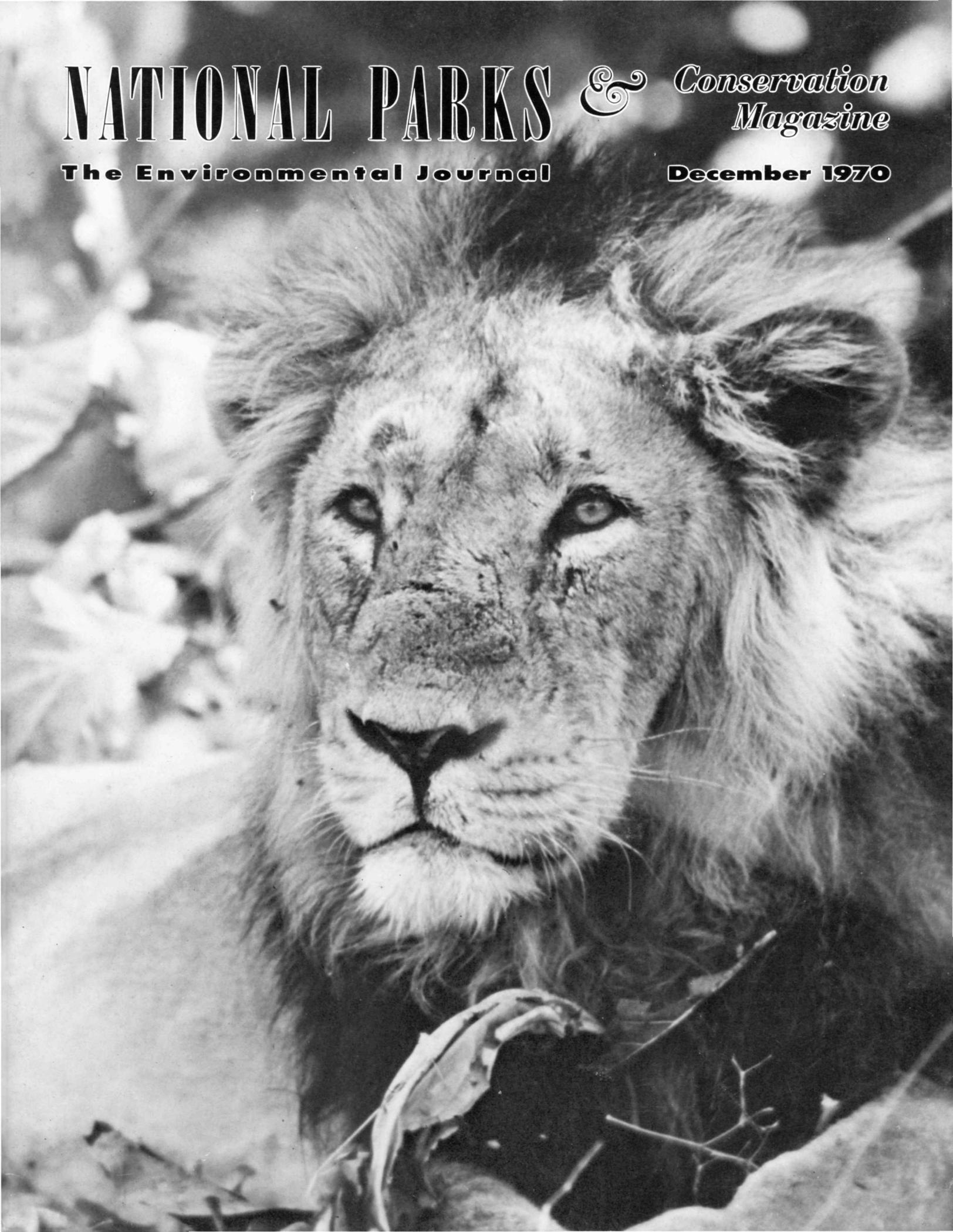


NATIONAL PARKS & *Conservation Magazine*

The Environmental Journal

December 1970



SUBTOTAL

The times are restless with change. A profound unease disturbs the American people. The human will to live discovers, but has not yet wholly confronted, a frightening wish to die.

The year which now comes to a close has shocked the peoples of the industrial countries into a realization that they were about to be smothered and poisoned *en masse*. Air pollution chokes not only the prison-cities but entire seaboard; water pollution extends to the oceans, and warning flags fly grim signals of possible depletion of atmospheric oxygen. Small wonder that governments have turned hurriedly to controls, though not yet remotely adequate, over the abuse of pesticides and the reduction of the contamination of water and air.

A greatly auspicious event was Earth Day in April. The youth of America showed on that occasion that it could provide strong and constructive leadership toward the protection of the life-environment. We are confident that the movement will grow, and we shall help it where invited.

A burst of public awareness about over-population has occurred; long years of preparation by dedicated teachers have combined with the insufferable effects of overcrowding; governmental institutions have begun to appear, nationally and internationally, but more speed, more funds, are desperately needed.

Effective resort has been had to the Courts in situations where the Executive and the Legislature failed to act. The recent unfortunate ruling by the Internal Revenue Service limiting the work of tax-deductible public-service organizations in the protection of the environment will hopefully be reconsidered before the end of the year.

In the vital Everglades country of Florida, conservationists won a significant victory early in the year when Interior Secretary Hickel and Transportation Secretary Volpe got an agreement with Florida and Dade County for the relocation of the proposed giant jetport which could have ruined Everglades National Park. The prospects appear to be good for eventual public ownership of large areas of Big Cypress Swamp. A Congressional mandate has been imposed on the Army Engineers to use their new engineering works through the Conservation Districts for adequate water supply to the Park; the mandate is still only temporary, but is a long step forward.

In Alaska, litigation by conservationists halted for the moment the reckless plan to build a gigantic oil pipeline across the tundra and the permafrost. As the time arrives for the termination of the freeze on land selection by the State of Alaska, and the right-of-way may pass to the State, the retention or adequate development or federal controls over the Arctic environment, including authority to hold up the pipelines, becomes imperative. Oil spills could do more than ruin the tundra; they could possibly result in melting the ice cap and submerging coastal cities under the oceans all over the world. The executives of government agencies and business corporations have no right to trifle with the lives of human beings everywhere in such matters.

On the Potomac, which has been thought of as a model for river basin management throughout the Nation, and indeed the world, the issues tighten down to the fresh-water estuary as a supplemental water supply for the Washington metropolis. The Army Engineers confess that the estuary can be used, and have recommended that an item for an intake and pumping plant be included in the budget for the District of Columbia. The social and sanitary needs of the National Capital cry aloud for a rebudgeting of the savings which

would result from a shift from dams to the intake, in the amount of perhaps \$500 million. A powerful coalition of farm, labor, conservation, and citizens organizations has emerged during the last decade, as our readers know, to press for such solutions.

In forestry, conservationists fought off a significant attack by the timber industry on the integrity of the national forests. Deterioration of private corporate holdings by overcutting has led to another of the typical raids on the national forests. An Executive Order may have served for the moment the same adverse purposes as were sought by legislation. A positive national forestry program to rescue both public and private owned timberlands everywhere is now definitely in order.

In the parks, protective and interpretive measures deteriorate. A lack of will, a lack of funds, are both involved; but fundamentally a protective strategy is lacking; we have proposed the protection of park wilderness within the parks, coupled with a vigorous expansion of recreational facilities outside the parks, and particularly on private lands beyond the public holdings. The inertia in the responsible public agencies for years has been appalling.

Efforts to achieve a measure of coordination of public environmental programs have met with some success. The Council on Environmental Quality has emerged, albeit poorly staffed in terms of numbers, and poorly financed. The National Environmental Protection Act which created the CEQ has been interpreted in the Executive Branch to bypass the CEQ in large measure. The Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) have been created by Executive Order. Environmentalists, even those who had doubts about the new agencies, must now make use of them and improve them where needed. The procedure employed in setting up these agencies makes it clear that the President could easily relieve the Nation of the misfortune of the Army Engineers; a stroke of the Presidential pen could put the military personnel back into military service, and place river basin management under strong environmental controls.

Electric power brown-outs and black-outs have become more frequent. Hydro-power cannot touch the problem. Fossil fuel plants pollute the air; such pollution must be abated; atomic plants, as now built, waste uranium, pollute air and water, and produce long-lived wastes which must be stored under perilous conditions for thousands of years. Nuclear fusion plants might be manageable, despite immense heat, but still elude technology; sun-power gets inadequate attention. Sharp reductions in power consumption appear to be necessary; an inversion of rate schedules, penalizing large-scale use, could help; abandonment of building construction policies based on artificial lighting and air conditioning, with the return of natural lighting and ventilation, becomes imperative.

Profoundly significant is the tendency toward coalition by environmentalists. Buttressing the defense against hasty action to complete the trans-Alaskan pipeline has been the appearance of the Environmental Coalition for North America, which has asked for comprehensive public hearings under the auspices of the Council on Environmental Quality to lay the full facts of the ecological situation in the Arctic before the peoples of the world. Behind the emergence of such groupings lies a deepening understanding of the environmental crisis which has descended on mankind.

The subtotal for the year is inconclusive, as such appraisals are bound to be for many years ahead. We can advance or fall back, and the signs of progress or regression may be almost imperceptible from month to month. The will to live, not the desire to die, must prevail. Hope lies in the emergence of persons and organizations imbued with a strong love of life.

—A. W. S.

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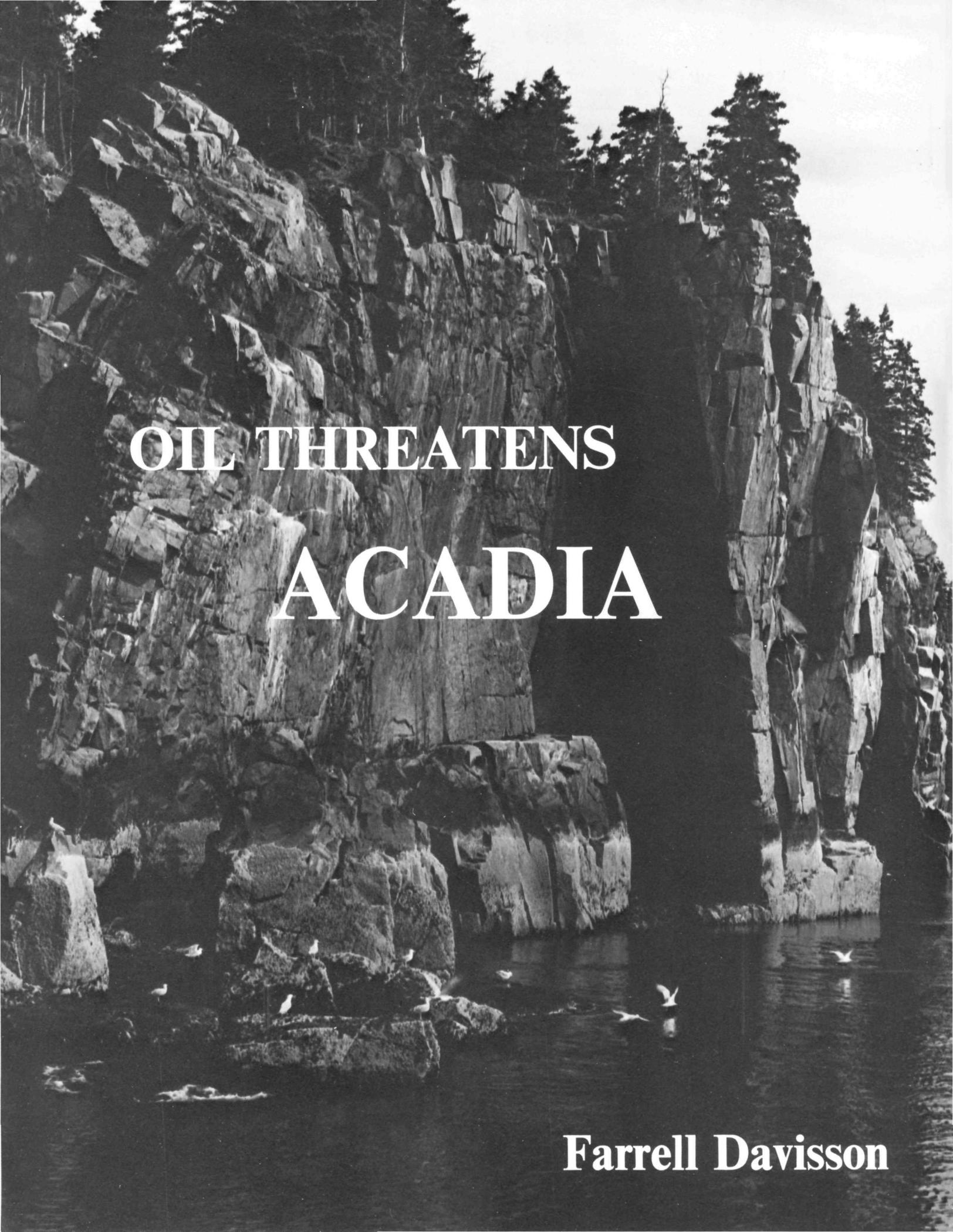
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COVER "Asiatic Lion" by Paul Joslin

