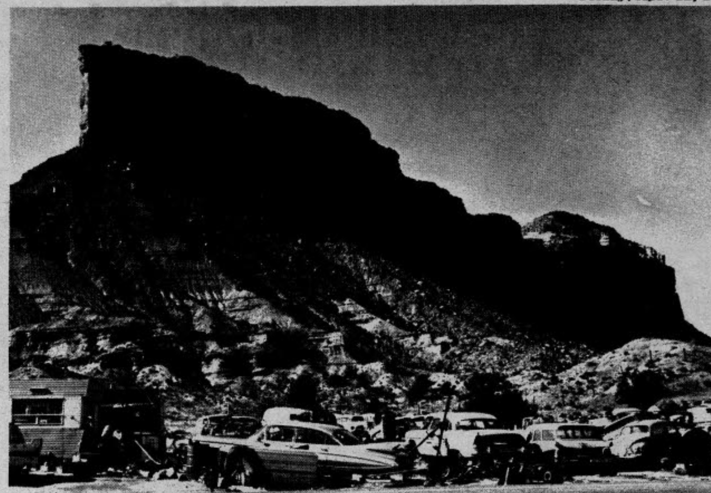
Udall believes that the Rhodes alternative bill almost duplicates the Steiger bill. "It has most of the defects of Steiger's bill and in some respects is worse," Udall says.

Take Action

Further Interior and Insular Affairs Committee hearings on the House's federal land use bill are scheduled for April 23 and 25. Rules Committee reconsideration of the measure will probably come sometime after May 7.

If you wish to voice your support for strong federal land use legislation, recommend the bill sponsored by Rep. Morris Udall (D-Ariz.) and already passed by the House Committee on Interior and Insular Affairs, HR 10294. Rules committee members who might change their mind and vote for the bill, according to House observers, are Rep. Ray Madden (D-Ind.), Rep. B. I. Sisk (D-Calif.) and Rep. Morgan Murphy (D-Ill.). A total of eight votes are needed for passage to the House floor. Five members of the committee have already voiced support for the bill (one was absent when the last vote was taken).

Letters about the bill should be sent to the potential swing congressmen on the Rules Committee mentioned above and to The Hon. Morris K. Udall, chairman, Subcommittee on the Environment, Committee on Interior and Insular Affairs, U.S. House of Representatives, Washington, D.C. 20515. In preparation for floor discussions letters should also be sent to your local representative.



Lack of planning (and an insensitivity to the beautiful in America) leads to blight on the landscape. Some still decry the loss of rights in private ownership which results from planning and zoning. But few deny the responsibility to the land and the landscape which should accompany ownership. Planning is needed when land simply becomes a commodity and not a priceless heritage. **Photo by R. P. Pharis**

Wyoming

Land Hearings Public

Wyoming is bringing land use questions to the people at a series of hearings this spring.

The hearings will focus on a bill drafted by the Wyoming Conservation and Land Use Study Commission. As it now stands, their bill creates a nine-member commission appointed by the governor and approved by the state senate. The governor would also appoint a 27-member advisory committee.

If the bill were passed, all local governments would have six months to submit a local land use plan to the commission for approval. The bill would also set up a land use information center and a system of administrative review.

The draft bill is merely a vehicle to present the issues to the public, the commission says. A number of questions will be resolved after listening to input at the hearings. Among them:

— Should the commission have the power to issue permits in areas defined as critical or of more than local concern?

— How should the local planning be funded? The mineral severance tax has been suggested as one source.

Hearings on the draft bill are set for May 20 in Cheyenne, May 21 in Casper, May 22 in Gillette, May 23 in Worland and May 25 in Rock Springs.

Utah

"Mush" Scares Citizen Group

During their budget session this year, the Utah legislature passed a land use planning act. They got few thanks from strong land use advocates, however, who called it "toothless' and "a bowl of mush." Even that so-called mush looks threatening to some, it now appears.

A group called the Citizens for the Preservation of Property Rights has initiated a petition to have the act reconsidered — this time by the voters, on the November ballot. Austin Belnap, co-chairman of the Concerned Citizens, says that he would like to see the bill recalled. He fears that the law would take power from the local government, which is close to the people, and give it to state and federal bureaucrats.

The provisions of the Utah act do not grant any power over private property to the government. The bill creates a nine-member commission appointed by the governor to work with local governments to draft a state land use plan. The plan would be submitted to the state legislature for approval next year.

The act also provides money and technical assistance to counties and localities to help them perform their planning and zoning functions.

Twenty-eight of 29 counties in Utah have endorsed the measure.

"This is the last step in the complete control of the American citizen," says J. McKinnon Smith, editor of the **Utah Independent.** "Cal Rampton (Utah's governor) should be drummed out of office for the way he ramrodded this through the Legislature."

Rep. Glade Sowards (R-Vernal) has suggested that opponents of land use planning "stop building paper dragons" around the act.

If the referendum drive is successful, and the bill is placed on the November ballot, this will, at least, result in a one-year delay in implementing the act.

It would be tragic "if the people of the state turn down land use planning," Gov. Rampton says.

Colorado

Bill Amended Away

Colorado's most important piece of land use legislation has 18 pages of amendments trailing behind it in the Senate State Affairs Committee.

The bill, HB 1041, sets up a State Land Appeals Board. Originally the board, while delegating as much responsibility as possible to local governments, could require that localities meet state standards.

Rep. Dick Lamm (D-Denver) says that changes already adopted by the senate committee make those powers of the state "very obscure."

Idaho

Irrigators Halt Boom

A resolution passed by an irrigation district which includes Boise, Idaho, will have far-reaching effects on the use of land in the region.

The Nampa-Meridian Irrigation District (NMID) resolved that the district will not accept any water that does not meet U.S. Environmental Protection Agency (EPA) standards. That controversial move may hold up $70 million worth of new construction.

Until treatment system standards are developed and an enforcement agency is decided upon, no developments adversely affecting irrigation waters will be approved. When the moratorium is lifted, builders will have to install water treatment facilities or not build.

An Idaho Attorney General's opinion gives the district "authority to stop the drainage from being changed." The NMID intends to do just that, says the district's secretary, Joe Voight.

The agency named to enforce the EPA regulations, the Ada County Highway District, hasn't agreed to tackle the job yet. The highway district's chairman, Leon Fairbanks, is not enthusiastic.

"These EPA and other federal regulations irk me no end," he says. —JN

IT'S STRUTTING TIME

The first noise to break the still night is a resonant plopping — like the sound of a rock dropped into an old well. In the hour before sunrise, the sounds seem to emanate from the dark forms of the surrounding sagebrush.

As morning twilight approaches, white ghosts appear and disappear among the brush. More light reveals that they are the showy white breast feathers of the sage grouse cocks.

Soon many cocks are visible — congregated in a grassy patch surrounded by sage. Hidden in among the brush are the smaller less showy hens which nibble on the sage leaves with apparent disinterest in the spectacle about them.

Each cock goes through the same colorful courtship ritual. First, he spreads his pointed tail in a semicircular pattern to expose his exquisitely speckled plumage. Simultaneously, the male erects the neck's filiplumes around his head to form a lyre-shaped crown.

