

The Outdoor and
Environmental Bi-Weekly

News

High Country

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Lander, Wyoming

Friday, July 9, 1971

Canyon Trails Are Rewarding

by Russ Mager

The white waters of the mighty rapids of the Middle Snake offer a rare wild rivers experience and adventurous access into Hells Canyon. Not so well known but doubly rewarding are the few trails into the canyon. For the backpacker or those preferring the "hay burner" there is the experience of the high alpine wilderness on both sides of the river. As one descends, say from the Seven Devils area on the Idaho side, to the river level, one becomes aware of the unity of the living river with its mountains, both fortunately still relatively untouched by man.

On the Idaho side essentially three trails lead into the canyon: the trail down Granite Creek, the trail from the Low Saddle - Cold Springs lookout area, and a river trail upstream from Pittsburgh Landing. The first two provide a high country lake-studded experience in the Seven Devils before descending more than 6,000 feet to the Granite Creek rapids, the most formidable of all in the Middle Snake. Few have ascended these rapids in even the most powerful jet boats.

The trail from Low Saddle affords many views of the Seven Devils and the canyon as it descends through wooded areas to Johnson Bar.

The river level trail head is at Pittsburgh Landing and provides a never-to-be-forgotten experience as one passes Kirkwood Bar (where Senator Jordan and his family once lived), Suicide Point, Johnson Bar and Granite Creek Rapids.

On the Oregon side, trail access to the river is provided primarily by the trail down Saddle Creek.

The trails mentioned are maintained by the Forest Service and are suitable for both walking or horses. As the ascent out of the canyon is long and steep, many prefer horses. Along the river there are many sand bars for camping. Fishing is superb for bass, trout, channel catfish and, of course, the great white sturgeon. Remember, all sturgeon must now be released after catching. Animal and bird life abound. Care should be exercised for poisonous plants in the canyon. Rattle snakes are not a problem in the opinion of the author. In several horse trips less than a half dozen of these snakes have been observed.

Today, the Middle Snake country offers a rare recreational value to the role-bound industrial age citizen. Conservationists believe that we should keep the Middle Snake unchanged, as a monument to our conscience for the land and to our deepened understanding, as civilized people, of our relationship to each other and to our environment.



Keith Becker



Photo by Bill Isaacs

"Indians" once more people the pages of history as the Green River Rendezvous is re-enacted at Pinedale, Wyoming, on July 11. The historical pageant is produced each year by residents of the Green River Valley. Here, the trappers, traders, and missionaries join the Indians in recreating the scenes of long ago when mountain men brought their year's take of furs in for trade goods.

New director named...

Wyoming Council Meets

Keith Becker, a former Navy pilot from Thermopolis, Wyoming, has been named executive director of the Wyoming Outdoor Coordinating Council. He has been a building contractor at Jackson for the past several years and a director of the Council for the past year.

Becker helped organize the Jackson Hole Chapter of Trout Unlimited and served as its first president. He has also been an active member of Jackson Hole ENACT, and is a member of the Sierra Club and The Wilderness Society. He ran for the Wyoming State Senate during the 1970 campaign and was narrowly defeated by the incumbent.

He succeeds Tom Bell of Lander who has been the executive director since the formation of the Council in 1967. Bell resigned to devote full time to the editorship of HIGH COUNTRY NEWS. He will continue to serve on the Council as a director and as secretary-treasurer.

Becker assumed his duties at the Outdoor Council office in Lander on July 1.

At a recent director's meeting at Rock Springs, Bruce Ward of Casper was elected president of the Council. He succeeded John Borzea of Rock Springs. Clayton Trosper of Cheyenne was elected vice president.

Seven new directors were named to the

board. They were Mrs. Richard Stevens of Dubois; Colleen Cabot, a student at the University of Wyoming from Casper, Bart Rea of Casper, Med Bennett of Jackson, Jake Kittle of Glenrock, Art Fawcett of Douglas, and Bob Wallick of Sheridan.

Holdover directors in addition to Ward, Trosper, Borzea and Bell include Carroll Noble of Cora, Mrs. Margaret E. Murie of Moose, Les Shoemaker of Dubois, Guy Williams of Casper, Mrs. Eric Lindahl of Laramie, Burton Marston of Laramie, Laney Hicks of Dubois, and Joe Armijo of Laramie.

The Outdoor Council has been instrumental in calling attention to a number of environmental issues. Among these have been dams on the Upper Green River, air quality standards, a land grab of public lands in the Soapholes area of Sublette County which involved water degradation and loss of game winter range, and strip mining.

The Council and some of its participating groups has sponsored two successful environmental congresses. These are held each year to provide Wyoming citizens with environmental information in an open, public forum.

HIGH COUNTRY

By Tom Bell

Many years ago farsighted men saw the need for organized groups to protect some special interest which held them in common. Sometimes the organizations were as much for camaraderie as for the serious business of protecting the common interest. Thus was born the Izaak Walton League of America, the National Wildlife Federation, the Sierra Club, The Wilderness Society, the Audubon Society, and many others.

These were groups concerned with special facets of the environment. But all came to realize that the environment meant more than hunting and fishing, bird walks, nature hikes, and the solitude of a wilderness. Each has now broadened its interests to include the more basic requirements of air, water and land.

Nevertheless, each autonomous group has kept a certain integrity which it seeks to perpetuate. In doing so, each renders a service to the whole.

However, in dealing with broad environmental problems, it has become apparent that some sort of coordination between groups is needed. In recent years, the informal amalgamation of various interest groups has taken place.

Colorado and Wyoming were two of the pacesetters, amongst western states, in forming coordinating councils. Other states, such as Idaho, Oregon and Washington, formed environmental councils. All have much the same purposes in mind.

The Oregon Environmental Council is a coalition of conservation, sportsman, and planning organizations joined together to encourage citizen, legislative and administrative action toward the protection and restoration of our environment and the creation of communities which reflect these values, through creative planning, education, and wise stewardship.

The Idaho Environmental Council was formed to coordinate the creative ideas, manpower, and financial resources of conservation-minded organizations and individuals to stimulate an increased understanding of modern man's impact upon his environment through information and education programs.

The Colorado Open Space Coordinating Council is engaged in education and legislative action in such areas as pollution, highways and transportation, wilderness, land-use planning, and urban problems.

The Wyoming Outdoor Coordinating Council is a statewide organization composed of groups and individuals, working to provide a unity of effort in actively promoting the preservation, wise use, and appreciation of historic, scenic, scientific, wilderness, and outdoor recreational resources of Wyoming.

Individual memberships in the various councils are not only available but are solicited. Such memberships supply the money for minimum salaries, office space, telephone, and supplies.

Working with barebones budgets, concerned citizens have been able to accomplish much. Members of a group which call themselves California Tomorrow have come up with a comprehensive plan for future development of their state. They spent \$50,000 for their plan which has been hailed as a very respectable model (available for \$1.00 from California Tomorrow, 681 Market St., San Francisco, Calif. 95105). The State of California has already spent \$4 million for a plan and has little to show for its money.

The political strength of such councils comes through the combined memberships of the various groups, as well as many individuals who do not wish to join one of the more specialized groups. Colorado has 30 groups with a combined membership of 30,000 individuals. Since the individuals are generally interested and concerned, the effect on politicians and the political process can be considerable.

Most councils are still relatively immature in their approach to the political process. However, most are learning fast. In addition, the focus on growing environmental problems has drawn attention to the citizen groups which are willing to speak out and take action on the problems.

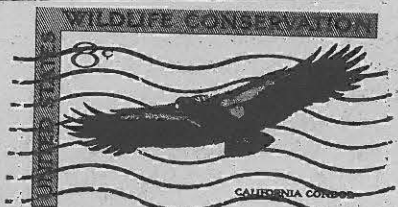
Wyoming's council, like many others, is organized as a non-profit corporation but does not claim tax deductibility. This means that memberships or contributions cannot be claimed as tax deductions. Such an arrangement allows the councils to lobby, work for environmentally oriented political candidates, or engage in other efforts on behalf of environmental problems.

The councils represent a citizen approach to environmental issues. Though underfinanced, they are still able to offset the skilled, highly paid lobbyists of industry and get the hidebound bureaucrats of government to look closer to the public interest. Their influence is already measurable by any standards. It is sure to grow as the environmental crisis deepens.



Travelers to Yellowstone Park may see wild animals in their natural setting. Here, a bull elk shows the stubby growth of new, velvet-covered antlers.

Letters To The Editor



Editor:

At last I can send an extra five dollars to keep the paper going. It is of great interest to me to receive the paper as it is a link with my adopted home state.

On NBC news at 6:30 P.M. EDST, June 15, Senator (State Representative John) Turner of Wyoming was interviewed on the destruction of eagles in Wyoming. Isn't there some way they can be protected by federal law? The sheepmen are blaming eagles and coyotes for killing sheep but I doubt if they are because they lived long before the sheepmen came out there. It should be mandatory to have remains checked for true cause of death. If they do feed on sheep it is after they (the sheep) die or will die.

Stay in the saddle. We need the High Country News.
Miss Doris Cook
Wooster, Ohio



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EDITOR

Thomas A. Bell

OFFICE MANAGER

Mary Margaret Davis

CIRCULATION MANAGER

Marjorie Higley

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Mailing address: Box K,
Lander, Wyoming 82520

P.S. I hope the enclosed articles will help in some way to save Wyoming from this mess.

Editor's Note: Miss Cook sent numerous clippings on the problem of strip mining in Ohio. Indeed, they will be useful in pointing out what has happened in other states and what we can expect if we don't enact strict laws to reclaim those lands mined for coal, oil shale and uranium.

On the subject of eagles, the big birds are protected by federal law. However, there are those few individuals in the sheep raising industry who feel they are above the law and need not observe it.

Thanks to Miss Cook and our other kind readers (such as the Hollenbecks, letter following) who believe in what the paper stands for and are willing to contribute to keep it going.

Editor:

Enclosed is a small contribution to help support your continuing efforts for conservation.

We find High Country News very informative, although at times distressing.

We will consider it a privilege to renew our subscription at the ten buck rate... when the time comes.

Mr. & Mrs. Peter Hollenbeck
Greenbrae, Calif.

Editor:

Enclosed is our check for \$10.00 as a renewal of your priceless paper. I'm sorry to be late in renewing. I'm also so sorry about the fire and hope all is restored by now.

From your letter, you said

you would honor all subscriptions made previous to the raise and I hasten to say we will be happy to go along with the new rate in order to help all we can. You are doing a great service with your publication and I wish all success in its continued printing.

Dr. & Mrs. Robert H. Johnson
Bayport, Minn.

Editor:

Enclosed find \$10.00 check for renewing the paper High Country News. All I can say is that you are putting out a wonderful paper in the interests of the public.

Austin Hamland
Medford, Wisc.

Editor's Note: We are greatly appreciative of our reader's prompt renewals and the confidence shown in us. Faith and your help are what keep us going. For all of our reader's information, the paper is well situated in comfortable offices. We can be optimistic about the future but the present is sometimes discouraging. As editor, I have put \$800 into the paper since January 1 and have drawn out a total of \$200 in salary. The rest of our bills are getting paid, thanks to all of you and to a generous benefactor who helps when the going has gotten rough. Help is on the way, thanks to great people in high places who also believe in what the paper is doing.



Guest Editorial

Ecology, Priorities and the Washington State Department of Ecology

by Gordon H. Orians, Ph.D., Member, Washington State Ecological Commission

Dr. Orians presented this paper in September, 1970, to the Washington State Ecological Commission, which serves in an advisory capacity to the Washington State Department of Ecology. Dr. Orians is a professor of zoology at the University of Washington and has a broad background as an ecologist. He holds a B.S. degree from the University of Wisconsin and a Ph.D. degree from the University of California at Berkeley. In his years of training he has taught tropical ecology in Costa Rica, was a Fulbright Fellow at Oxford, and held a National Science Foundation Fellowship, 1958-1960. He is 38 years of age and lives in Seattle.

Other members of Washington State's first Ecological Commission are: Gordon Tongue, chairman, of Seattle; Mrs. Ann Widditsch of Seattle; Harold W. Heacock of Kennewick; Sam Kinville of Tacoma; Dr. Arpad Masley of Bremerton, and John McGregor of Walla Walla.

After languishing for decades unheeded in the backwaters of biological science, ecology has emerged as the most talked-about aspect of biology. This rise to prominence has not, alas, been triggered by any advances within ecology that were of great public interest, but rather by the great importance of problems facing mankind whose solutions, at least in part, depend upon ecological knowledge. Nevertheless, and not surprisingly, most people still know almost nothing about ecology and tend to equate ecology with pollution control. For residents of Washington this simplistic association might be further strengthened by the nature of the present divisions of the State Department of Ecology, which are essentially pollution control agencies, were it not for the fortunate fact that the Director of the Department of Ecology is a man of game management training and experience. This assures that the Department will not understand its role to be primarily pollution control and that the broader implications of ecology will become more apparent to the general public.

It is my belief that an important role for the State Ecological Commission will be to assist the Director of the Department of Ecology in the arena of public education. This paper is presented as a contribution to the defining of the role of the Commission - as an educative body. It contains a brief statement of my assessment, as a professional ecologist, of the state of the field as it relates to the kinds of problems we now face. In addition I have attempted to provide my personal assessment of the changes in priorities and procedures which must be accomplished if we are to restore our environments to a high quality and, even more importantly, design our life styles so that the environment can be maintained at this level indefinitely.

The magnitude of the changes required should not be underestimated. Nixon remarked in his last State of the Union Message:

"We can no longer afford to consider air and water common property, free to be abused by anyone without regard to the consequences. Instead we should begin now to treat them as scarce resources which we are no more free to contaminate than we are free to throw garbage in our neighbor's yard. This requires comprehensive new regulations. It also requires that to the extent possible the price of goods should be made to include the costs of producing and disposing of them without damage to the environment."

This kind of change requires more than formulating stricter laws covering pollution. As pointed out by Richard A. Carpenter, Chief of the Environmental Policy Division of the Legislative Reference Service of the U. S. Library of Congress (Science, 168, 12 June 1970):

"Environmental policy is incomplete if it does not mean both quality and productivity. Legislation in the first 200 years in this country has supported a democratic, free-enterprise system with the goal of sustained maximum economic growth. Rising public concern with better use of resources, including control of pollution, requires a historic and wrenching turn for both business and political processes."

From the point of view of the industrialist, the

issues were stated with admirable clarity by Henry Ford in a recent address before the Public Affairs Forum of the Harvard Business School (New York Times, 3 December 1969):

"Modern industrial society is based on the assumption that it is both possible and desirable to go on forever providing more and more goods for more and more people. Today that assumption is being challenged. The industrial nations have come far enough down the road to affluence to recognize that more goods do not necessarily mean more happiness. They are also recognizing that more goods eventually mean more junk, and that junk in the air, in the water, and on the land could make the earth unfit for human habitation before we reach the 21st century. In short, the terms of the contract between industry and society are changing. Industry has succeeded by specializing in serving one narrow segment of society's needs. We have bought labor and material and sold goods, and we have assumed that our obligations were limited to the terms of the bargain. Now we are being asked to serve a wider range of human values and to accept an obligation to members of the public with whom we have no commercial transactions. We are being asked to contribute more to the quality of life than mere quantities of goods."