There are fewer than 200 of these great cats left in the world, though once they were found from the Barbary Coast to India. The foresight and humanity of one Indian potentate rescued the last remnant of the Asiatic lions from extinction. Though protected now, this handful still faces grave threats (see page 14).

National Parks & Conservation Association, established in 1919 by Stephen Mather, the first Director of the National Park Service, is an independent, private, nonprofit, public-service organization, educational and scientific in character. Its responsibilities relate primarily to protecting the national parks and monuments of America, in which it endeavors to cooperate with the National Park Service while functioning as a constructive critic, and to protecting and restoring the whole environment. Life memberships are \$500. Annual membership dues, including subscription to National Parks & Conservation Magazine, are: \$80 sustaining, \$40 supporting, \$12 contributing, and \$8 associate. Student memberships are \$6.50. Single copies are 75¢. Contributions and bequests are needed to carry on our work. Dues in excess of \$8 and contributions are deductible from federal taxable income, and gifts and bequests are deductible for federal gift and estate tax purposes. Mail membership dues, correspondence concerning subscriptions or changes of address, and postmaster notices or undeliverable copies to Association headquarters in Washington. When changing address, please allow six weeks' advance notice and include old address (send address label from latest issue) along with new address. Advertising rates and circulation data are available on request from the Advertising Manager in Washington.

A black and white photograph of a rugged, rocky coastline. The rocks are layered and jagged, with a dense forest of evergreen trees on the cliffside. In the foreground, several white birds, likely gulls, are perched on the rocks and swimming in the dark water. The sky is overcast.

**OIL THREATENS
ACADIA**

Farrell Davisson

The spectacular handiwork wrought by sea and glacier and set aside for the public's enjoyment as Acadia National Park in Maine is endangered by the most serious threat in the park's 52-year history. Oil, the very fuel that played such a significant, if indirect, role in Acadia's genesis, has reappeared on the horizon as a potential devastator.

The eastern seaboard's oldest national park, Acadia offers a combination of striated mountains, fresh water lakes and bold headlands—monuments left behind by the awesome crunch of the Ice Age. Nearly 2,600,000 visitors were drawn to the park last year from the other states and Canada. Tourists, however, are not the only people attracted to Maine's harsh coast. The deeply channeled bays near Acadia have also caught the eyes of oil company engineers looking for deepwater ports for the supertankers already in service or on the drawing boards—gigantic ships double the size of *Torrey Canyon* and unmaneuverable in proportion to their size.

The history of Acadia dates back to 1901 when a group of early summer residents and pioneering conservationists on Mt. Desert Island formed a corporation to acquire land to be reserved "for the perpetual use of the public." These lands were eventually accepted by the federal government and Acadia came into being in 1919 as Lafayette National Park. (The name was changed to Acadia in 1929.) It was the first national park east of the Mississippi and the first to be acquired through land gifts to the government.

Acadia presently takes in over 32,000 acres on Mt. Desert Island, including Ocean Drive, a dramatic panorama of dike-split ledges and ocean unmatched on the east coast. Rugged Schoodic Point across Frenchmans Bay to the east and a portion of outlying Isle au Haut to the west are also parts of the park. All were acquired as gifts from preservation-minded private citizens.

Acadia's largest single donor through the years was John D. Rockefeller, Jr. He and his family first summered in Bar Harbor in 1908, the start of a lasting and influential association with the island that continued until his death in 1960. According to family archives, his gifts included 11,300 acres of land representing some 35 percent of the park's present area, road and bridge construction, and forestry work, at a cost of nearly \$4,500,000. Spanning 45 years, Rockefeller's quiet philanthropy was a major force in the birth and growth of Acadia. It was made possible, of course, by the wealth spun off by the original Standard Oil Company, the nation's first petroleum empire.

Today, the attention of at least three oil firms is focused on Machias Bay, a scant 40 miles down east from Acadia's Schoodic peninsula. Their interest is strictly economic. Occidental Petroleum, the first to stake a claim in undeveloped Washington County, is seeking a port of entry and refinery site for its Libyan and Venezuelan oil. (Dr. Armand Hammer, Occidental's board chairman, is no stranger to eastern Maine. He and his brothers gave the Franklin D. Roosevelt cottage to the Roosevelt Campobello International Park on the New Brunswick island across Quoddy Roads from Lubec, Maine.)

Atlantic-Richfield, a merger-muscled entry into the industry's Top Ten, has purchased an option on land at the head of Machias Bay as a possible terminal for its recently discovered Alaskan oil, should the Northwest Passage

around Canada prove feasible for tanker navigation. A third company, the newly formed Atlantic World Port Company of Boston, holds options on land at Machiasport on which it plans to build a refinery for lease to another company.

It is possible that none of these plans will materialize. Maine's big oil bubble may burst, damaging only the companies' research ledgers. There are several large "ifs" in the equation, involving still-pending decisions at the highest corporate and governmental levels. Occidental's interest in Maine's deepwater ports is tied in with its attempts to obtain a free trade zone and an import license for its foreign oil. The license application remains in limbo, pending a Presidential decision on the recommended changes in oil import controls. A free trade zone for Machiasport is likewise stalled in Washington.

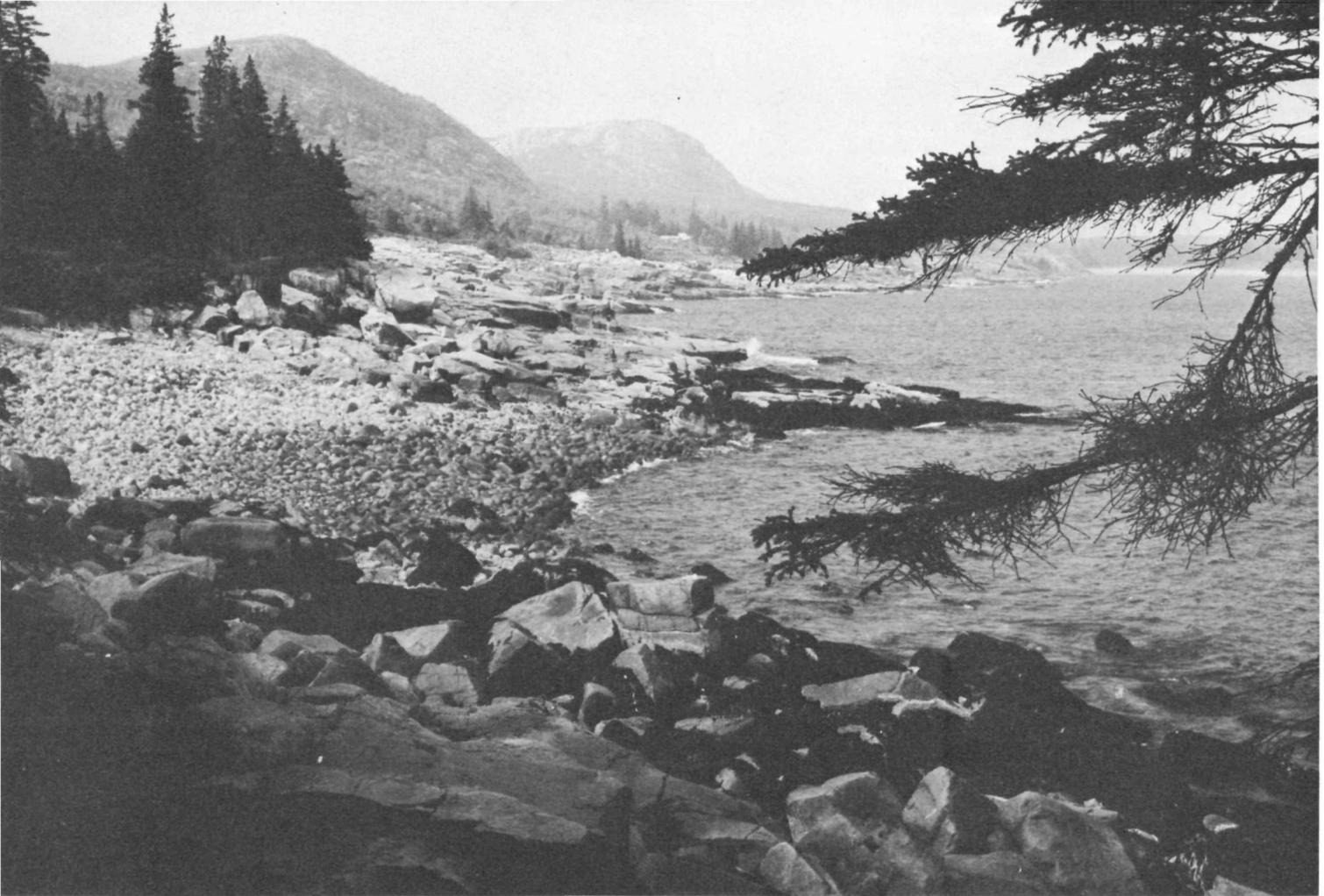
Atlantic-Richfield's maneuvers in Maine are also hedged, should the Northwest Passage tanker route prove too difficult, too costly, or unacceptably risky to Canada. The company is part of a consortium which is hoping to get the Interior Department's go-ahead on a proposed 48-inch pipeline from the North Slope fields to Valdez in southern Alaska. This could serve as an alternative to the ocean passage and make the Maine installation unnecessary.

But there are many who remain apprehensive that Maine's coastal topography is such as to make the arrival of oil inevitable—if not soon, then later. They point to Atlantic-Richfield's \$85,000 study last winter which apparently proved to the company's satisfaction that Machiasport harbor is suitable for development as a tanker terminal, capable of handling vessels of the 300,000 deadweight ton class.

Should any or all of the blueprinted developments become a reality, it is statistically certain that an oil spill will occur on Maine's rockbound coast. So much admired for its stark, granitic grandeur, for the same reason the Maine coast is notorious in seafaring annals. The danger would be double edged. The state's mountainous terrain argues against the economic practicality of pipelines. Thus oil entering Machias Bay aboard supertankers probably would be transshipped aboard coastal tankers. Because of the configuration of the coastline, these laden outbound carriers would shape a course to Portland and points south as near inshore as possible.