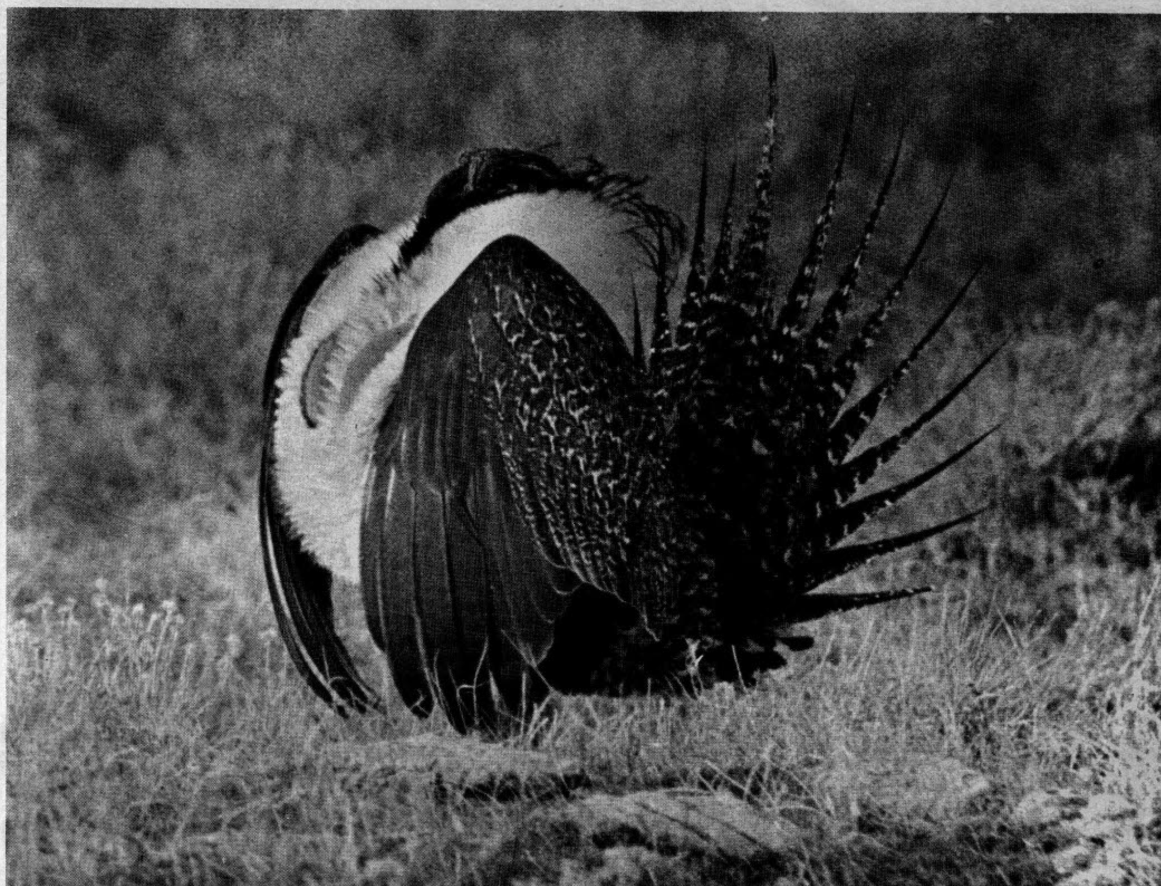
The cock's flashy white breast is thrust forward and his head is cocked back. Then two gaudy yellow air sacs bulge out from the front of the white collar. The wings are brought forward until the tips almost touch the ground.

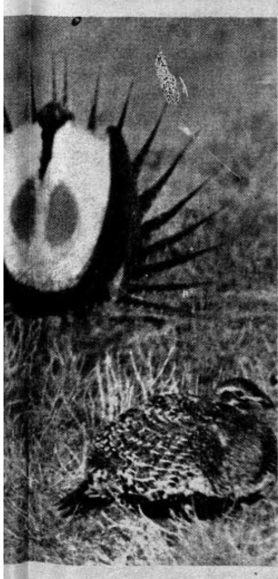
With a gulping motion, the pendulous air sacs are further expanded and the cock takes three dance steps forward. Then a swishing noise is produced three times in rapid succession as the leading edge of the wing feathers are scraped across the scale-like feathers of the cape. By the final pass of the wings, the air sacs are fully inflated so that they seem almost ready to burst. Now the sacs are bouncing on the cock's breast. The resonant plopping noise that is released is caused by the sudden contraction of the neck muscles which trap air in the distended sacs causing the membranes of the bare areas to vibrate. It's not a loud noise, but it carries for a mile.

At the zenith of courting fervor, this cock dance may be repeated up to 12 times a minute. Hens may pass among the cocks, but no cock approaches them. They seem too wrapped up in their own display of self-importance to pay attention to the objects of their frenzy. Rival males are noticed, however. Strutting can be interrupted by fierce, short battles that leave blood-spattered wings and breasts.

A strutting ground may attract anywhere from five or six cocks to over 800. This wooing activity starts as early as late February and can run into early June. Activity is highest around sunrise and sunset, but in peak season, in the bright moonlight, cocks may compete all night. Sometimes an area is so heavily used that an acre or more of prairie will be trampled to bare earth. In one section of Wyoming's Red Desert strutting grounds are located approximately every six square miles.

The cock's competition is long and tiring, but the prize makes the effort worthwhile. When the battlefield becomes a courting and mating ground, only the biggest, showiest, strongest males will mate — and this insures the strength of the breed in their offspring. The strutting





determines a mating hierarchy that is strictly adhered to. The dominant or master cock does most of the mating. In one study the master cock serviced 74% of the hens. His subservient major rival or subcock serviced 20%. Guard cocks, the ones that surround the hens and protect them from intruders, occasionally forget their duties and mate with the remaining hens.

After mating the hens are left to hatch and raise the young alone. The females lack the showy feathers of the male, so they blend in well with their environment. Setting hens will remain on the nest without stirring as a person passes only a foot or two away.

—BH

Photos by Charles W. Smith

Reckoning from Washington

by Lee Catterall

Proposals scheduled for House action reflect a growing opposition to oil industry tax breaks, and the oil depletion allowance is emerging as the most vulnerable.

Opponents of the oil industry have been restrained only by a Presidential veto recently in their attempts to get at the companies, causing a spokesman for Sen. Clifford Hansen to grumble, "They've got enough votes to do pretty much what they please."

The 50-year-old oil depletion allowance is perhaps the most controversial of the tax breaks. It allows companies to be free from paying taxes on 22½% of their gross income from drilling, with some limitations.

The purpose is to encourage companies to invest that extra profit into exploration for other oil reserves. The companies say they're doing that, but increasing numbers of people doubt it.

The battle often is depicted as being between Big Oil and Joe Taxpayer. But Hansen and other western politicians argue that is not true with the depletion allowance, and one recent event appears to support their view: Atlantic-Richfield, the nation's fourth largest oil producer, came out several months ago in favor of doing away with the allowance.

Why? Because drilling for oil is only part of ARCO's operation. It carries the oil all the way to your car engine in the form of gasoline. Often that oil was drilled by somebody else and bought by ARCO, so the somebody else was the one to get the tax break.

Opposing the allowance was an apparent way for ARCO to create a better public image and not be hurt greatly in the profit figure.