Nevertheless, even the better informed segments of the public still only dimly perceive the nature of the problems. Few people understand why ecosystems have the properties they do. There is much educational work to do.

The State of Ecology

Americans in general have great faith in the ability of technology to solve our present problems despite the fact that most of these problems are also caused by that technology. Not surprisingly, it is now believed that the science of ecology will be able to provide us with solutions to the present problems so that the thrust of American life can go on with little interruption. If ecology is to be called upon to provide answers to our problems, we should know how well prepared the science is to offer critical advice. Unfortunately, as a scientific discipline, ecology is, for a variety of reasons, not sufficiently advanced to be able to fill adequately the role into which it is now being pushed. There are several reasons for this. There may be thousands of different species interacting with one another on a single site, producing an enormous number of possible combinations. Working out the significant processes in these cases is not easy. Second, ecology is a relatively young science which has only within the last decade reached the point at which a body of theory capable of giving direction to field and laboratory research has been developed. Until recently ecologists were mainly involved in a fact-gathering stage in which we were searching for the most basic suggest reasonable systems, so that we could stage has finally come to an end more and more ecological research is guided by theory. Therefore we can expect much more rapid progress in the future, but results will not come instantaneously. Third, strange as it may seem today, over the past few decades ecology has not been a favored science within biology. We have just witnessed a period in which the greatest advances have been made in molecular and cellular biology. Biologists working at these levels of organization have received the Nobel Prizes and many of them felt that the future of biology lay in discovering the biochemical mechanisms underlying cell functioning and differentiation. As a result many of the prestigious universities in this country phased out their ecology programs, if indeed they even had one to phase out. Ecology was poorly funded, and bright young biologists were not attracted to the field. Consequently, ecology is presently faced with a severe shortage of imaginative and skilled researchers. It takes time to produce such a body of people.

Though our understanding of ecological systems is incomplete and will remain so for many years, we do know enough about many ecological problems to provide some guidance to public officials, and, what is perhaps even more important today, to be able to stress our

ignorance of the systems we are so thoughtlessly modifying without knowing what the consequences will be. Let me cite some examples.

The theory of the general structure of populations, the consequences of changes in reproductive and death schedules on the rates of population growth or decline, and changes in age distribution are well known and a rigorous mathematical theory of these changes is available. We also know a great deal about the energy budgets of individual organisms and how they are affected by changes in the physical environment. The general pattern of energy flow through ecosystems is also reasonably well understood. We know that only about ten per cent of the energy entering one level of the system is actually consumed by the next level in the system, and we understand why this is so. As a result of this knowledge we can understand why a persistent pesticide such as DDT can be concentrated up to several hundred thousand times its original concentration by moving through a food chain from plants to herbivores to carnivores to secondary carnivores. Finally, we understand a great deal about competitive interactions between different populations, why ecologically identical species cannot coexist if there is a resource shortage, and we are moving toward an understanding of how important this type of interaction is to the structure of communities of plants and animals.

On the other side of the ledger, we are faced with critical unknowns. We don't yet know enough about the structure and dynamics of ecosystems to be able to predict the consequences of introducing new species into the system. Already we have seriously disrupted many ecosystems by the introduction of alien species, but ecologists cannot tell you whether a given introduction will be a success or a failure and whether or not its success will result in serious undesirable changes in the system. Similarly we do not yet know enough to be able to predict the full consequences of the simplification of ecosystems. We do know that violent fluctuations are typical of simple systems with few species and fewer patterns of interactions. There are some theoretical reasons for expecting this to be so. However, we cannot yet assess the long range consequences of the massive simplification of world ecosystems produced by modern agricultural methods of devoting vast areas to the cultivation of single species of plants, most of which are unusually susceptible to the attacks of herbivores. Clearly this is one of the most important ecological problems in terms of the continuing stability of our life supporting ecosystems, but it will be some time before we will know the consequences of our acts. Finally, we as yet know very little



about the factors determining the number of species that can actually live together in a single environment. There are a number of well known patterns of community complexity, and a study of these patterns has led to the formulation of several interesting theories about community structure. Many ecologists are presently testing these theories but are still a long way from having a satisfactory answer.

The obvious conclusion of this overview is clearly that we will need a great deal more of ecological research which must continue while we grapple with the problem of maintaining and restoring the vitality of our ecosystems upon which we depend for our lives. It also means that public officials cannot expect answers to many of their important questions and will have to be satisfied with only tentative suggestions. Nevertheless, because of our general ignorance, it is especially important that we emphasize and re-emphasize that we are engaging in infantile

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behavior when we thoughtlessly plunge ahead with major modifications of ecosystems when we are so unable to predict possible consequences. We do know enough to realize that the stakes in this game may be as high as the survival of the human race.

Therefore, the first message of the Department of Ecology must be that caution is the only sensible attitude toward our environment. An analogy with military preparedness may be appropriate here. Military planners operate under the assumption that the enemy, real or imagined, will devote the maximum possible fraction of his energies toward achieving our destruction. Most probably any enemy will in fact devote a lesser amount of energy to this, but the military planner will argue that the consequences of failing to be prepared for his maximum effort, if he in fact makes it, are so severe that we cannot afford to make any other assumption. In the environmental field, most ecologists believe that we now have the capacity to irrevocably destroy the ecosystems upon which we depend for our lives. We do not know how serious this possibility is in the immediate future, but if the stakes are as high as I am claiming, can we afford not to be prepared for the worst?

Problems and Priorities

Despite the fragmentary nature of our knowledge it is possible at this point to establish a stable relationship with our life supporting ecosystems. The source of our environmental problem is two-fold, and the solution must therefore deal with both of the sources. The first source is the sheer number of human beings on the earth and the ever accelerating rate at which we are increasing. Presently the world population is doubling about every 35 years, and the doubling time is getting shorter rather than longer. Today, in most of the poorer countries standards of living are either remaining the same or actually declining because the rate of population growth exceeds the rate of increase in the production of food, goods and services. In the United States, where there is presently no food shortage, where in fact most of us are regularly, or at least occasionally on diets, the quality of life is already declining as a result of the number of people. More restrictions on individual options are likely in the near future. It can safely be said that none of our goals are attainable unless population is stabilized.

The second source of our environmental problem is our steadily increasing technological capacity, which means that each of us in a technological society has an impact upon the environment many times greater than the impact of people in poorer countries. In fact, the average American pollutes the environment about 50 times as much as the average person in most of the poor countries. Therefore, even if we achieve population stability it is possible for us to damage severely our world ecosystems if we continue to develop and use our technological capacities in the ways in which we do presently. There is little doubt that the earth cannot maintain a human population the size of the present one at the standard of living enjoyed by present day Americans. Therefore, our second major objective must be to examine the technological style of living to determine in what ways it can be modified so as to reduce our impact on the environment without undue sacrifice in terms of quality of life. This choice will be forced upon us in the near future whether we like it or not, but for a number of reasons it is highly desirable that we begin to do so before perhaps it is too late.

The Population Problem

At the time of Christ there were only several hundred million people on the earth. By 1650 that number had increased to half a billion. We reached one billion by 1850 and two billion by 1930. Over much of human history it took about one thousand years for the human population to double. Today we are doubling in about 35 years, and the doubling times are getting shorter and shorter. At present rates of growth the human population would have reached 100 persons per square yard in 900 years. Clearly no such densities will be reached, but the figure serves to emphasize the magnitude of the population growth problem.

A variety of methods to achieve zero population growth have been suggested. They include education, tax reform and other economic incentives, the licensing of reproduction, and compulsory sterilization. There is no one of these plans which can be judged to be likely to succeed without raising some serious civil liberties problems, and they

will require much discussion and debate over the coming years. The Department of Ecology should be involved actively in this discussion.

Environmental Quality

As populations and economics have been rapidly expanding, the resource base upon which all human life depends has not been expanding but has, instead, been shrinking. All of us today have grown up in a period of unbelievable affluence, based primarily on the consumption of fossil fuels. It is difficult for us to realize that the present state of human affairs is truly exceptional and of very short duration. In the last 30 years we have consumed as much metal as was used in all of previous human history. Over half of the fossil fuels ever burned by man have been burned within the last 25 years. In the United States, with only about 6 per cent of the world population, we consume one third of the world's tin, one fourth of its phosphate, potash and nitrogenous fertilizers, one half of its newsprint and synthetic rubber, one fourth of its steel, one fifth of its cotton, one fourth of its beer and we make one half of all its telephone calls. For this consumption we raid the remainder of the world's raw materials and cause most of the world's serious pollution.

It is clear that even if we wished to, we cannot

catastrophic consequences.

Water power converted to electricity is the cleanest form of power, but we have already dammed most of the rivers in the United States, thereby destroying an irreplaceable and unique valuable natural resource. Moreover, dams supply only a short-term source of power because of silt accumulation. Careful studies have shown that we cannot expect to power a growing technological society with water power.

The only other foreseeable source of massive power is nuclear energy. Unfortunately, the fission reactors which are the only ones now feasible, are the sources of environmental pollution of two kinds. The first is thermal pollution which is not serious on a small scale but which would pose major problems for both global and local climates if our society were converted to primary reliance on nuclear power. Even more serious, however, is the problem of the radioactive wastes which are presently stored in huge underground tanks at Hanford. Some of the isotopes involved have half-lives of thousands of years, which means that the material must be stored for many thousands of years. The future generations who will be the custodians of this material do not have the opportunity of voicing their opinion as to whether or not they wish to have it included in their inheritance.



"There is no way to consume power without producing some kind of environmental pollution which must be handled . . ." One of the most serious environmental impacts is that produced by the exploration for and mining of fossil fuels and uranium ores. This steep-sided, deep open-pit has been mined out. It and the ever-present overburden and tailings pile remain for posterity. It is part of the uranium mining area in Wyoming's Crooks Gap in Fremont County.

continue to exploit the world's resources as we are now doing. According to the best estimates, we will have exhausted the energy at present rates of consumption. Coal deposits are more extensive, but even they will be exhausted in 250 to 300 years at present rates. Already many scientists are concerned over the shortage of U-235, the major fuel for atomic reactors. Some are predicting a critical shortage within two decades if more efficient use is not made of the limited supply of this isotope. Thus, it is clear that Western technology has been built on the mining of finite, nonrenewing resources, and the ends of all of them are in sight.

Our environmental quality problem is intimately bound up with this consumption of fossil fuels. If I may paraphrase a well-known axiom of political science, "Power pollutes and absolute power pollutes absolutely!" There is no way to consume power without producing some kind of environmental pollution which must be handled. Our consumption of fossil fuels is responsible for nearly all of the air pollution, and, indirectly, in terms of the waste products of the industrial processes which are powered by fossil fuels and toxic chemicals manufactured from petroleum products, for much of our water pollution as well. The extent of this pollution is now so great that many atmospheric scientists are deeply concerned that we may be upsetting the climate of the world with possible

problems could be removed, and we would have only the thermal pollution problem to deal with. However, physicists and engineers are still a long way from developing this kind of reactor, and it is not expected that they can be operative for at least a number of decades, perhaps much longer. Therefore we cannot look to fusion energy as a solution to our problems in the near future.

In addition to the direct consequences of power consumption, a great deal of our environmental deterioration results from chemicals produced in a variety of ways by our technology. Among these are the pesticides which now contaminate every bit of soil and water on the earth and are found as residues in the bodies of all plants and animals. Included are the herbicides which are increasingly being used for weed and brush control in the United States and as an integral part of our military arsenal. Also, we cannot forget the great quantities of chemical fertilizers which are the source of much of our stream and lake pollution in the United States. Finally, the manufacture of steel and other metals results in the generation of great quantities of highly toxic waste products which must be gotten rid of in some way. As if these were not enough, we also deliberately seek to develop and store dangerous nerve gases and

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biological warfare agents for use in combat. Already places on the surface of the earth are uninhabitable because of the release of these agents.

Reduce Consumption

Given this kind of picture of the consequences of our consumption of power and the technological byproducts of our society, the most prudent policy for the future would be to attempt to design our social systems so as to minimize the amount of power we consume without seriously diminishing the quality of life. There is no doubt that the rate of power consumption in the United States far exceeds that which would be necessary for a rich and rewarding life. Great savings can be made once we recognize that making such savings is not only necessary in order to conserve diminishing resources, but may also be necessary for the continuation of life itself.

In part, our power consumption is stimulated by a powerful and seductive advertising campaign designed to create in us desires for products we do not now have or feel the need for. This "keep up with the Jones" mentality results in the purchase and operation of a great variety of power-consuming devices, none of which is really necessary. We find ourselves in the position of having so many power-consuming, labor-saving devices that we fail to get enough physical exercise. Therefore, we purchase other power-consuming devices with which to get the exercise we need for health. A reduction in power consumption should automatically result in improved health for many Americans.

These are but a few suggestions. Once we have decided that a reduction in power consumption is a goal toward which we must work, I am confident that a wide variety of techniques, many not now conceived, will be developed and implemented. There is no more important task toward which the energies of the Department of Ecology could be devoted. The less demand there is for the power, the less often we will have to face problems of building new dams, drilling for oil in Puget Sound, siting new nuclear power plants, etc. The more power we consume the more environmental deterioration we will have to accept.

Auto Pollution

Since the private automobile presently accounts for about 60 per cent of all air pollution in the United States, decreasing the amount of gasoline consumed is a good place to begin. Our air pollution could be reduced by over half almost immediately by higher emission standards for automobiles and by encouraging, with a variety of techniques, the use of smaller cars that give higher mileages per gallon. As a short-term measure, this action is of great importance. However, we must also move toward a reduction in the need to drive a car. The present need is the result of, in addition to personal desires, the lack of alternative transportation sources that are rapid and convenient. The private automobile pollutes more per man-mile than any other form of transport. Our longer range plans must include a greater variety of alternatives to the automobile. Another source of our need to drive an automobile is our present city planning and zoning practices. These dictate that the typical American must take some form of motorized transport for virtually every activity, such as shopping, going to work, seeking entertainment, etc. The practice of zoning large areas commercial and other areas residential makes it very difficult for people to live close to where they work. Clearly there are some industries that are sufficiently noisy or dirty that living near them is highly undesirable, but most people are employed in occupations which do not have these characteristics.

By careful planning of bicycle trails and parks throughout our metropolitan areas we can provide greatly expanded recreational opportunities to people that are available without first getting into an automobile and driving to them. The worse our cities become the more we pollute in trying to escape from them.

