# NATIONAL PARKS & *Conservation Magazine*

**The Environmental Journal** **November 1970**

# OIL, ALASKA & THE NATIONAL INTEREST

THE COUNTDOWN toward possible disaster in Alaska is rapidly running its course.

For the moment, construction of the proposed Trans Alaska Pipeline System from Prudhoe Bay to Valdez has been blocked by injunction.

But the existing freeze on the selection of Federal land by the State of Alaska will expire at midnight, December 31, 1970. Under the Statehood Act, Alaska then re-acquires the right to select lands along the pipeline right-of-way, removing them from Federal control and depriving the Court of jurisdiction.

No further warnings are necessary in regard to the manifest dangers involved in this project: the possible melting of the permafrost, the resulting destruction of the tundra, the probable consequent oil spills, the blockage of caribou migrations, and the general wreckage of the environment.

Perhaps even more serious is the danger pointed out by Transportation Secretary Volpe, that oil spills in the Arctic, darkening the snow, might result in the absorption of enough additional heat from the sun to cause the melting of the polar ice cap. If this were to occur, coastal cities all over the world would be submerged under some 200 feet of water. Such risks cannot be taken lightly by responsible public or corporation officials.

Leaders of 22 major conservation and economic organizations addressed a letter to President Nixon several months ago, under the auspices of the Environmental Coalition for North America, urging that full-scale public hearings be held by the Council on Environmental Quality on all the risks and precautions involved before any permit for construction is granted. The President has never replied, nor has the Council assumed any responsibilities in the matter.

The Alaska natives have been pressing their very just and reasonable claims for compensation for the seizure of their land a century and more ago by Russia and the United States. Large land claims are involved, and the natives should have a prior right to selection. The land freeze should not be lifted until the natives are granted their proper first choice.

The national interest of the American people as a whole in the preservation of the resources and environment of Alaska is also involved. No permit should be granted for the construction of the pipeline until it has been shown beyond a shadow of a doubt that this national interest has been completely protected. The land freeze should be continued in effect for that purpose, but other Federal controls should be made ready in addition.

Secretary Volpe's warning is relevant in this connection. No Federal funds should be expended on highways in Alaska—on any highways at all—until the responsible officials of the Federal Government have satisfied themselves, and until the American public has had a chance to satisfy itself, that no serious consequences will follow from construction of the pipeline, or from tanker transportation, for that matter.

This is not to say merely that all possible precautions must be taken against spills; such precautions may not be adequate; the test is whether ecological disaster can result, regardless of precautions. The Federal Government contributes 90% of interstate highway funds; 50% of primary highway funds.

The State of Alaska and the pipeline companies have severally shown considerable reluctance to foot the bill for completing the access and construction roads for the pipeline. The Nation should not bail them out of the impasse without full assurance of protection of the national interest. If the companies or the State show any inclination to go ahead with construction along the pipeline at their own expense, road funds for the entire State should be frozen—impounded if necessary—until the national security has been protected.

There are serious problems of national defense in this business. The oil of Alaska will be useless in any serious military emergency. One conventional bomb on a pipeline or tanker would end the matter. Reliance on such sources could entrap the Nation in a major military defeat.

If the price of oil were to fall to world market levels, the oil of Alaska would not be developed in the foreseeable future because of high extraction and transportation costs. Not that Near East oil appears to be dependable at the moment, but Venezuelan oil, just for example, is available. The supplies in the contiguous states and the continental shelves ought to be conserved for a serious military emergency. The abandonment of oil import quotas would have that effect. A thorough-going inquiry into the oil business may be in order before any Alaskan pipeline venture or tanker enterprise is allowed to proceed.

As though by footnote, we might add that the internal combustion engine is on its way out. The day of gasoline as a motor fuel may be ending. If electric cars take over, energy for batteries will be transported by wire and produced at mammoth plants, probably nuclear. The Department of Transportation has an interest in this aspect of the problem in terms of the development of a rational transportation policy for the country.

We come back to the notion that full-scale public hearings under Council of Environmental Quality auspices are in order. The problem is not within the jurisdiction of the Department of the Interior alone; the Departments of Transportation and Defense are at least as deeply involved. Full-scale public hearings would allow an opportunity for environmental scientists, responsible private organizations, and public officials to lay all the available facts before the American people.

Because no further steps can be taken toward construction during the oncoming winter, there is ample time for such hearings. The President has the power and a magnificent opportunity at this juncture to expedite a solution to the Alaskan oil problem by an appeal to reason in the light of all the facts available. The Council on Environmental Quality should be asked and assisted by the President to hold open, ample, and formal public hearings at the earliest opportunity. All American citizens have the right to communicate with the President and urge this course upon him. —*A.W.S.*

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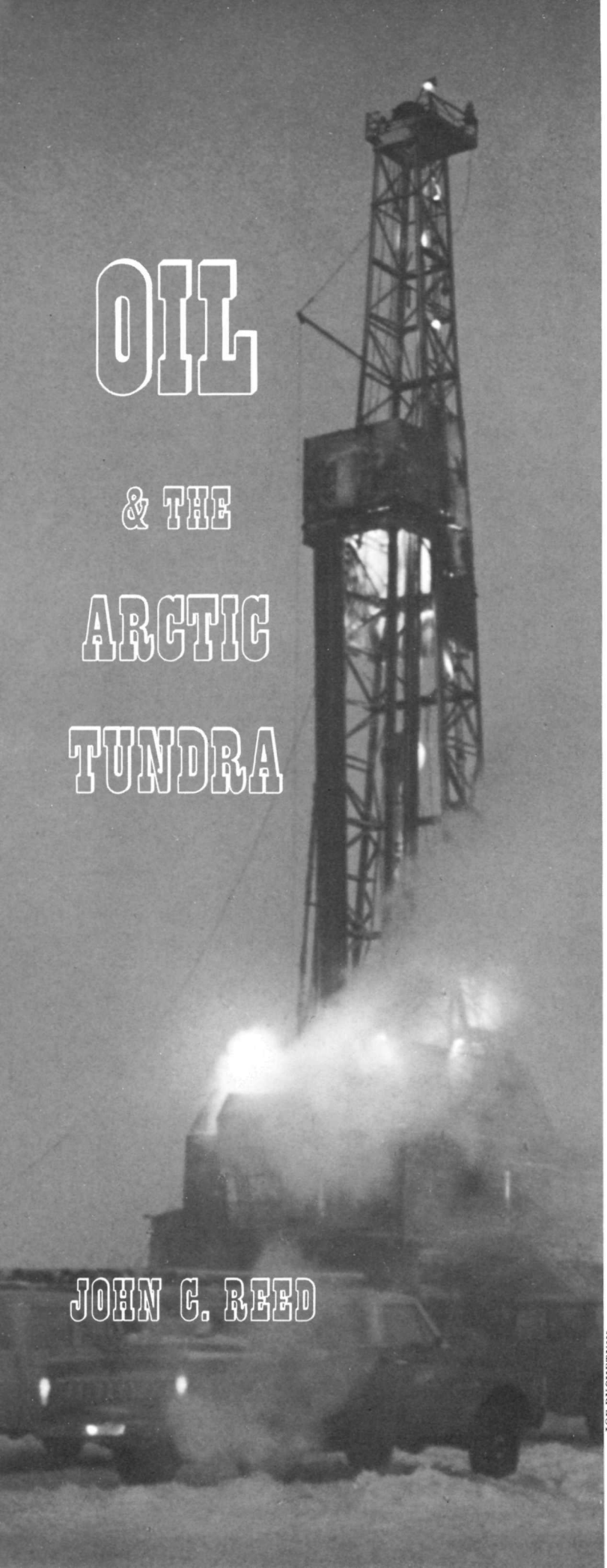

# OIL & THE ARCTIC TUNDRA

JOHN C. REED

JOE RYCHETNIK

A MAJOR DRAMA is being enacted on the North Slope of Alaska. To understand it, one must be aware of the nature of the setting and the cast of characters.

North of the Arctic Circle Alaska is made up of three types of areas or geomorphic provinces. From south to north these are the Brooks Range, the Arctic Foothills, and the Arctic Coastal Plain.

The Brooks Range is a rugged mountain mass that trends westward all across northern Alaska and separates northern Alaska from the rest of the state. Although the peaks in the central part of the range are only around 5,000 to 7,000 feet high, local relief is great, and the crests and shoulders are sharp and rugged. The north face of the range is abrupt and stands out sharply from the foothills to the north.

The Arctic Foothills range in width from about 20 miles to about 80 miles. Their altitude along their northern edge against the Coastal Plain is around 600 feet and increases to the order of 4,000 feet at the mountain front. The Foothills are rolling with some mountains of moderate relief.

The Coastal Plain is nearly flat, and it passes gently beneath the Arctic Ocean to the north. In its widest extent, south of Barrow, it is in the order of 90 miles across, and in the general area of oil development is around 50 miles to 80 miles across. The Coastal Plain was well described by P. S. Smith and J. B. Mertie, Jr., in a publication of the Geological Survey: "Its slope is so slight that it appears to stretch away to the horizon as an endless flat. Prominent landmarks are entirely absent . . . even minor elevations such as sand dunes 10 feet high appear as notable prominences . . . over these plains the winds sweep with unbroken severity, and the traveller caught in the sudden storms that are common in the winter finds it next to impossible to get any natural shelter. In summer the poorly drained tracts of upland afford only spongy footing, which makes travel laborious and slow, and lakes and deep sloughs necessitate circuitous deviations from direct courses." Streams on the Coastal Plain are shallow and sluggish. In many places lakes are so numerous that large areas are more water than land.

Off the north coast the water is shoal for considerable distances. There is virtually no tide, but the water level does change a foot or two depending largely on wind. Offshore are long, narrow bars and islands that enclose wide, shallow lagoons and bays protected from the rougher water farther out and from shifting, shoving sea ice. For only a few weeks in late summer is the sea open for navigation, and at no time is the ice pack very far offshore, although it may be out of sight for weeks.

Spruce trees extend from the south into the valleys of the Brooks Range about to the drainage divide. North of there willows, alders, and occasionally small cottonwoods in clumps grow in the valleys. Only bushlike willows extend to the northern part of the Coastal Plain. Generally the vegetation is tundra, a thick, spongy, matlike growth predominantly of grasses, sedges, mosses, lichens, and prostrate bushes.

Common animals include Dall sheep in the mountains and the southern part of the foothills, large numbers of caribou, abundant moose along the rivers, a few grizzly

bears, red and cross foxes and the white arctic fox, ground rodents locally called sic-sic and sic-sic-puk, lemmings, weasels, mink, martens, wolverine, and wolves. On the sea and occasionally along the shore are polar bears. Other large sea animals include whales, walrus, and several species of seals.

The native people of the North Slope of Alaska are Eskimos, and they number a few thousand in the area of petroleum interest. The two main villages are Barrow and Wainwright, of which Barrow is by far the largest. A small settlement lies near the northern end of the Anaktuvuk Pass. Some Eskimos are scattered here and there and from time to time, mostly along the coast.

Northern Alaska is cold. The maximum range of temperatures along the arctic coast commonly may be from about 65°F to −65°F. Furthermore, the summers are short. The North Slope also is arid. The annual precipitation at Barrow is about 4½ inches, most of which falls as snow. The area is windy throughout the year. The average annual velocity at Barrows is 11 miles per hour, and gales are common.

All of the area north of the Brooks Range is deep within the permafrost zone. That is, the group below the surface, except for a thin surface layer a few inches to a few feet thick, is permanently frozen. Over much of the North Slope the permafrost extends to depths of 1,000 feet or more. Over most of the Coastal Plain is a water-rich silty blanket, called the Gubik formation, composed of more than 50 percent of ice throughout except for the thin surface layer that thaws in the summer.

This is the frozen setting in which the protagonists are engaged in controversy.

Early in 1968 oil and gas were discovered in northern Alaska near Prudhoe Bay by the Atlantic Richfield Company in association with the Humble Oil and Refining Company. Exploration and development proceeded through the efforts of many companies and groups of companies, and it soon became evident that northern Alaska is one of the richest oil and gas areas of the world. Soon industry began to concern itself with getting the oil to market. A big 48-inch pipeline, extending all the way across Alaska from the North Slope to Valdez on the Pacific became a defined objective. To investigate the possibility of shipping the oil out by tankers, Humble modified the supertanker *Manhattan* to cope with ice; and in 1969 the ship made a successful round-trip passage through the Northwest Passage, although an iceberg did tear a gaping hole in her hull on the return voyage.

The incentive of the oil industry is to make money so that stockholders will receive dividends and the value of their stock will increase. Risks are great, costs are high, huge capital investments are required, and the time between large outlays of capital and the beginning of profits is long. Just three examples will illustrate these points.

If built, the proposed 800-mile Trans Alaska Pipeline System (TAPS) from northern Alaska to Valdez is estimated to cost about $1 million per mile. Although exploration and development have been continuing, TAPS is not yet authorized by the Department of the Interior to cross public lands. However, when and if it is authorized, the Interior Department probably will insist on many firm stipulations to protect the environment in the public interest. This operation will be expensive at best; solutions to problems posed by the environment will cost a lot of money; and meeting difficult protective stipulations will add to the financial burden.

The modification of the tanker *Manhattan* to test the practicability of using the Northwest Passage is said to have cost approximately $50 million in order to learn only parts of some of the answers. To cut apart a large ship into several pieces, armor-plate it against ice, fit it with a new ice-breaking bow, and then glue it together again is costly. And so far just one ship has made one passage in the late summer. The investment has just begun. To be assured of the ability to cruise the passage with many ships reliably at all times of the year, to solve the anchoring and holding problems in the ice far out at sea as required by the draft of the proposed vessels, to devise reliable methods of getting the oil to the ships and loading them in the environmental conditions that exist, and to establish the required shoreside collecting and pumping facilities for hot oil on frozen silt will require additional large expenditures.

The cost of leases also is extraordinarily high. In the fall of 1969, Alaska offered 450,858 acres for lease in 179 tracts. Actually leased were 412,454 acres in 164 tracts for a total of $900,041,604, or an average of $2,182 per acre. The total is equivalent to something like $3,000 for every man, woman, and child in Alaska. And this amount does not count later additional royalties or taxes to be imposed by the state.

It is apparent from these investments that industry is serious in its effort. It has to be, in the interest of stockholders. But industry is run by men; they too are interested in preserving the unquestioned values of the environment. In the first place, they too are citizens and share in those values. In the second place, preserving the environment is good business for several reasons. Such preservation results in better and therefore cheaper operating conditions. It also results in better public relations. The political pressure of conservation interests is substantial, and good public relations by industry is a real advantage.

Already the state of Alaska has gained a great deal economically from the developing oil industry in the Kenai–Cook Inlet region and from leasing in northern Alaska. The state's extensive holdings of inner continental-shelf lands, of land already selected under the Statehood Act, and of lands that it still can select, paint a bright picture for Alaska's future. Alaska rapidly is becoming one of the richest states of the Union.

Although the Alaskan, on the average, is aware of and sympathetic to environmental implications by background and nature, he wants his state and himself to profit as much as possible from oil development. And he is the man who elects the state legislators, the Governor, two U.S. Senators,

M. E. BRITTON

*Vegetation of arctic tundra near Barrow, Alaska. On vast expanses of tundra, water predominates over land.*

*Ice wedges and irregular ice bodies in frozen ground are exposed below tundra in banks of a small gully.*

H. J. WALKER

and a Congressman. He wants to make the state's decisions and the selections from among the alternatives; he does not welcome intercession by the federal government, conservation groups, or anyone else.

That feeling prompted a U.S. Senator from Alaska at the Twentieth Alaska Science Conference at the University of Alaska in August 1969 to tell the assembled conferees that Alaska did not need outside interests and self-appointed pressure groups to tell the state how to run its business. Aside from the emotionalism of that speech, it illustrated the feelings of many Alaskans.