The House proposals would phase out the depletion allowance beginning in 1975. As oil prices increase, the allowance would be reduced and finally eliminated when oil costs $8.25 a barrel. That's expected to come around 1980. Small producers would be exempted.

Oil from "old" fields is under price controls right now at less than that, so it would still qualify for the allowance until it's allowed to rise to $8.25, and does. But Hansen says the big majors are mostly the ones that fit under that category, while independents, which have higher drillings costs, charge more than $8.25 now and would be damaged more.

It's widely-thought that Big Oil is the one carrying the lobbying ball on this. But, for the same reasons given by Hansen, the more anonymous, independent producers are the chief lobbyists, and they're in some ways even more powerful than the biggies.

For one thing, there's more of them. For another, on the issue of depletion allowance, they can add greatly to their ranks lease-holders who share half-and -half in the allowance's benefits.

Hansen is a strong supporter of these people, whom he regards as the little people of the oil industry. But others contend now that the little people have grown into fatcats.

"Independents are making incredible amounts of money right now," tax reform lobbyist James Byrne told this column. "They've turned from a Penn Central industry into a very sound industry, thanks to a bunch of Arabs."

So, in the end, the issue boils down to whether the independents are generating that extra money they're allowed to keep because of the allowance back into exploration.

Legislative Tomfoolery

Solons Run from Mining Bill

by Lee Catterall

Prolonged legislative tomfoolery has put a big question mark over the strip mining regulation proposal in Congress, imperiling it to the point that it may not even reach the House floor this year.

If Congress doesn't pass the bill during the approaching home stretch of its current two-year session, it will have to begin anew next year, at a time when those mammoth coal scoops are poised in the direction of the Powder River Basin.

The Senate passed a stiff strip mining bill last year, one the coal industry opposes strongly. Among other things, it includes a ban on stripping private land to get at federally-owned coal.

The House bill has undergone exhaustive hearings and meetings in the Interior Committee. The result is a bill that in its present form is in many ways tougher than the Senate counterpart. Its advocates include a slight majority in the committee, but so slight that the other side has been successful in slowing its progress.

"We're faced with a situation where we just aren't going to get a bill this year," complained its chief sponsor, Rep. Morris Udall (D-Ariz.)

"We've spent time," said Rep. Craig Hosmer (R-Calif.), the bill's leading opponent in the committee, "but I don't think it's been wasted."

Frustrated at that snail's pace, Rep. John Melcher (D-Mont.) last week pulled a surprise move, proposing that debate on the major section of the bill be stopped the following day, and that all amendments to it be considered in a one-day meeting. The committee approved the Melcher proposal, with Rep. Teno Roncalio voting for it.

On the day set for debate, the bill's opponents took a couple test votes on amendments and concluded they would suffer greatly by continuing. So Hosmer called for a quorum. Everybody knew what was up. A National Coal Association lobbyist promptly led two congressmen out of the room, and the quorum call failed by a vote. End of meeting.

Rep. Donald Young (R-Alaska), one of those two congressmen, told this column that opponents of the bill decided to take a "calculated risk." They gave up the opportunity to debate the amendments in order to "marshal the forces" to make a further attempt at rescinding Melcher's proposal, or at least get enough votes to gain approval of some amendments to weaken the section.

The sight of a congressman running away from a quorum call is enough to befuddle any civics student who has come to see Congress in action, and ends up seeing Congress inaction.

He is likely to leave with the impression that quaint as Congress is, sometimes it isn't terribly effective. If he had gone to the other side of Capitol Hill when Young was walking out of the House committee meeting, he would have seen Sen. Clifford Hansen (R-Wyo.) displaying two large stacks of hearing transcripts at a committee meeting, decrying the fact that little legislation had come from them.

Some of the tactics used in Congress are enough to make Roberts jump from the grave to disclaim having anything to do with those so-called rules of order. Until recently, most of this fancy legislative footwork went on behind closed doors. Congressional reform has opened those doors, revealing some pretty strange things.

"Increased coal production does not mean stripping every last acre of the West," said Rep. Morris Udall (D-Ariz.) in a speech before the National Wildlife Federation as he was awarded their "legislator of the year" award. "The new emphasis has to be on deep mining, because while cheap extraction is on the top, the massive reserves the country needs and can have with the least environmental danger are underground," he said.

Udall is chairman of the House Interior Subcommittee on the Environment and has been a leading supporter of strict surface mining legislation.

Meanwhile Department of Interior Sec. Rogers C.B. Morton has called for "significant strides" to step up the deep mining in the East because coal there is closest to the nation's industrial base. Morton said Western coal is "completely out of position" with inadequate transportation links to big users.

Morton said, "We don't want to abandon Appalachia" for the easier-to-dig coal in the West. This statement echoed West Virginia politicians who have expressed fears that coal companies will abandon Appalachian mines for the vast strippable reserves in the West.

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Marathon Oil Co. plans to build a 341 mile long **pipeline to carry shale oil** from fields in Utah, Colorado and Wyoming to Casper, Wyo. At Casper, the shale oil would be pumped into the existing Platte pipeline for eastern markets.

One problem with piping shale oil is that it is a highly viscous, waxy crude — somewhat like axle grease. Marathon researchers say they have overcome this problem, but they won't say how. The transport system won't involve heating the pipeline, says Marathon.

Marathon is planning a 16 inch pipeline from Utah's Uinta Basin to Elk Springs, Colo. The line from Elk Springs to Casper will be 24 inches in diameter.

This is the second announced shale oil pipeline. The first, announced by the Colony Development Operation (principally Atlantic Richfield) would run from Grand Valley, Colo. across southeastern Utah to west coast markets.

Asbestos in Lake

Reserve Mining Co. has been dumping 67,000 tons of toxic taconite mining wastes into Lake Superior every day. These tailings contain asbestos, a known cancer-causing substance, which has now shown up in the drinking water supplies of area residents. The Northern Environmental Council has joined the states of Wisconsin, Michigan and Minnesota in a six month old suit against Reserve. In order to help finance the suit, the Northern Environmental Council is selling souvenir bottles of taconite tailings for a minimum $5 tax-deductible contribution. Checks made out to the Lake Superior Defense Fund should be mailed to NOREC, P.O. Box 89, Ashland, Wis. 54806.

Pacific Power & Light Co. and Idaho Power Co. have asked the Wyoming Public Service Commission for authority to add an additional 500 megawatt generating unit to the Jim Bridger power plant. The present 1500 megawatt plant is now under construction northeast of Rock Springs, Wyoming. The site is near the Continental Divide, on the edge of the Great Divide Basin. Power from the first 500 megawatt unit is expected to go on line in September. The fourth unit is expected to produce power by 1978.

Emphasis ENERGY

in the Northern Rockies and Great Plains

Montana Power Co., Union Carbide and an eastern engineering firm want to build a coal-gasification pilot plant in Billings, Mont. to test a Union Carbide process. The plant would cost $69 million and the group is hoping the federal Office of Coal Research will pay for two-thirds of the cost. The plant would require 2,000 tons of coal a day and 324 acre-feet of water a year from the Yellowstone River. The Union Carbide process would yield a low Btu gas suitable for power generation. The nearby MPC's Frank Bird steam generating plant (69,000 kilowatt capacity) can burn gas and might be run in conjunction with the pilot plant.

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Sun Oil Co. has announced it will begin developing its Western coal leases this year. Sun has leased 212 billion tons of coal in Wyoming, Montana and Utah.