Recycling

Another goal for rational planning for the future must be to recycle as many of our resources as possible. Today we have developed to a high degree the habit of using things once and then throwing them away. Only a small fraction of our bottles are used more than once, and most of our paper is used once and burned. Recycling of paper would save thousands of acres of forest every year in the United States, as well as reducing air pollution. Recycling of resources can be effectively stimulated by

simple economic incentives which are immediately within our grasp. All that is needed is the political will to do so. In Costa Rica, where I have lived for some time, bottles are genuinely expensive, and one never sees a bottle along any road. They are zealously kept and reused. In our society bottles are not that valuable, but they could easily be made artificially more valuable. The corresponding bottle conservation attitude would almost certainly develop very quickly among Americans. In some cases recycling will be forced upon us by the exhaustion of the resource, but it is necessary, if we wish to maintain a high quality environment, for us to develop extensive programs of recycling many resources long before they are in critically short supply.

More Goals

Another goal for the future must be to recognize that beautiful natural environments are as essential for a high quality existence as are food and shelter. In part, our urban crisis has been created by a massive attempt to escape from an uninhabitable city environment to the suburbs, where grass, trees and birds can be enjoyed. The preservation of these natural areas is of special importance, since their loss is often irrevocable. Once a river is dammed, once a forest is cut, once a shoreline is filled in, we may have to live with the alteration forever. Therefore it is inappropriate to look simply at short term economic benefits when deciding the fates of these scenic areas, because we may never be able to change our minds in the future when we discover our mistakes.

A critical goal for the future must be to alter our methods of making cost-benefit analyses when environmental problems are being considered. In the past, and for the most part even today, our cost accounting systems do not take into account most of the real costs. Therefore it requires very little benefit to make it appear economically sound to engage in some act of environmental destruction. We would in most cases make very different decisions if we did our accounting correctly. Some examples are instructive.

Consider a Midwestern farmer making a decision whether or not to use DDT on his corn fields. He has available to him information on his yield of corn per acre and the expected market prices for his corn. He has available to him, from the pesticide company, information on the cost per acre to apply the DDT. If the increase in yield per acre is sufficient to more than offset the cost of purchase and application of the DDT, the farmer will conclude that it is in his interest to use the chemical. If his projections of expenses are realized he will continue to use the chemical every year on his crops.

After a number of years, however, we begin to realize that not all of the costs were included in

the farmer's original calculations. We have learned that the DDT applied to crops in the United States has been carried by water and air to all parts of the earth and that all living organisms now carry a body load of DDT. We learned that DDT gets concentrated in passing through the food chain, so that it may reach concentrations in the top carnivores of the system hundreds of thousands of times greater than found in the soil or plants at the base of the chain. This concentration is now so great that reproductive failure is occurring in a number of species of carnivorous birds. Already human breast milk contains so much DDT that it exceeds federal standards and should theoretically be confiscated when it crosses state lines.

As we gathered evidence on the concentration of DDT in living organisms we also learned that many important crop pests are becoming immune to DDT, having rapidly evolved tolerances as a result of chronic exposure to high concentrations of the chemical. There are now over 200 species of crop pests that are highly resistant to DDT, and in many cases losses to pests have actually increased as the natural predators of the pests were killed by the DDT, while the pests developed their resistances. Already in some cases agriculture has been saved only by completely stopping the use of the chemicals.

The moral of this story is, of course, easy to infer. Ecosystems are complicated and interconnected in a variety of ways. As Garret Hardin has emphasized, we can never do merely one thing. The DDT applied to Iowa cornfields may prevent reproduction of pelicans in California. The exhaust from my automobile may help to melt the glaciers, which will result in the flooding of all the coastal cities of the earth. No longer can we continue to ignore the longer term ecological consequences of our tampering with ecosystems. The yield per acre accounting system is grossly inadequate.

As second example, consider a decision to dam a river in Western Washington. The environmentalists cry that the dam will encourage industrial and residential development which will forever remove the land from agricultural production and destroy the scenic river. The proponents of the dam argue that the economic value to the valley land will rise and that the lake behind the dam will create recreational opportunities. The city fathers are worried about the loss of tax base if the land remains in farms. Even taking these groups together, the full costs of the dams are not being considered. For example, the conversion of the river bottoms to industrial and residential uses deprives us of the only good farm land west of the Cascades. The uplands, which are highly leached and infertile, cannot support sustained agriculture. Therefore, if the farmlands are lost, as is now happening, Western Washington will have to rely ever more heavily on imported food. The con-

(Continued on page 11.)



"Though our understanding of ecological systems is incomplete and will remain so for many years, we do know enough about many ecological problems to provide some guidance to public officials, and, what is perhaps even more important today, to be able to stress our ignorance of systems we are so thoughtlessly modifying without knowing what the consequences will be . . ." This clearcut forest area has been drastically modified without knowing the full consequences. The area shown here is on Wyoming's Big Horn National Forest but it is typical of many forests throughout the West.

Floating Western Rivers

Part Three: Hells Canyon and the Dams

by Verne Huser

Photos by Verne Huser

Hell's Canyon, the deepest gorge in North America, was carved through thousands of feet of metamorphic and igneous rock along what is now the Idaho-Oregon state line by the Snake River, which flows more than a thousand miles from the Yellowstone country of north-west Wyoming to the Columbia. This is the same Snake River that flows through Jackson Hole and Grand Teton National Park, where more than fifty thousand tourists floated a brief stretch last summer and even more may thread its braided channels this year.

Boyd Norton, writing about Hell's Canyon for Audubon, said "You could take the whole Teton Range, its length, breadth, and height, and drop it into this gorge with room to spare." (Audubon, January, 1970.) It is possible that fewer than a thousand people have yet floated through Hell's Canyon—though thousands more have no doubt seen this spectacular gorge by jet boat roaring up the river from Lewiston. Even so, like Glen Canyon on the once mighty Colorado, it is a place no one knew well enough to stop the dam builders. A trio of Idaho Power Company dams now block the Snake River in upper Hell's Canyon, and more dams are currently being planned for the more-than-a-hundred-mile stretch of river between Hell's Canyon Dam and Lewiston-Clarkston which still flows unchecked—with the water the power company decides to release.

This spring that was plenty for a trio of wild white-water float trips I took with an Idaho Falls outfit called Wilderness Encounters through what is left of Hell's Canyon. Jim Campbell and Hank Miller, who runs the two-year-old organization, operate the only motor-less float trip through the canyon and one of three float trips that still ply those somewhat isolated white waters. (Box 274, Idaho Falls, Idaho 83401).

Hell's Canyon has been explored by one means or another for more than 150 years, and at least two steamboats have gone down its violent currents safely—others have not. Mining in many corners of Hell's Canyon for more than a hundred years, especially gold and copper, has led to many attempts to navigate the river. And with the development of the jet boat during the past few decades, the Snake—like the Salmon, famous tributary river-of-no-return—has been in a sense tamed.

Yet, float trips didn't begin until after World War II, and it wasn't until 1953 that anyone began running regular commercial float trips on the turbid waters of Hell's Canyon. Hell's Canyon Navigations began floating Hell's Canyon before any of the dams were built in military surplus bridge pontoons. I talked with Ray Holt, one of the early river runners, about those pre-dam days while I was in Hell's Canyon in May. Four

of Hell's Canyon mightiest rapids have now been inundated by the ever-fluctuating waters of the third (and hopefully, last) of the dams in Hell's Canyon.

Rapids are rated on a ten-point scale with 1 and 2 being mere riffles and 10 being a rapid so dangerous that you have only a 50-50 chance of running it successfully. In a five-mile stretch of pre-dam Hell's Canyon there were Kinney Creek Rapid(7) followed by Squaw Creek and Buck Creek (both 9's), and Sawpit (8). Holt, who doesn't run Hell's Canyon since the last dam went in, speaks of the drowned rapids with sparkling eyes: "Kinney was a long rapid that really bucked. Squaw was full of rocks, bank to bank, and you had to pick your lot. Then there was Buck with two big rocks that you couldn't miss—had to go right over 'em." And in the home of Jim Zanelli, who now runs Hell's Canyon Navigations float trips and jetboats from the dam to the head of Wild Sheep Rapid, I saw a photo of Ray going through Buck. Impressive!

Holt didn't even mention Sawpit Rapid with its 14-foot drop and its 8 rating; perhaps it was anticlimactic after Squaw and Buck. Leslie Jones, on his river map of Hell's Canyon copyrighted in 1957—before the last dam went in—says of this one "rocks all over the place like Hance in Grand Canyon." But all this is ancient history now. Those rapids are gone forever—or until someone decides they should be blasted out to save a river (that'll be the day).

We climb to the divide above Cambridge, Idaho on a twisting road along Pine Creek. The Wallows rise snow-cold in the distance to the west (Oregon), and the soft contours of the spring-green slopes of the Cuddy Mountains appear as we drop down Brownlee Creek into the harshness of Hell's Canyon. Wildflowers—balsamroot and larkspur and service berry—color the hillsides, and the red-and-white and black-and-white cattle graze the dewy grass. Suddenly the devastation wrought by Brownlee Dam thrusts itself upon us as the mud flats appear; the reservoir is drawn down more than a hundred feet to make room for the spring snow melt, and the man-made lake (an improvement on nature?) is ugly with the bathtub rings of a thousand previous reservoir levels.

The water is muddy, and a few fishermen try their luck from the mud flats or miniaturized boats, knowing that the fish they catch are probably unfit to eat because of the pesticides and the mercury that concentrate in the reservoirs and infest the fish through the food chain. We cross the bridge below the dam to the Oregon side and see the spillway through a maze of power lines.

The three existing dams produce a little over a million kilowatts. But a variety of power

companies have their sights on Hell's Canyon for no less than a half-dozen more dams one of which would inundate the entire gorge from the confluence of the Salmon river all the way to the present Hell's Canyon Dam (in fact, 30 feet up the dam's face). If every iota of potential hydroelectric power potential in these United States were developed to the ultimate capacity today, it would provide about 5% of our present needs. Obviously 95% of our power must be produced by some other method. Is it really necessary to destroy our last free-flowing rivers—and those remaining sections of the dammed ones—for that measly 5%?

The power companies seem to think so. They are presently spending seven times as much money on advertising and on public relations as they are on research. Pacific Northwest Power Company, which seems to have the inside track on any future Hell's Canyon dams, spends eight times as much of its budget trying to dupe the public and sell more power than it does on developing alternate methods of producing electricity or on cleaning up its power-production methods.

High dams block the migration of anadromous fish—principally salmon and steelhead in the Snake—and the spillways serve to super-saturate the water with nitrogen that kills fish. A nitrogen super-saturation level of 110% is lethal to fish; yet levels of 145% have been recorded in the Snake and Columbia river systems during the past three years, and one estimate claims that 70% of the steelhead in a certain stretch of river were killed by nitrogen poisoning last year.

The few fishermen using Brownlee Reservoir and the even fewer along Ox-bow suggest what an Idaho Fish and Game survey pointed out a few years ago: free-flowing rivers are used by fishermen much more than reservoirs (the ratio is 12-1). An excellent example of this can be seen by contrasting the use of the main Canyon reservoirs. Served by miles of dusty, bumpy gravel roads, the Salmon gets ten times the use that upper Hell's Canyon does, even though the Idaho Power Company has provided paved access roads. Even the power company admits that the favorite fishing spots in the system they have developed are the mill-race areas where the water from one reservoir runs freely to the backwaters of the next downstream reservoir. For most practical purposes the reservoirs are dead, a boon to trash fish.

We drive along the Ox-bow Reservoir along the Oregon shore, climb the hill above the Ox-bow and look down onto the complex at the town of Ox-bow and the free-flowing river below—where five million salmon and steelhead were killed by the Idaho Power Company during the dam-building days, an episode that has been hushed-up but came to be called "the Ox-bow Incident." A short run up Pine Creek to the store for Oregon fishing licenses and beer (we've picked up our Idaho licenses in Lewistown), then on to Hell's Canyon Dam. We cross the river once more to the Idaho side and follow the reservoir through increasingly rugged country north past the ghost mining town of Homestead across the reservoir and the Idaho Power Company campground at what used to be Ballard's Landing (an important mining center for the copper fields in the foot-hills of the Seven Devils Range).

Just below the millrace of Hell's Canyon Dam where white water plunges violently from reservoir to river, picking up the fish-killing nitrogen, we launch the boats, a trio of pontoons rigged with rowing frames and loaded with camping gear and food for a week's trip down the wildest remaining stretch of Snake River—both in terms of rapids and of inaccessibility. We ease into the free-flowing current (40,000 cubic feet per second) and are suddenly swept around in a quick 360 as we reach the eddy line. Rushing water sucks at the upstream edge of the boat, tilting it slightly but not dangerously, and the craft groans with the conflicting of forces. Then we are riding the current that sweeps along at 8-10 miles an hour. We undulate along on the choppy surface and enter a minor rapid, a mere riffle. Stud Creek comes in on the left (Oregon) side, and Brush Creek on the right (Idaho). We are more than a mile below the top of the canyon.

Unlike the Grand Canyon, which rises from the Colorado River in a series of vertical steps, Hell's Canyon simply rises in a steep angle from the river to the mountain tops. At its narrowest point, the Grand Canyon is 15 miles across. Yet, where Hell's Canyon is only 7 or 8 miles across, the river flows 6600 feet below, and He Devil (Continued on page 7.)



An oar-driven pontoon drifts lazily down the swirling waters of Hells Canyon at the site of the proposed Pleasant Valley Dam just below Pittsburg Landing. Power boats ply the waters of this deepest river-cut gorge in North America, but none of the jet boats try the major rapids - Wild Sheep and Cache Creek - that the pontoon has just been through.

Floating Rivers...

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(9393) towers eight thousand feet above the river level at Granite Creek (1393) no more than eight miles away.

Battle Creek comes in from Oregon, a good campsite that we explore for future use but don't use this trip. Less than a mile below, we pull into the back eddy above Wild Sheep Rapid, rated a nine by Leslie Jones, who ran it on 10,000cfs in 1957. We have four times that volume and decide to stop to look it over, pulling ashore on the Oregon side. We break out lunch and take our time, with the roar of the rapid keeping us constantly aware of what lies just ahead. Climbing the rocky hillside, leafy-green with poison ivy, we study the rapid, full of rocks but well covered with white water. The center tongue might go, but the right-hand tongue looks better. Jones' suggested route looks suicidal in this water, but we'll keep it in mind for later in the summer.

Back to the boats, tie everything down and double check preservers, drift upstream in the back eddy and pull into the current as it rounds the bend, a hard pull across the eddy line, and we're in, racing toward the initial drop. We sweep down the smooth tongue, gaining speed, then rise on the lip of the first giant wave, up and over, down again into the wild water and huge holes, but we hit it right—position is everything—not much time to maneuver in mid-rapid. Then come wild yells of the passengers as they lose their bottled-up fear and enjoy the tail waves.