Similarly, late in 1969, Dr. Charles E. Behlke, Dean of Engineering at the University of Alaska, was quoted in a Seattle newspaper as saying: "Most of the voice of doom attitude is from outsiders who don't know Alaska . . . the wealth of a few square miles in the Prudhoe Bay area is quite close to the value of Manhattan Island. . . . I don't feel that the 'delicate ecology' of such a valuable industrial area is so important that it should stand in the way of development."

Because most of Alaska is federally owned land, many federal departments, bureaus, and offices have interests of one kind or another in Alaska and its development. But for all practical purposes in the context of this article, it is reasonable to equate the interest of the federal government with that of the Interior Department and especially its Secretary. Formerly governor of Alaska, Secretary Hickel's economic and political roots are there; he knows a great deal about Alaska and Alaskans. Since becoming the Secretary of the Interior, however, Mr. Hickel has demonstrated his ability to broaden his outlook far beyond Alaska. He moved promptly and firmly into the crises of the Santa Barbara Channel and the threat to the Everglades of the proposed Miami jetport. Secretary Hickel seems aware of his responsibilities for the environment, but in the past the federal government has had difficulty supervising and policing other development projects.

The conservationist usually is a member of one or several of the conservation groups whose members hold views and convictions similar to his. Collectively, these groups wield a great deal of political power. The conservationist knows that northern environments are particularly vulnerable and that, once badly damaged, they recover slowly if at all. Except for Alaskan conservationists, he probably has not seen those environments; he probably never will; but he knows that they are precious and believes that they must be defended and protected. He has responsibility to company stockholders, he needs to wage no campaign in Alaska to be elected to public office, he is not involved with state tax structures or the public debt. He is beholden to no interest group. He is concerned above all with protecting the environment and improving the quality of human life. He is concerned about the effects of an 800-mile-long hot pipeline on the plant and animal life of the tundra. Therefore, inasmuch as no one knows for sure what those effects will be, he wants the pipeline delayed until scientists have had time to study the arctic ecosystem and determine the proba-

ble effects. Even the proposed use of supertankers to export the oil worries him. What if the compartment of the *Manhattan* that was ripped open by ice had been filled with oil?

The flatness of the Coastal Plain together with the nature of the frozen Gubik formation are the source of many of the engineering and environmental problems connected with oil exploration, development, and production in Alaska's arctic environment. Of many oil exploration and development activities, five types are especially important and will illustrate most of the problems involved.

1. *Building and operating camps and other settlements.* Most oil exploration and development activities require concentrations of people around drill sites, production wells, collecting sites and tank farms, near pumping stations, at major supply points, and the like. Early in the exploration phase such camps are not necessarily large, nor are they all permanent. But as development proceeds, the settlements are likely to be larger and longer lived. Camps and settlements require buildings, storage areas, streets, and power houses. Later, presumably more will be needed in the way of offices, hospitals, and schools.

Building activities, and the moving about associated with building and occupancy, disturb the tundra surface with its matlike growth of insulating tundra vegetation. This disturbance allows the sun to penetrate deeper in the summer, resulting in melting the frozen surface layer to a greater depth, with the conversion of the formerly frozen Gubik formation to a muddy soup. The more the mud is drained away or otherwise removed, the more melting takes place.

Buildings need to be heated, and the warm floors result in melting under the building and the consequent deterioration of foundations. Soon, if proper measures are not taken, the site becomes a quagmire on which it is most difficult or impossible to operate.

2. *Seismic exploration.* Seismic exploration is a means of determining the nature and structure of the underlying bedded rocks when surface cover inhibits direct observation, such as in the case of the Arctic Coastal Plain over which the blanket of frozen young Gubik formation obscures the bedrocks below. The general method is to drill short holes (perhaps 50 feet or 100 feet deep) at specified intervals along lines spaced at selected intervals so that a coordinate system of shot holes is established. Charges are exploded in the holes, and the shock waves are reflected back from various beds of the layered rocks below to be recorded on listening arrays spread out from the holes. Underground conditions can be inferred from these records.

The work requires a good deal of hauling of equipment, living wanigans, supplies, and the like repetitively along the lines. It also may involve some clearing of the tundra around the holes and around the listening devices. If the tundra is damaged, especially along straight lines, the melting that follows may result in long canal-like trenches across the surface that may inhibit movements of animals and change drainage patterns for a long time or permanently.

3. *Drilling of test wells and production wells.* In spite of the cold surface temperature (the mean annual temperature may approach 20°F), the temperature gradient in northern Alaska is near 1°F for every 80 feet of depth. At a depth of 8,000 feet, then, the temperature may be about 120°F and at 16,000 feet around 220°F. Drill rigs must be set on foundations that will not deviate because of surface melting around the hole or otherwise during the drilling phase. This task may be difficult in view of the warm or hot drilling mud that is continually being circulated in the hole. The problems may be even greater during the production phase because that phase is much longer and because of the continual movement to the surface of hot oil.

4. *Building of roads.* Any substantial and continuing oil development and operation will require roads between various centers of activity. Such roads, over the Coastal Plain especially, can be constructed only with great difficulty. A roadbed that does not disturb the thermal regime and cause melting of permafrost is hard to attain. Drainage away from the road can be accomplished only with ingenuity and effort. Bridge foundations must be constructed so they will not cause melting and thus lose their bearing strength. Roadcuts through permafrost are impossible, because the sides would turn to mud.

5. *Building and operating pipelines.* Building and operating pipelines entail all the problems of roads and some additional ones. If the pipeline is buried, it would be in permafrost, unless located in the rare situations where permafrost is not present such as in beds of deep streams or in well-drained gravel terraces. In permafrost the hot oil would melt the supporting material with disastrous results. If the line is on the surface, it must be supported either on an insulating pad or on piling of some sort. If the piling is supported by frozen ground, melting must somehow be inhibited. Furthermore, much concern has been expressed about the possibly deleterious effect of a surface pipeline on the normal movements of animals, especially caribou.

Both industry and conservationists no doubt agree that research is imperative. Industry needs solutions to engineering problems; conservationists want answers to questions about effects on the tundra ecosystem. At issue seems to be the question of *when* the research shall be done. Industry finds delay so costly after its initial and continuing heavy investments that it wants development by trial and error while research is being conducted. Conservationists urge no interference with biotic relationships until adequate research has supplied more data.

In view of the enormous stakes, the protagonists in this high drama are prepared for a long and determined struggle. Act I has barely begun. ■

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GEORGE W. ROGERS

# ALASKA'S ECONOMIC & RESOURCES

The 1970 Alaska political campaigns were dominated by one cause—the quality of the environment. In effect, all major political candidates ran on this platform. The packaging differed only in accordance with the imagination and skill of the campaign staff and the heft of the candidate's purse.

To an outside observer this phenomenon must have seemed a revolutionary shift in the traditional image of Alaska as the Last Frontier for those who would get rich quick. Since Alaska became a state in 1959 the dominant political cause has been economic development, unqualified and unadulterated by ecological and social concerns. The change in 1970 seemed both sudden and complete. As is the case in all revolutions, however, the breaking point or the radical change is a surfacing of a longer evolutionary process of preparation in which the change has been suppressed or delayed. In Alaska the submerged process has been one of a changing concept of development, which suddenly became clear through a series of recent local events and the contemporary awareness of the environmental crisis.

To say that all Alaskans in 1970 were ecologists and were actively concerned about the environment would not be true, but it would not be too far off the mark. Recent events seem to support such a revolutionary change in public attitude. The North Slope 1968–69 oil developments and the $900 million lease sale bonuses suddenly made Alaska very rich. The prospect of continuing revenues from leases, royalties, and taxes relieved us of our past fear that rapid development of our natural resources was the only way to win the race between solvency and bankruptcy. Now for the first time Alaskans could afford to turn from a primary concern with economic development and consider the development of Alaska as a place to *live* as well as to make a living.

The years 1969 and 1970 saw a tragic increase in oil pollution caused by tankers clearing out their fuel tanks and bilges in territorial waters and by accidental spills in the loading and unloading of petroleum cargoes. Hundreds of miles of south central Alaskan beaches were defiled by oily sludge and windrows of dead sea birds and mammals. This was at a time when the oil industry was proceeding with investigations of the feasibility of moving crude oil in giant 250,000-ton ice-breaking tankers through the Northwest Passage. The industry also was busy pushing for construction of a 48-inch pipeline stretching more than 800 miles from Prudhoe Bay on the Arctic Ocean to Valdez on the Gulf of Alaska. By the end of the 1970's it is anticipated that annual petroleum production from the North Slope might be more than 100 times that of the current south central production. With this prospect comes the spectre of a hundredfold increase in environmental damage incidental to the transport of crude. Alaskans are now fully aware of the total costs of economic development, including those elements left out of the promoter's and the economist's calculus; and many say that the price is too high.

Finally, Alaskans are not so isolated and remote from the rest of the world as they may seem (or as they would like to be). The contrast between conditions of contemporary urban life outside and conditions of life inside Alaska present both a warning of what neglect of the environment can lead to and a hope that we can learn and still have time to correct the trends toward ultimate dereliction. Long-term residents on periodic trips outside have been able literally to measure with their eyes, noses, ears, lungs, and even their exposed skin the accelerating destruc-

# ENVIRON MENTAL QUALITY

tion of the physical conditions essential for life. Unlike those who have acquired a protective immunity or indifference by reason of living with daily increments of environmental degeneration, Alaskans have their home environment to use as a reference. New Alaskans have rediscovered the joys of pure air, water (in most localities), and space; they are probably the most militant of the state's environmentalists. From the data provided by the 1960 and 1970 censuses, they are also the largest group of Alaskans in the total population.

These recent events and conditions seemed to have brought about a change in the public attitude of Alaskans toward development and concern for the environment, but the roots of change always have been present. At the time of the first major European-American contacts (circa 1740) the estimated aboriginal population of 75,000 was made up of several distinct and different social, economic, and cultural systems, the differences between each due principally to man's adaptation to the limitations imposed and the opportunities offered by the physical environment and the harvestable natural resources in each area. Although these differences were important, all native peoples shared common attitudes toward development and the environment, namely that they were terms that did not exist. There were no distinctions between Man and Nature; all other living creatures were brothers to Man. In the struggle for survival, they preyed upon one another, but they all shared a broad kinship of the living. All was unity, and the rituals of man's life reminded him of this fact.

Alaska's aboriginal way of life was to be disrupted and in many areas completely destroyed by invasions from outside starting in the mid-eighteenth century and continuing to the present. But a semi-subsistence way of life and a strong sense of being part of Nature still persist, as both the Atomic Energy Commission and the Corps of Engineers discovered when the one attempted to convert the northwest arctic into a nuclear testing area and the other proposed to build the second largest hydroelectric power project in the world at Rampart on the upper Yukon River. These projects would have physically displaced thousands of people from their ancestral lands and way of life. Two native associations that formed to protest these projects were the genesis of the political movement that culminated in the formation of the Alaskan Federation of Natives and the native lands issue.

When the United States purchased Alaska in 1867, the Russian colonial-type development for the benefit of distant, nonresident interests increased in extent and intensity. The economy of this period in Alaska's history was represented by the extraction and exploitation of a highly specialized and narrow range of natural resources. Furs, salmon, gold, and copper took turns as lead items of exploitation and then declined as the source of supply dwindled. In the decade 1931–40, the average annual value of all out-shipments from Alaska totaled $58.8 million, of which canned salmon accounted for 55.1 percent, gold 26.6 percent, other fish products 6.4 percent, furs 4.4 percent, and miscellaneous 6.5 percent.

The environment (including the indigenous people) was simply something to be totally ignored or ruthlessly subjugated if it got in the way of the cheapest and easiest means of extracting the desired resource. Economic development not only was a highly specialized process, but was short-term with the mining of renewable as well as nonrenewable resources. The labor force was either seasonally imported or resident for the duration of a particular boom-and-bust cycle. Many new Alaskans aspired to make this land their home, however, and these efforts resulted in the creation of the Territory of Alaska in 1912. The territory had a presidentially appointed Governor and a popularly elected legislature that became the focus of the limited self-government granted. By the time they had served their apprenticeship under this form of government, Alaskans had created the organization for rational management of their natural resources and the creation of new communities. Water and air pollution controls were enacted during the 1940's and 1950's in anticipation of development.

When the Japanese invasion of the Aleutian Islands in 1942 increased the number of members of the armed forces stationed in Alaska from a prewar level of about 500 men to 152,000 in 1943, the economy was completely altered. Strategic location and space were Alaska's most important resources, and its principal product was national defense. This situation continued through the decades of the 1950's and 1960's with defense construction, support of the defense establishment, and government programs becoming the basic economy. These developments brought with them an increasing resident population. The 1939 census reported only 72,524 population. By the 1950 census it had risen to 128,643, and by 1960, to 226,167. Although the military programs were not directly concerned with the physical environment in which they were set, the people who were brought in with them were increasingly concerned. The statehood movement that came to life during

this period was nominally an attempt to increase the political self-determination power for Alaskans, but more basically it represented the first step toward a new course for Alaska's future economic development. Thenceforth, development would be of Alaska, not simply of its natural resources alone.

By the end of the 1950's the defense establishment had passed the stages of developmental build-up and had achieved the plateau of simply maintaining and periodically renewing itself. The number of military personnel stabilized at about 33,000 men, and spending by the Department of Defense in Alaska declined from $512.9 million in 1953 to annual amounts fluctuating between a low of $264.6 million and a high of $352.0 million during the 1960's. At the same time the annual value of natural resources production rose from $130.6 million in 1950 to half a billion dollars in 1969. The present outlook is that these natural resource values probably will exceed $2 billion by the last half of the 1970's whereas defense expenditures will remain about at present levels.

This shift from defense to natural resources products as the principal element in the economy started with forest products, the annual cut rising from 72.4 million board feet in 1950 to 581.1 million board feet in 1969. The maximum sustainable yield of the resource will probably level off at about 800 million board feet by the end of the decade. Petroleum production from the Cook Inlet–Kenai fields started in the late 1950's and reached 74.7 million barrels in 1969. It is anticipated that these fields will continue as major producers throughout the next decade and beyond, but current output probably represents the peak. The 1968 discoveries at Prudhoe Bay and the anticipation that the North Slope province may contain at least two additional major fields could increase reserves in Alaska by as much as 50 billion barrels of crude oil and 300 trillion cubic feet of natural gas. Under the more stringent conservationist management of the state of Alaska, fisheries have made some recovery from the crash suffered under federal management. Major increases in fish products, however, have been due to the addition of new species and new areas. In the face of severe foreign high seas competition it is doubtful that Alaska's fisheries will expand beyond present levels. Minerals other than petroleum probably will be developed, copper being the most likely for the next decade and iron ore beyond. Forest products and petroleum, however, will dominate Alaska's future, and each could have profound effects on the environment.

Responsibility for management of resources and regulation of development is shared by the federal, state, and local governments. With less than 10 percent of the land area in state or private ownership, the U.S. Department of the Interior and the U.S. Forest Service remain the largest two land resource agencies. Through opportunistic selection of lands, however, the state has managed to assume control of most of the present and potential oil lands and will be of primary importance in determining the management and regulation of these resources. The Forest Service has primary responsibility to manage the forest resources on a multiple use basis and to require adequate environmental protection in logging and processing operations. The Bureau of Land Management has a similar responsibility on public domain lands and has exercised its regulatory powers in insisting that the proposed Trans Alaska Pipeline include in its design adequate safeguards of the wilderness environment through which it will pass.

Immediately after the 1968 announcement of the Prudhoe Bay discoveries, Walter Hickel as Governor of Alaska pushed through the Hickel Highway from the northern end of the existing road system into the North Slope. The road was constructed on an emergency basis without investigation or design in a frantic effort to divert the flow of equipment and supplies through Alaska rather than around the state by sea or through Canada as they were moving. Useable for only brief periods and by special equipment, this road is a monument to ill-considered action and is not likely to be repeated. In contrast, as Secretary of the Interior, Mr. Hickel has set forth conditions for granting a pipeline right-of-way that include meeting all requirements of law and regulation, safeguarding the interests of native peoples, protecting the environment, and consulting and coordinating with state and federal government agencies. The state legislature also has benefited from this lesson, and in its 1970 session demonstrated its ability to withstand an intensive campaign to approve the construction of the pipeline access road with state funds as a means of circumventing the Department of Interior requirements.