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The **U.S. Atomic Energy Commission** will spend over $1 million this spring to find out what went wrong with the **Rio Blanco nuclear blast.** The simultaneous detonation of three nuclear explosives to release natural gas took place in northwestern Colorado last May. "We don't understand what happened and we intend to find out," said Edward Fleming, acting director of the AEC's Division of Applied Technology. Fleming said it isn't known why the upper blast cavity does not connect with the two lower ones.

The AEC and the Bureau of Mines will spend another $1 million this spring testing an alternative method for releasing natural gas — massive hydraulic fracturing.

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A Colorado group called **People for Rational Energy Sources** is petitioning to give voters a say about **atomic detonations** in their state. If the petitioners obtain 50,000 signatures the issue will be on Colorado's November ballot. The iniative requires that atomic detonations be approved by a majority of the voters at a general election and that the agency or corporation performing the detonation have enough insurance to cover all possible damages. The petition has been endorsed by the Colorado Open Space Council, a coalition of citizens' groups in the state.

A report prepared by the **Northern Great Plains Resource Program** says annual coal production in Montana, Wyoming and the Dakotas could reach nearly a billion tons by the year 2000. That amount would be reached through an all-out effort. However, the report says the most likely level of development would produce about 362 million tons of coal annually.

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The Japanese firm, **Mitsui Corp.**, has expressed an interest in Montana's coal. A nine-man Mitsui delegation met with Montana's Gov. Thomas Judge and coal and railroad executives to discuss possible trade agreements. The Burlington Northern Railroad is especially interested in a deal with Mitsui because of their vast Montana coal holdings and the profit from hauling the coal to the west coast by rail for shipment. "They came to the United States essentially through Burlington Northern contacts," said Westmoreland Resources president Pem Hutchinson. Mitsui is also looking at Westmoreland coal from a mine near Billings, but Hutchinson is waiting for the "blessing" of the State Department, the Federal Energy Office, and other government offices and officials.

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The 12 western states use about 10% more energy than they produce, reports the **Western Interstate Nuclear Board.** The board, a unit of the Western Governors' Conference, feels the states should be net exporters and will push to bring that status about.

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The amount of coal mined on **Burlington Northern Inc.** land will double in the next three years, said C. R. Binger, president of the resource division. Some 5.6 million tons of coal were mined on BN land in 1973. An agreement made last year with "a major energy company" gives BN the option to participate in the development of a 750 million ton deposit of company coal.

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KTWO-television at Casper, Wyoming, has filmed a documentary on what is already happening in various Wyoming communities as a result of energy development. The documentary will be shown over KTWO at 7:30 PM, Wednesday, April 17.

The Hot Line

across the country

In their draft environmental impact on the **breeder reactor** program, the **Atomic Energy Commission** sketches the possibility of a rosy future. We could have an $8 trillion breeder nuclear power industry by the year 2020 and it would pose no significant hazard to the environment or public health, the document states. The AEC envisions 400 breeders in operation by the turn of the century and 550 by the year 2000. Meanwhile, voice of caution has arisen in the Federal Energy Office. John Sawhill, deputy director of the FEO, says that he thinks the Liquid Metal Fast Breeder warrants more comprehensive review than it is receiving in the AEC. Sawhill has been echoed by Alvin Weinberg, director of research and development for the FEO. "We have to make sure we don't do anything in Project Independence that will impact adversely on the situation 45 or 50 years hence," Weinberg says.

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Nine power companies have joined **Pratt & Whitney Aircraft Division** in developing a 26-megawatt **fuel cell** for small supplemental power installations. The $42 million first phase project could lead to power sources large enough for small cities up to 20,000 population. The fuel cell converts gases to electrical energy directly with only minor amounts of pollution. Methane gas from solid and human wastes could be used as fuel.

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National Coal Association President Carl Bagge said a recent Cornell University study "makes it clear that **synthetic fuels** will provide only a small fraction of the energy needed from coal." "If construction began immediately — which has not happened — and all environmental restraints were waived — which will not and should not occur — between 36 and 48 coal-based synthetic fuel plants could be built by 1985," he said. Thirty-six plants would provide only 3.8% of this nation's energy needs in 1985, Bagge said.

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California State Senator Alfred Alquist wants to ban the sale of gas appliances which waste energy through pilot lights. He also wants to prohibit residential dwellings from being sold, insured, or certified unless proof of adequate energy-saving insulation is given. If Alquist's SB 1528 passes, a taxpayer could deduct the cost of buying and installing energy saving devices (insulation, storm doors, weather stripping etc.) for home use when computing taxes. All told, Alquist has introduced seven bills in the state legislature which collectively show an imaginative approach to dealing with the energy shortage.

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Illinois Gov. Dan Walker has decided to place a $100 million bond issue for state coal development before the voters this year. Proceeds from the bond sales would be applied to coal research and development programs and possibly a synthetic fuels demonstration plant.

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Sen. James McClure of Idaho says environmentalists concentrate so hard on solving one problem that they ignore the adverse effects of their cures. Citing the case of **limestone scrubbers,** McClure said that general use of the devices would produce 48 million tons of sludge per year, enough to cover 160 square miles to a depth of 10 feet.

"And it could be 10 feet of sludge, too soft for use as building blocks and too poisonous to support life," said McClure.

McClure said Congress must revise the Clean Air Act "and other environmental legislation passed without accurate basis in fact" before it does further harm to society.

Groups Oppose Undermining Clean Air Act

Washington, D.C. — The six largest membership conservation organizations in America have denounced Nixon Administration proposals to undermine the Clean Air Act and a move to exempt all "energy related" projects from provisions of the National Environmental Policy Act (NEPA).

Leaders of the National Audubon Society, National Wildlife Federation, Sierra Club, Wilderness Society, Izaak Walton League of America, and the American Forestry Association appeared together in a press conference held at the National Press Club and launched a coordinated offensive against environmental attacks waged by spokesmen for obstructionist interests, some members of the Congress, and many officials within the Administration. They declared that the Nation can develop essential additional energy resources and still have a healthy environment.

In a joint statement, the spokesmen said they "will oppose strenuously any attempt to sacrifice public health and environmental quality on the altar of the energy crisis or for excess corporate profits."

"Conservationists have always contended that the cost of preventing pollution and protecting the environment must be built into the price of products, including energy, because it is part of the cost of doing business," the group emphasized. "As everyone knows, the prices of coal, crude oil, and petroleum products have skyrocketed. The margins of profit are now more than adequate to cover the costs of preventing pollution and, in the case of coal mining, to restore the land which has already been stripped and prevent further damage. To sell out the environment would constitute a monstrous fraud upon the public."

"Environmentalists have leaned over backward to be cooperative while America adjusted to energy shortages that came as no surprise to us," the cooperating organizations declared. "Our only surprise was that Government was caught with its pants down. We have welcomed and supported energy conservation measures because we knew they were necessary for the future welfare and stability of the American economy regardless of what the Arab nations do. We have agreed to temporary variances from clean air standards for electric generating plants when fuels meeting the standards are unavailable. However, we strongly oppose any long-term variances. Apparently, our moderation and cooperation have been mistaken as agreement to weakening of our basic environmental protection laws."