Such a route would take the tankers right through Acadia's "front yard." They would be almost within hailing distance of Schoodic Point, Otter Cliffs, and Seawall on Mt. Desert Island and Western Head on Isle au Haut.

As the gull flies, it is 220 miles from Kittery on Maine's southern border to Calais to the north and east. But when the innumerable bays and coves are measured, Maine's tidal coastline is actually some 2,500 miles long—half the length of the entire eastern seaboard. The inhospitality of the ledge-strewn coastline to seagoing traffic is compounded by hard running tides flooding to ten feet and above. Dense fog mulls are commonplace, and storms swirl in from the North Atlantic with a primal fury that suggests that nature would take a whimsical delight in challenging the pretensions of man's most advanced nautical technology. The logs of the keepers of the Libby Islands Light guarding the approaches to Machias Bay record 35 shipwrecks from 1856 to 1902, when 19th century coastal traffic was at its peak.



M. WOODBRIDGE WILLIAMS, NATIONAL PARK SERVICE

Indented coastline would catch oil slicks, and cobble beaches would defy cleanup.

Natural forces are at work in another way to make the Maine coast peculiarly susceptible to the hazards of tanker mishaps. Nudged by the Labrador Current, a current flows from east to west in the Gulf of Maine in a clockwise spin that thrusts surface waters, plus whatever oil slicks they carry, into the coastal indentations. The Coriolis Effect adds a shoreward push as the surface of the sea responds to the earth's rotation.

Given that set of circumstances, conservationists were quick to recognize that introduction of heavy oil tanker traffic to the Gulf of Maine and the Bay of Fundy would pose a threat to the entire length of the Maine coast. Fears raised by the oil specter prompted the formation last winter of active chapters of the Sierra Club and the Audubon Society. And the Natural Resources Council of Maine, a broadly based environmentalist group concerned with the rational development of the state, has focused much of its attention on the oil situation, not only at Machiasport, but in the Portland-Casco Bay area as well.

By late winter the issue had built up such a head throughout the state that the Maine legislature moved with unusual alacrity and passed two bills lauded as landmarks in conservation legislation.

One measure, regulating the handling and conveyance of petroleum, set up a Coastal Protection Fund to pay for damages resulting from an oil mishap. The fund is to be derived from a half-cent a barrel licensing fee for refinery and terminal operations and is to be backed by a \$4 mil-

lion state bond issue. The other law gives the state's Environmental Improvement Commission veto authority over potentially polluting industries seeking Maine sites.

Both measures were immediately challenged in the courts. Ten major oil companies, including most of the nation's largest, have filed suit to enjoin enforcement of the conveyance statute with its precedent-establishing licensing concept. In July, King Resources of Denver, which had announced plans to build an extensive tank farm on Long Island in Casco Bay, sued for a declaratory judgment to void a ruling by the EIC which denied it permission to erect a tanker pier on the island.

These moves by the oil firms have intensified the controversy. The environmental organizations such as the NRC, the Sierra Club and the several bluntly anti-oil ad hoc committees that have sprung up along the coast have been joined by such diverse groups as the Maine Lobstermen's Association and the town council and chamber of commerce of Bar Harbor. The leading commercial and service community on Mt. Desert Island, Bar Harbor's economic vitality is largely dependent on Acadia Park.

The president of the lobstermen's association, Ossie Beal, recently issued a policy statement registering "our strong opposition to any action encouraging or enabling the es-

A writer-photographer specializing in conservation subjects, Farrell Davisson lives on Mount Desert Island, Maine.

establishment of oil installations at Machiasport, Me., or on the Maine Coast. . . .”

The statement contends that “air and water pollution would be inevitable. Who can be so naïve as to believe that oil spillage could be avoided? Those oil spills would result in the destruction of marine worms, clams, lobsters and other fisheries, one of the principal resources on which the region depends.”

“Yes, we want new industry,” said a statement from the Downeast Fishermen, a local group, “but we want to be able to pick and choose our industry so that it will blend with our environment and not destroy it. We have fought the winds, tides, and rocks as our forefathers have done for more than 200 years. We don’t wish to see our way of life cease to exist in the name of mistaken industrial progress.”

The Bar Harbor council and the chamber of commerce used Maine Senator Edmund S. Muskie’s Subcommittee on Air and Water Pollution as the forum to record their opposition to coastal oil developments. Senators Muskie and J. Caleb Boggs of Delaware came to Machias for two days of public hearings in early September.

In its statement to the subcommittee, the Bar Harbor council expressed its “unanimous objections” to further development of oil shipping, refining, and handling on the Maine Coast. “It is our belief,” the Council said, “that two major Maine industries—travel and fishing—must be adversely affected. . . And we feel that the risk to both of these industries by further oil development is too great to chance.”

The chamber of commerce went on record as being “inalterably opposed to indiscriminate industrial development of the State of Maine as proposed in the petrochemical receiving and refining complex at Machiasport.”

The statement argues that “the great unspoiled land areas and coastal reaches of our state are some of the last such wonders still available. . . These natural resources are becoming vastly more valuable each year as our nation’s population becomes increasingly urban in character. . . Maine will be the playground of the eastern United States, to an extent that we cannot envision today. We can ill afford to sacrifice this future—a clean, unpolluted one—to the questionable benefits of highly polluting industrial development.”

Recognizing that it is his responsibility to protect the long-range interests of the park, Acadia Superintendent John M. Good has not remained aloof from Maine’s great oil debate. A former NPS Naturalist and Chief Geologist, Good long has been professionally and personally concerned about environmental abuses.

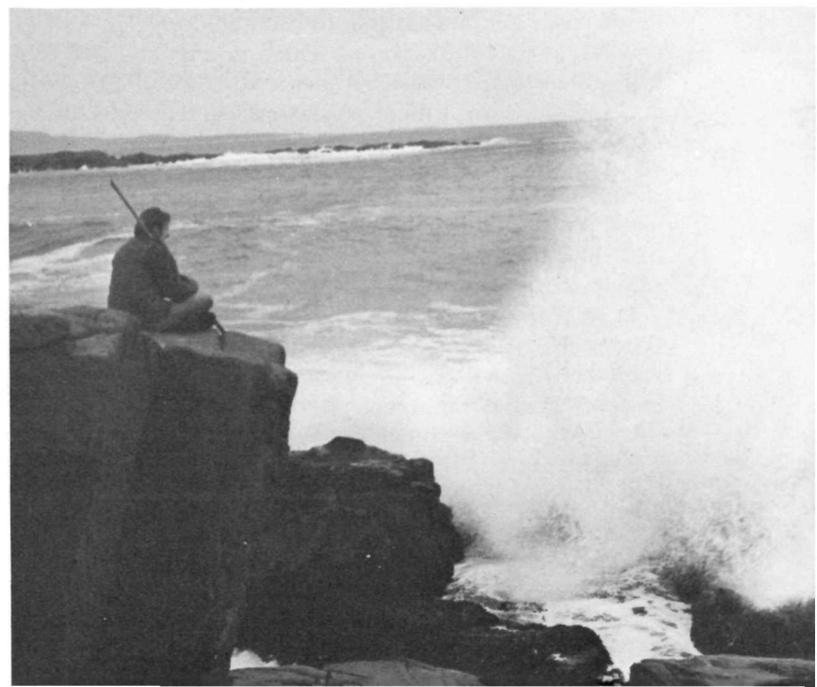
The Acadia superintendent also filed a statement with the Muskie subcommittee in which he said: “The threat of Machiasport oil development extends far beyond Washington County. Its shadow falls upon Acadia National Park, the principal tourist attraction in the State of Maine, the only national park in the industrial northeast. To place a national asset of such rarity and value in jeopardy for financial benefit of oil companies would be a very poor bargain for America.

“The message is clear: America wants her parks kept unspoiled,” Good’s statement concludes. ■



PHOTOGRAPHS ON THIS PAGE BY THE AUTHOR

Shellfish and the life of Acadia’s still tidal pools, above, would be among the hardest hit by an oil spill. When such basic life forms are decimated, marine food chains crumble. Below, beautiful to the eye, Acadia’s rocks are a menace to passing ships.



You can stand beside Route 10 in Washington's Cascades and watch the forests change. Huge logging trucks roar down the mountains loaded with logs—massive logs of red cedar, Douglas fir, hemlock, white fir, larch, and other trees that until now have covered the western slopes of the Cascades. At the same time you can see small pick-up trucks running in the opposite direction up the mountains, carrying thousands of bundles of tiny, 2-year-old Douglas fir seedlings that will form the single-crop, even-aged tree farms of the future.

Tree farms already have a good grip on the future. Seventy million acres of land are devoted to them, an area the size of New York and New England combined. Weyerhaeuser, Georgia Pacific, International Paper—all the timber giants and many of the dwarfs engage in tree farming to some extent. What sort of America are they creating? What will the tree farm/forests of the future be like?

A tree farm at its worst is exactly what its name implies: a place where trees are raised as an agricultural crop, much like carrots, spinach, or brussels sprouts. After clear-cutting loggers have leveled a forest, the tree farmer removes the slash (lopped-off branches, broken wood, and so on), prepares the ground, and plants row after row of trees, all usually of the single species most commercially suited to his land. He often fertilizes, sprays, thins, and otherwise husbands his crop. His charges grow tall and uniformly straight because of the perfect spacing and intensive care. All the trees reach marketable size at the same time. This enables the modern tree farmer to use automated harvesting systems such as are being developed for pulp timber: leviathan machinery that in a continuous motion mows or plucks the trees, grinds them into chips, and loads them into waiting trucks. After the harvest the tree farmer rushes in another crew of planters lest the forest regenerate naturally (and not necessarily in his best financial interest).

At their best, tree farms do at least constitute some kind of forest cover where none might have been. Row after row of planted trees, however distasteful, is preferable to the other kind of "tree farm" that is nothing more than a slogan and a gesture: a sign along the road patting the lumber company on the shoulder for good citizenship, and a thin facade of trees to hide barren, eroded, logged-off slopes where natural regeneration will take centuries, if it occurs at all. Trees must be planted in these areas if the soil of the slopes is not to end up in the Pacific Ocean. In the best interests of the original forest ecosystems, a variety of trees with different maturation rates should be planted in a random pattern, along with appropriate ground cover. Cut-and-run logging, however, is only one way of exploiting the forest land. *Intensified cultivation is another.*

"Trees," said the late Senator Everett Dirksen, "like any other replenishable vegetation, are a crop, and, as such, must be cared for as we in Illinois care for our fields of corn."

Many foresters chose their careers precisely to avoid Illinois-corn-field technology. Reforestation means more to them than "replenishable vegetation." Despite their qualms, however, the agriculturalization of our forests goes on, and it has led to some strange sights.

The strangest by far is the "supertree"—the product of cross-breeding by geneticists. Dozens of government and



private experimental stations are combing the forests for superior natural stock, or "plus" trees as they are called. By crossing two "plus" trees, they create even more extraordinary offspring. Sometimes they encourage genetic mutations with x-rays and gamma rays. The results of their research are the miraculous supertree.

Companies like International Paper now plant a southern pine that reaches harvestable size in 25 years instead of the normal 40. Other cultivated pines yield up to 100 percent more turpentine than their wild ancestors. Maples can be bred for increased sugar yield, hardwood for bird's-eye and other distinctive grain patterns.

In the Pacific Northwest the Bureau of Land Management is producing a remarkable race of Douglas fir. It grows straighter and taller and has more board feet in the trunk than previous Douglas firs. It is resistant to diseases, rots, rusts, and insects. Its crown stays small so that more trees can be packed into every acre. It is self-pruning, and its limbs develop the best angle for shedding snow. It obliges the plywood industry in every respect short of chopping itself down.