To those of us who have been long-time residents of Alaska, the most important factor which holds promise that future economic development will depart from past patterns of exploitation and environmental destruction is the fact that Alaska is now a state. Statehood implies that Alaska's development no longer can be viewed simply in terms of increased output of natural resources products but must include the development of the general public welfare and protection of the public interest. The objectives that Alaskans have set for future development are the creation of a political and social environment and protection and enhancement of a physical environment affording the maximum opportunity for living full and rich lives. The old colonial forces of short-run exploitation still may be present in different and more subtle guise, but we have the political means to assure that Alaska no longer be treated as a place to be exploited and then forgotten or discarded. All that is needed is the wisdom and the will to adhere to the course plotted by our dreams. ■

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**George W. Rogers is professor of economics at the University of Alaska and has been an Alaskan resident for 25 years. Dr. Rogers has served with the U.S. Department of the Interior as an economist and as chairman of the Department's Alaska Field Committee and as staff social scientist with the Arctic Institute of North America. Since 1956, in addition to teaching, consulting, and serving on research committees in Alaska and Canada, he has been engaged in a continuing program of research supported by Resources for the Future, Inc., the Arctic Institute of North America, and the University of Alaska, resulting in numerous reports and articles, and two books: *Alaska in Transition, the Southeast Region* (1960, 1967), and *The Future of Alaska, the Economic Consequences of Statehood* (1962, 1969).**

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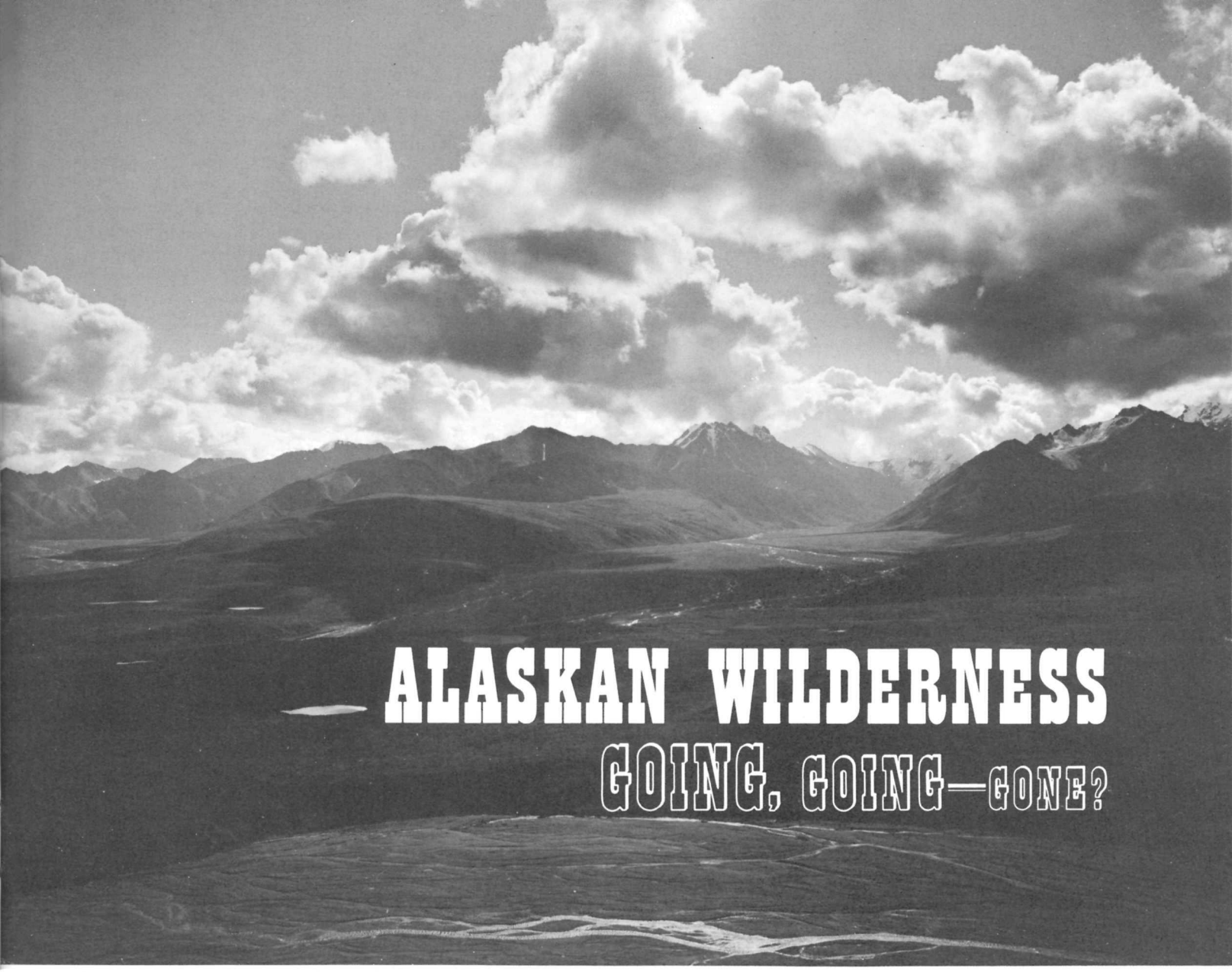
MALCOLM LOCKWOOD



# ALASKAN WILDERNESS
## GOING, GOING—GONE?

*Polychrome Pass, Mount McKinley National Park*


# CELIA HUNTER


*Conflict over our land and resource development will occur with increasing frequency as population grows and demands for increasing commercial use of our minerals, our forests, our fish and wildlife, and our recreational potential become more intense. . . .*

*Who will temper the debate with long range vision and wisdom to assure future generations of a fair share of our resources—both tangible and intangible?*

*Can those same dynamic qualities of the frontier—resourcefulness, independence, innovation, personal involvement, and the willingness to exert physical effort which challenged the sourdough, the homesteader, the entrepreneur, yet often found him in conflict with nature—be redirected to foster a sense of husbandry, interdependence, and communion with the land and its bounty . . . ?*

—from THE ALASKA CONSERVATION REVIEW

THE CONFLICT over land and resource development and preservation intensifies daily in Alaska, and the questions posed at left remain largely unanswered. To many people, Alaska's vast size and lack of population and/or industrial development would seem to make worry about preserving esthetic values meaningless. But if one examines closely the situation in areas already given protected status, there is cause for genuine concern.

The lands set aside as national parks and monuments in Alaska contain many threats to the esthetic resources within their boundaries. Unfortunately, when these parks and monuments were set aside, public opinion in Alaska was so dedicated to mining that the right to prospect and mine within their borders was written into the enabling legislation. Until recently, this remained merely a threat.

Now, however, with prices soaring on certain ores, miners

are eyeing known ore deposits within the parks and along park borders and are actively seeking others. Mount McKinley National Park does contain a good bit of mineralization, though whether in marketable quantities remains to be established. The Kantishna mining region, situated just north of the park boundary near Wonder Lake is also mineralized and contains numerous claims, both patented and unpatented.

Recently a claim based on both cinnabar and stibnite deposits has been staked on upper Slippery Creek, at the site of the old Dunkel mine. It is located on the lower reaches of Peter's Dome, directly beneath Mount McKinley's soaring north face, the Wickersham Wall, nearly in the geographic center of the park. High prices for both mercury and antimony encouraged this restaking of the earlier claims.

Already the miners working these claims have been cited by the Park Service for cutting timber illegally on park property off their claims. (They may legally cut timber for mining use on any claims they hold.) Their answer to this citation was to stake a series of claims from the headwaters of Slippery Creek on out the creek to the northern boundary of the park, thus opening the whole length of Slippery Creek to timber cutting unless these claims are successfully challenged by the Park Service.

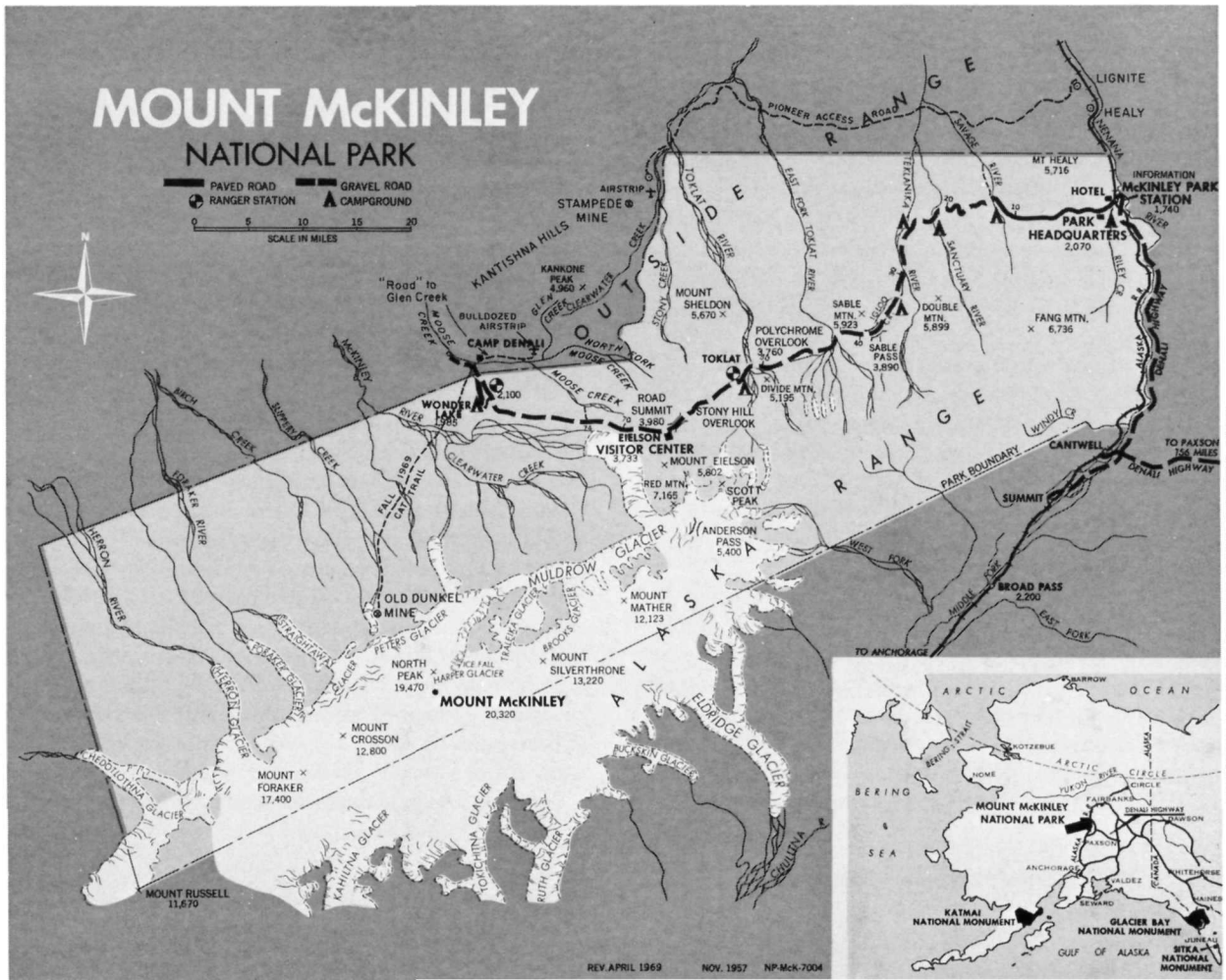
Road access is also included in their demands. Presently a small airstrip on upper Slippery Creek serves as a communication link for the miners and offers landing space for small cargo aircraft. Claiming that the airstrip did not provide adequate access, the miners requested permission in the fall of 1969 to walk their cats (bulldozers) in to their claims; and the Park Superintendent gave them a permit to follow the north boundary of the park westward to Slippery Creek, and thence up Slippery Creek into the claim area.

However, the miners brazenly defied the Park Service ruling and headed their cats, with blades down where they felt it necessary, south and west directly cross-country to Slippery Creek from a point on the Park Road just outside the north boundary. Inasmuch as no National Park Service personnel were present to enforce the NPS regulations, this trip was accomplished before park officials were aware of the deviation from the permitted route. No penalty was imposed for this act of vandalism.

In the spring of 1970, the emboldened miners demanded permission from NPS authorities to make a permanent access road following the routing they had carved out illicitly the fall before. Possibly because this scheme was denounced by certain conservation spokesmen, the request was turned down at the Regional Office level; but the possibility remains that the attempt will be repeated.

The tragedy of this mining venture within the park is not limited to the land permanently scarred by their blade-down journey across the tundra, nor to the loss of timber due to their demands for tunnel supports and building material, nor to the surface disruption incidental to the mining activity itself.

If these miners prove they can successfully defy or circumvent Park Service regulations, we can expect a flurry of additional claims and mining activity inside the park. So far, the supposed difficulties of operating within the park and being forced to comply with NPS stipulations have deterred many would-be operators; but those who have been biding their time may interpret successful circumven-




ADAPTED FROM NATIONAL PARK SERVICE MAP

tion as a signal to rush in, with consequent havoc to national park values.

More significant, the area of the park in which these mining claims are situated is part of the vast roadless wilderness lying west of the McKinley River and north of the Alaska Range. Caribou bands roam the rolling hills and wooded stream valleys; wolves and grizzlies abound here. These animals are protected from hunting in the park, and they form one of the major attractions for park visitors, who often view them as they drive along the park road to the east of this area. However, despite the animals' protected status, it is feared that the miners on Slippery Creek, like most of their clan, will shoot grizzlies, claiming that they were menaced by them, and that the present high price of wolf pelts might tempt them to pick up a few extra dollars by disposing of wolves as well. Sad to say, NPS supervision is intermittent at best due to lack of personnel and for other reasons.

The official Master Plan for Mount McKinley National Park is not yet completed, though National Park Service study teams have been making visits to the park for several years now. Surely this roadless area west of the McKinley River would be a prime candidate for inclusion in the National Wilderness Preservation System, but how much disruption by man can be tolerated in a wilderness? Could the haste with which this mining venture has been pushed indicate the miners' awareness that their activities could be instrumental in denying this area wilderness classification?

This mining action negates one of the basic reasons for giving an area national park status: to preserve in a natural state examples of outstanding scenic beauty. The splendor of the Alaska Range crowned by 20,300-foot Mount McKinley and 17,000-foot Mount Foraker should not be merely a scenic backdrop for the rubble of a two-bit mining operation.

Glacier Bay National Monument and Katmai National Monument both have problems similar to those affecting McKinley Park. The threat of actual mining and even milling developments within Glacier Bay National Monument is an ever-present nightmare for Park Service administrators and conservationists. In addition to some mining activity, the chief threat to Katmai National Monument is the proposed state highway connecting Cook Inlet and Bristol Bay, which would traverse the Monument.

Highlighting the problems of still another land management agency under pressure by exploitive mining interest, we can observe the deterioration of the land surface on public domain land administered by the Bureau of Land Management (BLM). A prime example of such deterioration exists north of McKinley Park along Moose Creek near Kantishna, upstream from the bridge; this is only a mile north of Wonder Lake, and the first mile or so lies within a section of land withdrawn from public entry for possible inclusion within the national park.

Successive waves of would-be miners have pushed heavy-tracked and four-wheel-drive vehicles across the tundra bench along Moose Creek, cutting the protective tundra surface and exposing the permafrost beneath, which melts to form bottomless mucky ruts. Driving over such a track more than once often results in miring down even a huge D-8 caterpillar tractor, so the usual routine has been to make a new track with each additional piece of equipment moved through. The so-called "road" crisscrosses Moose Creek, making 19 stream crossings in approximately 7 miles.