"We call upon President Nixon and his advisors to start listening to the public instead of solely to those who would exploit the land and its resources at the expense of the public," the conservation leaders declared. "The real question the public should ask our policy makers is why we cannot have both orderly and well-planned growth and development and a good natural environment as well. We do not have to be placed in the position of choosing either orderly growth and development or a clean environment. We can have both."

The coordinating groups explained that they will use every means at their disposal to highlight those situations wherein public environmental considerations are being overridden in resource development and exploitation. The organizations expect to cooperate fully in exposing attempts to weaken environmental laws and programs. Some may even go to court if necessary.

They cited an abrupt reversal of the Administration's support for a strong land use planning program, weakening amendments to a strong strip mining bill, and greatly expanded leasing programs on oil shale lands and the Outer Continental Shelf without accompanying environmental studies and safeguards, as well as its new weakening amendments to the Clean Air Act, as proof that it is moving away from what had once been lauded as strong environmental positions.

The scheme to nullify the National Environmental Policy Act by exempting all "energy related activities," such as leases for strip mining and off-shore drilling and the licensing of new power plants was not included in the Administration's proposals just sent to Congress on the Clean Air Act. "However, the advocates of gutting NEPA are still hard at work in high places in the Department of the Interior, Department of Commerce, the Federal Energy Office, and in the White House itself," according to the environmentalists.

"We urge the American people to let it be known in unmistakable terms that they will not tolerate degradation of the environment," the spokesmen stated.

Release from the Energy Straitjacket

Our country isn't "bound in an energy straitjacket," reports the Energy Policy Project of the Ford Foundation. In a preliminary report released in March, the project researchers revealed some of the choices the U.S. faces for its long-term energy future.

The Ford-funded group, headed by former presidential science advisor S. David Freeman, listed three possible energy growth scenarios the U.S. might adopt. "The scenarios are neither predictions nor prescriptions for the future, but are rather tools for aiding policy analysis," the report says.

The "historical growth" scenario would require "very aggressive" development of all our major domestic energy resources — coal, oil, nuclear, oil shale etc. This projection assumes growth in energy consumption at a rate of 3.4% a year, which was the growth rate through the 1950s and 1960s. Major environmental sacrifices would be associated with this choice.

The "technical fix" scenario calls for cutting the energy growth rate in half over the coming years. The report says this choice would not significantly change existing lifestyles. To save this much energy, a national energy conservation program would have to be instituted. Such a program would focus on automobiles, space heating and air conditioning, and industrial process heat production.

This option would allow greater choice in developing domestic energy. The country could choose to ban coal strip mining, outlaw additional nuclear power plants or forego oil shale development under this scenario.

The "zero energy growth" (ZEG) scenario would involve an expanding economy, but energy demand would level off after 1985. Under ZEG citizens could be using more energy in the year 2000 than they do now and through "greater efficiencies would enjoy more goods and services," says the report.

The report suggests that ZEG "appears to be possible if the change takes place gradually over 10 to 20 years as part of long-term planning and a growing social concensus as to its desirability."

Vanik Calls Energy Budget Deceitful

Rep. Charles A. Vanik(D-Ohio) says that in light of the promises Nixon has made to the public about stepped up energy research programs, the President's 1975 budget is "deceitful."

On June 29 the President announced a 5-year, $10 billion research and development program which would be initiated in the 1975 budget.

"There is no evidence of this new program in the President's 1975 budget," Vanik says, even though the document claims to reflect "a comprehensive national energy policy to deal with current shortages and provides funds to initiate Project Independence."

Vanik quotes a section of the budget analysis which states that "An additional $777 million in obligations and $461 million in expenditures for acceleration of energy research and development and related activities . . . do not appear in any of the tables that follow. The additional funding will be the subject of a later separate submission amending the 1975 budget."

"In short," Vanik says, "there is no new comprehensive program — there are no hard details — no plans — no Manhattan project — no Apollo project — only rhetoric and promises of a future energy message."

Eagle Survey Results

The government's 1973 bald eagle nesting survey of the lower 48 states revealed 627 active nests. These nests produced over 500 young. From these results the Fish and Wildlife Service estimates that the lower 48 states house about 1,000 nesting pairs of bald eagles. This is the same number estimated by the National Audubon Society in 1972. Alaska's bald eagle population is estimated at 30,000-55,000 birds.

Active nests discovered in the western states are as follows: California 19, Idaho 8, Nevada 0, Oregon 47, Washington 25, Arizona 3, New Mexico 0, Colorado 0, Montana 14, Utah 0, Wyoming 6, North Dakota 0, South Dakota 0, Nebraska 1.

Western Roundup

Idaho Solons Kill Land Use Bill

"It's the people of Idaho who really lost today," said Idaho State Sen. John Peavey as major land use legislation was defeated by an 18-17 vote. The bill, 1434, called for all Idaho counties and municipalities to establish planning and zoning commissions.

State Planning Agent Dave Alvord characterized supporters of 1434 as "a strange coalition" of liberals and conservatives reflected Idaho's inherent traditionalism which is loathe to see rapid growth endanger the status quo.

Alvord called 1434 "a basically weak bill" which was important for the land use philosophy it embodied. He said the bill's defeat indicated the power of lobbying groups in government in the face of strong public opinion. Eleven of 13 public hearings held throughout the state registered support for land use legislation. Alvord said several state senators who voted against the bill, "will be most uncomfortable with their votes" at re-election time.

Virus to Fight Tussock in Idaho

DDT will not be used to control tussock moths on Idaho's Coeur d'Alene National Forest. If control measures are used, the Forest Service will use a natural virus and a bacterium. The virus affects only the tussock moth and is not harmful to human or other animal life, said Panhandle Forest Supervisor Ralph Kizer. The bacterium is harmful to a few other larval insects. Both have been used in Oregon tests with a high degree of success. They "have not been tested on a widespread operational basis," said Kizer.

If the spray is used this summer, it will be applied to 20,000 acres. Because of the limited supply of the virus and because it has not yet been fully tested, it cannot be used throughout the full range of the tussock moth infestation, Kizer said.

The Environmental Protection Agency granted the Forest Service a one-time emergency use of DDT to combat the tussock moth in the Northwest in February.

Teton Master Plan Not Binding

Friends of Jackson Hole has obtained the opinions of two California law firms which claim the Teton County Commissioners acted unlawfully when they approved two high-density developments near Jackson, Wyo. The developments, Pierre Letellier and the Snake River Venture, both exceed the county's Master Plan density recommendations. Because of this fact, the county planning commission recommended disapproval of the permit requests. The county commissioners, after reassessing their position in light of the lawyers' opinions, have decided to stand fast and approve both projects. Commissioner Art Brown said, "The basic intent of the Master Plan was basically as a guideline," and not a legally binding document as the law firms maintain.

Briefly noted . . .

Efforts to authorize the construction of Hualapai Dam in the Grand Canyon (see HCN March 29, 1974, page 13) are moving ahead on the state level, but are stalled on the federal level. The Arizona State Senate passed a memorial to Congress recommending that the dam be built as soon as possible. The state House of Representatives is expected to pass a similar resolution shortly.

In Washington, the House Interior subcommittee on National Parks defeated, almost unanimously, an attempt to add the Hualapai Dam proposal on to Arizona Rep. Morris Udall's Grand Canyon Park expansion bill. Arizona Rep. Sam Steiger has vowed to bring the dam issue back up in full committee.