In addition to developing built-to-order trees, private companies and government agencies are searching the world for trees to fill certain commercial needs. Japanese larch and Norway spruce plantations are already appearing in large numbers in the northern United States and Canada. Meanwhile native trees like the beech, blackgum, and various elms, which have low commercial value, are not being replanted and in fact are being culled out of managed forests wherever possible.

"Managed forests," "supertrees," "tree farms"—these phrases are common to the lumber industry. They describe a profound revolution in commercial forestry that should be of great concern to those who love the outdoors, especially in view of the controversy over and the apparent defeat of the National Timber Supply Act. This bill, if it had passed, would have gone a long way toward making tree farms of the national forests, which are required by law to be managed for multiple use.

The National Forest Conservation and Management bill (formerly the Timber Supply bill) would have instructed the Secretary of Agriculture to "develop into optimum timber productivity as soon as possible the national forest commercial timberlands." It would have authorized and financed complete programs of planting "at the earliest practical date after harvesting," using stock with "superior growth characteristics," fertilizing, thinning, and pruning. In short, it spelled out the precise means of converting our national forests into tree farms.

The Forest Service, of course, does have a strong tradition of multiple use philosophy that most private companies lack. Specialists in recreation, wildlife preservation, watershed management, and even landscape design vie with those in timber management. They form what might be thought of as a bureaucratic ecosystem, where each department by defending its own interests serves as a check on the others. Together they maintain a certain balance. "We are all equally underfunded," as one administrator put it.

The National Forest Conservation and Management bill, however, would have upset that balance. By allotting funds and urging the will of Congress it would have heavily

DESERT UNDER THE TREES

MALCOLM MARGOLIN

favored timber management activities. Although the bill would not quite have reduced the national forests to the crushing sameness of some of the commercial tree farms, it would have given them a good shove in that direction.

Though this particular bill has little life left in it, the eyes of the lumber industry will always be on the national forests. To the industry the national forests are simply stands of trees of which full advantage is not being taken. Should timber prices increase once more, one can expect new efforts to achieve maximum timber production in the national forests.

Before any more proposals are advanced for transforming the national forests into tree farms, it might be a good time to examine some of the implications of tree farming, especially with respect to recreation, wildlife, and "multiple use" in general.

Tree farms are often referred to as "wildlife deserts." They lack deadwood, thickets, and shrub-filled clearings that are the habitats of many creatures. Pure, healthy, even-aged stands of pine or fir cannot support the same diverse life that a mixed forest can. Short-rotation logging, thinning, and chemical spraying eliminate whole genera of fungi, lichen, mosses, ferns, shrubs, and flowers, as well as the insects, reptiles, birds, and mammals that depend on them. Woodpeckers, mountain bluebirds, chickadees, creepers, burrowing owls, titmice, and nuthatches are a few of the birds that disappear when dead trees are removed.

The U.S. Forest Service and many private companies have programs that "pump wildlife into the tree farms," as one ranger put it. For most private companies wildlife management is really game management and involves the planting of forage strips, prescribed burnings, and other means of raising artificially plentiful game herds within their artificial forests. International Paper is even thinking about "superior strains of forage" and is planning a worldwide search for forage plants that will adapt to the tree farm environment. Tree farms thus double as game farms. An ominous TVA report entitled "Tennessee Valley Wildlife—An Outlook for the Year 2000" redefines wildlife manage-



ALL PHOTOGRAPHS COURTESY U.S. FOREST SERVICE

ment as "the art and science of raising annual crops of wild animals for man's use."

The Forest Service tries to preserve a more nearly natural environment. But despite the best efforts of those involved, its wildlife programs succeed in preserving only a small sampling, a bare hint, of the pre-logging forest. Remnants of the old ecosystem of a forest survive, perhaps only temporarily, in narrow corridors and small islands scattered throughout the logged-over land.

Wildlife management personnel are the first to admit that their programs are inadequate. They usually have to concentrate their energy on preserving a few threatened and endangered species rather than implementing the broader programs necessary to preserve whole ecosystems. Today the Forest Service spends only 16¢ an acre for tree farming and maintains a low pressure cutting schedule. If wildlife programs are inadequate under these conditions, one wonders what effect they will have if impending action doubles the cut and boosts the tree-farming budget closer, say, to the \$17 an acre that Weyerhaeuser spends.

"Multiple use" is at the moment the sacred cow of Amer-



Malcolm Margolin has worked in reforestation projects throughout the western states. Currently he is doing research into the economics and technology of timber saving devices such as recycling, thinner saws, and slash and bark utilization.

ican forestry, and many conservationists comfort themselves with the thought that the mere mention of this magic phrase will prevent our forests from becoming tree farms. They are unfortunately wrong. Many of the most dreary tree farms adhere closely to the "multiple use" doctrine by raising crops of game animals, blazing snowmobile trails through colonnades of supertrees, and constructing roadside picnic areas and restrooms.

Those who love wild and natural land find tree farms a sorry affair. Whatever their limited appeal, they simply are not forests. They offer no variety, no excitement, no refreshment. They are, in a single word, dull. Every year over 1 million acres of private timberland are artificially reforested, converted into dullness, and thereby lost to recreation of the sort that has anything to do with the human spirit. If the same fate befalls the national forests, then the millions who now visit them will be pushed and squeezed into the already overcrowded national parks and wilderness areas.

The situation, while serious, is not quite hopeless. Natural forests still have a chance. In fact, if we learn to use them properly, tree farms may actually save much of our wild forests by relieving exploiter pressure on them.

One promising development is a huge experiment taking

place in northern California. The U.S. Forest Service has been clearing away the scrubby manzanita brush that once covered the shoulders of Mt. Shasta. In its place it has planted hybrids of ponderosa and Jeffrey pine, thereby creating a productive commercial forest.

The reforestation of barren areas is a worldwide movement. Israel and Lebanon are successfully growing trees on land ravaged millenia ago by overcutting and overgrazing. Spain has been replanting its notoriously barren plain. In America there are millions of acres of abandoned farmlands that have been left to erode, land that has been strip mined or scarred by forest fires, and areas of scrub brush that could be reforested profitably with no loss of wildlife or other values; in most such cases even a tree farm is an improvement. However, it is a sign of the present state of the forest products industry that more than 200 plant geneticists are working fulltime to breed supertrees for the tree farms, whereas less than a handful are working to develop trees suitable for replanting on such unproductive brushlands. Other measures that could reduce the pressure on natural forests are in the areas of exports, alternate building materials, and waste.

We should discourage exports, which last year came to almost 10 percent of the total cut. It is ironic that we hear



Tractors, opposite, are useful for planting corn, cabbages, wheat, trees, and other crops. Virgin forest, opposite top, is less tidy, more intriguing, and more supportive of life. Tree farming has an important place, however, in reclaiming eroded land, above. Photograph at right is of same area seven years after planting with loblolly pine.



complaints of a lumber shortage at the same time we are exporting lumber.

We should encourage the use of alternate building materials, especially for houses. There is a large variety of such materials now on the market, enjoying less than the proper success because of a welter of building codes that makes it impossible to construct houses from materials other than wood, block, concrete, or a few other conventional materials.

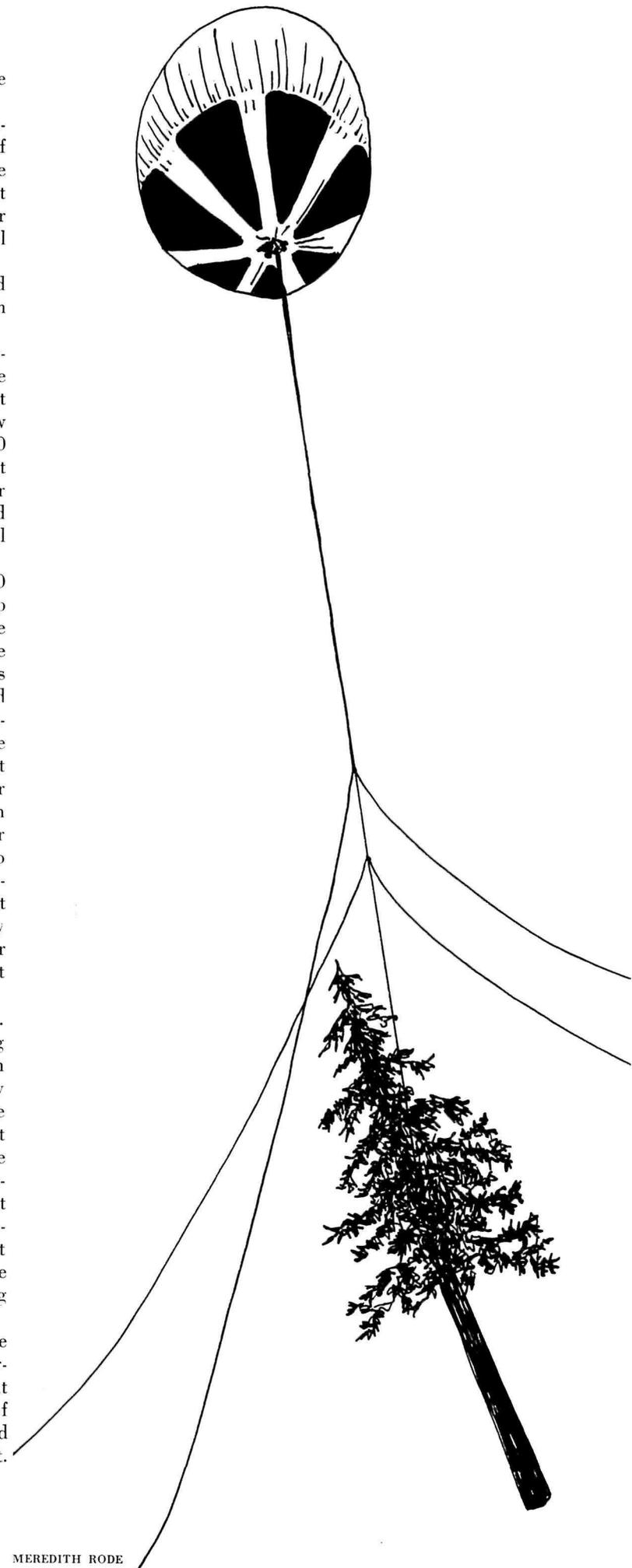
But perhaps most important, we should take steps to end the enormous waste that marks the progress of a tree from the field to the trash heap.

In the average lumbering operation only about 65 percent of a tree is now converted into a useful product. The rest is left on the field as slash or is lost in the inefficient workings of the sawmills. Even with the technology now available, closer to 90 percent conversion is possible—a 40 percent boost in output, that together with more efficient use of the end products should answer any cries of timber shortage. We are no longer a young nation with unlimited forest resources, and we can no longer afford wasteful practices.

It has been estimated that slash accounts for 10 to 20 percent of the volume of wood cut in a forest. On steep slopes, difficult to log efficiently using present methods, the wastage is much greater. Yet every bit of the slash is usable in some way, either for paper pulp or for such materials as fiberboard. Portable chipping machines could be used to reduce the slash on the spot to an easily handled material. Or we could follow the Russians' example and use balloons. Though this method is the object of amusement on the part of American lumbermen, it works on a regular basis in the Soviet Union. A line is attached from a balloon to a carefully felled tree, and the balloon lifts it clear of surrounding trees. This procedure allows the tree to be towed, unharmed by dragging it through its brethren, to a central yard. There specialists decide how to get the maximum out of the tree. They cut what lumber they can from it and convert the rest to pulp chips. Lumber yields are higher because of the gentle handling and expert processing of the cut tree, and all the slash is used.