We pull in to shore below the rapid and watch the other boats come through, one catching a dangerous back eddy in mid-rapid on the Idaho side but getting out without breaking an oar (and the traditional excuse: "We were looking for Indian petroglyphs.") All through, and we drift on down to Granite Creek and one of the finest camps on the river, an open meadow hemmed in by rock walls and bordered by the clear-flowing stream coming down from the frozen lakes in the Seven Devils. Here, we find water cress, lambs quarters and miners lettuce to add to our salad. Plenty time to hike and fish and swim (if you can stand the cold water) or just relax. And our exploration turns up an old beaver trap, the full-curl skull of a bighorn ram, a rattlesnake, a pair of young owls in the lower branches of a huge Douglas fir sheltered by a mountain maple.

Here grew the ponderosa pine and the hackberry, the chokecherry and elderberry, the current and nettle, the syringa (mock orange), which is Idaho's state flower. Here too were the Lewis woodpecker and the mourning dove, the canyon wren and the rock wren, the violet-green swallow and the white-throated swift, the chukar and the Stellar's jay. On the river we saw spotted sandpipers and great blue herons, several ducks (merganser and mallard, shoveler and pintail, gadwall and widgeon, golden-eye and green-winged teal) as well as the Canadian goose, the osprey and the golden eagle.

A late start the second morning put us on the river shortly before noon, and we spent much of the mid-day running Cache Creek Rapid, an 8 and really ripping at 40,000 cfs. We looked it over, too, but there's only one way to run it: right down the tongue with the boat canted slightly (about 15%) toward the Idaho shore because of the waves breaking off a big rock at the head of the rapid on the right. Big water! Huge holes with gigantic rooster tails breaking across the boat at all angles. We took on lots of water and stopped below the rapid to bail and watch the others run what would be the wildest rapid this trip. Just below the rapid we saw a doe deer with a newly-born fawn, resting in the dappled sunlight-and-shadow of a hackberry tree growing from a rocky cove next to the river.

Plenty of time on this trip so we only run to Saddle Creek on the Oregon side for our next camp and have time for some hiking. We cover less than five miles today on the river, but we enjoy the lay-over: some fish, others bathe, still others explore the heights above the river or the remnants of farming machinery of an earlier era. Here we see the lazuli bunting and the red-tailed hawk, the dipper (water ouzel), the yellow warbler and the cliff swallow. We also encounter three rattlesnakes, and next morning, a bighorn ram with a three-quarter curl comes right into camp. Fish for breakfast from both river and creek, and an early start for a big day of running some medium-sized rapids: Bernard (3), Waterspout (4), Bill's (5), Sluice (3), and Rush (4), but both Sluice and Rush are really humming, especially the hydraulics on the left. And we stop for lunch at Johnson's Bar where a trapper is setting out coyote getters (cyanide guns) for predators on the sheep range.

Then, as Hat Point (6982) on the Oregon side disappears from view, we enter another part of the canyon as it closes in again below Sheep Creek, and we run to Floyd Harvey's camp at Willow Creek to get fresh water. We proceed on

down through more open country where sheep dot the hillsides, past Temperance Creek and Big Bar and Suicide Point to camp at Salt Creek. This is just above Idaho Senator Len Jordan's former ranch at Kirkwood Creek (and across the river from a sign painted on the rock "Grace Slept here," a reference to Jordan's wife who wrote a book about their experience, *Home Below Hell's Canyon*). Lots of cactus here, flowering on the rocky ledges above the sand bar and along the sandy shore itself. We'd seen a deer just before we landed for the night, and a sparrow hawk hovered near a cliff in the afternoon sunlight. Chukars clucked from the slopes above, and cedar waxwings fed in the hackberries.

An avocet brightened our next day as we ran a series of rapids in a deep, narrow canyon full of eddies and whirlpools—Upeer, middle, and Lower Kirby—to Pittsburg Landing, where a primitive road comes in from Whitebird on the Idaho side. Here we stopped for lunch and a hike up to the Indian petroglyphs in an open field above the river. Back on the river just after lunch, we hit the first proposed dam site, Pleasant Valley, as the canyon narrows again and the green velvet ridges tower high above us, shutting out the sun at mid-day. We camp just around the bend at Big Canyon Creek where the bass are biting and where a flock of evening grosbeaks visits our camp in a colorful display of black and white and yellow.

Gathering wood for the evening campfire, I come across a #3 victor trap with a badger's chewed-off foot still caught. Government trappers practicing predator control? Good talk around the fire, but worried glances at the gathering clouds—we've been lucky with the weather so far. And the next morning is overcast with rain beginning as we launch our boats on the fifth day on the river. We pass an old, almost-forgotten proposed dam site at Cottonwood just

above Lookout Creek (a good campsite with outhouse) and drift into open country again at Dick River's Copper Creek camp (Dick is the mailman for this country, running his Idaho Queen III from Lewiston to Johnson's Bar and sometimes above). We stop for lunch and to pan gold near Roland Bar and find a Canadian goose nest with two eggs (we keep our distance, lest we lead predators to the nest or disturb the parent birds).

Past ranches on both sides of the river in the early afternoon, past the site of the Chinese Massacre (where several Chinese miners were murdered for their gold several decades ago), past the Nez Perce crossing of 1877 when Chief Joseph led his tribe from their home in the Wallows to the reservation just a few days before the Nez Perce War began and Joseph became a hero to the Indians and white alike. Through another narrow canyon where the river runs deep and full of whirlpools, past the Low Mountain Sheep Dam site (proposed) just below Divide Creek. The violent sucking and belching of the current tears an oar out of a boatman's hands and pulls it into the vortex only to spit it out a half-minute later, blade up.

And at the mouth of the Imnaha, we stop for driftwood to burn at our campfire tonight. We also pan for gold where gold was mined at the turn of the century and explore the old mine tunnels and the foundations of the concentration plant located on the terraced hill above the left bank. Once more into the breach, we thread the narrow, swirling canyon of the High Mountain Sheep Dam site (proposed) just eight-tenths mile above the mouth of the Salmon. This dam would be over six hundred feet high and could back water all the way to Hell's Canyon Dam more than fifty miles upstream, drowning out the entire canyon we've been floating for five days.

The canyon is awesome, especially in the rain
(Please turn to page 13.)



Breaking camp on the Oregon side of the river just across the Snake from the confluence of the Salmon River. This excellent campsite lies just a mile downstream from the proposed High Mountain Sheep Dam Site which would back water all the way upstream to the present Hells Canyon Dam. Swirling Snake River in middle foreground is running roughly a hundred thousand cubic feet per second with the spring run-off from the Salmon River and the water being released from Hells Canyon Dam some 60 miles up.

THEY DIDN'T



Photo by Stan Rice



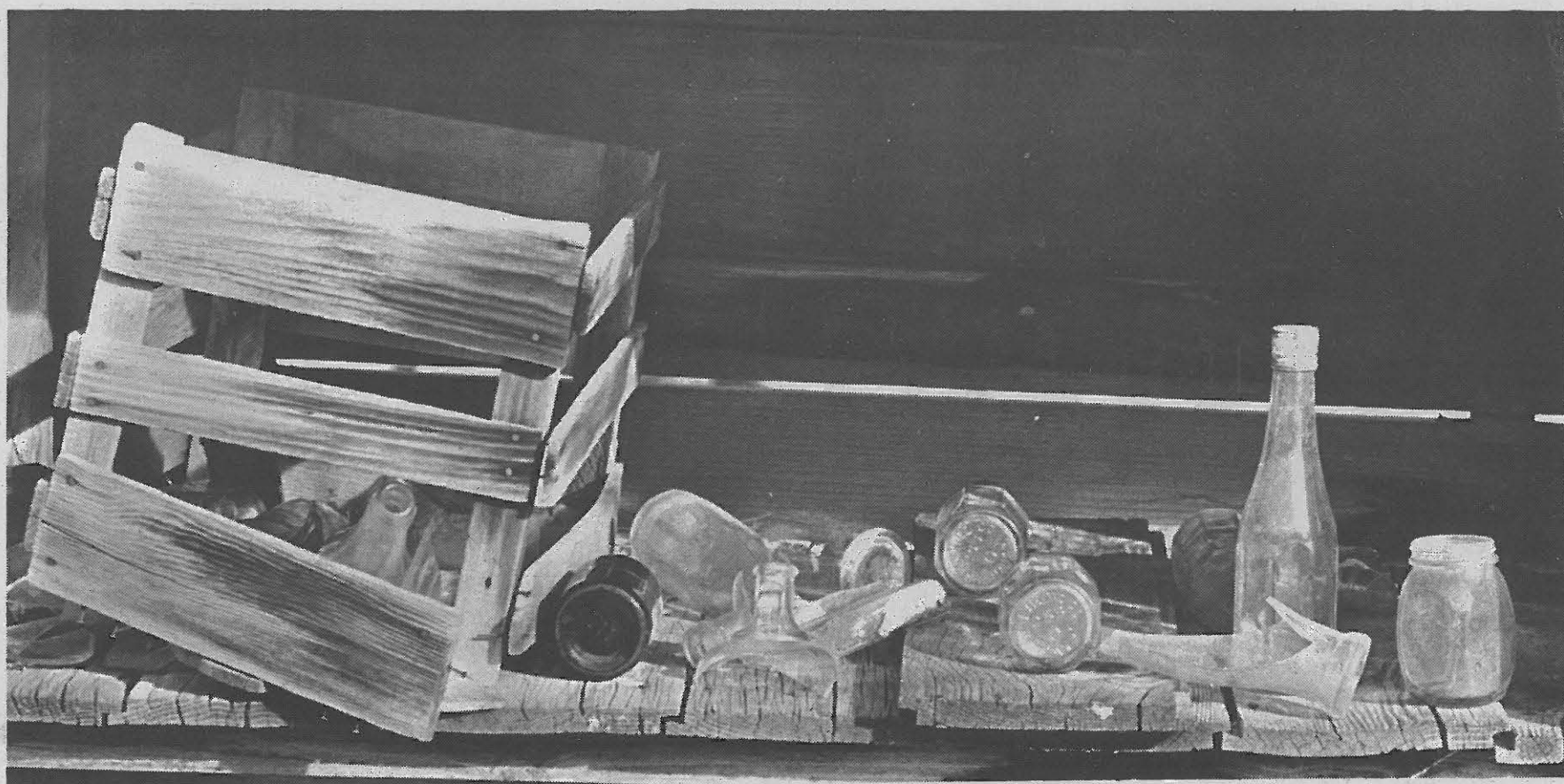
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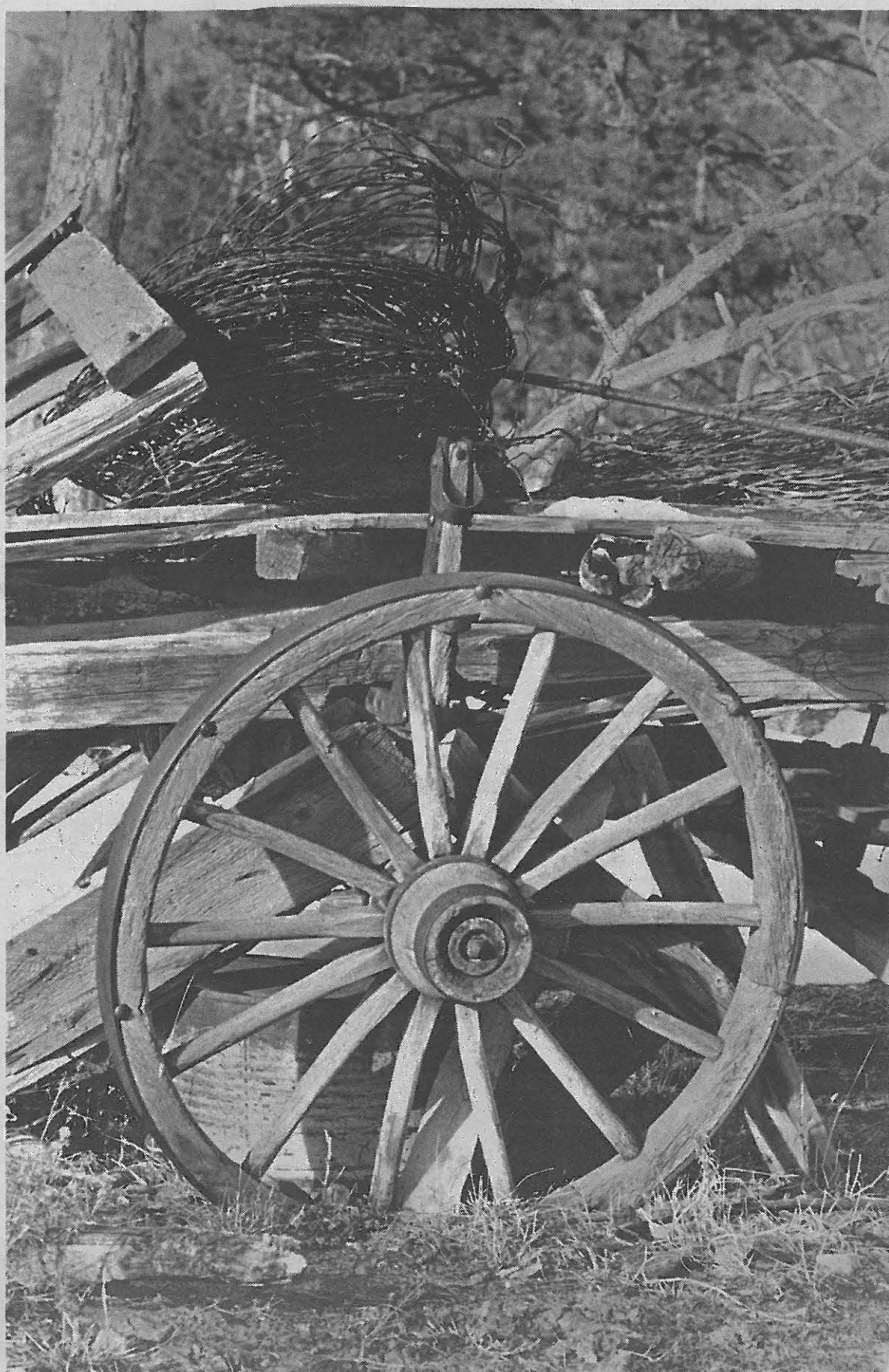
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to the mountains to
am - a small home-
a knoll among the
n. Some cattle, some
few rabbits, a lot of

they were building,
oke. Maybe in death,
or in drought. Who
to be something sud-
everything was simply
scattered here and
orrow and hope had
ngle, swift stroke.

he took over. Hinges
loose. Fences have
acked and sometimes
wheels have sunk in-
ed wire has first rust-
All is going - slowly
the people and their
e forever.



BY DAVE SUMNER

Backpacking - Things to Know

by Alice Dieter, Assistant Editor, INTERMOUNTAIN OBSERVER

The popularity of backpacking has much to do with the desire for fresh miles of mountains, uncluttered by automobile roads. The view from the highway turn-out point at the top of a pass may be spectacular, but it doesn't match the view you have earned by climbing the mountain yourself.