* * *

Idaho Gov. Cecil D. Andrus has vetoed a "stream destruction bill" for the second year in a row. Andrus said the bill "strikes down the authority necessary for the Idaho people to protect rivers and streams from unwarranted alteration and abuse."

"In a land embarrassed by the fouled waters of the Potomac and the Hudson, I cannot stomach SB 1485's attempt to dismantle the stream protection safeguards of Idaho state government," said Andrus.

* * *

The Never Summer Ranch in the Kawuneeche Valley will become part of Rocky Mountain National Park. The ranch is located on the western border of the park in the Colorado River drainage north of Grand Lake, Colo. Subdividers had reportedly offered as much as $10,000 an acre for select parts of the 774-acre dude and hay ranch but owner-operator John Holzwarth refused the money saying, "I hadn't spent my life putting this place together just to see it pieced out again." The park will keep the ranch up and "run it just how an early-day ranch was operated," said Holzwarth.

An estimated 500,000 sheep were lost to predators in the 17 Western states last year, according to Don Balser. Balser is chief of predator damage research at the Denver Wildlife Research Division of the Bureau of Sport Fisheries and Wildlife. Predators kill one per cent of the ewe population and four per cent of the lambs annually, says Balser. He feels 90% of the West's predator problems involve loss of sheep to coyotes.

Balser says coyote populations are up by more than 20% this year in Montana, Wyoming, Colorado, Nebraska, South Dakota, Texas, New Mexico and Oklahoma. Populations are down by more than 20% in Idaho, Utah and Oregon this past year. These fluctuations in population are not necessarily the result of the 1972 federal ban on the use of predator poisons, says Balser. They may only indicate variations in the coyotes' food base. A dramatic drop in the jackrabbit populations of Idaho, Utah and Oregon may explain the drop in coyote numbers in those states.

Balser says the predator problem is compounded mostly by a lack of data on livestock losses and the effects of predator control. He characterizes the coyote population as "large and healthy." The coyote "has withstood eight or so lethal methods and followed (population) fluctuations over the years that appear to be largely independent of man's control," Balser says.

Rainmakers Seed the Rockies' Skies

Beginning next year the Bureau of Reclamation will spend $20 million seeding the clouds on the eastern slope of the Rocky Mountains. The five- to seven-year "High Plains Cooperative Program" is the most comprehensive weather modification program ever undertaken in the U.S. Rainmakers will choose three sites from an 11-state area which includes Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas and Wyoming. Seeding will "put water down when and where it's needed," according to the BuRec. Bureau scientists have not yet projected how much increase in precipitation the project will produce.

A number of Western states have had experience with cloud seeding. In Montana two agencies are fighting over a seeding proposal in their state. The state Board of Natural Resources has given seeders the go-ahead, despite State Game and Fish Commission opposition to the plan. Commission officials say the seeding will modify weather in the Bob Marshall Wilderness, in violation of the National Wilderness Act. The Bonneville Power Administration hopes to increase runoff in the upper Columbia River drainage to produce more hydroelectric energy for the Northwest through the Montana seeding.

Idaho's attorney general is preparing legislation for additional control over cloud seeding in his state. Under present state laws, registration with the state is the only requirement for seeders in Idaho.

Feeling the same need to regulate rainmakers, the Utah Legislature passed the Cloud Seeding to Increase Precipitation Act last year. The Act established the Division of Water Resources as the regulatory agency in cloud seeding operations. Under the act seeders pay a $100 license fee and $200 for a permit. The act also specifies that any water produced from the seeding belongs to Utah.

Thoughts from the Distaff Corner

by Marge Higley

I clipped it out of a newspaper several years ago, and a neatly framed copy now hangs on the wall in my den. It goes like this:

> "Lord, Thou knowest I am growing older.
> "Keep me from becoming talkative and possessed with the idea that I must express myself on every subject. Release me from the craving to straighten out everyone's affairs. Keep me from the recital of endless detail. Give me wings to get to the point.
> "Seal my lips when I am inclined to tell of my aches and pains. They are increasing with the years and my love to speak of them grows sweeter as time goes by.
> "Teach me the glorious lesson that occasionally I may be wrong. Make me thoughtful but not nosey; helpful but not bossy. With my vast store of wisdom and experience it does seem a pity not to use it all. But Thou knowest, Lord, that I want a few friends at the end."

Over the years, the wit and common sense of that anonymous writer has often come to my aid. On those occasions when I literally ache to offer some sage and unsolicited advice, I remember that small framed message. I remember it, and tell myself, "Whoa there, gal! Who asked for your opinion, anyhow?" So I clamp my lips (well, most of the time) on those pearls of wisdom which I would so dearly love to impart.

To my surprise (and chagrin?), my friends and relatives have managed to cope successfully with their problems, without even realizing that they have been deprived of my profound thoughts and years of experience!

I am by no means advocating that everyone over 50 should remain forever silent. I'm merely suggesting (woops! I almost said "advising!") that it might be wise to consider the importance of the matter in question. Times and values have changed, and, like the anonymous writer, we all want a few friends at the end.

HOWEVER — there are times when I must ignore those wise words, or at least turn them toward the wall. Like now, for instance, when the government decides to forego environmental considerations in an all-out effort to produce more energy in a hurry.

We all know that it's costly to clean up the air when coal is burned to produce energy. Costly, but possible. We all know that it's costly to reclaim strip mined land. Costly, but possible in some cases. We know that it's costly to develop clean and safe new methods of producing energy. And most certainly, we all know that it's the consumer who will pay the ultimate price.

Well, neither the government nor anyone else has asked my opinion on this subject, but here it is, anyhow. Personally, I would rather pay that price now, to keep the air and water clean, and to salvage the land. When the price of energy goes sky-high, maybe we'll learn to use it sparingly and wisely. That could mean gas rationing and slow speed limits for years and years. It could mean less heat and fewer glittering neon lights. It could mean doing without some of the luxuries which by now we consider almost necessities. It would mean slowing down our very pace of life. But I'm with those who are willing to pay that price.

Right now, that's not an overly popular opinion, and I really do want to "have a few friends at the end," but I have a thought about that, too. Long after I'm gone (and those friends, also) my grandchildren and their children will still be here. I want more for them than ravaged lands and fouled air. That's the price they'll have to pay for our thoughtless "energy-at-any-price" policy.

Now that I have that off my chest, I'll go turn that frame around, so I can once more read those words of wisdom!

Come fill the cup, and in the fire of Spring
Your winter-garment of Repentance fling:
The bird of Time has but a little way
To flutter — and the bird is on the wing.
—from the Rubaiyat of Omar Khayam

Sugar and Rubber for Fuel

Plant products, such as sugar and rubber, may be an answer to U.S. energy needs, says a 1961 Nobel laureate in chemistry. The chemist, Melvin Calvin, director of Berkeley's Laboratory of Chemical Biodynamics, says that plants are sources of fuel alcohol and hydrocarbons now obtained from petroleum products.

With the current high cost of petroleum "it's already economic to use alcohol instead of gasoline," Calvin says. A gallon of alcohol made from sugar would cost 84 cents, while the price for offshore petroleum is one dollar a gallon. Producers of industrial alcohol switched to petroleum refining after World War II because, at that time, they could refine petroleum more cheaply than they could produce alcohol.