The smaller the sawmill, the more raw material it wastes. Such mills lack complete processing facilities for converting log ends, trimmed plank edges, and the slabs cut from each side of a log into fiberboard, particleboard, and so on. They simply burn these trimmings. In the process of this waste they pollute the air. Whether the mill is large or small, it is likely not to have the equipment necessary to make the best use of logs that are undersized or defective. Ten percent of the volume of unprocessed logs is bark, which at present is either burned or sold as mulch. Much of this material could be turned into barkboard. Barkboard cannot be used where strength is needed, but it could replace stronger wood materials in certain applications, releasing the wood for better uses.

There are methods of cutting southern pine that are more time consuming and require more equipment, but nevertheless would boost lumber output from this important species by some 7 percent. Modern steels allow the use of thinner saws that convert less of the log to sawdust and thus result in about a 4 percent increase in lumber output.



Michigan's Representative John Dingell estimates that the lumber waste resulting from misgrading "could amount to as much as 25 percent of the total resources." (Grading consists of counting the number of knots and other defects per unit that result in weakening the board.) There is equipment that could grade lumber accurately. Nevertheless, grading is still done by the human eye according to industry-set standards, compliance with which is voluntary. Much lumber is graded higher (stronger) than it really is; builders knowing this use extra wood to avoid disaster. The Western Forest Industries Association estimates that such compensation accounts for 15 to 30 percent of the lumber in a house, which could be saved if builders could rely on the grading of lumber.

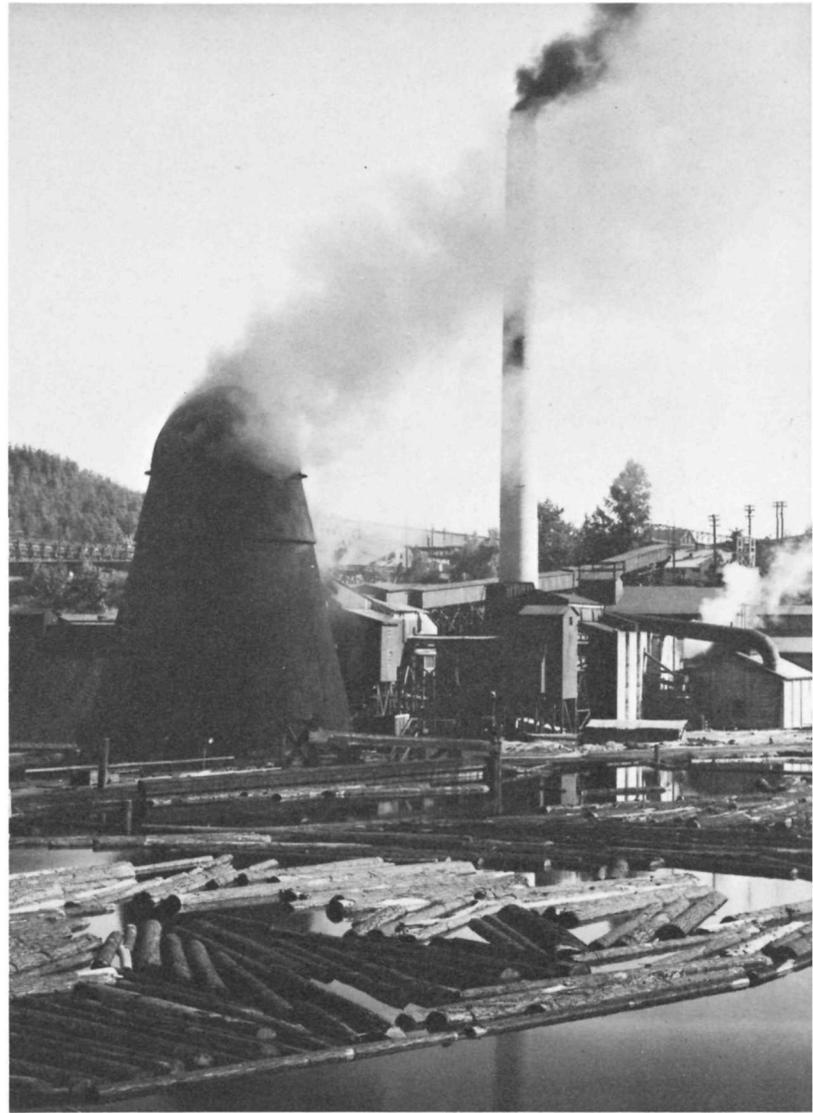
Another practice that could improve the utility of the lumber we do produce is proper seasoning. Properly seasoned wood resists rot and termites much better than wood that is green when put into use. Thus houses would last longer and require replacement with new lumber less often.

Many savings are possible in the manufacture of paper. It might be possible, through some sort of tax incentive, to encourage the use of groundwood papers (newsprint grades) that use 90 percent of the tree, rather than chemical process papers (the finer grades of "virgin" paper) that use only 50 percent of the tree. Or bagasse plant residues such as juiced sugarcane and cornstalks might be used to make paper, as they are in Puerto Rico. The major potential paper saving, however, is in recycling. Wastepaper and cardboard can be reprocessed into new paper products over and over, which not only would relieve the pressure for the use of pulpwood but also would help alleviate air pollution from wastepaper burning, or it would ease solid waste disposal problems, if the paper is not burned.

Finally, it would be appropriate for those segments of industry that are so audible about timber shortage to quit researching new ways of using wood as a substitute for other equally suitable materials—a prime example being disposable dresses. The much-touted paper disposables not only use up wood that has better uses elsewhere, but also add to the solid waste crisis.

It is a supreme example of stupidity that we urge exploiting our forests to squeeze every last tree out of every acre, while at the same time we casually tolerate wastefulness; and that we prefer gigantic ecological upheavals to minor economic changes.

There are alternate means of meeting the timber demand besides mechanizing and sterilizing all our commercial forestland. As for tree farms, the question is not whether to eliminate them, but how to regulate them and even use them for conservation purposes. Regulating the spread of tree farms will not result in a timber famine, homeless families, or any of the other plagues that tree-farming advocates threaten us with. Moderate tree farming practiced on strictly commercial lands, the creation of new plantations on barren land, and wiser and more economical processing and use of timber could supply the nation's needs into the far distant future—and still leave millions of acres free for recreation and wildlife protection. Tree farming can contribute to the preservation of America's wild lands, or it can take them over. Its value, like the value of any other technology, depends upon how we use it. ■



Smoking cone of a sawmill's waste burner, above, is both an air polluter and a waster of timber. All scraps are usable, including the output of the slash chipper, below, that here is being discarded.





"THE LION HUNT" BY EUGENE DELACROIX, 1861, COURTESY OF THE ART INSTITUTE OF CHICAGO

Paul Tilden

*LAST STAND of the
ASIATIC LION*

“Then the king commanded, and they brought Daniel, and cast him into the den of lions.” Dan. 6.16.

The king was Darius the Mede, son of a Persian monarch of antiquity, a man about whom the historical record has little otherwise to say; and the lions to whom Daniel was consigned were representatives of that race of big cats known as the Asiatic lion, *Panthera leo persica*. Common over a vast expanse of Asia Minor, Arabia, Persia, and India during the time of Daniel and for many centuries beyond, the Asiatic lion today is next to unknown in the Western world. Lion, to all but a handful of specialists, means the African lion, *P. l. leo*, and with some justification; for now the entire population of the Asiatic race is confined to a tiny habitat of little more than 300,000,000 acres in the southwestern portion of India's Kathiawar Peninsula, in the Gujarat State. From its countless numbers of ancient times *persica* has shrunk, through loss of habitat and the pressure of hunting, to a pathetic remnant band most recently estimated at about 170.

When the numbers of any wildlife population fall to such a figure, the animal's chances for survival become problematical at best. Only by an immediate and thorough understanding of habits and requirements, along with massive and intelligent assistance on the part of human co-existors, can there be hope for the eventual success of a rescue operation. A few successes of this sort in the Western world could be cited; as, for example, the snatching of the trumpeter swan from the brink of extermination some years ago by the U.S. Fish and Wildlife Service; and the rescue of Florida's Key deer by that agency in collaboration with private conservation organizations and sympathetic individuals. But the road back for the vanishing big predator is rough indeed, clouded always by the possibility of complete disaster by fire, storm, or disease and by ever-present conflict with human interests and prejudices.

As the lethal capabilities of the rifle increased greatly during the earlier decades of the nineteenth century, the fortunes of the Asiatic lion began a steep decline. In a recent study and report by Paul Joslin of the University of Edinburgh's Department of Forestry and Natural Resources, compiled from his own work and that of other researchers, the shrinkage of lion habitat and numbers is outlined all too clearly.

“While [the lion] ceased to exist in eastern Europe by approximately 100 A.D., and in Palestine at about the time of the Crusades,” says Mr. Joslin, “it remained strong over the remainder of its range until the middle of the nineteenth century.” Then the rapidly evolving rifle appeared. “By 1834 [the lion] had vanished from Bihar and from the Punjab. By 1842 it had been shot out of the Sind, and by 1872 central India. By 1891 it had disappeared from Asia Minor, and by 1907 from Mesopotamia. By 1884 the last surviving intact population of Asiatic lions was to be found in the Gir Hills [of western India].”

In 1884 the Gir Hills, which rise like a forested island from the flat, dry agricultural lands of western Gujarat State, lay in the domain of the Nawab of Junagadh—and

fortunately so. For it was only the protective interest of this wealthy man that stood between the Asiatic lion and a fresh entry on the world's list of vanished animals. During a time when such behavior must have seemed to border on the unnatural, the Nawab stubbornly refused to allow *his* lions to be shot. And, notes Mr. Joslin, “here they remained until the present day, protected by the generations of conservation-minded Nawab rulers that followed, until the time of Independence when the importance of preserving lions was beginning to be generally recognized.”

Under such an enlightened policy the Asiatic lion, thought to number about 100 in 1884, was able to increase to an estimated 289 in a 1936 census. In 1955, when Jawaharlal Nehru, first prime minister of independent India, paid a visit to the Gir Forest, another census indicated that 290 animals were present. By this time the protective value of the forest had been widely recognized in India, and it had been officially classified as a wildlife sanctuary. Nehru expressed great interest in the fortunes of the big cats and suggested that a profitable tourist business might be built up around them.

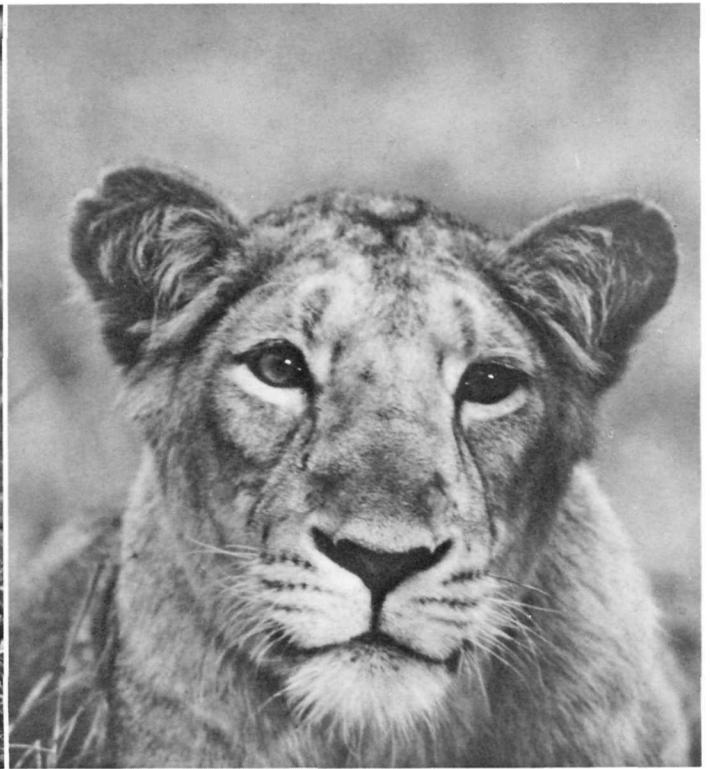
Since then, however, there seems to have been a considerable decline among the Gir Forest lions, for when the Gujarat government counted them in 1968 they could account for only 177. Even if the methods used in counting in 1955 and 1968 were not absolute, the magnitude of decline seems to be real, for in 1955 half the lion population was counted outside the sanctuary boundary, whereas in 1968 only 17 percent could be found beyond its confines. The question then becomes, why has a decline occurred and how can it be stopped?