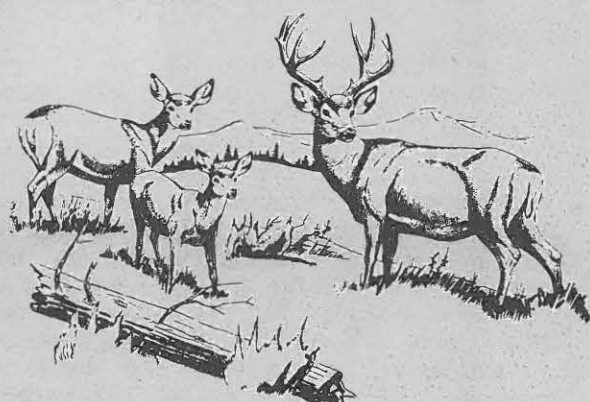
But backpacking could not have its present appeal without the modern pack-frame. Backpacking is putting everything you need in a sack on your back. It is truly astounding how much can go into that pack and how easy it is to carry because of the design of the modern, curved, tubular, metal frame.

The most important thing about the frame is that it has a waistband.

Cinched tight about the waist, with the band, the frame distributes the weight of the pack close to the back in a straight line down to the hips and legs, making it possible for everyone in the family to carry a reasonable share of the equipment.

Pack frames are like shoes. Try them on and see which is the most comfortable. The packs that attach to them pose more problems of choice. There are choices of color, pocket arrangements, zippers and ties. Some offer easier access if they lie flat, others are most convenient with their pockets and compartments propped up. The color gives an excellent accent note in photographs.

Some packs have a zippered compartment for your sleeping bag. Others ride high on the back frame, leaving room for the sleeping bag in a water-proof stuff bag to be strapped on underneath.



The sleeping bag is the third essential on the backpacker's list.

The best are down, preferably goose down, preferably white goose down from a goose that is at least three years old. Again there is a color choice in the nylon cover, a variety of shapes and zipper types. Some zip together to make a double bag. Some are mummy shaped and have a hood for the head. All are expensive.

Without personal preferences in any of these areas the selection is wide open. The one word I have for the old standard sleeping-bag user about to buy a down bag . . . they really are that warm. I spent extra money for extra down and find even sleeping at high altitudes next to snow banks, the problem is too much warmth.

The sleeping-bag and pack-bag and frame are the basics. So are good boots. From there on backpacking equipment becomes a matter of ingenuity and weight.

We like 3/4 length air mattresses. Others prefer lighter weight pads that don't require blowing up. Without either use a ground sheet and hollow out a spot for the hips. Don't chop up pine boughs for comfort. They don't grow back fast enough.

Both shelter and protection from ground moisture are essentials, but they can be had with sheets of 4-mil plastic as well as with tiny, lightweight pack-packing tents.

The important thing with shelter, whether it be plastic or water-proof nylon, is to remember the remarkable amount of moisture released in the human breath. A tent that is dry on the outside may be covered with water drops inside from body moisture. The answer is careful ventilation of the tent and even more careful movement in the morning if condensation is present.

Last year we found this a serious problem because our 10-year-old habitually joined us late at night in our "two-man" tent. Three "men" and one of them wiggling makes for quite a lot of sprinkled condensation.

One item we find indispensable is a walking stick. Our family skis, and so we have hiking sticks made of old ski poles, webs removed. The wrist strap is a handy advantage, and the additional balance on steep down slopes, or assist on steep uphill ones, is a real walking aid. The poles also make good prongs for packs if boulders

or trees are lacking, and provide handy instant poles for plastic sheet shelter tents.

Food and cooking are the next priority. Again the key word is weight, and dehydrated and freeze-dried foods make it possible to have a varied menu. Many foods are available in the supermarkets, but they require a considerable amount of re-packaging to eliminate all the cardboard packaging. Specially packed trail foods are available in a number of Idaho stores catering to backpackers, or by mail from suppliers. (Don't try to dispose of any foil wrapping in your camp-fire. Pack it out!)

The problem with food is organization. Meals must be planned ahead, foods packed with the proper proportions and sacked together to make meals on the trail simpler. But this phase of the trip takes time. Don't leave it to the last minute.

Cooking is usually open fire, although we have found it worth the weight to carry a small one-burner gas stove which lights instantly. The stove lets us plan trail lunches to include hot soup. Lunches are usually cheese or peanut butter packed in plastic tubes, trail biscuits, dried fruit and candy. The soup provides variety.

And there are times when fuel is either non-existent or soaking wet.

We keep eating utensils, metal plates and spoons, together in one pack with the cooking pots, but let everyone carry his own drinking cup. (And we are sold on the Sierra Club metal cups which hook conveniently at the hiker's belt for quick drinks at stream crossings.) Knives - we use the pocket variety. Forks we leave behind.

I have found three pans sufficient: a stew pot, an oblong teflon cake pan (which doubles as a fry pan) and a coffee pot. I supplement with aluminum foil, but one of the most experienced campers I know (who is not a coffee drinker) claims foil is all he needs and leaves the pans behind.

Pans have to be kept in a sack or you will have black campfire soot all over your pack. Really, everything should be stowed in separate sacks inside the pack. Plastic bread-loaf sacks are great, cheap and transparent.

My every-meal utensil sack also includes a clamp pot-lifter and about three bandanas. Bandanas are instant pot holders, dish cloths, cloths to spread under clean utensils, etc., etc. Be sure to take a Brillo soap-filled pad for kitchen cleanup.

In other separate packing sacks we carry: first aid kit (including small scissors and moleskin for sore feet), personal kit including bio-degradable soap, sun lotion and a metal mirror (good for emergency signaling as well as vanity), a repair kit which includes rubber bands of several sizes, needle and thread, plastic tape and some short lengths of insulated wire and field guides to birds and wildflowers. Insect repellent is carried in everyone's pocket.

Each person takes extra socks, a wind-breaker and hat, down vests (light and in-

credibly warm) and a very limited amount of extra clothing (long pants for those who hike in shorts to change to in the evening.) Each carries a light rain poncho.



The modern, light-weight pack-frame and down sleeping bag are musts for comfortable, convenient backpacking.

An outside pocket on one pack holds a sturdy plastic trowel and a small roll of toilet paper. Personal sanitation is a must for every hiker if the backcountry trails are not to be unpleasantly fouled.

Just before we load the packs into the car the family assembles for the reading of the CHECK LIST. Only this way can you be sure flashlights, fishing gear, camera and binoculars are really packed.

Where to go?

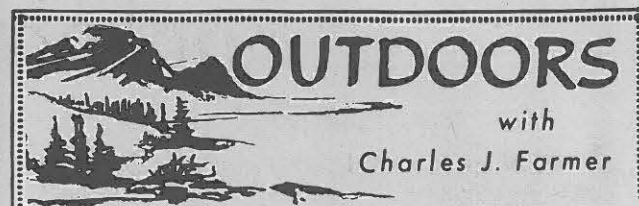
Reading general advice books for backpackers makes Idaho residents realize the lucky advantage of living close to the backcountry. Idahoans can skip all the chapters on wrapping their packs for airline handling. Everyone in the state is close to a possible hiking area.

Maps and suggestions can be had from the various national forest headquarters. Geodetic survey maps and more suggestions are offered at a number of sporting goods stores. Trail information and lake locations are offered in a small booklet by the Idaho Fish and Game Department. And the hiking fraternity is only slightly reluctant to clue the novice in on their favorite spots.

See you up the trail.



Editor Tom Bell takes the Middle Fork Trail into the Popo Agie Primitive Area in Wyoming's Wind River Mountains. There are many rewards in backpacking.



There's A Park in Cheyenne

Every city, every town, seems blessed with a few well-preserved acres that retain some semblance of being natural. Some towns take a lot of pride in their parks. A good share of money is spent each year in maintaining them.

The city of Cheyenne is a good example of a city that cares for its parks. Lions Park, off Interstate 25, across from the Municipal Airport runway, is groomed and pampered like a race horse.

Just the other day I rode my bicycle through the park. Young women were picking weeds from sprawling beds of tulips, daisies and daffodils. Down on their knees, in contact with the earth, they seemed dedicated to their role of preserving natural beauty.

A barrage of rotating sprinklers anchored throughout the park, streamed curtains of water to the millions of delicate blades of emerald green.

It was a weekday and two o'clock in the afternoon. Yet the park was bustling with activity. Smoke billowed from several charcoal grills and the aroma of grilled hamburgers filled my nostrils. Children, laughing and shouting, played hide-and-seek among the clusters of pines. The clank of a horseshoe game could be heard in the distance. For a minute . . . no, less than that, I heard no engine roars. I wondered if others in the park were aware of the motor truce.

Some of them probably missed the sound. To me, the park was complete without the roars of machinery.

The silence was broken harshly by the grumblings of three motor cycles as they entered the park. The cycles were followed by a steady stream of cars and the circus began. In Cheyenne, as in other towns, one of the favorite pastimes is "rodding around." It is nothing more than observing all experience from within the confines of auto or cycle. In Wyoming's capitol city, the "rodders" are primarily teenagers with lots of time on their hands. But they do not have the entire course to themselves. An older, "round-the-park-by-auto" group gives the teenagers tough competition. These are the businessmen and women that seek a taste of nature from their cars before, during or after work.

I'm sure there are a lot of rodders who have not yet observed that there is a pair of mallards nesting on the west shore of Sloans Lake. Just as I am confident they have not heard the pleas of visiting mourning doves, above the roars of their engines. If they would ever venture from the bucket seats of their flashy wheels, they may even get a whiff of newly mowed grass.

So what is a park? Is it a test track? Or is it a display case for the latest in car design? There was a time when persons appreciated a park for its natural beauty. Traveling within the borders of the park was done by foot, bicycle, horseback, or boat.

Lions Park is being strangled by motors. The prettiest trees, the most colorful flowers and the greenest grass have lost out to man's engine. Cheyenne has spent money to beautify its parks and at the same time, the city has contributed most to destroy its meaning.

The city has done nothing to limit or prohibit motor travel within the borders of the park. And to this day, I can still see no reason for taking a motorized vehicle into an area the size of Lions Park.

A simple solution to this matter would be parking for cars and motorcycles outside of the park. Swimmers, picnickers, hikers, bicycle riders can either walk or ride bicycles within the park. A concession could even rent bicycles.

As for the boaters who use Sloan's Lake for skiing or boating, I bid them goodbye. A ten-acre pond is no place to ski. Besides, Wyoming is blessed with an abundance of big water. The situation is not only comical, but hysterical when four or five speed boats take to the water at the same time. Sloans Lake is better suited for canoe, row boats or paddle boats. Again, they could be rented by a concessionaire.

Lions Park could be your park. There are mis-managed parks in every state, in every town. At a time when man is beginning to realize the importance of natural things, isn't it time we start in our own backyard?

If we can get the environmental ball rolling in our town parks, our job on a larger scale may be a lot easier. The park could be used as a model of what can be done to preserve and appreciate what is natural.



Air pollution resulting from the internal combustion engine and industrial wastes are unassessed costs in human health and suffering, as well as other environmental costs.

...Department of Ecology...

sequences may be that every family in the Puget Sound area would have to pay more for vegetables. This cost, when spread out over all of the families on the region, could be enormous, yet nobody thinks about it when assessing the consequences of the dam. Or, consider what may happen when increasing salt concentrations in the soils of Eastern Washington, resulting from continuous irrigation, cause lower agricultural productivity there. Or, finally, since we know that even if there is greater immediate success in reduction on birth rates than is reasonable to expect, the human population will expand significantly over the next few decades, does it make any sense to remove any productive land from agriculture, no matter what the economic analysis says?

Who Pays?

The common denominator, in these and other examples that might be cited, is that at present the polluter does not pay. The costs of cleaning up the environment are not included in the cost of the operation. The loser is the general public. Consider, for example, the cost to the general public of air pollution. Polluted air affects the health of human beings and probably all kinds of plants and animals. It soils and hastens the deterioration of clothing, furniture and house paint, impairs various production processes, requiring the development and use of expensive "clean rooms," raises the rates of automobile and airline accidents, and generally makes life more uncomfortable. Obtaining accurate estimates of these effects of pollution is enormously difficult, but a recent detailed study (Lave and Seskin, Science, 169, 21 August 1970) has estimated that there would be a 25 to 50 per cent reduction in morbidity and mortality due to bronchitis if air pollution were decreased by 50 per cent in the major urban centers of the United States. At current methods of handling these illnesses and average hours of lost working time, this amounts to between \$250 and \$500 million per year in savings. The same amount of reduction in air pollution would save us about \$33 million annually by reducing the incidence of lung cancer, and \$1200 million by decreasing the incidence of respiratory diseases. Taking these and other effects of air pollution together, Lave and Seskin estimate that a 50 per cent reduction in air pollution would save the United States about \$2080 million annually. These figures are almost certainly underestimates of the total costs, as Lave and Seskin admit, because they do not take into account how much it is worth to a person not to have one of the afflictions mentioned.

For the most part, this expense and human suffering is the result of the burning of gasoline in internal combustion engines. None of these costs is included in the price of gasoline. We continue to give oil companies huge depletion allowances, which permit them to sell gasoline at artificially low prices. The cost of fighting the effects of air pollution are not included in the sale price of the gasoline. Therefore, it is not surprising that manufacturers have had no incentive to conserve their materials or to develop

safer methods of extraction and cleaner methods of combustion. Similarly, the general consumer finds it so cheap to drive an automobile that excessive amounts of driving are done by the average American citizen.

Until all of the real costs of the production and use of a product are identified, included in our analysis and incorporated, where possible, into the price of the use of the products, there is little chance that our society will make rational decisions in the area of resource management and preservation of environmental quality. We may not make wise decisions even if we possess the necessary knowledge, but we certainly will not make them when we act in ignorance. Had we operated differently, we would already have automobile engines that were cleaner and pulp mills that polluted much less. The technology has existed for some time; all that was lacking was the incentive.

What's To Be Done

Because of the urgent nature of many environmental problems it will be all too easy for the Department of Ecology and the Commission to find themselves running a "fire-brigade" type of operation, in which all of the energies and talents of the personnel are devoted to responding to immediate crises and conflicts. If this happens we are likely to win many battles but lose the war. Long term high quality human existence in Washington requires that attention be given to the broader considerations treated in this paper. Whatever organizational framework is finally adopted for the Department of Ecology it is vital that significant financial and human resources be dedicated to long range planning and policy formulating objectives.

Some of the goals I have mentioned in this paper can become part of the operating philosophy of all divisions of the Department, being employed whenever decisions are made. However, if this is done the result will almost certainly be that some decisions will appear strange if they are judged, as they will be, in the light of the conventional wisdom we have traditionally applied to our relations with our environment. For this reason, I believe it will be necessary for the Department of Ecology and the Commission to engage in an active program of public education to explain why many of our traditional goals and methods of operation can no longer work and why our values and priorities must change. This can in part be done by holding Commission meetings throughout the state, by including on the agendas of open meetings a discussion of some of these problems, and by the preparation of papers which explain the needs for the changes. Other members of the Commission and the staff of the Department will doubtless have additional ideas about goals and priorities, and some will wish to question the position taken here. These ideas and differences of opinions need to be discussed thoroughly, and this should be done as soon as possible, because the results will have clear relevance to decisions to be made soon about the reorganization of the Department. If this paper is catalytic toward this end, it will have served its purpose.