Calvin says that the hevea rubber plant would be a good source of hydrocarbons. If present yields can be tripled, natural rubber would be a serious competitor with petroleum, he says.

The chemist's ultimate goal is to create an artificial system that will simulate the natural solar photosynthesis carried on by green plants. That dream is 15 to 20 years away, Calvin estimates.

Chloroplast membranes in plant cells capture the sun's energy and produce electricity from it. A plastic model of the chloroplast membrane stretched above 100 square miles of Arizona desert could produce all of U.S. energy needs, Calvin says.

Another way of using plants, Calvin believes, would be to let them separate oxygen and hydrogen in water. The separated hydrogen could then be burned. One species of green algae gives off hydrogen as a waste product. Other plants might also produce hydrogen if the amount of oxygen and carbon dioxide in their environment was controlled.

Ouray for Geothermal

Ouray, Colo., the "Switzerland of America," has had more than its share of tough decisions. Like many beautiful Rocky Mountain communities, the town has had to deal with the mixed blessing of a surge in tourism in recent years. But unlike most of those communities, Ouray has also faced a package full of progress that has included cloud seeders, dam builders and coal companies. The latest news is that Ouray is also blessed with geothermal power potential. The Bureau of Land Management has leases pending for 12,521 acres of geothermal steam development in the Ouray area.

Local newspaper editor Joyce Jorgensen is withholding comment on this latest rush for Ouray's riches. But she needs more information on this "reputedly clean source." "We get a little nervous when folks talk of tapping underground water, cold or hot," Jorgensen says.

Naturally, we cannot continue to squander our energy and other precious resources the way we have in the past. This may be the greatest benefit that will come out of the energy crisis. Our eyes have been opened. We have come to see just how profligate we have been with our finite resources . . . It (1974) will be a year of challenge. But it will also be a year of great beginnings. We will start searching for new ways to harness energy, new ways to propel cars, and new ways to conserve what we have.

Frederick B. Dent
Secretary of Commerce

Book Review

The Curve of Binding Energy

By John McPhee, The New Yorker, Dec. 3, 10, 17, 1973.

"Money is better protected than uranium or plutonium," says Ted Taylor.

Taylor is worried about the sabotage of nuclear materials. He was a bomb-maker himself at the Atomic Energy Commission lab in Los Alamos, N.M. He believes that somebody could steal weapons grade materials and shape them into a home made bomb.

In a lengthy, three-part profile, "The Curve of Binding Energy" published in **The New Yorker**, biographer John McPhee describes this man and the issue which obsesses him. The articles will be published in book form this spring by Farrar, Straus and Giroux.

"I'm an advocate of nuclear power," Taylor says, "but there's a certain aspect of it that has to be fixed. Is it better to discuss this in the open now or later, when so much material will be around that the idea of the clandestine bomb will obviously occur to someone? The AEC thinks the devices we made at Los Alamos are too complicated for clandestine manufacturing amateurs. True, our bombs were complicated. But there are much easier ways to make bombs."

The AEC assures everyone that it would take another Manhattan Project to produce a bomb. Taylor says it's not so.

The first bomb makers were "like a group of alpinists finding the route up a mountain and reaching the top for the first time. After that, others could follow," Taylor says. "Although you still need equipment — for example, a casting furnace — the steps you take are well prescribed. So far as we know, everybody in the world who has tried to make a nuclear explosive since 1945 has succeeded on the first try."

"Under conceivable circumstances, a few persons, possibly even one person working alone, who possess about 10 kilograms (22 pounds) of plutonium oxide and a substantial amount of chemical high explosive could, within several weeks, design and build a crude fission bomb," Taylor says.

While documenting Taylor's side of the issue, McPhee draws a portrait of a brilliant theoretical physicist. The reader enters a searching mind, capable of intense concentration — and a conscience occasionally pricked by the destructive nature of his trade.

"Down the years, it had been a matter of considerable anguish to him to live with the irony that what he thought was the worst invention in physical history was also the most interesting," McPhee says.

Taylor was a conceptual designer for nuclear bombs at Los Alamos from 1949 to 1956. He miniaturized bombs and made them more efficient. Explosives called the Bee, the Hornet and the Hamlet are all his creations.

At first he felt he had a mission. He was helping to create weapons so threatening that they would put an end to all wars.

Later he despaired about his work. It was an implementation of "pseudo-rational military purposes," he said. "I sometimes can't blame people if they wish all scientists were lined up and shot. If it were possible to wave a wand and make fission impossible — fission of any kind — I would quickly wave the wand."

In 1967 Taylor and his wife, Caro, formed International Research and Technology. Its charter purpose was to serve as a private monitor of nuclear materials safeguards. Since then the company has hired 20 professionals in a variety of fields and has done consulting work on topics ranging from transportation planning to the operations of the U.S. Postal Service.

Theodore B. Taylor

Taylor's own thinking has evolved. "Taylor wishes he could do more of the creative things and less nuclear watchdogging, and such dreaming has led him to what could be the ultimate safeguard. A source of vast energy alternative to nuclear energy would clearly eliminate the safeguards problem, because the nuclear industry would disappear," McPhee says.

Taylors alternative is plant fuel. He would grow sugar cane in massive polyethylene greenhouses. One acre of sugar cane, he estimates, is equal to 20 tons of medium grade coal. To supply present energy needs, Taylor would put 20 million acres of land under plastic tents. The cost for a metal inner structure would be about $200 billion. The plastic bill would run about $50 billion a year. That is cheap, comparatively speaking, Taylor says.

"The development work would take much less money than for other systems," Taylor says. "You don't have to build a reactor. You don't need nuclear physicists."

McPhee's portrait of Taylor is a rich biography about an important figure in the atomic age and, at the same time, a layman's primer on the nuclear power industry. Taylor reminisces about colleagues at Los Alamos like Stanislaw Ulam, Edward Teller, Enrico Fermi and Hans Bethe. He speculates about the problems of safeguarding the most dangerous materials the world has ever had to handle. He tours nuclear facilities around the country.

Throughout it all, writer McPhee manages to translate concepts like neutron capture, gaseous diffusion and the creation of transuranic elements into plain English. It is good reading. —JN

Eavesdropper

LOONEY LIMERICKS

by Zane E. Cology

There's an energy "problem," you know,
So pollution standards must go.
Those who regret it
Are told to forget it —
Cleaning up all the mess is too slow!

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Paper rustlers are on the loose in Toronto, Canada. With used paper prices soaring from $6 a ton to $45 a ton, private groups are horning in on the city's recycling program and snatching bundles from the curbside before the city trucks arrive.

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Several Indiana state senators have charged that phosphate detergent manufacturers were financing front groups trying to pass as consumer interest organizations to win repeal of the state's phosphate ban. One senator said the lobbying was "the most expensive and unethical I have seen." The bill passed the house but died in committee in the senate after the unethical lobbying was uncovered. Indiana and New York are the only two states which have banned phosphates in detergents.

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A British scientist at Brunel University has been adding corn starch to plastic. He claims the result is a plastic product that decomposes when discarded and reduces the demand for petrochemical "feed stocks."

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Natives in the remote jungles of the Amazon have been found to have a higher mercury level in their bodies than U.S. city dwellers. An eight-year National Science Foundation study of isolated villagers in Venezula and northern Brazil revealed alarmingly high mercury concentrations in the natives' blood, but no ill health effects were attributable to the heavy metal.