At the junction of Glen Creek and Moose Creek, 7 miles upstream from the bridge, the 1969 mining crew cleared an airstrip site. With a profound ignorance of both permafrost and airport layout, they stripped the tundra cover from an area 1 mile long and 200 feet wide, with the northern end of the "airstrip" abutting a steeply sloped hill. The strip would be impossible to use because of this barrier.

Once stripping was completed, the miners waited for the "airstrip" to dry up; but soon it became apparent that they had initiated an extensive thawing of the permafrosted silt below the mossy surface, and the raw earth became eroded by numerous streams, which drained off the silty soil into Glen Creek and on into Moose Creek. Moose Creek offers the only good grayling fishing in this vicinity, but the fish will not bite when the water is murky, either from natural run-off after a rain or from silt deposits feeding into the stream. This senseless operation may have destroyed grayling fishing for many years to come in the most accessible stretch of the creek.

It is worth noting that to date no ore has been mined on the Glen Creek claims despite thousands of dollars worth of equipment hauled in and the expenditure of many man-hours of labor. The operation seems to be primarily a stock-promotion scheme.

Another aspect of this particular mining venture and its many-pronged "roads" across the tundra up Moose Creek is the possibility that the state of Alaska might provide funds to maintain or improve it as a mining access road. The miners themselves visualize linking this route to the existing but presently unuseable "pioneer access road" constructed a few years ago between Lignite on the Alaska Railroad and Stampede Mine. The latter road roughly parallels the park boundary to a point just west of the Tolkat River. Such a link-up would provide access for hunters and miners all the way along the northern boundary of the park from Lignite to Kantishna and would eliminate the present informal "buffer zone" that offers some protection to grizzlies and wolves straying across the park boundary.

Already, all-terrain vehicles and four-wheel-drive vehicles are making their way along the Lignite-Stampede road, and their tracks have been spotted well inside the park boundary up the Toklat River. This summer a new crew of miners headed for Glen Creek punched through a road on a lower bench above Moose Creek that already has provided access for several hunting parties into heretofore inaccessible country. Given the meager protection funds and personnel presently available in Mount McKinley National Park, the job of patroling an expanded north boundary access is proving well-nigh impossible.

At this moment, no funds exist to provide aerial patrols over Mount McKinley National Park for the next fiscal year. What small appropriations had been set aside for this protection activity have now been eliminated completely. This means that a couple of park rangers will be attempting to patrol the 3,030 square miles of the park on foot or by dog team, while violators are utilizing every type of mechanical travel, including snowmobiles and aircraft.

Outmoded land laws governing uses and abuses of public

*Muldroon Moraine, Mount McKinley National Park* MALCOLM LOCKWOOD

domain lands can be blamed for the damage to surface values inflicted along Moose Creek. Whereas the Bureau of Land Management has managed to impose severe restrictions on the use of vehicles on public domain land up on the North Slope during the season the ground is thawed, no such regulation prevails elsewhere in Alaska. Thus the BLM is powerless to prevent this rape of the landscape by any individual or company claiming a mineral find.

No stipulations requiring a demonstration of economic feasibility of a claim can be invoked, and no requirement that equipment be moved only over frozen ground when it would not damage the surface. Actually, both points would save mining companies money; the first by discouraging marginal or submarginal operations, and the second by reducing wear and tear on equipment.

The tourist dollar is often used as a measure of the economic return from otherwise unjustifiable restrictions on private industry's right to exploit public and private lands for its own gain. Visitors to Alaska account for an increasing portion of the "outside" dollar input to the state's GSP (gross state product). Surveys have attempted to determine what draws visitors to Alaska, and the results indicate that unspoiled natural beauty and the chance to see wildlife in abundance are prime lures.

How can Alaska protect and cherish this natural heritage and still realize a sound economy based on development of both renewable and nonrenewable resources? Perhaps the proposed Wrangell Mountains National Scenic Area points the way for the future.

This proposal, the result of a study by the Bureau of Outdoor Recreation in the Department of the Interior, recommends that 10.5 million acres of public land adjacent to the Canadian border south of the Alaska Highway be designated the Wrangell Mountains National Scenic Area, to be administered by the BLM. The primary objective of management is stated to be "protection and enhancement of scenic, recreational, fish and wildlife, and wilderness values and prudent development of needed natural resources."

Within the area's outlined boundaries are the magnificent peaks of the Wrangell range—Mt. Wrangell, Mt. Sanford, Mt. Drum, Mt. Blackburn, and Mt. Bona—scenic river valleys, and wildlife habitats supporting one of Alaska's major caribou herds as well as large numbers of the once-rare trumpeter swan, other waterfowl, ptarmigan, grouse, grizzly and black bears, Dall sheep, mountain goat, Sitka black-tailed deer, and many species of fish.

In addition to its scenic potential, the area is heavily mineralized. Kennicott, site of the huge copper-milling operation developed by the Guggenheim interest from World War I days through 1938, still sits on the edge of the glacier near the ghost town of McCarthy, terminus of the famed Copper River Railroad from Cordova. Rex Beach's novel, *The Iron Trail,* dramatized this expensive piece of railroad pioneering.

The need for overall planning to prevent piecemeal and helterskelter development of this beautiful area came to the attention of the Bureau of Outdoor Recreation when the Alaska Highway Department proposed to build a bridge over the Copper River at Chitina and to push through a highway to McCarthy along the old railroad routing. With so many potentially conflicting values present here, the area offered an opportunity to try to provide guidelines that would allow both economic development and the preservation of the scenic, recreational, wildlife, and wilderness values.

The management plan worked out by the BOR and the BLM includes a large wildlife management area with limited settlement; a recreational area with limited road access; a wilderness area to be left completely roadless centered around Mt. Bona; and resource management units of several different categories, permitting mining and industrial development, homesteading, private dwelling construction, and so on, with protective regulations to prevent unplanned "strip" development along roadsides, or pollution of streams or air by industrial users.

Alaskan conservationists rallied to support the plan, because it represented a new concept in land use planning, with development built in as integral but controlled, and with provisions for maintaining the other values found in the area. Constructive criticism presented at the public hearings included suggestions that the river valleys be managed as watershed units, rather than having rivers as boundaries with totally unrelated uses on either bank, and requests for the inclusion of representative areas of vegetation and forest within the wilderness area outlined, which consisted mainly of high mountain country.

Though far from perfect at present, such land use classification and planning should be extended to all of Alaska. This is the major point stressed by responsible and concerned citizens and by Alaska conservation groups and spokesmen. Large as it seems, Alaska could become so chopped up with unplanned transportation routes that the existing units of space could not support our wide-roaming wildlife nor sustain the life-support systems that require more space in the Arctic than elsewhere.

Over and over again, we must stress the point that Alaska has the potential of being the first state in the Union to really plan its development so as to create a truly liveable environment. We can make our cities examples of urban development at its best and leave vast reaches of open land in a state of natural beauty. We can provide recreation and refreshment of spirit, not just for our own inhabitants, but for visitors from other states and countries, where "room to roam" has vanished. But will we? ■

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**Celia Hunter graduated from the University of Alaska, where she majored in botany. Since 1947 she has been associated with the Alaskan tourist business, and since 1952 she has been a co-owner, builder, and operator of Camp Denali, a wilderness vacation camp situated just outside the boundary of McKinley National Park. The camp has provided in-depth wilderness vacations featuring hiking, nature study, and wildlife observation for thousands of visitors for 19 years. In 1960, Miss Hunter was one of the charter members of the Alaska Conservation Society and has served as Executive Secretary of the organization since then. The Alaska Conservation Society recently was voted the $25,000 American Heritage Conservation Award for its work in upholding the conservation viewpoint on many vital Alaskan issues, past and present. In 1968 Miss Hunter became the first woman member of the Council of The Wilderness Society and the first Alaskan member of the Council. She helped establish the Alaska Wilderness Council and served as its first chairman.**

# Unsolved Problems of Alaska's North Slope

*photo essay by* **ROBERT BELOUS**

MANY PROBLEMS on Alaska's North Slope remain unsolved. Problems illustrated here are not typical of all areas, but where such situations do exist, little or nothing is being done to correct them. Seismic exploration crews are causing more unnecessary damage at present than oil companies are. However, the oil companies let subcontracts to the seismic exploration companies and thus could exercise more control over them than they do now.

Initials cut into the tundra represent the kind of mindless negligence that threatens the arctic environment. About 15 miles from the Beaufort Sea coast and about 50 miles east of Prudhoe Bay, a bulldozer operator gouged into the fragile arctic tundra the initials of Geophysical Services Incorporated, a seismic exploration company operating on the North Slope. The letters are 150 yards long vertically. Due to the thermal erosion characteristic of the Arctic, these deepening trenches will be an enduring scar for many decades. One botanist estimates several hundred years will be needed for recovery. The scars now are about 5 years old.

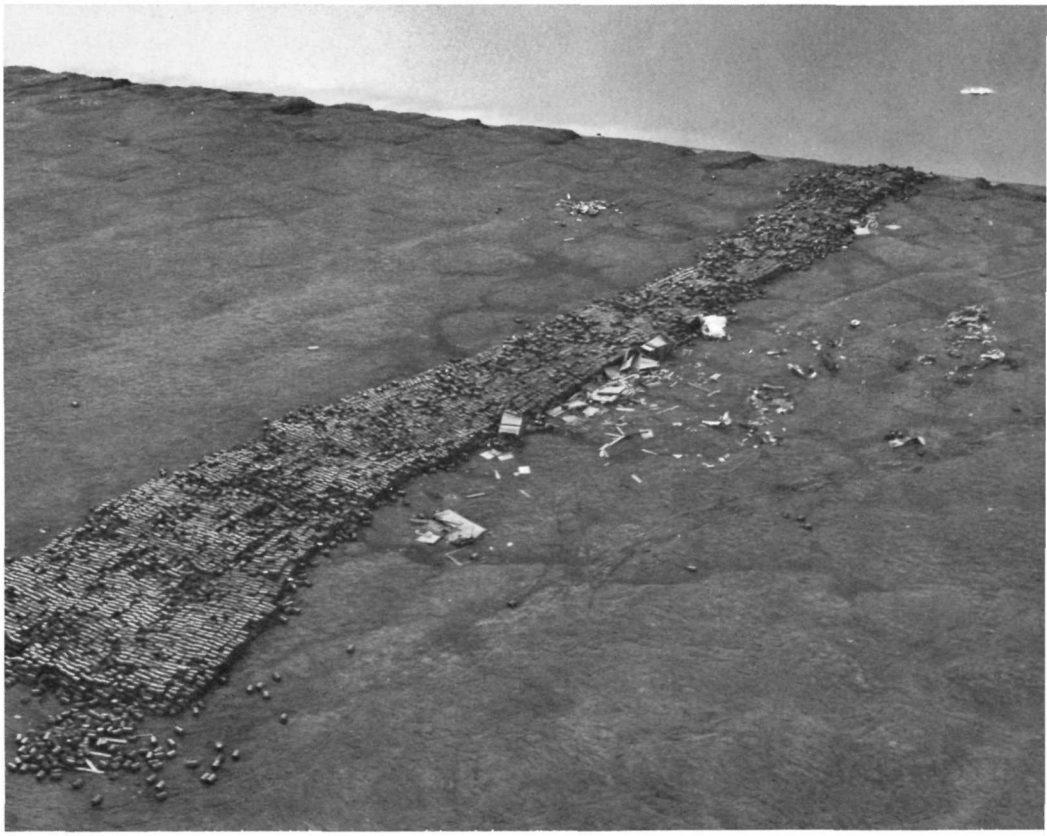
The river in the foreground is the Canning River, which forms the western boundary of the Arctic National Wildlife Range—our only arctic sanctuary. Significantly, the arrow underlining the initials points across the river to the very heart of the Wildlife Range. Because of geologic similarity to Prudhoe Bay, the threat of oil development within the wildlife sanctuary is imminent. So, too, is the possibility of an eastwest pipeline—an alternative (or an addition) to the Trans Alaska Pipeline System. This pipeline would reach Canada by cutting through the vital calving ground and migration corridors of a herd of about 100,000 caribou.

Below, the base portion of the letter "G" from the GSI initials. In many spots erosion has brought about depths of about 10 feet. The white flowers bordering the trench are arctic cottongrass (*Eriophorum*). The lower portion of the letter "S" is visible at upper left.

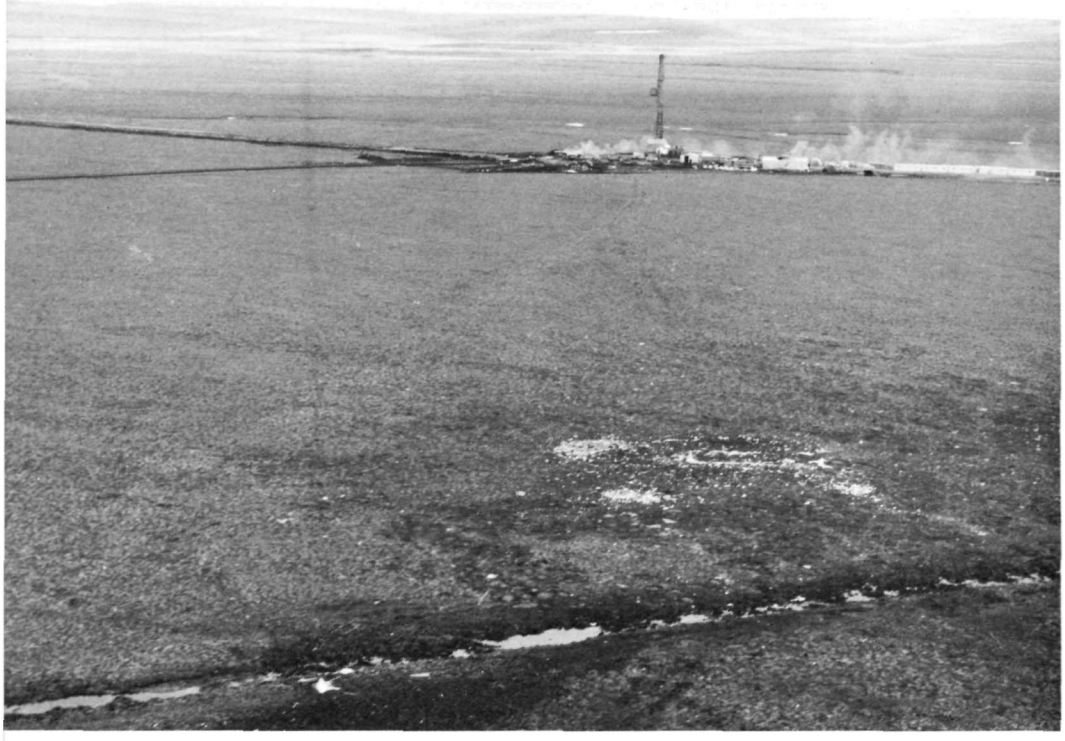
Fuel oil drums and debris at Barter Island along the Beaufort Sea coastline approximately 50 miles west of the Canadian border. A DEW Line site has been the major contributor to this mess. Last August Secretary of the Interior Hickel inspected the litter-strewn coastline of the Arctic National Wildlife Range and spoke of a "cleanup." It's long overdue.

Below, part of the main Prudhoe Bay dump site. Although the three major oil companies operating in the Prudhoe Bay area (Atlantic Richfield, Humble, and British Petroleum) are making a conscientious effort toward good housekeeping and a clean operation, serious problems still exist. Due to the high concentration of men and materials, the accumulation of debris is enormous. The area chosen for the dump site is one of the few natural sand dune habitats along the Arctic Coast, a type of terrain important as denning sites for arctic fox. In addition, the dumping of raw kitchen wastes atracts roaming barren ground grizzlies, already one of our endangered animals. These bears become troublesome and soon are shot. A more adequate solution to the problem of oil field garbage is urgently needed.