Thoughts

from the

Distaff Corner

By Marge Higley

Henry Jones and the GGP. (Science Fiction?)

I was tired, and the words I was reading just didn't seem to make much sense. It was one of those magazine articles which presents both sides of a problem on the same page, each part written by an outstanding proponent of that particular point of view. This problem concerned "Economy vs. Ecology."

Down the left side of the page marched the facts and figures set forth by those who would have us believe that progress, power, and the GNP are all-important. Summarized briefly: we need more power, more fuel, more building, more highways, more everything, to maintain our prestige. The conclusion: if we slow down for even a moment, tomorrow will be doomsday.

On the right side of the page were arrayed the opposing arguments. Summarized briefly: man is fast running out of natural resources. He has fouled his air with smoke and exhaust fumes, and his water with garbage and chemicals. He is cutting down the trees, gouging holes in the earth, and life is dying. Conclusion: if we don't slow down, tomorrow will be doomsday.

I stared at the narrow white margin between the two columns of words, thinking that somewhere in between, there must be a logical solution. A change of values, perhaps. The words blurred and ran together. Wearily, I closed my eyes.

Almost immediately, I was walking down a tree-shaded path, bordered by well-kept flower beds and shrubbery. There were houses set back among the trees, with people working diligently in the yards. I could hear children playing, and birds singing. The path led to a bridge which spanned a clear, sparkling stream. As a group of young people on bicycles approached, I noticed that their clothing, while bright and comfortable looking, seemed -- well, rather odd. They waved and smiled at me as they passed, then turned and looked curiously over their shoulders--as though I were the odd-looking one! Had I wandered into some foreign land, I wondered? Apparently not, because around the next turn in the path, I found myself standing right in front of a place called "Joe's Diner." Obviously, I was still in the U. S. A.!

A middle-aged man behind the counter was the only occupant. I sat on a stool and ordered coffee. As he placed the steaming cup in front of me, I remarked, "This is certainly a pretty little town."

"Yeah, I guess," he shrugged. "They all look pretty much alike, since the GGP."

"The GGP?" I asked, puzzled.

He looked at me skeptically. "Sure--Henry Jones' GGP."

"And who is Henry Jones?" I queried.

"Lady--where've you been the last twenty years, that you don't know who Henry Jones is?"

I was starting to feel very much akin to Rip van Winkle, so decided to laugh his question off. "Oh, I've been asleep for years and years," I said, airily.

He didn't believe me, but maybe he felt it would be safer to humor me, because he explained patiently, as if to a child (or a moron!), "Henry Jones was one of the greatest presidents we ever had. He's the one who dreamed up the GGP--the Great Green Plan."

"Oh," I said, blankly.

Just then there was a soft, swooshy sound, as something sped swiftly past the trees behind the diner.

"What's that sound?" I asked, glad to change the subject.

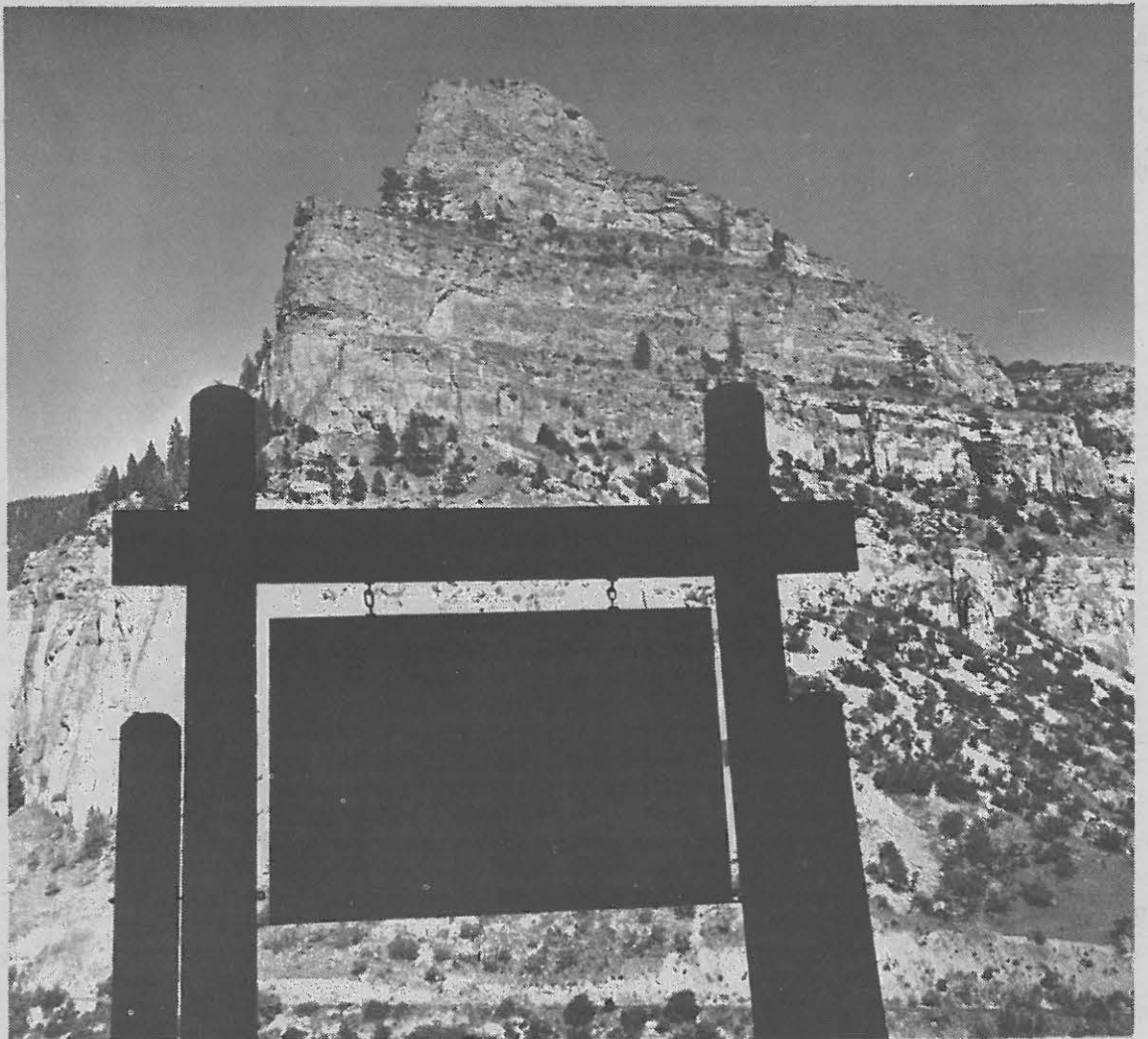
"That's the 3 o'clock RT." He eyed me warily, and hastily added: "RT is Rapid Transit."

Well, at least I could comprehend rapid transit! It was nice to know that someone had finally done something about that. I was still curious about the Great Green Plan, but afraid to ask. Maybe I could find out somewhere else. I took a dollar bill out of my billfold and handed it across the counter. The man looked at me, aghast.

"Listen, lady--that stuff should've been turned in years ago, to be recycled into paper!"

To cover my confusion, I tried another joke. "Why should I turn it in? After all, money doesn't grow on trees, you know!"

He was edging away again, and as he reached surreptitiously for a small square box that could only have been a telephone, I cried out, "Wait a minute! I really have been away for years, and I didn't know about the money!"



Outlined above the Wyoming historical marker is the cliff upon which a stone monument topped by a cross can be found. It was erected in 1889 in memory of an English nobleman who fell 200 feet to his death while hunting bighorn sheep. Gilbert E. Leigh was a remittance man (paid by his family to stay away from his home in the East) who had spent most of his adult life as a big game hunter in the West. The marker is located along U. S. Highway 16, east of Tensleep on the west slope of the Big Horn Mountains.



From his expression, I knew he thought I had been "put away" for years, so I kept talking. "I was one of those people who got stranded on Mars," I lied. "I don't know how long ago it was--but we just got rescued."

Strangely enough, he believed that one! With a sigh of relief, he said, "Yeah--I remember that! Must've been sixteen-seventeen years ago. Guess maybe you could have forgotten about GGP, with all you must've been through."

As he refilled my coffee cup, I asked, "Does money really grow on trees, now?"

"Well, it's sort of like that," he said, leaning against the counter. "You see, we measure the gross national product by green growing stuff now, instead of dollars."

"So that's how come everything is looking so green and pretty!" I exclaimed. "But--the air is so clean and fresh, and the water so clear! Does that count, too?"

"Well, we started out with organic gardening, and that helped, but I tell you, lady--you can't grow nothin' much in dirty air, and water full of garbage! You shoulda been here! It was quite a struggle, at first. Took all the top brains in the country to help figure it out. Why, they're still using all the scientists they had to borrow from the space program--!"

His voice came to a faltering halt, and once more, he looked at me in alarm.

"Listen, lady--HOW did you say you got back from Mars?"

A sudden loud noise saved me the effort of trying to dream up a plausible answer.

My magazine had slipped off my lap and plopped to the floor at my feet. I blinked a couple of times, and shook my head to clear it. I was sitting in my own chair in the living room.

For some reason, I had a strangely compelling urge to dash right out and water the lilac bushes!

Boating Pollution

Senator Gaylord Nelson Friday introduced legislation to require national standards to stop water pollution from outboard motors.

Already, the Wisconsin Democrat said, wasted fuel from this source in the U. S. each year is several times greater than was the Torrey Canyon oil spill off the coast of England.

The bill introduced today by Nelson directs the Administrator of the Environmental Protection Agency to promulgate regulations by June 30, 1972, requiring that all two-cycle outboard motors use the latest available pollution control technology. Prior to setting the standards, the Administrator would have to review existing outboard motor pollution control technology.

With the 7.2 million outboard motors in use in the country, Nelson said, total fuel exhausted to the water comes to 100 to 160 million gallons annually, a pollutant and, also, a waste which costs boat owners between \$50 to \$100 million a year in out of pocket expenses.

Nelson said increased recognition of outboard motors as a significant pollution source plus improved technology to correct the problem "make such standards both urgent and feasible."

Nelson said the source of the problem is "relatively simple and should have been corrected long ago." He said significant steps have been taken recently for pollution control in new outboard motors.

However, Nelson pointed out that without the installation of controls, the millions of existing two-cycle outboard motors will continue to pollute.

The Wisconsin Senator pointed out that studies began as early as 1961 revealing that outboard motor emissions pollute by tainting fish flesh and by producing unpleasant odor and taste. The latest confirmation is a 1970-71 study made for the Environmental Protection Agency.

Environmental Spokesman for the Mountain West

High Country News

Box K Lander, Wyoming 82520

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THE WILD WORLD

by Verne Huser

Some of our greatest bits and pieces of the wild world have been preserved in the national parks. They have also been abused, in some cases by poor planning or by philosophical disagreement. But one of the greatest abusers of the wild world in the national parks is the visitor himself, the collective mob that inundates the parks in greater numbers every summer.

Visitor impact upon national parks has become an increasingly serious problem as the American public has more vacation time and more money to spend and becomes more mobile. If one accepts the philosophy that parks are for people, does it follow that they are also for people's machines and play things? To my way of thinking there should be no golf courses or swimming pools, ski areas or tennis courts in any national park. No power boats should be allowed on the lakes or rivers of the parks, and I can foresee the day when the sacred cow of most Americans--the automobile--is no longer allowed in the parks, to say nothing of snowmobiles.

At first glance what I've said in the previous paragraph may sound extreme, but if you go back to the Organic Act of 1916 which set up the National Park Service, you find that the purpose of the parks "is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." That's a big order.

How do you protect those values and provide for their enjoyment without impairing them for future generations? Will the grizzly bear still exist in the lower 48 states by the turn of the century? If not, the Park Service has failed--or has the public?

The grizzly bear and the black bear as well have suffered tremendously from the public during the past few decades. If people were not fed in the national park, there would be no garbage disposal problem, and grizzlies would never have turned to the dumps and their artificial food. If people didn't feed the bears from their cars along the roads, the Park Service would not have had to kill more than twelve hundred bears during the past forty years.

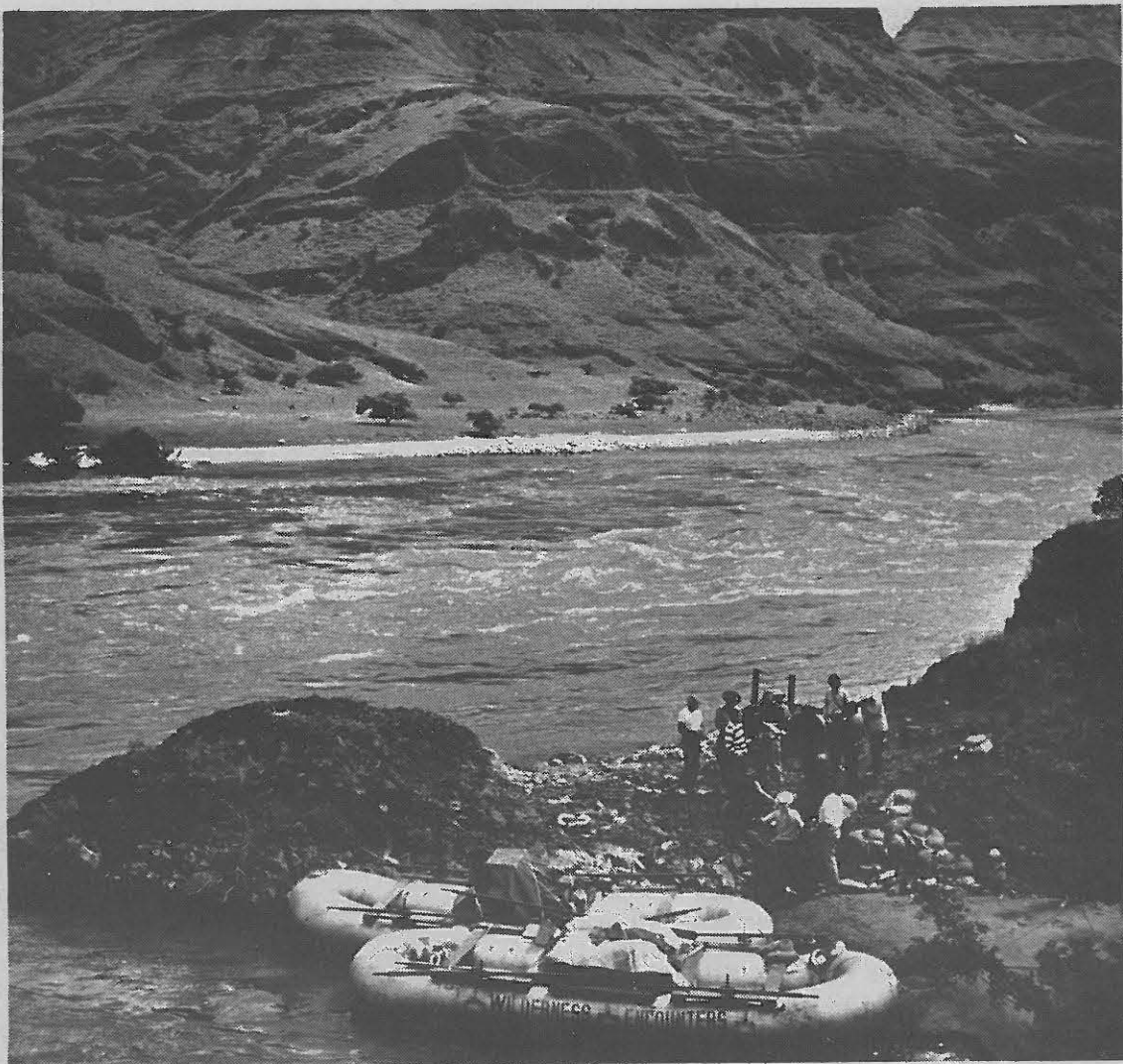
How do you educate people to respect wildlife? People insist upon feeding the bears and birds, the ground squirrels and chipmunks despite Federal law prohibiting such action, to the detriment of both the people and the wild creatures. Rodents carry all kinds of diseases from bubonic plague to rabies, and an average of 64 people a year have been injured by bears in Yellowstone since 1931. As many as 60% of the bear cubs may die in a single winter because they go hungry when their tourist friends thin out after Labor Day and they fail to store adequate fat for their first winter's sleep. Why don't people read the signs and the literature or even to the rangers: DON'T FEED THE BEARS!