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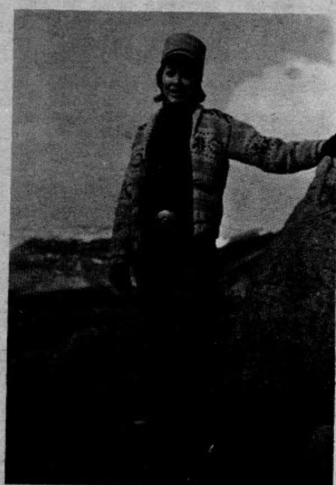
The University of Michigan has initiated a new correspondence course, "The Environment and the Citizen," The course is being billed for "armchair environmentalists who want to escalate their efforts beyond the worry stage."

Since California's Coastal Zone initiative was enacted in Feb. 1973, developments within 1000 yards of the coastline had to be reviewed on a case by case basis. During the law's first year, 5200 of 5340 permits have been granted for new construction and environmentalists are understandably upset. The Coastal Zone Conservation Commission defends this 97% approval record saying most permits have been for single-family dwellings which are not generally a problem. **Air and Water News** reports that suits aimed at the commission have been filed "at a one-a-week rate."

A CONSERVATION PORTRAIT:
Leslie Petersen, WEI President



Leslie Petersen became an environmentalist when she saw that the trees weren't growing back on timber clearcuts in Wyoming's Shoshone National Forest. She noticed the scars as a small child, because she grew up in the forestry business.

Her father, Les Shoemaker, was district ranger in the Bighorn National Forest in Wyoming. Because he loved the land and found himself buried in paper work, he left that post and the Forest Service in 1952. Later, at a time when there was little support for his views, he became an outspoken critic of his own former management techniques — and those of the rest of the Forest Service.

When Petersen was 12 her family found a new way to make their likings their livelihood. They bought the CM dude ranch in Dubois, Wyo. Charles Moore, a lawyer and conservationist in the early days, had started the place. In the 1920s it was only a circle of tipis on the Jakey's Fork River which served as a starting point for teenage boys' pack trips from Dubois to Yellowstone. Later when a few adventurous parents started coming into the camp with their children, Moore built a few cabins to accommodate them.

The CM is a bit more comfortable now, but it retains "an unphoney Western atmosphere," Petersen says.

"The camaraderie and appreciation of the Rocky Mountain West that Moore put into the place still reverberate," says Petersen's mother, Alice Shoemaker.

The work force at the CM has grown in recent years. Leslie's husband, Pete and their two sons, Monte, age 11, and Travis, age 9, are all part of the extended family-style operation. So is Leslie's grandmother, Gladys Peck.

Petersen has lived in Wyoming all of her life. But she attributes her appreciation of the state not only to her personal background, but to the Easterners she's shown around the state. They've given her new eyes for seeing familiar places, she says.

Whatever the reason, Petersen has taken an alert stance on Wyoming's natural resources. She's made her flair for Western dude ranch hospitality into a talent for statewide environmental education.

She first spoke in public at a hearing in Riverton, Wyo., on the potential Washakie Wilderness. She knew the area well and feared that U.S. Plywood's timbering plans might do permanent damage. Her remarks were, according to another environmentalist at the hearing, "the most effective comments of the day."

In November of 1971, Petersen was chosen to serve on the board of directors of the Wyoming Environmental Institute (WEI). Shortly afterward she was elected president. She has been the driving force behind the organization ever since.

The Institute provides environmental information and educational opportunities in Wyoming. Non-profit and tax exempt, the group stays out of politics. Board members are Dick Jones of Cody, Bob Novotny of Kinnear, John Dobos of Casper, Dave Olson of Casper, De Witt Dominick of Cody, Sylvia Crouter of Dubois, John Turner of Moose, Jack Chase, Jr. of Leiter, and Charles Love of Rock Springs. The board represents a broad spectrum of views in the state, Petersen says.

The Institute's biggest project now is the administration of a $250,000 environmental analysis for the Atlantic Richfield company on a proposed coal mine in the Thunder Basin National Grassland. WEI has hired experts at the University of Wyoming to prepare scientific reports.

This project has been frustrating for both the university specialists and the Institute, Petersen says. "We had hoped that the Thunder Basin study would produce data about Campbell County that could be useful for the entire region," she says. "But the Bureau of Land Management deadlines for an environmental impact statement (on the railroad right-of-way) will preclude much of our information from ever being used in the planning process. The WEI board is disturbed about this hasty EIS."

WEI's most recent interest is water law education. The Institute and the Wyoming Coalition of Churches are organizing water workshops for the public, to be held this spring. The workshops will show citizens how they can help keep water in the state clean by using the 1972 Federal Water Pollution Control Act Amendments. A grant from the U.S. Environmental Protection Agency will finance each of the sessions.

Wherever it is possible, the 1972 Federal Water Pollution Control Act Amendments set out to make water in the U.S. clean enough for recreation, fish and wildlife by July of 1983. To achieve this goal, the amendments set up grants for waste treatment facilities and a discharge permit program. The permit program restricts pollutant discharges from point sources. The act also authorizes research programs to eliminate pollutants from runoff, acid mine drainage and other non-point sources.

Petersen says Wyomingites can use this act to protect their state. "We have the tools to keep the water clean if we have the gumption to apply ourselves," she says.

Workshops on the water act amendments will be at junior colleges across the state. Sessions will be held in Rock Springs on April 20, Riverton — April 27, Powell — May 4, Casper — May 11, and Cheyenne — to be scheduled. All of the workshops will begin at 10 a.m. and end at 5 p.m. They are free and open to the public.

Law May Save Wild Rivers

Like all else that is wild and free, the number of our nation's wild and scenic rivers is dwindling rapidly. Every year we hear about a few more "last wild stretches" of a river being dammed. At present there is no stretch of free flowing river in the United States that extends for over 200 miles without dams or other constructions.

The way a river is protected from further intrusions and total taming is through classification under the federal Wild and Scenic Rivers Act. Recently, several candidate rivers have been proposed in the Northern Rockies. Their protection can be insured with your support.

Sen. Peter Dominick (R-Colo.) has introduced S. 449 which would protect 12.5 miles of the Colorado River from Loma, Colo. to the Colorado-Utah border. Sen. Frank Moss (D-Utah) introduced a bill (S. 30) that would include the Colorado River from the Colorado-Utah border for 36 miles downstream to the Dolores fork.

Dominick's S. 2319 would protect sections of 14 Colorado rivers under the act. Those rivers are the Dolores, Green, Yampa, North Platte, Gunnison, Big Thompson, Los Pinos, Poudre, Conejos, Elk, Laramie, Michigan, Piedra, and Encampment.

All three of the bills have been endorsed by Trout Unlimited, the National Audubon Society, the Sierra Club, the Colorado Open Space Council Wilderness Workshop, the Colorado Rivers Council and other national, regional and state conservation and recreation groups. Your support is also needed. The hearing record on these bills is open until April 23. Send letters of support to Sen. Dominick, Sen. Moss and to Sen. Floyd Haskell (who chairs the Public Lands Subcommittee that will hear these bills). Address correspondence to the Senate Office Building, Washington D.C. 20510.

In the NEWS