*(Continued on page 20)*




Federal Graphics



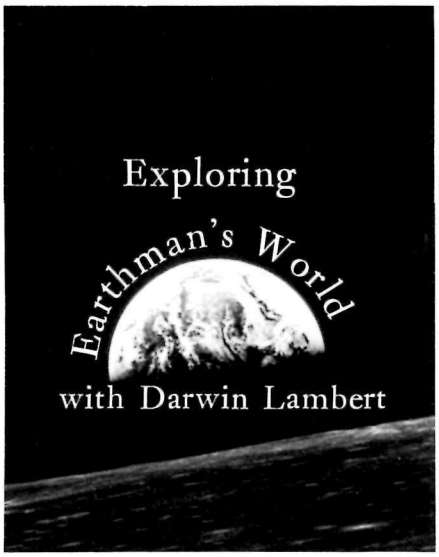
*(Continued from page 17.)*
Pan American Oil Company's drilling site near the Kavik River, about 40 miles east of Prudhoe Bay, is surrounded by some of the worst scars of oil exploration. Seismic lines gouged into the tundra are eroding into deep trenches, and debris is everywhere.

Below is a typical scene at Deadhorse, one of the major transportation centers on the North Slope, 25 miles southeast of the Prudhoe Bay oilfield. Almost all the terrain damage, garbage, untreated sewage, and general slum conditions are caused by seismic crews and the geophysical exploration companies. Deadhorse is administered by the state of Alaska.

Caribou carcasses along the Deadhorse airstrip. The pile of heads includes, at left, that of yearling calf. The inhumane treatment of caribou is a continuing tragedy on the North Slope, and nothing is being done about it. Caribou are virtually unprotected north of the Brooks Range. They are shot at any time of year and in unlimited numbers. The much-publicized claim that guns are not allowed at North Slope oil field operations is a myth—as these photos show. In addition to being shot by "sportsmen," caribou are harassed and panicked into flight by careless helicopter operation. A healthy caribou running in panic for two or three miles becomes, in the words of a noted zoologist, "a death candidate." A winter-starved pregnant female who has just completed a 200-mile migration lasts only about half a mile before aborting or dying. Unless Alaska's Department of Fish and Game protects these animals, helicopter and aircraft harassment, especially during critical calving migrations in early spring, will be a major factor in the demise of the Arctic's barren ground caribou.

**Robert Belous is a photojournalist specializing in Arctic environmental problems. He is intimately acquainted with Alaska, having spent much of the last 2 years traveling extensively all over the state, especially on the North Slope, by bush plane and on foot.**

# THE ALASKAN DREAM




*A series of short articles examining man's relationship to nature.*

"There's gold, and it's haunting and haunting," wrote Robert Service, foreshadowing the schism that tears Alaska and the planet. "Yet it isn't the gold that I'm wanting. . ./ It's the great, big, broad land 'way up yonder,/ It's the forests where silence has lease;/ It's the beauty that thrills me with wonder,/ It's the stillness that fills me with peace." Ecologist Barry Commoner calls today's Alaska "a living microcosm of the whole environmental issue"—made so most sharply by the fabulous find of black gold in one of earth's greatest remaining wildernesses. I see the microcosm as even more inclusive, containing man's quest for a culture that will wipe out racism and poverty, avoid environmental degradation, and cure the modern plague of anomie, alienation, hyperhostility, and loss of the worthwhileness of living.

As editor of the *Daily Alaska Empire*—with help from fellow-Alaskans—I wrote a series of editorials discussing the Alaskan dream struggling for realization against habitual tendencies to push accepted forms of progress and conform to known patterns. "The native people are torn between longing for the old way of living directly off the resources of land and sea—no longer entirely possible because the whites have thrust themselves in—and desire for material benefits of so-called civilization. The whites have come partly because they heard of wealth ready to harvest and partly because they disliked the crowding thrust and rush of living elsewhere and longed for a simpler and more satisfying life." The series, called "Toward a Way of Life," urged first attention in the new state to determining shared factors of a distinctively Alaskan lifestyle—both conservation and development policies then to be fitted to these factors and thereby kept from imposing styles not truly wanted.

This way-of-life approach has enlarged its territory toward absorbing and reorienting all relationships with earth—but has not yet overcome the persistent conflict between "gold" and "land." It ferments now in the oil-wildlife-wilderness-people furor, within the state and around the world. It has operated intermittently in Governor Keith Miller—who, with his vivacious wife, Diana, a few years ago, homesteaded and enjoyed a piece of wilderness—as he has insisted the state will save its own environment, yet asked the legislature to finance at once a $120 million highway to accelerate the controversial pipeline, because "the delay makes virtually impossible proper planning for the orderly development of resources to benefit all Alaskans." It stimulated resistance to this aggressive move (the accusation, "panic politics!"). It has worked in a leading native, Emil Notti, campaigning for state office, complaining that too many candidates had their eyes on black gold and dollar signs, not on environment and quality of life. It influenced an exchange at a Juneau meeting where a spokesman for a giant pulp plant scheduled for construction admitted there would be an odor. Asked how bad an odor, he replied, "That depends entirely on who is smelling it."

Under such emerging details are meaningful chords representing depths of the North, sometimes discordant, sometimes harmonious: "The grayling aleap in the river,/ The bighorn asleep on the hill./ The strong life that never knows harness;/ The wilds where the caribou call;/ The freshness, the freedom, the farness—/ O God! how I'm stuck on it all." (Robert Service). . . "Alaska is more than 99% wilderness. Shouldn't economic development be allowed to take place with as few restrictions as possible? *(Anchorage Daily Times)*. . . "Native culture adds values to Alaskan living through reverent use of the products of land and sea." (Dr. Walter Soboleff, Tlingit Indian). . . Alaskan natives' "keen personal interest in preserving their environment makes them most likely to work in harmony with it. Human values must be given paramount attention, and all developmental problems must be considered in terms of their effects on people." (Secretary of the Interior Walter J. Hickel) . . . "And thus the ancient and the primitive/ Are blended with the new and civilized. . ./ And may He help the North endure—/ Give strength to pioneer/ Against whatever force would harm/ Our so-loved 'Last Frontier.'" (Carol Beery Davis, Alaskan poetess). . . "There are two major requirements—research so that we may have the knowledge on which to base our policies, and the active participation of the native people. . . Otherwise we shall face alienation and social degradation at the very centre of developments which could be a golden opportunity." (John H. Gordon, Canadian official conferring with U.S. leaders about the Alaskan situation). . . "We have taken as our objective the achievement of a balanced, rational management of environmental systems concurrently with constructive use of natural resources and the enhancement of human life." (Max E. Britton, Arctic Research Laboratory.)

Environmental problems can be conclusively solved only in relation to the way of life. Initiative should combine both conservation and development—and move toward an art of living, not a standard of consumption. There is a fortunate chance to use in Alaska the wisdom of hindsight and live American expansion into wilderness again, the way it ought to have been. The outcome will be fateful—preeminently because it can provide inspiration and guidance for long-range survival and fulfillment on a healthful, productive, and beautiful planet. "The stars throng out in their glory," wrote Robert Service, foreshadowing the ecological attitude, "And they sing of the God in man;/ They sing of the Mighty Master,/ Of the loom his fingers span,/ Where a star or a soul is a part of the whole/ And weft in the wondrous plan." ■

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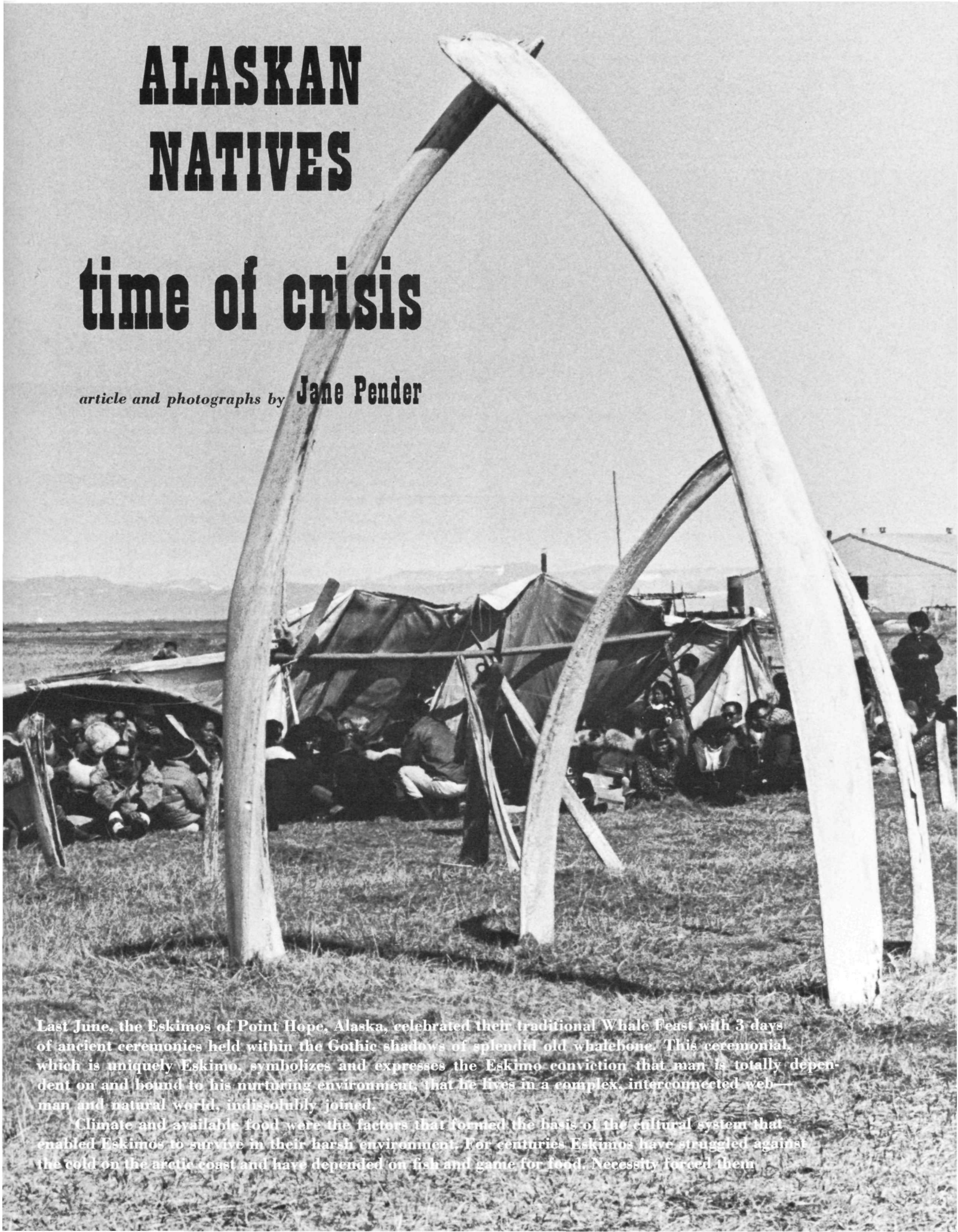
# ALASKAN NATIVES

# time of crisis

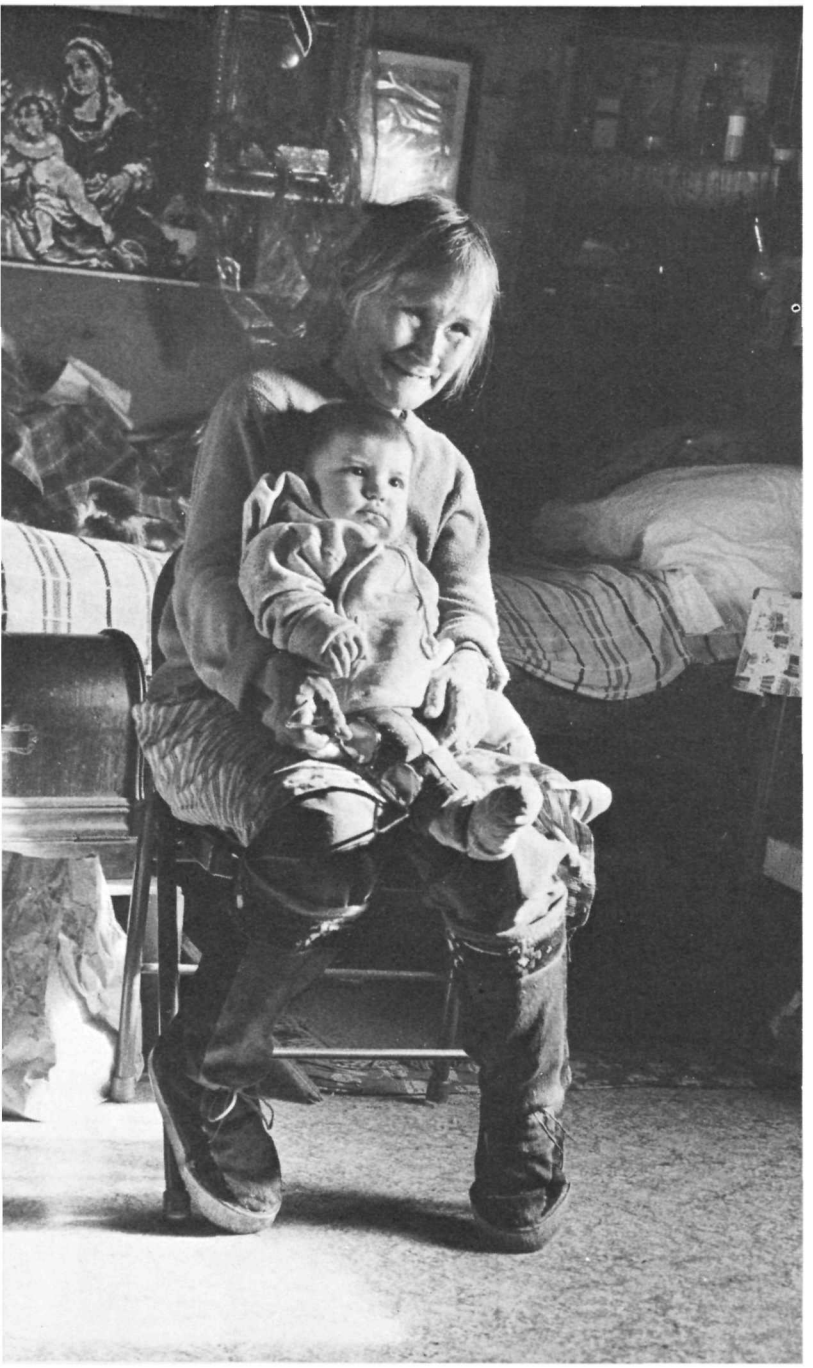
*article and photographs by* **Jane Pender**



Last June, the Eskimos of Point Hope, Alaska, celebrated their traditional Whale Feast with 3 days of ancient ceremonies held within the Gothic shadows of splendid old whalebone. This ceremonial, which is uniquely Eskimo, symbolizes and expresses the Eskimo conviction that man is totally dependent on and bound to his nurturing environment, that he lives in a complex, interconnected web—man and natural world, indissolubly joined.