And why are they observe it--from a safe the wild world doesn't disturb the animals nor put themselves in jeopardy of a charge from a buffalo or moose? And why don't they learn to enjoy a field of wildflowers as a natural situation instead of picking them--again illegally--and destroying the beauty for others?

Roads in the upper portions of the Yosemite Valley in Yosemite National Park have been closed to automobile traffic (people are now bussed through). Reservations for campsites along the Green River in Dinosaur National Park are now required before floaters are allowed to launch their boats at the Gates of Ladore (the same regulations hold true for the Yampa). People pressure has brought about these changes, restrictive as they may seem, but aren't they necessary if the Park Service is to follow the policy set down in 1916?

Next year--1972--marks the 100th anniversary of Yellowstone National Park and the fruition of the national park idea, which had been voiced as early as 1832 by the artist George Catlin. As Yellowstone Superintendent Jack Anderson has suggested, the celebration should revolve around a hundred years of trying to preserve a wilderness, for the creation of Yellowstone also marked the birth of the national park system.

Is this not a good time to re-evaluate the direction our national parks have taken in the light of twentieth-century problems: population, affluence, pollution? It is not yet too late to "conserve the scenery and the natural and historic objects and the wildlife...in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."



Lunch stop near Roland Bar just below Dick River's camp at Cooper Creek. Wilderness Encounters' float trip with a Wilderness Society group has stopped here to pan for gold. In doing so, they surprised a wild goose on her nest - seen at left as a white spot on the rocky promontory. Wildlife and wild rapids, historical mining operations, and scenic vistas give Hells Canyon float trips great variety.

Floating Rivers...

that has been falling all day. And as we approach the mouth of the Salmon, the skies begin to clear. We pull ashore on the Oregon side, across from the entry of the Salmon, and a rainbow forms over the Salmon, marking its entrance into the dam-controlled Snake. The Salmon is big, flowing perhaps twice the volume of the Snake at this point, which means that we'll have perhaps as much as 120,000 cubic feet per second from here on down. The river is full of driftwood, logs, and whole trees--should be fun running those last few minor rapids, some as much as 4's or 5's in this flow. And this is our last night on the river, a time to reflect.

A scorpion in the sand, syringa blooming all over the place (Idaho state flower growing in wild profusion in Oregon), chukars everywhere. To dam the Snake less than a mile from the confluence of the Salmon would destroy all of its anadromous fishing in the Mountain Sheep Dam tributaries--and a re-regulatory dam below the mouth of the Salmon River. Between nitrogen poisoning and migration blockage, there would be no more steelhead or salmon or even sturgeon in a few years. Is power to light our polluted cities worth destroying every natural aspect of our greatest western rivers?

Back on the river, a fast muddy flow full of all kinds of flotsam, we pass in rapid succession the all-but-forgotten Nez Perce damsite and two cow elk move quickly, quietly up the canyon wall, the drowned-out falls on Cherry Creek, the northern boundary of the Wallowa-Whitman National Forest on the Oregon side, then the China Garden damsite at the Oregon-Washington state line. We stop for a snack in a mountain mahogany forest on the left bank, then run Wild Goose (3 or 4) and Niggerhead rapids. Just below the confluence of the Grand Ronde, we end the trip, pulling in to the Washington shore just 2 1/2 hours after leaving the campsite at the mouth of the Salmon, 20 miles above, for an 8-mile-an-hour float.

We spent a busy afternoon of unloading and de-rigging, packing and loading the gear in the truck and trailers, then the drive to Lewiston with a stop to see the Indian petroglyphs at Buffalo Eddies--bighorn sheep and elk and human figures. On to Lewiston, an inland town that has grandiose dreams of becoming a seaport if all the proposed dams go in below the confluence of the Clearwater (and the Clearwater itself deprived of half its steelhead population by the dam just being completed on the North Fork).

Lewiston is where the Coalition to Save the Snake was officially created June 26. The Coalition is an amalgamation of conservation organizations, Indian tribal councils, commercial and sport fishermen, and anyone interested in the preservation of the environment of the whole Snake River system, including all of

its far-reaching tributaries. Headed by Jack Hemingway, Northwest Field Editor for Field and Stream and eldest son of Ernest Hemingway, the Coalition to Save the Snake has as its initial objective the prevention of any more dams in Hell's Canyon. To that end, it supported Senator Bob Packwood's bill (S. 717) to establish a 714,000-acre Hell's Canyon, Snake National River along the Idaho-Oregon state line. (See High Country News, May 28, 1971, page 11.) The Packwood bill would end all dam building on a 120-mile stretch of the Snake River in Hell's Canyon, curtail timber cutting in the area, and withdraw from mineral development all lands within the area (current mining operations would, of course, continue, and existing claims would be paid for). The bill would also provide funds for recreational development in the area with improved roads into Pittsburg Landing and along parts of the Imnaha River. Congressman John Saylor has introduced a companion bill (H.R. 4249) in the House of Representatives.

The Coalition needs the support of every concerned citizen. Senator Packwood, his wife and his legislative assistant Bill Mayer, plus representatives of the Sierra Club, the Wilderness Society, Trout Unlimited, the Hell's Canyon Preservation Council, ENACT, the Idaho Fish and Game Commission, the U.S. Forest Service, a CBS news team and other members of the media floated Hell's Canyon Memorial Day weekend to get to know the area better and to help publicize the pending legislations. The Oregon Senator, who ran part of Hell's Canyon in a kayak, now has at least twenty Senators who are co-sponsoring the bill. Are your Senators among them?

If you'd like to float Hell's Canyon yourself, you might contact Jim Campbell or Hank Miller of Wilderness Encounters, Box 274, Idaho Falls, Idaho 83401. If you want to join the Hell's Canyon Preservation Council, write to Peter Henault, HCPC, Box 2693, Idaho Falls, Id. 83401; if you want to learn more about the Coalition to Save the Snake, write to Jack Hemingway, Box 387, Sun Valley, Idaho 83353.

You might also urge Senator Henry Jackson (Chairman, Senate Committee on Interior and Insular Affairs, Room 3106 New Senate Office Building, Washington, D. C. 20510) to schedule public hearings on the bill (S. 717)--and if you do, send a copy of your letter to Senator Packwood (Attention: Barbara Holliday, New Senate Office Building, Washington, D.C. 20510).

For further reading on the Hell's Canyon dam controversy, read Boyd Norton's "The Last Great Dam" in the January 1970 issue of Audubon and Mike Frome's "Must this be Lost to the Sight of Man," in Field and Stream a couple of years ago. Hell's Canyon Preservation Council and the Coalition to Save the Snake can provide you with further information.



Clearcut timbering in the western mountains is dependent upon roads which dissect and fragment the last remaining open spaces of the national forests, outside of wilderness. It is these roads which impair or destroy other values. This one is on Wyoming's Big Horn Forest.

HELP!

The Wyoming Outdoor Coordinating Council needs help. The Council is fighting the battle of conservation and the environment on a broad front in Wyoming. We are being hit from all sides by the demands for development and industrial growth. Those who seek such development and growth give little heed to ecological and environmental considerations.

Wyoming has many wonderful natural assets. We could easily lose them if we do not plan carefully. The Outdoor Council has been effective in calling public attention to possible consequences of development. This takes time and money. But we are undermanned and underfinanced. We greatly need more citizen support.

Can you help us by contributing to a worthy cause? We are a legal Wyoming corporation but we engage in lobbying activities and therefore your contributions are not tax deductible.

* * *

I wish to support the . . .

Wyoming Outdoor Coordinating Council, Inc.
Box K Lander, Wyoming 82520

Individual _____ \$10.00
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Contributing _____ \$250.00 up

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Testimony Given On Utility Plans

The following statement was presented by Miss Laney Hicks of Dubois, Wyoming, before the Wyoming Public Service Commission on June 22, 1971. Miss Hicks represented the Wyoming members of the Rocky Mountain Chapter of the Sierra Club. Purpose of the hearing was to propose new regulations for environmental protection. One of the proposed regulations would require a major utility to file an application with the Commission at least two years before construction began. The application would contain a detailed report on the impact of the plant on the surrounding environment, including plans to comply with air and water quality standards.

The environmental rules being proposed by the Wyoming Public Service Commission cannot be separated from the National energy demands which will be affecting our state. The majority of power to be produced here in the future is for use in the population centers outside Wyoming.

(Please turn to page 15.)

Stock Ponds Good For Ducks

Small ponds, constructed by the Bureau of Land Management primarily for livestock use, are becoming significant waterfowl production areas in the prairie country of Montana and the Dakotas, according to the Wildlife Management Institute.

BLM is modifying stock ponds by including such things as islands, irregular shorelines, and partial fencing

to provide undisturbed nesting cover for ducks and geese. Natural glacier-gouged potholes on private lands are being lost at a terrific rate. The prairie "pothole" region of the U.S. once comprised 115,000 square miles. Of this, only about 56,000 square miles remain. Most of these natural wetlands depend on rainfall, and 1/3 of them dry up during normal years. The

construction of stock ponds on the large mass of public prairie land is offsetting, to some degree, the loss on private lands. Nearly 8,000 stock ponds have been developed by BLM in eastern Montana and portions of the Dakotas.

BLM officials report that future pond construction on public lands will be justified more on the basis of multiple-use benefits. The program is adding 250 of these ponds each year with a potential of 15,000 sites remaining to be developed. BLM estimates that a 10-fold increase in waterfowl production on public lands can be anticipated with a full program in which all physical modifications are made. Within 10 years, production from BLM ponds is expected to include around 150,000 ducks and 20,000 geese per year. In addition to waterfowl and other wildlife, these ponds are providing an excellent fishing resource. Some of the ponds lend themselves to trout fisheries while others are offering outstanding northern pike fishing.

Return the Land!

by Harvey Manning

from Pacific Northwest News, Copyright 1971 - Friends of the Earth.

Some of us Northwesterners still nourish a grudge about how we were robbed a century ago by the railroad promoters and their hirelings in Congress. The nation's noble vision then was to "open up the West," and that the railroads did, the way Jesse James opened banks.

Fully 22 percent of what was to become the State of Washington was handed over to the looters by a tainted Congress. From the beginning the services provided by the railroads were a mixed blessing. Settlers said about the builder of the Great Northern: "After the droughts and the floods and the locusts, came Jim Hill."

Largest and most scandalous of the giveaways was the Northern Pacific Land Grant, some 40,000,000 acres in the Northwest; so busy were the robber barons peddling watered stock and bribing public officials they didn't get around to completing the line along the right-of-way over the Cascades to Puget Sound for 40 years. As late as the 1920s a committee of Congress described the grant as making Teapot Dome look like filching apples from a fruit stand.

The government approved consolidation of the Great Northern and Northern Pacific into Burlington-Northern on the grounds it would provide better service. "Better" for whom? The public? Or the stockholders? The consolidated operation is continuing what its components had been doing for at least 15 years -- neglecting passenger service and low-profit freight service, meanwhile steadily shifting the center of gravity into logging, mining, and real estate subdivision.

For years the theme song in small towns of the Northwest has been, "The milk train doesn't stop here anymore." Now, with the Railpax Act rewarding the railroads for miserable performance by bailing them out of the passenger business, the word is, "You just can't get there here." Not by rail, anyway.

Railpax, which has hit especially hard by cities with zero rail service, state's six largest Mansfield said before Congress on May 10, Mike "Burlington-Northern views Montana as necessary roadbed between the Twin Cities and Seattle. I fear there will now be reductions in freight service . . ."

Whether or not Railpax ultimately leads to a revival of passenger trains, whether or not the railroads are nationalized (if this be Socialism, so is the highway system), something is going to have to be done about the land grants. For thefts of such magnitude there can be no statute of limitations.

On March 25 Senator Lee Metclaf of Montana, for himself and Senator Mansfield, introduced into the Senate S. 1380, "A Bill to amend the Rail Passenger Service Act of 1970." By its terms, "... no railroad holding title of any kind to lands ... received as a grant ... from the Federal Government shall discontinue, after May 1, 1971, any passenger or freight service regularly provided prior to such date unless such railroad reconveys to the United States all right, title, and interest (including mineral rights) held by such railroad in an amount of such land equal to 100 acres for each mile of service discontinued."

A start, maybe. Year by year we in the Northwest see grant lands--including much splendid de facto wilderness -- invaded by logging roads, mining pits, subdivisions. And year by year we see the rail service to provide which those lands were given being eliminated. It seems a clear case of a broken contract.

As that eccentric old Roman ended every meeting of the Senate by declaring, "Carthage must be destroyed!", until at last it was done, now we must always append to our recommendations in any number of land-planning matters the note, "The Northern Pacific Land Grant must be revested!"

Congressman Urges Change

Congressman Teno Roncalio today urged the National Science Foundation to expand its program to assist in the conversion from defense to civilian, socially-oriented research and development activities.

Roncalio said he will support the Foundation when its appropriations bill comes before the House on Monday.

He is also co-sponsoring legislation to authorize the Foundation to conduct research, educational and assistance programs to facilitate increased efforts on domestic needs.

Roncalio added, "The re-ordering of national priorities accompanying the termination of American involvement in Vietnam and in defense industry employment effective action now. This legislation recognizes that the federal investment in science and technology, especially in the education of scientists, engineers and technicians, constitutes one of the nation's most valuable resources, which is a prerequisite for continued progress."