In trying to answer these questions, one must start with the assumption that, for the present at least, the Gir Forest will remain the home of the Asiatic lion. Thus it is important to know as much as possible about conditions in and around the forest.

About 200 miles northwest of Bombay on the west coast of India the Kathiawar Peninsula projects into the Arabian Sea. Its climate is relatively dry, most of the year's rainfall occurring in summer when the winds blow inland off salt water. Some miles inland from the seaward side of the peninsula the Gir Hills rise in a gentle arc that curves south and east to roughly parallel the peninsula's coastline, a range of low relief clothed for the most part in teak and acacia. The forest, intended to be managed for wood products on a sustained yield basis, is largely surrounded by agricultural and grazing lands that, over the years, have tended to encroach ever more deeply into lion habitat. A hundred years or so ago a land survey outlined the Gir Forest as three times its present size. Part of the difference between past and present extent has gone into cultivation and grazing, and part—because of indifferent forestry practice and land management—into thorn scrubland and desert. Cultivated lands penetrate the Gir Sanctuary in a number of places in valley salients. “Agriculture,” Mr. Joslin's study emphasizes, “is a continuous threat to the forest. Encroachment of cultivation has been particularly apparent within recent years with the advent of cash crops. . . .” So far as the Gir lions are concerned, two related evils spring from the conversion of forest into field



near and within their habitat. First, and most obvious, is the reduction of living space. Then, however, there is a second effect that aims itself at the lions' food requirement. Valley soils, favored for agriculture, are the richest of the vicinity and carry the highest number of herbivores, both wild and domestic. Thus, land that goes into cash crops—peanuts and sugar cane, mainly—offers nothing in the way



of either space or energy that can be utilized by the food chain that involves the lion.

The creeping conversion of Gir Forest land for agricultural use is serious enough to the prospects of the Asiatic lion; but perhaps the impact of man's plants is not, even so, as great as that of his domestic animals—the cow, the bullock, and the buffalo.



ALL PHOTOGRAPHS BY PAUL JOSLIN

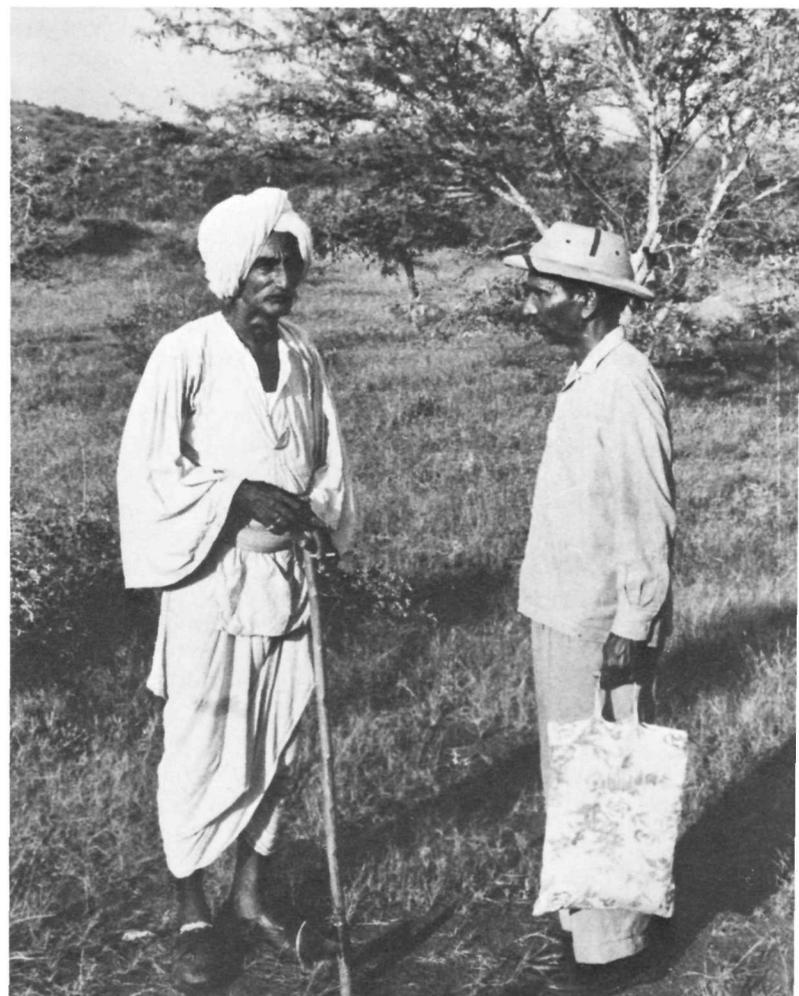
Lions, top, not threatened with lances are more peaceful than Delacroix's. Left, some of the more than 17,000 buffalo living in the Gir. Opposite, forest officer investigates grazier's claim.



Historically, the forest has been the grazing ground for many thousands of cattle, part resident and part invader. Current figures show that the Gir Forest supports not less than 20,000 domestic animals on a year-around basis, plus perhaps 30,000 more that come and go with the seasons. As herbivores these thousands of cattle directly and seriously compete for available forage with the forest's rather slender population of wild hooved animals—cheetal, sambar, nilgai, chinkara, and wild boar—which under a natural regime would be the prey of the Asiatic lion. Under prevailing conditions the lions must heavily supplement their natural prey with man's livestock, creating confrontations with man himself.

Because of its precarious situation and the fact that the Asiatic lion is becoming something of an attraction for revenue-producing tourists, the Gujarat State Government takes an enlightened view of this predator-prey relationship. In an effort to reduce the incentive for retaliation among the graziers it compensates them for livestock lost within the wildlife sanctuary. (The Gujarat Government thus seems to be in advance of practice in the West where, in the United States at least, conservationists have suggested a similar program with little official notice to date.)

Enlightened as this compensatory program may sound in broad outline, however, its effect on the fortunes of the Gir lions so far seems open to question. The program is laced with severely restrictive conditions under which pay-



ments are made for losses, the net effect being to discourage graziers from applying for reimbursement. As noted above, losses are reimbursed only if incurred within sanctuary boundaries, which seems shortsighted when applied to a big and far-ranging predator whose natural habitat is close by grazing lands. In the course of one survey Mr. Joslin found that 20 percent of the predations had occurred outside the sanctuary. Moreover, graziers living outside the sanctuary losing animals more than ¼ mile inside its boundaries are ineligible for compensation; but a survey showed that 76 percent of the nonindigenous graziers lost stock beyond the ¼-mile limit and thus were ineligible for benefits.

Further compounding the already difficult protective problem are the activities of the Harijans, the former "untouchables" of India, numbers of whom live in and around the sanctuary. The Harijans are beef-eaters, and to them a lion kill of domestic livestock means an additional source of meat, as well as hides and bones to sell. As soon as these people become aware of a lion kill, they drive the lions away and appropriate the carcass. "Driving lions off their kills," Mr. Joslin observes, "is not at all difficult, contrary to common belief. Appropriated carcasses, however, mean a considerable loss to the lions of their available food resources." He noted that of 21 lion kills in which it was possible to determine the extent of utilization by lions, the lions were given no opportunity to feed in 9 cases; and in 10 of the remaining 12 cases the big cats had consumed less than 20 pounds of meat. Even if the Harijans claim only the hide, as is sometimes the case, the lion still loses out because the vultures take over the moment the Harijans have left. Because the hide has been removed, the vultures are able to consume the carcass quickly, the average carcass being reduced to bone in approximately 30 to 60 minutes. "From the lion conservation standpoint an alternative resource obviously should be found for the Harijans which would prevent them from poaching the lion's kills," Mr. Joslin says.

What further can be done, then, to guarantee a future for the Asiatic lion? The first thought that occurs is to reduce severely or eliminate the domestic animals that both overgraze the Gir Forest and provide tempting baits for hungry lions—with the risk of retaliatory measures by angry graziers. That thought seems logical at first, but in Mr. Joslin's opinion it could prove dangerous for the lions. Under the lion's present semi-artificial conditions of life domestic cattle both in and out of the sanctuary may be a crucial factor in maintaining even its present small population. "No one likes to see cattle inside a wildlife sanctuary," he says, "yet looking at the sanctuary entirely from the standpoint of the lion's conservation there is no reason to suspect that the lion is unable to live on cattle just as well as it can on wildlife, and some reason to believe that it might do better if left to continue with the former. . . . Any attempt to remove the cattle population and allow it to be replaced with wild herbivores might, if done too quickly or on too broad a scale, result in the lion destroying much of the wild herbivore population or migrating out of the sanctuary in search of food."

Recent findings have shown that the impact of domestic grazing is greater than the land's capability to recover. To that extent the domestic population should certainly be

reduced if the lion's habitat is to remain intact in the long run. But beyond that livestock manipulation should be carried out with the greatest caution and under the close surveillance of trained ecologists.

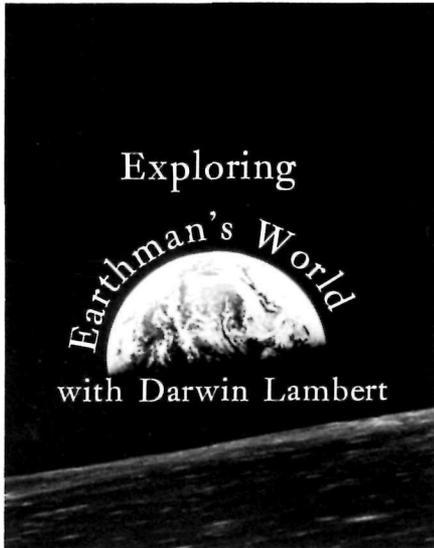
The Gujarat Government, mindful of the economic significance of tourist interest in lion-watching, which currently runs to more than 8,000 visits a year, now plans to develop about a tenth of the wildlife sanctuary as a national park in which domestic livestock would be completely barred. With the exercise of great caution this might be a first step in the right direction, aimed at allowing natural conditions to return over an extended period. It has been pointed out, however, that the scheme might also serve to shift more domestic cattle into another and already overgrazed part of the sanctuary; that if this occurred, the net gain to lion and sanctuary alike would be open to question.

In Mr. Joslin's opinion the most urgent requirements are to convert no more revenue forest into cultivation, to re-define the sanctuary boundary so as to recover the land where cultivations have intruded and to prevent further encroachment, and to stop as soon as possible the confiscation of lion kills by the Harijans.

Long-term assistance to the Asiatic lion might lie in the establishment of new and strictly protected sanctuaries in original lion habitat—not necessarily all in India—of sufficient size to accommodate the needs of the big cats. Ample size would be of the essence, as a transplanting experiment in 1957 proved. In that year three lions were moved from the Gir Forest to the Chandraprabha Sanctuary, far to the north in Uttar Pradesh. By 1965 the transplanted animals had increased to 11. Then they disappeared completely, probable victims of poachers outside the sanctuary. The 37 square miles of the Chandraprabha Sanctuary were inadequate for the proper feeding and protection of the lions.