Climate and available food were the factors that formed the basis of the cultural system that enabled Eskimos to survive in their harsh environment. For centuries Eskimos have struggled against the cold on the arctic coast and have depended on fish and game for food. Necessity forced them

*←Overleaf, Place-of-bones at Point Hope, Alaska. These bones are whale jawbones, very ancient and bleached and weathered. Surrounding them are upturned whaleboats, which provide shelter from the wind during the 3-day ceremonial of the Whale Feast. Point Hope is a maritime community, and the basic staple of diet is the whale. The ceremonial at Point Hope is preserved in its most pure form. The Whale Feast pays honor to the whale and celebrates giving and the ability to give.*

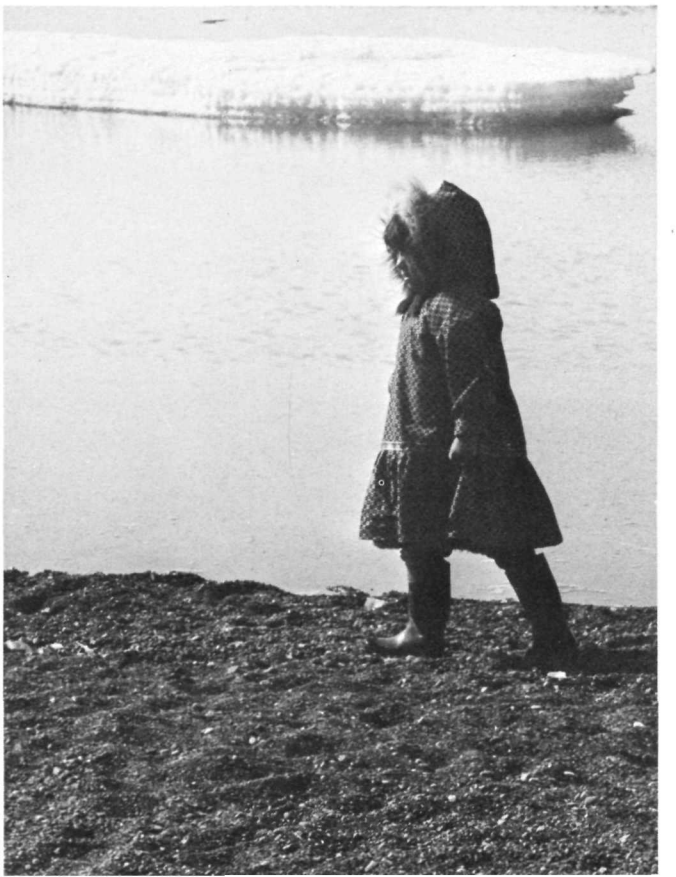


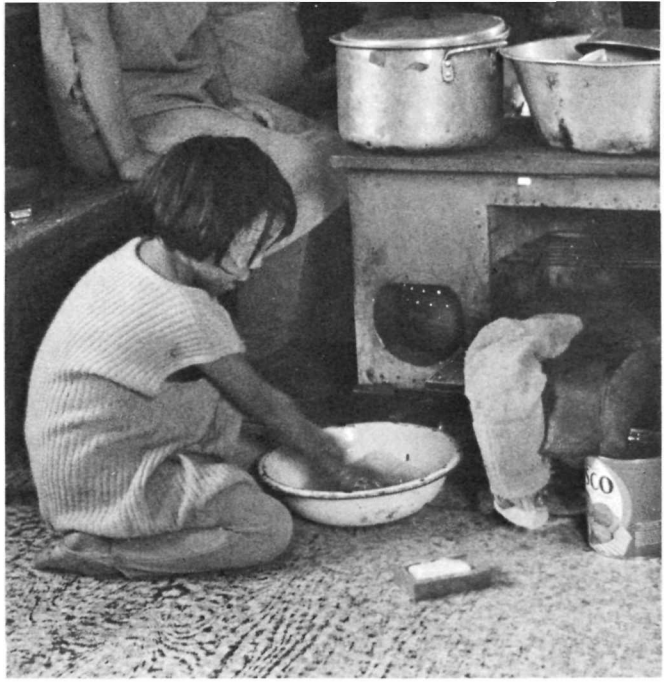
*Lucy Allen holds her grandson. Background shows the normal clutter of these small Eskimo homes. Mrs. Allen wears a dress and sweater over ski pants, and mukluks. Right, a little girl walks on the beach at Barrow while "spring ice" floats nearby in the sea. Far right, Jenny Paneak, at Anaktuvuk Pass, is getting ready to go to school. In this water-scarce area, water is obtained from snow and is stored in a large container inside the house. To conserve water, Jenny washes her face, hands, and arms to the elbows each morning, kneeling on the floor next to the oil stove.*

together into cooperative hunting bands. In traditional Alaskan Eskimo culture there is a highly ritualized concept of sharing—of work, during communal hunts; of possessions; and especially of food. Honesty, patience, generosity, and sharing are regarded as prime virtues. Eskimos share hunting range, food, and tools within kin groups. Sharing contributes to survival, because the hunter who shares his food with his neighbors insures that he and his family will share in others' good fortune in time of need. Both males and females contribute in vital ways to mutual survival—males by providing food and by building dwellings; females by cooking the food, dressing skins, making clothing, and rearing children. Thus the sexes are dependent on one another, and no one remains single by choice. Widows and widowers remarry as soon as they can. There are no written laws and no hierarchical leadership to enforce traditional rules. Group approval or disapproval greatly influences conformity to the norm.

Traditionally, Eskimo youngsters are reared in close body contact with mothers, siblings, and parental surrogates in a permissive, nurturant, primarily auditory atmosphere, surrounded by household activities and indulgent parents and others. The small, crowded homes do, of course, reflect poverty, but some cultural option also is involved. The environment they contain is highly personal and interactive. Children's desires usually are fulfilled with little question, and children are trained gently to desired behavior norms. Shaming, not physical punishment, is the means of discipline. Infants, as well as older children, are fed on demand. Weaning is gradual, and in former days it was not unusual for children to be nursed until the age of 4 or 5.

Dr. Joseph M. Lubart, who studied Eskimos of the Mackenzie River Delta in Canada (*Psychiatry*, November 1969), observed that these traditional patterns result in social cohesion derived from perceiving other people as sources of security. The ideal of mutual cooperation and the





custom of sharing—even wives—contribute to social stability by obviating major sources of envy and hostility, which could threaten general survival. In fact, competition, aggression, violence, and even boasting are condemned. On the other hand, generosity is valued and is a source of self-esteem. The hunter who can give away food implies that he is good enough to obtain more food easily.

The Eskimo cultural system produces people who like to be with other people and who feel secure as part of their group. They are warm, cheerful, loyal, trusting, and unsuspicious of others' motives; they perceive themselves as worthy and wanted; and they are stoical in the face of pain, danger, or disaster. This social system is well adapted to survival in a harsh environment. Cooperativeness and social cohesion increase the likelihood of survival.

Under modern pressures to earn money, many Eskimos now live in relatively large permanent settlements, where they are beset with many social problems in attempting to fit into Western culture.

The reality of modern-day Eskimos, Aleuts, and Indians is characterized by widespread anomie—that tri-pronged affliction of anxiety, alienation, and disorientation—and by depression and inward-turned repressed hostility so severe that suicide and accident rates among Alaskan natives are twice the national average.

The Public Health Service has designated behavioral difficulties, alcoholism, identity crises, and a wide variety of other pathologies lumped together as "mental illness" as the primary health problem of Alaskan natives. At the Alaska Psychiatric Institute the native patient population is 40 to 50 percent on any given day. The native population is sharply divided; the most stable people are those 30 years old and older—the least acculturated.

Poverty is widespread. For many natives government welfare is the only means of income. In 1959, the median per capita income for urban natives with income was $1,863; for rural natives with income, $1,204. About one in three was without income. More recent partial figures published in 1968 by the Federal Field Committee confirm that native Alaskans are the poorest people in the nation. Their economic situation is not helped by their population growth. The 1970 native population is estimated at about 60,000, with a growth rate of 2.9 percent. Although this rate is less than the 1960 high of 3.8 percent, it still is enough to suggest that there will be 141,000 natives in Alaska by the year 2000.

The native dropout rate from the schools is 60 percent. Only half of 1 percent make it to college, and few of them stay longer than a year.

Difficulties start early. The Bureau of Indian Affairs states that native children do well in school until about the fifth grade. At this point, they begin to lag behind. A recent study of the Beltz School of Nome, the state's first boarding school for native students, indicated that grade levels of entering ninth graders were in the fifth to seventh grade range, with some as low as second grade. This particular fifth grade breaking point, characteristic also of Indians in other states, is called "crossover phenomenon." It is the first indication of the stresses that later develop into full-blown identity crises.

Of several theories attempting to explain the origins of these problems, the most credible is that native people are not merely unadapted, but in some ways actively *maladapted* to mainstream Western culture.

Anthropologist Norman Chance, at the Twentieth Annual Science Conference at the University of Alaska in August 1969, said, "In many respects, the cognitive organization of the native differs sharply from that of working and middle-class white society . . . including such *non-assertive attributes as reticence in emotional expression, lack of achievement motivation, and competition.*" (Emphasis added.) "Cognitive organization" is the manner in which the human brain-computer is programmed. Programming is different for natives, as Dr. Lubart confirmed in his study. In discussing the Eskimo taboo against competitiveness, he drew the conclusion that lies at the heart of the transition problem: "What is most relevant is the fact that such a taboo translated into Western culture would militate *against* survival."

Thus cooperative patterns that are adaptive to struggling for food and against the cold are maladaptive for survival in a competitive, acquisitive technological society. The two cultural systems have different goals and are on a collision course. The children of each system are differently conditioned from birth, each to fit into his own culturally determined norm.

Even today, most Eskimo children are reared in semi-traditional to traditional ways that are radically different from those of Western culture. Such a child grows up believing that generosity, along with total honesty, are prime virtues. He represses competitiveness, envy, and aggression, believing that all—men, women, and children—are equal, and he is firmly opposed to hierarchical leadership of any kind and from any source. Whereas he is expected to be self-reliant, his self-reliance is different from the individuality emphasized in Western society. His strength and identity are drawn from his protective family-kin group, into which, through approval, he must fit easily and gracefully. At the same time, his dependence on the family group makes him acutely vulnerable to feelings of loneliness, and

he senses separation from his group as life threatening. His perception of time is nonlinear, with a sharp dichotomy between past/present and future.

The Eskimo youngster enters school already equipped with a set of assumptions that essentially conflict with those of his teachers. Immediately he is plunged into a milieu designed for children of technologists, for whom separation, individuality, and competition are survival norms. These schools are visually oriented, linear, and specialized, with an institutional atmosphere. Even worse, the native youngster learns that if he does well, he will be sent to a boarding school for higher grade levels away from home.

It is reasonable to suppose that the resulting conflict—much of it unconscious and not directly perceived by either teacher or student—would be traumatic. It seems obvious why so many native children are counted out by the age of 10.

His elders are no better off. When the Eskimo male was the hunter and provider, his self-confidence, self-regard, and pride derived from his vital importance to his family and to his group. But the very psychological paraphernalia that enables him to be an expert hunter militates against him when he moves into wage-work economy. He can easily learn the skills he needs; his problem is at another level. He is noncompetitive; he senses time in a nonlinear fashion; he is conservative. For these reasons he ends up in soul-destroying, low-paying, low-status jobs. Dr. Lubart explains that the male Eskimo in this situation cannot validate his self-image in terms acceptable to his own culture. His pride and potency are also threatened because often Eskimo women prefer to associate sexually with Western men. But his cultural conditioning and his fear of white authority forbid overt hostility. The result of his repressed rage is depression, which may lead to suicide or to the bottle. Alcohol, in turn, may weaken the cultural inhibition against violence. When he is violent, he often directs it against another native, not the Westerner who got the girl. Dr. Lubart suggests that the violence actually is directed against a hated projected self-image.

"What emerges cruelly," Dr. Lubart says, "is a marked diminution of respect of the female for the male and a loss of pride in him as she compares him with the white man, who is the true achiever. She repudiates the Eskimo male and tries to find self-validation through acceptance by the white man."

The tragedy of the Eskimo woman in the settlement, Dr. Lubart says, is her desire to be white. She imitates white women's fashions and manners and dreams of marrying a white man and "getting out." Where there are large influxes of non-natives, such as construction workers or military personnel, opposed cultural systems again conflict. Except for incest, the Eskimo culture places few taboos on sexual behavior. But, as Dr. Lubart points out, "acceptance of immediate warmth and pleasure in food and sex, once vital to survival when any day might bring disaster, is not a virtue to a community dominated by white North American values." Thus, although within the traditional culture many Eskimo women regard sex or illegitimate pregnancy without shame or guilt, they are looked down on by Westerners for their mores and are prime targets for sexual exploitation. Arthur Hippler in his study of Barrow and Kotzebue found that "white perceptions of native women as potential sex objects who are not quite human are standard Kotzebue beliefs." Moreover, missionary activity has introduced shame and guilt where once they did not exist.

However, a trend toward white-male/Eskimo-female marriages is substantiated by 10-year marriage records in two of the three major Eskimo villages: Kotzebue and Barrow. It is not nearly so marked in less acculturated villages such as Point Hope, where traditional hunting activities and attendant ceremonialism are still a viable part of village life.

*The Old and the New. Left, fish drying outside a Kotzebue house in the spring. Half of Alaska's native people still obtain more than half their food from traditional hunting/fishing/gathering activities. Below, an instrument of acculturation—a glistening new supermarket in Barrow. Such stores, as well as newspapers, magazines, and television, stimulate a desire in the Eskimos for western goods; but due to Eskimos' low income levels, few of these wants can be satisfied.*

Although many specifics of traditional Eskimo culture do not apply to Aleuts and Indians, and even vary among Eskimos in different areas, cultural shock grips all Alaskan natives and affects them similarly. It is, Dr. Lubart says, "a classical pattern of denying possibilities for economic and social equality to an ethnic group with sharply different cultural patterns and then using the manifestations of subsequent psychological and cultural breakdown as reasons for ascribing inadequacy and inferiority to this group."

The Alaskan native, therefore, finds himself in a classic double bind: anything he does is wrong. He is classed as "inferior" and "inadequate" by teachers, police, agency people, missionaries, and politicians. If he "goes Western," his own people may ostracize him, or at the least, he will be desperately lonely. If he stays native, he acknowledges "inferiority."

Many people, including many natives, subscribe to the idea that Western culture provides the only meaningful existence in the world. Schools, therefore, with the exception of only two or three limited recent experiments, are wholly Western oriented. Yuk Eskimo is to be used experimentally in three Bureau of Indian Affairs and one state-operated first grade and kindergartens this fall; but with these experimental exceptions, native languages are neither spoken nor taught in any Alaskan schools. The history, value systems, and integrity of the native cultures have been virtually ignored. Work materials, textbooks, even testing instruments—all are oriented around the value systems of middle-class, urban whites, and some have no relevance to the reality of the villages. Even helping projects are apt to be based on criteria more suited to inner-city, Lower 48 slum dwellers than to tundra people. The solution is far from a superficial matter of simply stuffing standard education into underprivileged children. No compromises ever have been sought between the two cultural systems, with the result that native children are trapped: they are neither good natives nor efficient technologists.

Dr. Lubart warns: "Unless social planning for primitive societies coming into contact with Western culture is based on an understanding of the cultural patterns of those primitive societies, the vicious circle . . . will continue to thwart the best-laid plans of social and political scientists."

The irony is that the native—whether one of Alaska's Eskimos, Aleuts, or Indians, an Indian of another state, or a member of any large hunting/gathering people anywhere in the world—symbolizes the struggle of the 1970's. All who have not yielded or flipped out hold a special view of man existing in complex interaction with his fellows and with the natural world. However, technological man almost uniformly has dismissed the accommodation, rationales, and philosophical approaches of this viewpoint as irrelevant to his own purposes.

The 1970's, however, have added a new dimension. Technological man, too, suffers from *anomie*. Self-estranged from a mutually nourishing relationship with earth, he is in danger of drowning in the wastes of unchecked technology. Is it possible that the traditional native ethos provides an alternative?

In this context it is interesting to consider the beliefs of British geneticist C. D. Darlington. He writes that the genetic materials within the world's variant cultures may be necessary to the survival of mankind by providing people capable of adapting to unknown future conditions. Such genetic pools, he thinks, should be, in a sense, "banked." Perhaps the same could be said of the nontechnological practices and assumptions of native peoples. These cultures should be taken seriously and considered as rational alternative life-styles instead of as inferior dead ends to be eliminated as quickly as possible.

*Gilbert Lincoln, an Eskimo born in Noatak Village, now lives in Barrow and works as a laborer, torn between the necessities of hunting and daily working for a living.*

Not much time is left in Alaska. The accelerating rate of destruction of the native, land-based cultures is not encouraging. In another 10 to 20 years the native, his genes, and his ethos will be a dead issue.