The legislation contains a declaration of policy stressing the need to convert a greater share of scientific and technological research to consumer needs and to the relief of social ills, including unemployment, poverty, crime, pollution, nutrition, housing, health care and transportation.

It would make a government policy of finding socially useful employment for scientists displaced by layoffs in the defense industries.

Roncalio said the proposed program would include grants to academic institutions, non-profit corporations and private firms to conduct applied and basic research.

If we are to believe the forecasts, our state could have a total of 34 coal fired steam electric plants, capable of generating over 30,000 megawatts by 2020. This would seem to make any rules proposed by this commission to be of great significance -- but the problem lies elsewhere. The State should establish an energy policy which would include the decision on whether we want to export energy, and to accept the environmental degradation which will accompany power production by present methods.

I cannot help but ask why we in Wyoming should degrade our quality environment, and damage our fragile ecosystems, so that Chicago and the Pacific Northwest can continue their massive energy consumption rates. What is Wyoming to receive in return for supplying coal and energy to other areas? Even a partial monetary income to the state from the advertised investments is hardly a replacement for a healthy environment. What difference will it make to require the utilities to file reports on various environmental impacts? The total effect will be to reduce the quality of living in our state.

The PSC should consider some existing problems in other areas as they relate to existing and proposed developments in Wyoming. What are the implications of the Jim Bridger plant when it reaches its capacity production of 1,500 megawatts? The Four Corners power plant in New Mexico presently produces over 2,000 megawatts, and their 5 generating units "will emit about 40 tons per day of particulates AFTER the installation of all presently proposed control equipment, 2 1/2 years hence, by December 31, 1973. Equipment by that time must be 99 - 99.2% effective in controlling emissions."

The generating capacity of coal-fuel power plants operating in Wyoming now totals 860 megawatts. As mentioned above, by the year 2020, forecasts for Wyoming steam electric power plants are estimated as capable of generating over 30,000 megawatts. This capacity is about twice the generating capacity of the six coal burning, steam generating electrical power plants being planned or constructed in the southwestern United States. These plants are expected to emit 240 tons a day of particulate matter, even with 97 - 99% control of emissions. "This compares to total emissions of particulates of about 150 tons per day from all sources in New York City, and 110 tons per day for Los Angeles." How many tons of particulate matter will the Jim Bridger plant emit every day, even with the 99.5% particulate removal planned? Would it be in the range of 5 to 10 tons per day? Combine this with other plants in the area, and what is the total emission? Is this acceptable in Wyoming, when Los Angeles, now that it is too late, will not permit any new power plant to emit more than 1/8 of one ton of particulates in one day?

Considering the scientific and economic value of recreation, wildlife, and the beauty of Wyoming's land and clean air, and the pollution experience in the southwest, as well as next door, in Colorado, the PSC should call a moratorium on granting further applications for coal fired power plants in this state.

In all proceedings before the PSC, there should also be intervenors on behalf of the public interest. To secure this, an office of Environmental Public Defenders should be established by the State of Wyoming. With the PSC acting only as a licensing body, there should always be lawyers before it in its proceedings who represent the public interest, in contrast to the narrower scope of interest represented by the applicant. The Office of Public Defenders might also represent the public before other regulatory bodies.

It seems to miss the point altogether, to propose rules which would require utilities to file reports which would merely describe the degradation of the environment. Instead, we need the following changes, which were detailed by Brant Calkin, Chairman of the Rio Grande Chapter of Sierra Club, to the Senate Committee on Interior and Insular Affairs last month. This very easily applies to Wyoming as well.

1. We need a national land use policy. We have based our traditional attitudes on the idea that the land was unlimited. But no single land area can be all things to all people, and we have to plan for those uses which may be mutually exclusive. Previous attitudes defined the Wyoming area as a scenic and recreational wonderland. It should not become the utility backyard for Chicago and the Pacific Northwest by default.

2. The concept of a National Fuel and Energy policy which recently received favorable attention in the Senate must be implemented. We have attacked our power needs with all the en-

thusiasm of the woodchopper who doesn't have time to sharpen his axe. We must take the time to define the point of diminishing returns in energy growth, and we must do it now.

3. We must reorder research priorities so that potentially more advantageous power sources such as MHD, geothermal steam, and solar energy may be more quickly brought into utilization. Depletion allowances reduce government income which might better be used to research control of emissions of nitrogen oxides, for example.

4. Advertising for the purpose of increasing energy consumption should be banned. The environmental return to Wyoming should be given priority over monetary return to the utility companies, at the expense of our quality living conditions.

5. Rate structures should be inverted, so that the higher costs are passed on to the larger (or at least more wasteful) user, instead of the currently popular rate reductions.

With these general remarks in mind we recommend the following changes in the proposed rules:

Section 1 should be amended to give primary emphasis to environmental protection and should read, from line 4 on, "so as to preserve and enhance the environment, and protect the scenic, historic, recreational and natural resources, while providing for reliable and needed electrical energy supply."

Section 2 should be amended to require environmental considerations when replacing existing facilities. Paragraph 2, Number 2 should be amended to read, "but SHALL INCLUDE the replacement of an existing facility with a like facility."

Section 6 (a) should be amended to read that hearings be required if requested, by any party to the certification proceeding.

Section 7 (a) under number (3) should be amended to read that any person residing in Wyoming may intervene any time until 6 months prior to desired date for start of construction.

1. The proposed project will conform to both state and federal energy policies.

2. The project meets proper standards of reliability and safety.

3. The utility has produced a certificate of compliance from all local, state and federal agencies having responsibility for land planning and zoning.

4. The utility has produced a certificate of compliance from the Environmental Protection Agency and the Wyoming State Department of Public Health, stating (a) that all applicable pollution standards will be met. (b) and that the project at its ultimate capacity will not contribute more than 25% of the allowable emissions in any given area.

5. The utility has produced a certificate of compliance from the Atomic Energy Commission that all standards for nuclear reactor safety and fuel handling have been met.

6. The utility has produced a certificate from the Bureau of Land Management, Bureau of Sports, Fisheries and Wildlife, National Park Service, United States Forest Service, Bureau of Outdoor Recreation, Wyoming Game and Fish Commission and the Wyoming Recreation Commission that the project will not have an unacceptable adverse impact upon biological, scenic, historic, scientific, or recreational values.

7. And if the utility has produced a certificate from the Council on Environmental Quality that the requirements of the National Environmental Policy Act have been met.

8. The utility has filed plans with the commission on general system extensions 20 years in advance, and on plant construction 10 years in advance.

In closing, Sierra Club wishes to make it clear that we are in agreement with the concern of Governor Hathaway and the utility companies, that environmental considerations are important. The changes, amendments, and additions just listed complete what we feel are adequate safeguards.



Environmental Eavesdropper

LOONEY LIMERICKS

by Zane E. Cology

A Rockhound -- the Piggy kind,
Deserves to get left behind.
He grabs all he can haul
And leaves none at all
For some other Rockhound to find!

The Environmental Defense Fund, the National Wildlife Federation, the Sierra Club, the Native American Rights Fund, the Chemehuevi tribe, the Jacarilla Apaches and individual Hopi and Navajo Indians have filed a preliminary injunction asking for a moratorium on further development of six big power plants in the Southwest. The injunction asks for a status quo until the environmental impact of coal-burning power plants on the desert environment is determined.

The Federal Communications Commission has ruled that NBC Television violated the "fairness doctrine" by showing oil company commercials extolling the virtues of drilling operations in Alaska. The FCC said the ads constituted an indirect appeal for public support of the trans-Alaska pipeline without also airing the possible adverse ecological and environmental effects and "the possibility of obtaining oil elsewhere."

Delaware's Governor Russell W. Peterson has signed into law a bill which bans new heavy industrial facilities from state shores in order to preserve them for recreational use and to protect the environment. The law regulates all industry in a coastal zone about two miles wide and 100 miles long. It specifically prohibits oil refineries, steel and paper mills, and offshore transfer points.

Delegates representing the 34,000 member American Home Economics Association voted to support repeal of "laws restricting or prohibiting abortions performed by a duly licensed physician." A resolution passed approximately 2 to 1 cited the necessity of limiting world and national population growth.

The U. S. Geological Survey made an 11-year study of a 25-square-mile creek basin in Kentucky and found that even after active mining ceased, the mined area produced 75 times as much sediment per square mile as unmined areas. The sediment load averaged 1,900 tons per square mile from the mined area.

Poor Old Earth!

Poor ol' Earth: Every year adds 70 million people to her population and every year compounds the existing problems of pollution, overcrowding, dwindling natural resources, etc.

Before you say you're tired of hearing about it, consider the plight of America:

1. A new American is born every 8 seconds.
2. Before this new American dies, he will use: 56 million gallons of water
21,000 gallons of gasoline
10,150 pounds of meat
28,000 pounds of milk and cream
9,000 pounds of wheat
3. Americans consume half of all the natural resources produced in the entire world. And yet we make up only one-fifth of the Earth's people.

If you're really interested in this type of conservation problem, write to Zero Population Growth, 300 Second St., Los Altos, California 94022.



David Brandley of Indiana rides the High Country near the Bridger wilderness on the western slope of the Wind River Range in Wyoming. Hundreds of square miles of

scenery and fishing can only be reached by foot or on horseback.

Memorial Park Good For Hiking

Comfortable boots, a camera, a quart canteen of water and plenty of energy are the only essentials needed for a hiking trip into the badlands of Theodore Roosevelt National Memorial Park.

The Park itself is a lasting memorial to a great president and conservationist. Three areas of the rugged badlands which Roosevelt loved have been taken into the National Park system.

The North Unit near Watford City contains some of the most rugged terrain to be found in the badlands. Conveniently located overlooks look down on deeply eroded canyons and green vistas of the Little Missouri River.

The Elkhorn Ranch Site where Roosevelt spent many of his days in the badlands is located approximately 40 miles southwest of the North Unit on the west bank of the "Little Muddy". Very little remains of the original ranch dwellings with the exception of a few foundation stones and post stumps. Access to the site is by foot or horseback.

The South Unit near Medora contains many fantastically eroded features. The magnificent Painted Canyon presents one of the most stunning views of rugged scenery to be found anywhere in the West.

For the short-term hiking enthusiast three designated nature trails are available. The North Unit features a 1/2 mile, self-guiding trail starting and terminating at the Squaw Creek Campground area. The Caprock Coulee Nature Trail - also found in the North Unit is a 3/4 mile self-guided walk through the magnificent canyon lands of the Park. Wind Canyon Nature Trail in the South Unit takes the hiker a short distance to a high overlook where a magnificent view of the Little Missouri Valley can be obtained.

These short trails - 10 to 20 minutes in time length - are designed expressly for the motoring tourist. Youngsters and adults alike are lured to the marked trails, and hiking up and down the badlands buttes and canyons offers just the right amount of needed recreation after hours of auto sightseeing.

But for those who really want to make the badlands an experience, there is nothing like blazing a trail through the maze of buttes, canyons and wooded areas. Here you will find nature in all its facets - nothing man made to detract from its primeval wonder.

While hiking you'll see grotesque formations not visible traveling by car; you'll discover hidden caverns and you'll behold vistas of unmarred beauty around every turn and over every plateau.

Length of the hike depends upon the energy

and resourcefulness of the individual. Some will be attracted to the sandy banks of the Little Missouri River; others will take to the high country - amidst the cool breezes and pungent smell of sagebrush.

What should you watch for while hiking in the badlands?

Well, a word of caution is in order. The prairie rattlesnake is sometimes encountered when hiking or climbing so be careful where you place your hands and feet.

The badlands are also home to the golden eagle and other birds of prey. Watch for their nests amidst the tops of towering cottonwood trees or riverside cliffs.

More than two hundred buffalo roam the South Unit while nearly a hundred are found within the confines of the North Unit. It would be good advice to keep your distance since buffalo are unpredictable and can be dangerous. Photography enthusiasts with good telephoto lenses should be able to obtain some fine photos of buffalo and other wildlife.

Mule deer can be found amidst the rough, broken buttes, while white-tailed deer are commonly seen in wooded areas along the Little Missouri River.

The large concentrations of prairie dogs - or prairie dog "towns" as they are called by western residents - are undoubtedly the most popular animal attractions in the Park. The fat little ground squirrels often waddle from their roadside burrows to greet anyone whom they suspect of having a tasty handout.

Smaller mammals abound. The pale badlands chipmunk can be seen scurrying from one rock outcropping to another. Badgers, cottontail rabbits, beaver and muskrats are all common species. The sharp barks and howls of coyotes often heralds days end in the badlands.

Sections of the badlands are littered with the remains of ancient forests. Large stumps and trunks of millions-of-years old sequoia, redwood and juniper trees can be found almost anywhere in both Park units. The most spectacular petrified forest areas are in the northwestern and southeastern portions of the South Unit.

Choose any point in the badlands, walk an hour or two and you'll discover a badlands you never knew existed.

Park rangers at the Visitor Center, Medora, and at the ranger station near the North Unit entrance will pinpoint the most scenic and interesting hiking areas. You will find that a hike in the North Dakota badlands will be a very rewarding and unforgettable experience. It's a good way to really get to know a great part of the West!

Thermal Effects Report Released

A two-volume report on the Columbia River Thermal Effects Study summarizing the findings and conclusions of two-years of research and investigation by three Federal agencies was released today by James Agee, Interim Regional Coordinator, Region 10, EPA, Portland, Oregon.

The Columbia River Thermal Effects Study was initiated in February, 1968 with the investigations and research carried out over the two-year period under the leadership of the Water Quality Office of the Environmental Protection Agency (formerly the Federal Water Quality Administration, USDI).

Participating in the research studies on biological effects of temperature of fish were the Atomic Energy Commission and the National Marine Fisheries Service (formerly, the Bureau of Commercial Fisheries, USDI).

The Thermal Effects Study provides additional scientific information on which to base critical review of the adequacy of the water temperature standards now established for the Columbia River as those standards bear on the anadromous fishery of the river. "The temperature standards set by the States of Oregon and Washington and approved by the Federal government in 1967 are not fully compatible", Agee said, "and we need to review these standards in the light of the technical information now available in the Columbia River Thermal Effects report."

"Furthermore, with certain modification reservoir release schedules under the forthcoming combination of hydro and thermal power production in the Pacific Northwest, it is urgent that decisions be made now to assure protection of the Columbia River Fishery from possible adverse temperature effects," Agee said.

The findings of the Columbia River Thermal Effects Study are reported in two volumes. Volume I, "Biological Effects Studies", concerns the effects of temperature on the anadromous fish of the Columbia River. Volume II, "Temperature Prediction Studies", concerns the development of mathematical temperature prediction models to evaluate the effects on river temperature of existing and predicted reservoir release schedules.

Copies of Volumes I and II of the Columbia River Thermal Effects Study may be obtained from the Regional Director, Water Quality Office, Environmental Protection Agency, Region 10, 501 Pittock Block, Portland, Oregon 97205.