In a recent conservation message to the chief ministers of the Indian States Prime Minister Indira Gandhi said: "Although wildlife and forests are State subjects, they are an Indian national heritage, and what we do in the next 5 or 10 years will determine the future and how the future will judge us." In the Gujarat State the plight of the Asiatic lion is of increasing official concern from both esthetic and economic standpoints. Conservationists everywhere hope that the protective work done there in the next 5 or 10 years will suffice to keep the great cats from the roll of the extinct and, hopefully, to increase their numbers. ■

Paul M. Tilden, Consulting Editor of *National Parks and Conservation Magazine*, has been involved for many years in the conservation movement. He was formerly Editor of *National Parks Magazine* and before that Associate Editor of *Natural History Magazine*. This article is based on research results of Paul Joslin, Department of Forestry and Natural Resources, University of Edinburgh, describing the plight of the Asiatic lion and recommending what to do about it. Mr. Joslin's research was supported by the Royal Society, the Volkhart Foundation, and the Children's Section of the World Wildlife Fund British National Appeal, with additional help from the Fauna Preservation Society and the World Wildlife Fund Indian National Appeal.



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

WHO HAS SEEN THE WIND?

Breathing is more intimate than talking, than eating and drinking, than kissing. The atmosphere caresses our inner quick, and we die in minutes without its gift of oxygen. The word "spirit" comes from breathing. Breath is life, is body, is soul, is a relationship with nature most of us want to continue.

Who has seen the wind? In mid-summer 1968, too few—neither you nor I, but when the smog is swept away, the wind is passing by. . . My wife and I camp with a conservationist-professor and a natural-scene photographer in Nevada in the central Great Basin, least populated part of the contiguous states. "Air's too thick around Wheeler Peak," the photographer complains, "but it's bound to improve."/"Wrong!" the professor says. "It's smog from California."/I can't believe. I recall a hiker telling how, atop old Wheeler, he mounted a telescope on a tripod and saw the Wasatch Range over 100 miles away in Utah, then turned it and saw the snowy Sierras in California over 250 miles away.

We wait a week, but the air doesn't improve. On westward it muddies the lines between mountains and sky. Over the Sierras into the great valley—eyes burning, watering. . . San Jose, evil brown streaks intermixing—a nightmare. . . Seeking a southern flee-way, we only get in deeper—smog smothering the desert. . . settling in gorges. . . sliding across the ranges. . . soiling snowy peaks near Flagstaff. . . obscuring colors on the Painted Desert. . . St. Louis—no surprise the great new arch is lost in smog—but must we, really must we breathe this gray shroud over the farmlands of Illinois, Indiana, Ohio. . . into West Virginia and Pennsylvania. . . ?

The nightmare refuses to yield; it expands. . . Hikers in Shenandoah National Park smell hydrogen sulfide like rotten eggs. . . Apollo 10 crew watches the Los Angeles plume from outer space. . . Scientists find more than a hundred million tons of air-pollutants released each year in the United States, more than half the quantity carbon monoxide. . . A school playground sign warns, "Do not exercise strenuously or breathe deeply. . ." "It is becoming appar-

ent," reports the Secretary-General of the United Nations, "that if current trends continue, the future of life on earth could be endangered. . ."

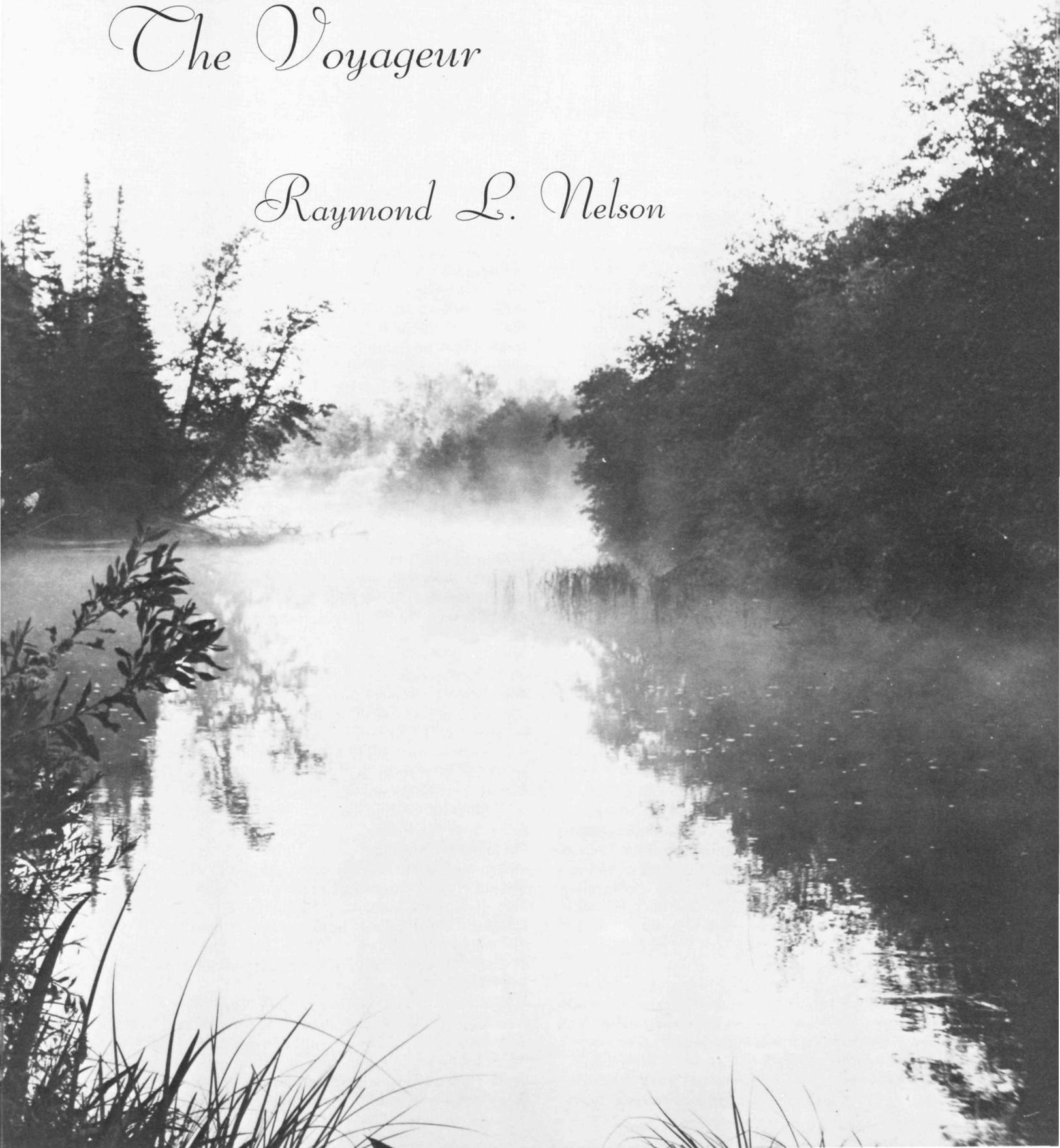
Frightened man grabs for fundamentals, for meanings, for relationships. . . "When God began to create. . . the earth was a desolate waste, with. . . a tempestuous wind raging over the surface of the waters. . ." In the beginning, writes biologist Colin S. Pittendrigh, oxygen was scarce or absent. "Evolution of photosynthetic autotrophs produced the great bulk of the oxygen in the present atmosphere and thus created the opportunity for a more effective, aerobic form of respiration. . ." "Organisms appeared," writes ecologist Barry Commoner, "that converted carbon dioxide and inorganic salts to new organic matter—thus closing the loop and transforming what was a fatally linear process into a circular, self-perpetuating one. . ." Earth's oxygen-filled atmosphere is unique in the solar system—a gift, a privilege, a happy circumstance.

Who has seen the wind? In mid-summer 1970, most of us, quite knowingly—even I and you, for when the smog is traveling, the wind is passing through. . . Hour after hour, day after day, New York's air monitors report "unsatisfactory" . . . "unhealthy" . . . Washington, D.C., is on the verge of its first smog alert. . . In Japan children collapse on a school playground, traffic police wear gas masks, more than 8,000 people in Tokyo alone are treated for smog poisoning in just five days, the menace spreads from island to island. . . In Sydney, Australia, residents are outraged by the rotten-egg stink of hydrogen sulfide. . . Trees become skeletons in Saigon and along the Appian Way near Rome. . . Airborne poisons from the Ruhr carry a sulfuric-acid storm to Scandinavia. . . Soviets begin moving factories from their cities. . . In South Africa smog colors the sun blood-red, then blots it out. . . In South America similar human venom curtains the snowy Andes. . . The nightmare will not yield to power-proud man's conflict-weakened prodding. It worsens, worsens. . . "Then the sixth angel blew his trumpet. . . The horses' heads were like lions' heads, and fire, smoke and sulfur poured from their mouths. One third of mankind was killed by these plagues—the fire, smoke and sulfur that poured from their mouths."

Breathing is more intimate, more immediately fateful, than talking, than eating and drinking, than sex. Today's atmosphere poisons our physical and spiritual vitals. Won't the nasty insult, if not the threat, create incentive to make us men instead of mere suckers at the tits of technology? When will we let earth's winds blow clean again? ■

The Voyageur

Raymond L. Nelson



He was a runt by today's standards. When he stood straight, which was not often, his knitted hat was scarcely five feet from his moccasins. When his clothes were wet, which was often, he weighed barely 150 pounds, brightly colored sash and all. Yet this little man could do more work in an hour than today's musclebound athletes can do in a day.

The little giant was known as the "Voyageur," and 200 years ago his strength and daring opened up the great country of Canada. He was the power behind the great Northwest fur trade that flourished from the early 1700's to 1850, the motor for the birchbark canoes that plied a 3,000-mile highway from Montreal to Lake Athabasca. Following lakes and rivers, the Voyageur paddled and portaged countless tons of trade goods and furs summer after summer, producing fortunes for a few and back-breaking labor for himself.

Linking the waters were the portages. Most were steep, some long, and others knee-deep in mud. Over them on the backs of the Voyageurs went the furs and trade goods, all made into bundles weighing 90 pounds each. A Voyageur had to carry at least two bundles; many carried three; some were known to portage four and even five at a time.

How many men today could carry two or three times their own weight up steep hills, over rocks and logs, through mud and water, with flies and mosquitoes chewing at every bit of exposed skin? How many could paddle 16 to 18 hours a day, seven days a week, and average at least 50 miles a day? And even if some could do it, how many *would*, year after year, for two cents an hour? With a song on their lips?

These were questions I asked after I transferred to Grand Portage National Monument. Anyone joining the thousands of visitors who stroll through the reconstructed Grand Portage stockade during the short summers of northern Minnesota may also ask these questions. Standing on the shores of Lake Superior, or "Kitchigami," as the Chippewas still call the great lake, it is easy to "see" brigades of canoes entering the bay, colored paddles flashing in the sun, gunwales only a few inches above the water. It is easy to "hear" a song rolling across the waves as the tough Voyageurs slid the high-ended craft toward the shore for another rendezvous of two weeks of work and fun.

And when you turn around, you can see the Grand Portage itself. The narrow path over which Indian moccasins trod softly for centuries before the Voyageur came winds through the cool spruce-fir forest to the Pigeon River, nine miles away. It would not surprise you to actually see one of the little giants come trotting out of the forest, bent low under his load, to pass under the gatehouse and enter the stockade. Then, with a shrug of his powerful shoulders and a twist of his neck to loosen the head strap, several huge bundles of furs would thud to the ground. With a tug at the gaudy sash around his waist he would smile broadly and light a tiny clay pipe. In less than 10 minutes he would be gone again, hurrying back up the trail with a load of trade goods. It would be dark when he completed his third trip of the day, and then he would be ready to dance with the pretty Indian lasses in the "Great Hall" to the tune of fiddle and bagpipe.