Kaare Rodahl called the Eskimos of the 1950's "The Last of the Few." The Alaskan natives of the 1970's may be "The First of the Many" unless solutions can be found to the larger problems they symbolize—the exploitation of human and other natural values by technological man. ■

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**Jane Pender is a freelance photo-journalist specializing in Alaska Eskimo culture and acculturation. Publications include *Seattle Times, Tacoma News Tribune*, and *Anchorage Daily News* among others. She was 1969 recipient of Alaska Press Women's "Golden Nugget" award for journalistic excellence, and she received a First Place award from National Federation of Press Women. She has had a number of one-man photographic shows in Anchorage and Washington, D.C. She has lived in Alaska since 1956, in the Arctic since 1965. At present she lives in the west coast Eskimo village of Kotzebue and is writing a book about Eskimo transition problems. Quotations from Dr. Joseph M. Lubart's article are reprinted with permission from *Psychiatry*, Vol. 32, No. 4, November 1969.**

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# WILD LIFE in ALASKA

james w. brooks

Wildlife needs habitat. Over most of the United States wildlife habitat has been drastically reduced by human competition. Wildlife in America has a bastion, however, in Alaska's wilderness.

Wilderness and wildlife in Alaska now face the impact of a rapidly growing human population bent on industrial and resource development. Had this situation prevailed two or three decades ago, it is certain that the cost to wilderness and wildlife would have been staggering.

The threat today, while real enough, is lessened by several elements. First, a growing segment of our population, including political leaders, sharply resents further damage to our environment. Second, we possess the skills in many fields to avoid industrial environmental degradation. Third, tremendous areas in Alaska have been dedicated to wildlife and habitat preservation through the National Park Service, the National Wildlife Refuge System, and to a lesser extent by the U.S. Forest Service and the state. And last, the science of managing wildlife within the bounds of habitat capacities and human needs has reached a high state of development and application in Alaska.

These are the positive factors, but there are several negative ones too. Many people still hold the view that exploitation of timber, minerals, and fossil fuels automatically justifies the sacrifice of less tangible values such as wildlife or wilderness. This problem of attitude is complicated by complacency based on Alaska's tremendous size. Then there is the matter of accommodating more and more people with their machines and cultural developments on lands of their choosing, a result of archaic land laws.

Man's treatment of wilderness habitat must ultimately determine the fate of Alaska's wildlife. Direct attention to the wildlife itself, however, is essential to both its immediate and long-term welfare. (The present regrettable state of certain wildlife species shows the potency of human intervention.)

Numerous introductions and transplants of wildlife have been undertaken by Alaskans. The recent recession of glaciers has created much attractive habitat that is not occupied by a typical native fauna due to remaining barriers that deny access to animals moving about by their own devices. This has resulted in the stunning success of transplants of native moose, caribou, deer, and goats. Even such exotics as bison and elk have succeeded well enough to establish viable populations. Reintroductions of musk ox and sea otter have been attempted on parts of their former ranges from which man had extirpated them. Even without the encouragement of apparent prior successes, the popularity of introductions portends that they will be continued despite the ever-present possibility of undesirable results.

Some of the most significant introductions include the following:

*Bison.* In 1928, 23 plains bison from the National Bison Range in Montana were released on the Delta River. The herd increased to several hundred animals before problems became apparent. First, though the range contained much grass, it was in the process of being rapidly displaced by invading aspen, birch, and spruce. Second, the best areas attracted homesteaders, and crop depredations followed. Controlled hunting and transplanting have reduced the Delta herd to about 200 animals. Although the bison are healthy and hearty and suffer no strife or competition with native wildlife, they have not proven to be highly productive in Alaska. It may be expected that small herds in remote areas eventually will settle at a level of abundance in reasonable harmony with their adopted range, but visions of vast bison herds in Alaska are not realistic.

*Musk ox.* After an absence of more than a century, musk oxen once again roam Alaska's Arctic Slope. The last of the animals native in Alaska died at the hand of man near Barrow about 1850–60. In 1930, 34 animals were imported from Greenland. This nucleus herd was first held at College and then released on Nunivak Island in 1935 and 1936. At that time it numbered 31 animals. On Nunivak the herd increased, slowly at first. But it soon gathered speed, growing from 49 animals in 1947 to over 750 in 1968, at which time overstocking was glaringly apparent. In 1965 and 1966 some calves were returned to College for domestication experiments, and in 1967 the first of a series of transplants to the mainland was undertaken. Though it is much too early to claim successful establishment of free-roaming musk ox herds on Alaska's mainland, the outlook is promising.

Rather serious problems have arisen on Nunivak Island because transplants of young animals, mostly females, have left a heavy population imbalance favoring old bulls. These bulls make enormous demands on the very limited winter range. Efforts to manipulate herd composition by selective shooting have been thwarted by proponents of domestication. Predictions that the present management policy will spell disaster for the Nunivak herd seem to be coming true this year with an alarming decline in survival and productivity.

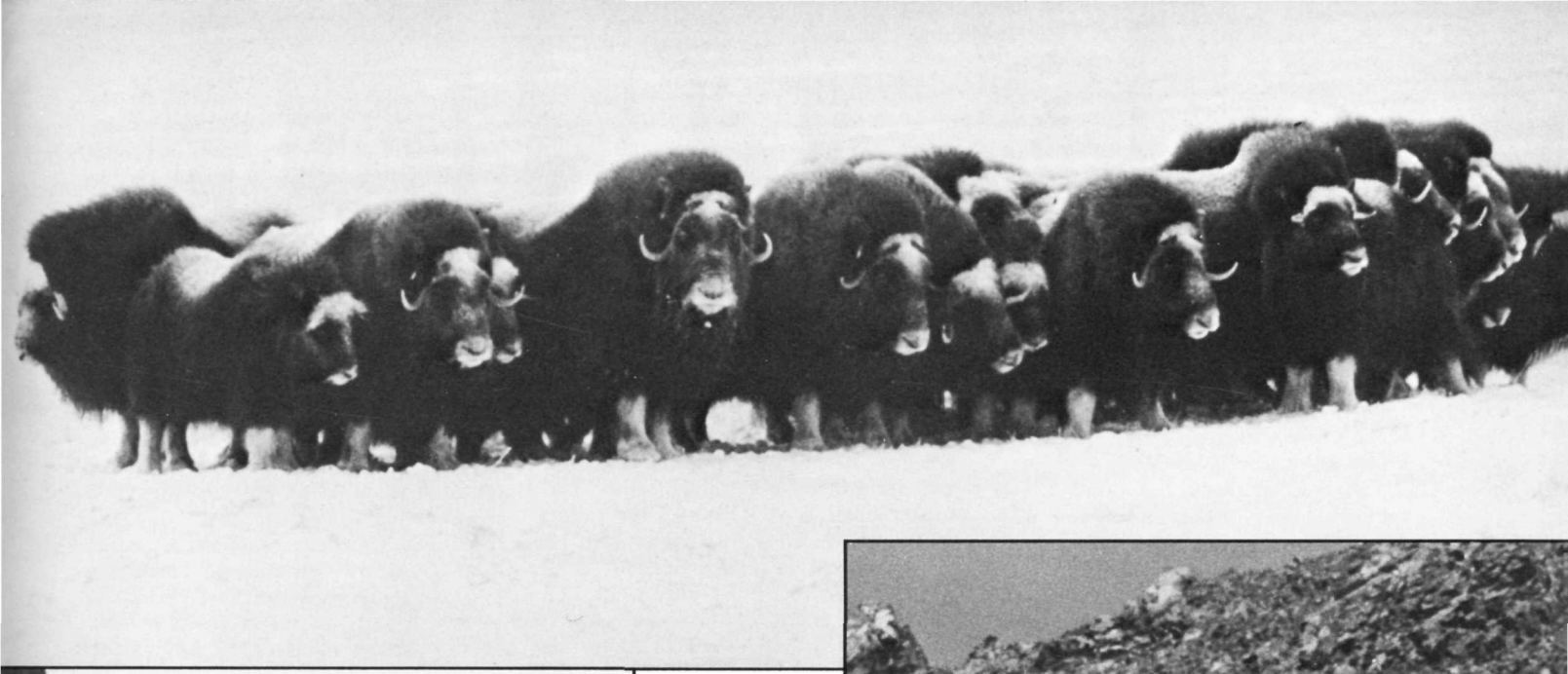
*Sea otter.* Rigid protection of the few hundred sea otters that survived into this century resulted in the restoration of this animal to former levels of abundance in much of western and south central Alaska. They have been transplanted recently to unoccupied former range in southeastern Alaska, the Pribilof Islands, and even Washington, Oregon, and British Columbia. Although the results of such transplants will remain uncertain for some years, they have served the beneficial purpose of relieving pressures in overstocked areas that were showing declining otter populations.

*Elk.* Eight elk from the state of Washington were released in 1928 on Afognak Island, a promising environment lacking in native ungulates or effective predators. The population flourished. By 1950, with over 1,000 animals on the island, it seemed that further uncontrolled growth would end abruptly in a classic population crash. Hunting was begun on a limited scale, and annual hunting seasons have been scheduled since.

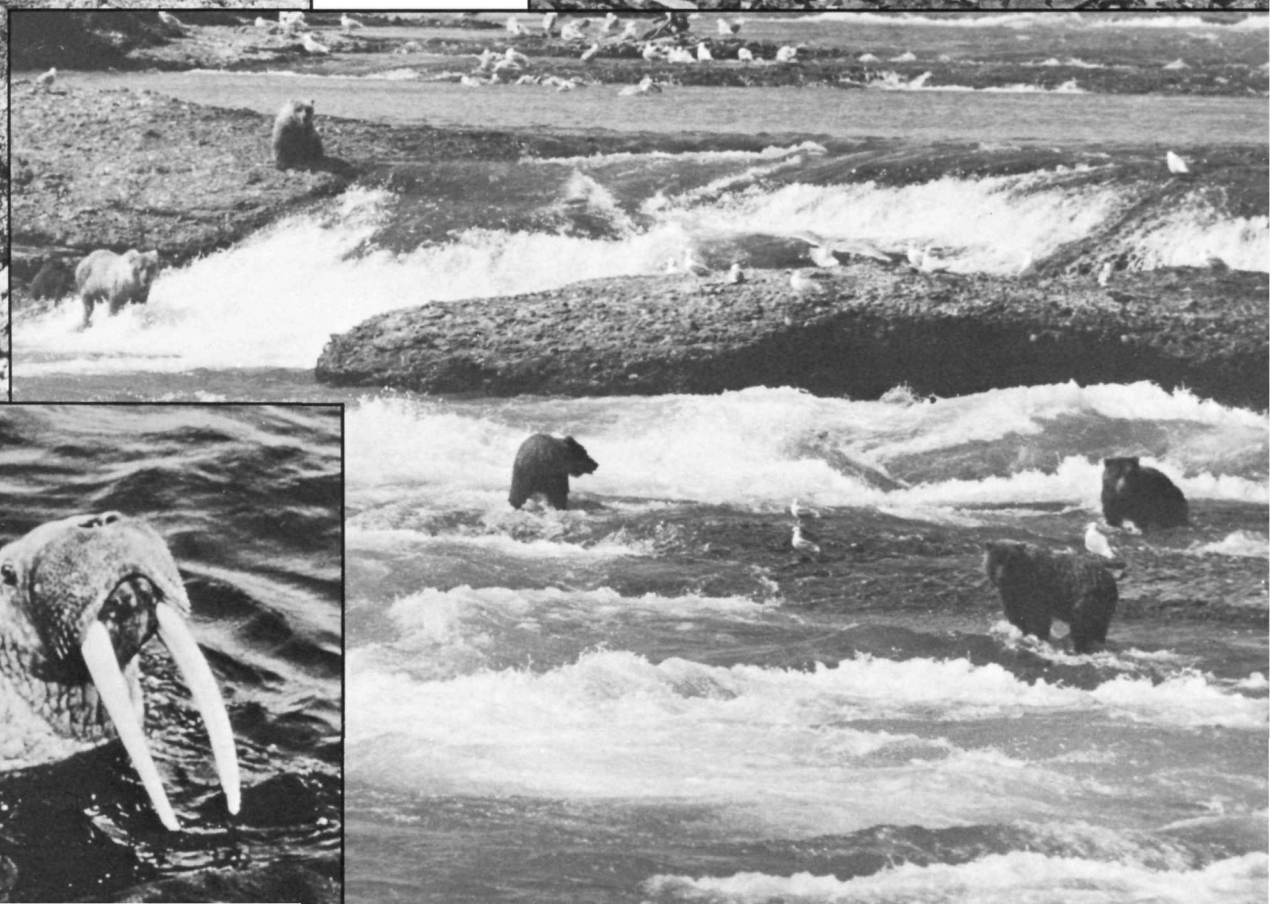
The apparent success of this introduction tends to distract one from the very real hazard of placing a tough adaptable exotic mammal in competition with native species. Should elk be released in habitat occupied by moose or black-tailed deer, it is likely that the latter species would suffer through direct strife as well as through long-term deterioration of their habitat.

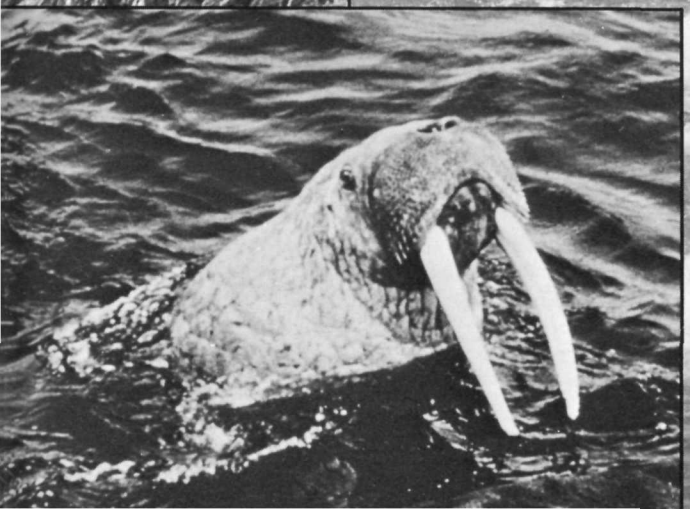
From these examples, it is evident that man's movement of animals already has altered the composition and distribution of Alaska's fauna. But a more potent factor affecting wildlife is direct exploitation by humans. Although no Alaskan mammal is formally considered endangered at this time, several species have been reduced in abundance and require special protection to some degree. Most large wildlife species now demand diligent

DALL SHEEP BY CHARLES J. OTT. REMAINING PHOTOGRAPHS COURTESY BUREAU OF SPORT FISHERIES & WILDLIFE



*Musk oxen in defensive ring on Nunivak, Dall sheep in Alaska Range, brown bears fishing, walrus in Bering Strait, sea otters on Amchitka.*





management in the face of an increasing human population made fantastically mobile by light aircraft, snowmobiles, and an ever-expanding road system.

This need is especially great with respect to the larger carnivores. The wolverine on the treeless northern tundra has been hard hit by mechanized hunters for several years and only a sparse population remains. Elsewhere this animal has proven capable of surviving man without a noticeable decline in numbers. Statewide the wolverine is in no danger, although it may disappear from the tundra unless given strict protection.

The wolf in Alaska has suffered from the same deep-rooted myths and fears that destroyed it over most of its original range in the northern hemisphere. Under pressure from trappers, a bounty system, and government control agents, the wolf nevertheless held its own for decades. But the advent of light maneuverable aircraft, and more recently the snowmobile, gave man an advantage that the wolf could not cope with except in heavily timbered country. During the 1950's, poisoning and aerial shooting decimated the Arctic Slope wolf population, and today it remains only a relic.

When Alaska gained statehood, federal predator control programs ended. In succeeding years conservationists and professional biologists gradually persuaded the Alaska legislature to modify the bounty law to provide that wolf bounties would be paid only where and when the Alaska Board of Fish and Game prescribed. This action represents a major conservation achievement that came early enough to be effective. The wolf is now regarded as a valuable resource, and its future in Alaska looks encouraging.

The polar bear is another mammal that has felt the impact of technological man. Until about 1950, Eskimos took no more than 100–150 bears a year, without discernible effect on the polar bear population. Then light aircraft came into common use by professional guides. They soon learned to use the planes to track down and shoot polar bears on the ice pack. The kill of bears by airborne trophy hunters increased steadily until it exceeded 300 annually. This was partially offset by a drop in the kill by Eskimos to a small fraction of the former level.

The imposition of restrictive regulations avoided even greater kills and provided time for research to furnish some understanding of the state of the polar bear stocks. Because the animals roam widely and recognize no national borders, an adequate research effort required the cooperation of several nations. In 1965 delegates from Canada, Denmark, Norway, Russia, and the United States met at the University of Alaska to exchange information about polar bears and attempt to agree on future cooperative research programs. Two subsequent meetings of bear specialists from the same nations have been held in Switzerland under the auspices of the International Union for the Conservation of Nature.

Largely as a consequence of these international exchanges, much information about population status, harvests, and the life history and ecology of bears in all parts of the Arctic is now available to guide conservation programs. In light of this information, several nations have recently extended varying degrees of additional protection to polar bears.

The small grizzly bear of the tundra region came into early conflict with humans involved in oil exploration. There has been fear that this scanty and fragile population might be lost. The Alaska Board of Fish and Game shortened the legal hunting season and imposed new hunting restrictions. Human contact with these grizzlies should be reduced by prompt incineration of garbage. Ultimately, however, complete protection in sizeable areas may be required to maintain these arctic grizzlies in significant numbers.

The giant coastal brown bear enjoys a more sheltered habitat and more bountiful food supply than the interior and arctic grizzlies. On the largely treeless Alaska Peninsula, however, hunting bears by means of aircraft has proven difficult to control. A system of issuing only a limited number of hunting permits may be required to afford adequate protection to brown bears.

Added to conservation and management problems arising from the use of aircraft for hunting are similar ones involving the use of all-terrain vehicles and snowmobiles. It is not just a matter of regulating unfair practices, but also of controlling terrain damage and minimizing competition with the nature lover, tourist, or more conventional hunter on foot or horseback or in a boat who looks to government to protect his interests and rights. A large and continuing investment in conservation and protection efforts is essential to keep pace with the demands and activities of a rapidly expanding and mobile population.

In no other state is such a large element of the human population dependent on the utilization of wildlife for food. Marine mammal resources dominate the subsistence economy of numerous Eskimo villages and ungulates contribute heavily to the larders of thousands of Alaskans. The more important mammals taken for food are the caribou, hair seal, walrus, bowhead whale, black bear, Dall sheep, and domestic reindeer.

Hair seals of four species are found in Alaskan waters: the harbor seal, ringed seal, bearded seal, and ribbon seal. Commercial skin hunting by whites and predator control activities in certain fishing areas have reduced the abundance of the harbor seals locally, but otherwise no species appears to be in trouble.

The walrus is killed for meat, hides, and ivory. About 1,500 are taken annually by Eskimos. The wounding loss is very high, perhaps equal to the known take. Much additional waste results from ivory hunting by Eskimos in the Bering Strait to support a tourist-oriented ivory-carving industry. The present population is estimated at about 90,000 animals, with little change evident in recent years.

Caribou are known to undergo a rather extreme natural variation in abundance and distribution over varying periods of time. Currently no major shifts in location or change in size of the major herds appear to be in progress. The annual kill totals fewer than 30,000 from herds which number about 500,000 animals. Dall sheep enjoy a habitat rarely disturbed by humans. Legal hunting of sheep has long been restricted to mature rams, with little resulting impact on herd productivity.

The control of people engaged in outdoor pursuits is expected, accepted, and not really complex. The regulation of industrial or commercial development of resources to avoid or minimize environmental damage represents a challenge of another order. Things are happening in Alaska and happening fast. The wildlife and environment are exposed to new threats. Fortunately, these threats are being noticed. Seldom have conservationists worked harder to influence the course of industrial activities than in Alaska today. Both the state and the federal governments have dedicated substantial areas of land for retention in a natural condition. More is certainly needed; conservationists must take the initiative in justifying it. It is difficult to fault seriously the fish and wildlife conservation efforts made so far in Alaska. The technical skills and ecological understanding exist to apply equally effective management to the uses of land and other resources as well. There is need for concern but reason for optimism. ■

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*James Brooks' career in Alaska spans two decades. For several years he was the only mammalogist employed by the territorial government. He played a prominent role in organizing the new state's Department of Fish and Game and served eight years as director of the Division of Game. He returned 3 years ago to active research in Alaska with the Bureau of Sport Fisheries and Wildlife.*

# legal battle for alaska

Who owns Alaska? Do its white citizens own it by reason of residency? Do all U.S. taxpayers own it because most of the state is federally owned public domain? Or do Alaska's native peoples own it by right of primeval occupancy and use?

Resolving the legal tangle concerning land ownership in Alaska is vital to all sides of the controversy surrounding the development of the North Slope oil. To move the oil to market, oil developers want a pipeline either across the whole state to the port of Valdez in the south or across part of the state and into Canada. In either case the pipeline would have to cross lands now involved in the ownership dispute.

When Russia "sold" Alaska to the United States in 1867, all that was really transferred was the right to administer and tax what then was simply a fur-trading colony and fishery. Most of the interior of the mainland was still under Indian and Eskimo control. The sale agreement recognized the natives' aboriginal rights to the land on which they and their ancestors had lived and hunted. Recognition of aboriginal rights long had been part of federal law.

Government in Alaska was almost nonexistent until the discovery of gold in 1880, and the natives remained powerful. In response to demands for better government after the gold strike, Congress in 1884 passed the Organic Act setting up a form of territorial administration. This act again recognized the natives' right to their lands: "The Indians . . . shall not be disturbed in the possession of any lands actually in their use or occupancy or now claimed by them." Then, as now, natives occupied, used, or claimed 340 million of Alaska's 365 million acres. The legal principle leading to today's confusion is stated in the act's next provision: "But the term under which such persons [natives] may acquire title to such land is reserved for future legislation by Congress."

Congress has not yet acted. It is not an easy issue. The Western idea of property ownership is not an Indian one. Indians thought of the individual as owning only his personal possessions; the tribe controlled the land, with a sense of attachment to it perhaps stronger than Western title ownership. There was no concept of selling land. A tribe member's right to use the land was equal to any other member's right and could not be sold, given away, or inherited. The farmer-derived Western system is almost the opposite of this. Individuals own exclusive rights to land that they can buy, sell, accumulate, and pass to whomever they please. Western society has tended to shy away from holding land in common since the Middle Ages. (Our national parks are said to derive from Indian thinking via Thomas Jefferson. Firm national policies for dealing with the remainder of our public domain still have not been set.) When Western and Indian systems met, they clashed, to the Indians' disadvantage. What is now needed in Alaska is a reconciliation of the two traditions so the natives can continue a vital culture.

In the case of Alaska's natives, Western society has not been as concerned with protecting native rights as many people believe it should be. While the natives were a force to be reckoned with in the Alaskan interior, aboriginal rights were recognized by statements such as that of the Organic Act. Until 1939 natives were a majority in Alaska, and there was little conflict with Western economic aims because whites used only a minute percentage of the land. But with the deculturization and consequent demoralization of the native peoples, they became the lowest rung on the economic ladder rather than a society apart. At the same time their lands began to be coveted.

By 1958 when the Alaska Statehood Act was passed, attitudes toward aboriginal rights were changing. The Act still stated that the "State and its people do agree and declare that they forever disclaim all right and title. . . to any lands or other property (including fishing rights), the right or title to which may be held by any Indians, Eskimos, or Aleuts." However, the Statehood Act further provided, somewhat contradictorily, that the state could select 103 million acres from the public domain. (The "public domain" is 97 percent of the state, the same lands the natives claim.)


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The state picked the land it wanted, despite native use, occupancy, and claims. The Department of Interior's Bureau of Land Management began to process the state's choices without telling affected native villages and apparently with little consideration of native claims on file.

The state's most significant choice was of 2 million acres of Barrow Eskimo hunting and fishing territory on the North Slope. It was this land on which the state sold oil leases for $900 million. It is from this land that the oil companies want to transport hot crude nearly 800 miles south to Valdez via a 4-foot-diameter pipeline, the Trans Alaska Pipeline System (TAPS). The state published a legal notice of its intent to choose the land in a small newspaper rarely read by natives, who might have had difficulty understanding the legal language and implications anyway. When no claimants to the land spoke up, the state took title.

These land choices jarred the natives to their own defense. In 1966 the Eskimos, Aleuts, and Indians buried old hostilities and formed the Alaskan Federation of Natives to protect native rights. The first native gain was Interior Secretary Stewart L. Udall's land freeze, imposed under his legal mandate as trustee for Indian affairs. The freeze went into effect after the Bureau of Land Management had granted Alaska title to 6 million acres, all native-claimed land, and was processing title to another 12 million acres. The move prevented further transfers of title until the native claims issue was settled and native rights to the land defined.

Walter Hickel, Mr. Udall's successor but then governor of Alaska, charged that Mr. Udall's action was illegal, and the state went to court to try to lift the freeze. The case has not yet been decided. Meanwhile, administrations changed in Washington. As almost his last act, Secretary Udall made the freeze formal with Public

Land Order 4582. This order expires at the end of 1970. During confirmation hearings on his nomination as Secretary of Interior, Mr. Hickel promised that he would not move to lift the freeze order; but he made it plain that if Congress failed to act to resolve native claims, he would not extend the order beyond its scheduled termination date. However, if the freeze were to expire and land transfers were to begin again, in all probability the natives would take the matter to court, where it could drag on for years. For this reason, it is considered likely that Mr. Hickel would extend the freeze as the lesser of two evils, despite his earlier words.

Even though the natives believe that they have a well-founded legal claim to 340 million acres, they have said they will settle for much less. The Alaskan Federation of Natives proposes the following settlement: granting of clear, fee simple title to 40 million acres, the mineral rights to which would be held by a native development corporation; cash compensation for the remaining 300 million acres of $500 million, this to be paid over 9 years with interest at 4 percent per annum; and a 2 percent royalty on gross revenues from the federal portion of the 300 million acres. The Association on American Indian Affairs points out that 40 million acres is "10 percent of the land for 20 percent of the people who have valid claims to nearly 100 percent of the land."

In July the Senate passed, by a vote of 76 to 8, a bill that would convey to the natives a little more than 10 million acres of land, $500 million cash compensation for the 330 million acres taken, and $500 million in mineral lease revenues and production royalties. The bill would establish a five-man Alaska Native Commission, two of the commissioners being natives, to determine the names and numbers of residents of the approximately 200 villages entitled to the benefits of the bill. Two statewide native corporations, the Alaska Native Investment Corporation and the Alaska Native Services Corporation, would be set up by the bill. The first would handle the business affairs of the natives, and the second would provide social services and distribute some of the money. The federal government would pay the $500 million in compensation over a 12-year period into the two corporations, 80 percent of the first year's payment going to the service corporation to improve the living conditions of the natives. The distribution would change gradually over the years, until in the last year the investment corporation would get 60 percent of that year's payment. The $500 million in royalties and revenues also would be paid into the two corpora-

tions according to this variable distribution system.

As the Magazine went to press the Senate bill was being considered by the House Interior Committee along with several related bills introduced in the House. It is expected that the committee will not report out any legislation in this Congress but that, when it does, it will be a bill of its own devising.

Passage of such a bill by Congress and its signing into law would extinguish native legal rights in all lands to which natives had not been granted clear title. The claims issue would be settled for good, and the state could start again acquiring title to its 103 million acres. The state may include in its choices the right-of-way needed for TAPS.

At the moment TAPS is held up by two court orders and the Department of the Interior. Secretary Hickel has proposed stipulations for pipeline construction in an effort to protect the environment. (Unfortunately not enough is known about arctic ecosystems to design safeguards that will surely be effective.) He has also demanded an exact route for the pipeline. So far lacking satisfaction of these conditions, and faced with the two court orders, he has held up his approval for the start of construction. One of the two court orders was handed down in response to a suit by Stevens Indian village seeking to prevent the pipeline from crossing village lands. The other was obtained by the Environmental Defense Fund, the Wilderness Society, and Friends of the Earth. It blocks not the pipeline itself but the haul road needed to build the pipeline, on the grounds that the proposed road is wider than allowed by law on federal lands. The Mineral Leasing Act of 1920 stipulates a maximum width for pipeline rights-of-way on federal land: pipe width plus 25 feet on each side. TAPS says it needs 100 feet for the pipe, plus a 200-foot-wide roadway north of the Yukon River.

In the event that title to the right-of-way is conveyed to the state, Secretary Hickel's objections and the second court order both will be academic. The state can do what it wants on its own land. The suit brought by Stevens Village reportedly was filed because TAPS promised the villagers jobs if they allowed the line to cross their lands but then reneged on the promise. Thus that suit could be settled without much ado.

Ironically, justice for the natives after a century of waiting could be the undoing of efforts to use caution in developing North Slope oil. With native claims settled and the route state-owned, little would prevent TAPS from building the pipeline any way it chooses, environment

notwithstanding. However, there are a couple of legal opportunities that environmentalists still could use. First, TAPS needs gravel to build the road and the pipeline itself. It would have to be obtained by dredging river beds, which requires a permit from the Army Corps of Engineers if the stream is navigable. Second, bridges would have to be built over many streams, and those over navigable water would have to be approved by the Department of Transportation. Both DOT and the Corps would have to file with the Council on Environmental Quality statements of environmental impact as required under the Environmental Quality Act of 1970. These statements would have to show that alternatives with less impact had been considered and rejected as unworkable. This approach is weaker than those used so far, but it may be the only port in a storm. If this situation were to arise, it would be a glaring example of the need for CEQ veto power over projects with whose impact statements the Council is not satisfied. In Alaska, without a CEQ veto, environmentalists may find themselves dependent on the ecological conscience of the Corps and DOT. That should be good for a hollow laugh from someone.

We do not need the oil now, and we should wait until we have learned enough about the Arctic to know what we are doing before we plunge ahead. It could easily be that many natives will be worse off with an ignorantly built pipeline for a neighbor than they are now. ■

# npca at work

In a landmark decision a federal judge in Arizona issued a preliminary injunction halting vegetation clearance in the Gila River by the Army Corps of Engineers. The decision is the first handed down against a federal agency under the National Environmental Policy Act of 1969. NPCA joined the Sierra Club, Defenders of Wildlife, and four Arizona conservation groups in bringing the suit for the injunction.

The project would involve clearing about 3,100 acres of saltcedar, cottonwood, other trees, and brush along 54 miles of river banks. This work is tied in with similar vegetation clearance of dubious value proposed for as much as 2,000 miles of streams in the Gila system, part of an irrigation and flood control scheme. Critically important is the fact that this vegetation is habitat for a variety of wildlife.

U.S. District Court Judge James A. Walsh ruled that the Corps was obliged by the act to study possible environmental effects of the project and submit its findings and alternative plans designed to minimize damage for review by the Council on Environmental Quality. This the Corps has not done. The project was authorized by Congress in 1938 and funded in 1958. The Corps argued that the 1969 act does not apply to this project. Many conservationists argue that it was Congress' intent in passing the act to have it apply to all federal activity for which contracts had not been signed nor a lot of time and money spent. The Gila River decision supports this view.

• In a letter to the Interior Department, NPCA has opposed acceptance by the National Park Service of a "scenic easement" on land across the Potomac from Mount Vernon. The owners of the land offered the easement as part of a proposal for industrial development on the site. NPCA views the plan as a cover for NPS consent to the ruining of the Mount Vernon view. The House Interior Committee has rejected the offer.



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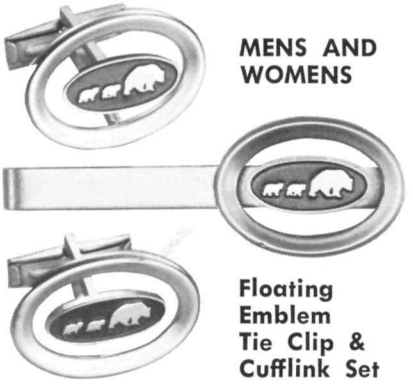

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