Why did the Voyageur slave so hard? And so happily? Today, with our shorter hours and higher pay, this man would be called stupid. But was he? Perhaps not.

As I walked the Grand Portage that first summer, the question haunted me. Then, as the leaves on the paper birch turned yellow and fluttered to the ground, I knew I would have to paddle and portage the Voyageur's Highway as he had, in search of answers. During the winter plans were made, and the next summer my wife, son, and I were ready for the trip.

It would be a short trip, only one week. But long enough. I hoped, to at least partially understand the Voyageur. We would live as he had, do what he did, as nearly as possible. Differences were recognized: our canoe was aluminum, not birchbark, and only half as long as the 36-foot Montreal canoes, shorter even than the less burdensome North canoes. We would have better food and equipment. But the paddling and portaging, flies and mosquitoes, mud and rain, the work and the wonder—these would be the same.

On a morning in late July we loaded our canoe at Saganaga Lake with packs, tents, canvas duffle bag, cameras, and fishing rod. We would head east to the Grand Portage, nearly 100 canoe miles away. A pair of evening grosbeaks flitted across the forest opening as we pushed away from land. Gulls called and wheeled overhead, and we heard the white-throated sparrow's plaintive notes as we pushed north toward the large part of Saganaga, along whose main axis runs the United States-Canada boundary.

We knew we were on the threshold of the wilderness—but only the threshold. Cars could drive to Saganaga, so the waters churned with roaring motor boats. We were glad to turn east, then south along another lake arm to Granite River. We started up Granite and soon heard the sound of falling water. Rounding a bend, we saw the river plunging over a rock ledge: Saganaga Falls. It was noon, so we paddled to slack water and munched on jerky, raisins, pecans, and rockhard bread squares—not exactly the boiled mush of salt pork, dried peas, and corn that was the Voyageur's fare twice a day.

After eating, we beached the canoe below the falls and unloaded the gear. I helped Linda with her packboard, to which was strapped the sleeping bags and air mattresses. The 40 pounds made her lean forward after she had slipped her arms through the shoulder straps. Grabbing the ax in one hand and a paddle in the other, she started up the portage trail.

Phil carried his pack to a high spot beside the trail and sat down in front of it. He placed the headstrap across his forehead, pushed his arms through the straps, and pulled his legs under him. From his knees he rose to his feet, balancing the pack on his back. I laid the tent on top of the pack against his head, along with the duffle bag, and he followed Linda up the trail. By Voyageur criteria he was not overloaded; but for a boy still reaching for five feet and 100 pounds, a 60-pound load was enough.

Now it was my turn. I slung on a small pack that weighed about 30 pounds. Then I reached down to grasp the canoe gunwales about a third of the way from the bow. With a heave and a twist I raised the bow high in the air, the bottom to the sky. Then I backed up and lowered the canoe until the pads across the middle thwart rested on my shoulders. I lifted the stern off the ground and staggered up the trail.

I had all I could do on a portage, and sometimes more. An 18-foot aluminum canoe, with extra paddles lashed to

it, weighs around 80 pounds. The canoe and pack gave me a load of about half what the Voyageur carried, and I weigh about what he did, on average. But my legs trembled under the strain, especially going up a rise; and downhill was harder. The stern would drag, forcing the bow so low I could see only a few feet of trail. I tottered on, struggling to maintain balance, wanting to toss the whole business to the ground. When I reached the end of that first portage, chest heaving, head pounding, every muscle aching, I was positive that the Voyageur was a masochist.

But as I rested, my breath slowing, the hammers in my head subsiding, I began to *see* things—things I had only looked at before. The sunlight glanced off the water with a brilliance I never noted. Trees were not just green, they varied greatly in shade and shape. And I became aware of the little things. Tiny plants along the shore had an infinite variety of shapes and designs. Among them crawled and flew all kinds of busy insects, living a life of their own. A new world was opening for me, and answers to the questions about the Voyageur were beginning to come.

Three hard portages later we entered Granite Bay. It was late in the afternoon, and Phil, our “camp bourgeois,” searched the shore for a place to spend the night. He selected a rocky bluff, and I, the “canoe bourgeois,” beached the canoe. As Phil and I unloaded the canoe and put up the tent, Linda assumed her role of “cook bourgeois” and prepared the evening meal over an open fire. After eating and cleaning up the dishes, Phil and I walked down to the lake, stripped and dived into the cold water. One dive was enough!

Daylight was fading. I walked out on a shelf of rock above the water. The sun slowly sank behind the trees, and shadows crept across the water. Soon the shore disappeared, and only the center of the bay could be seen with the last glow of light from the sky. Then the distant horizon was lost against the darkening sky, and the water became invisible. Complete silence was everywhere.

Suddenly a weird, rolling cry came from out of the night. When it died away, the silence seemed deeper than before. Then the shrieking laughter came again. It was the call of the loon, summer voice of the northern wilderness, a voice that would change in autumn to the honk of flying geese, and in winter to the howl of the wolf. As I sat in the darkness, the silence broken only by the occasional call of the loon, more of the mystery of the Voyageur became clear.

The next day, with portages that somehow seemed a little easier, we reached Clove Lake and Pine River, followed by Magnetic and Gunflint Lakes. Gunflint saddened us. Avail-



able by road, motor boats plowed its 8-mile surface and we spotted a seaplane moored beside a garishly-painted cabin. An electric generator’s “putt-putt” reached us and we speeded our stroke to get away from it.

On North Lake we made camp. As we ate our evening meal, we heard strange mewing squeals near by. Five young mink, about two-thirds grown, popped into view. They came single file, backs arched, loping over the rocks along the shore, stopping for an instant now and then to investigate crevices. One of them saw us, or smelled us, when he was about five feet away. He sat up, stared for a moment, uttered an inquisitive squeak, then continued his playful stroll with the others.

Across the lake to the southeast loomed Laurentian Divide. On this side all water flowed into Hudson Bay, on the other into the Great Lakes and the St. Lawrence. We would cross that ridge the next day.

A cloudy sky greeted us in the morning, with a strong east wind that churned the lake water into 18-inch white-caps. When the canoe was loaded, the gunwales were only 4 to 5 inches above the water, and our course was broadside to the waves. I wondered if we should chance it. As we ate breakfast we held a council. With no promise of clearing sky or abating wind, Phil wanted to go on. Linda wanted to wait for the wind to die down. As “canoe bourgeois” it was my decision.

About a mile from shore was a small island, slightly off

direct course. I decided we should try to reach the island. If it seemed too rough to try to cross the main portion of the lake, we would stop on the island. We broke camp and loaded the canoe, carefully balancing the weight.

We started off. There was no conversation, because it was next to impossible to hear each other above the wind. Also, we were far too busy to waste breath on words. We shipped more water than was necessary, because I was anxious to hit the waves at a sharp enough angle to make sure that we would not be swept into a trough and spilled. We reached the lee of the island, bailed some water, and decided to go on.

We made it without mishap, but the trip took more than twice as long as we had expected. Two hours of strenuous paddling had sapped Phil and me, and we rested when we beached the canoe at the beginning of the Head of Land Portage. Later, after the others had started, I broke a twig from a nearby cedar and tucked it inside my shirt. Then I slung on my pack and hoisted the canoe. About a half mile up the trail a sign marked the high point of the divide. I leaned the canoe against a tree and glanced along the trail to make sure I was alone, then pulled the cedar bough from my shirt. I removed my beret and tapped myself on the head with the bough. The Voyageurs had performed this rite with those crossing the divide for the first time. Doubtless they had some special words for the ceremony, words that have disappeared with the passing centuries. When I reached the others on the shores of South Lake I did not mention the cedar bough. For all I knew they, too, had done the same thing, for they also knew the story.

We crossed South Lake, then Rat and Rose, shooting a few rapids on the way. On the south of Rose Lake we saw a few remnants of something the Voyageurs had seen everywhere: virgin white and red pines. Protected in the Superior National Forest, they towered over 200 feet in the air and were over five feet in diameter. As we ate lunch, a pair of bald eagles soared overhead, majestic birds as rare as the virgin forests that are their home. The eagle and the wilderness need each other, and neither needs man.

At the eastern end of Rose Lake we met the most difficult portage between Saganaga and Grand Portage: Long Portage. We coined a better name for it—Endless Portage. It was agony the whole way. Two miles long, it seemed nearer twenty, and it took us over three hours to cross it. It passed through swampy country, and we often sank to our knees in sticky mud. I lost my moccasins several times. When this happened, I staggered on until I could rest the canoe bow in a tree fork, then returned to poke around in the mud until I found them. Now I began to realize why the Voyageurs were such masterful cursers.

Phil was in the lead while Linda followed me to help me over trees. Rounding a bend, Phil saw a large cow moose browsing on the trail some hundred yards ahead. He yelled and kept walking, expecting the moose to go away. It did not. Rather, she started walking toward him. He moved backward, slipping his arms under the pack straps. If she started to come with a rush, he wanted to be able to shuck off the pack and climb a tree in a hurry.

Suddenly his pack collided with the bow of the canoe as I staggered around the bend. I sank to my knees, lacking enough breath for even a Voyageur's curse. Phil turned and grabbed the bow of the canoe, glancing over his shoulder

at the moose. She flapped her ears a couple of times, stopped, then turned and faded into the forest. When we reached Rose Lake, I had but one comment: "Now we *have* to go on to Grand Portage! I wouldn't cross *that* portage again for anything!" But even as I said it, I knew it was not true.

It was getting late, and Phil searched for a camping spot. But the shores of Rose were either swamp or steep hills. We went on to Watap Lake, and here he spotted a small level spot on its north shore. We beached the canoe, washed off some mud, and made camp.

In the morning Watap was a mirror. The canoe glided along with little effort and no noise. We regretted leaving this water to portage to Mountain Lake. From there we passed through the tiny Lily Lakes, Fan and Vaseux, eating lunch at the latter. Here we saw a yellow-headed blackbird, a "first" for each of us. Then on to Great Cherry Portage and into Moose Lake, where we spent the night.

The next morning strong westerly winds pushed us rapidly across Moose. We portaged into North Fowl Lake and moved on into South Fowl. The Voyageurs had to portage between these two lakes, but we paddled. Loggers constructed a wooden dam at South Fowl's outlet more than 50 years ago, raising the lake's level, to control the flow of water in the Pigeon River the better to wash their great pine logs down to Lake Superior. The dam is now old and rotten, and soon it will go out.

We ate lunch on South Fowl and watched a seaplane come in to deposit lazy passengers at a lakeshore cabin. We hurried across the lake and tackled the rough portage leading to Pigeon River, which we reached in late afternoon to make camp. As we lingered around the campfire, darkness came. We heard a grouse drumming somewhere in the distance. It sounded ghostlike, and we seemed to feel it as much as hear it. The "no-see'ums" and mosquitoes were plentiful here beside the river, and we retired early.

The next day was one of our most enjoyable. Ahead of schedule, we took our time. The sky was clear and the day warm. Along the upper Pigeon the mists rose in the early morning. They trailed slowly upward, thinning to narrow, weaving fingers at the tree tops. Then they disappeared against the blue sky. Birds sang everywhere, and a woodpecker drummed in the distance, a wonderful sound.

Around a bend we met a family of American golden-eye ducks. Ever so often they dived beneath the surface, to



reappear ahead of us. For more than half a mile they entertained us then disappeared into some reeds along the bank.

Around another bend two large bull moose were eating breakfast in the shallows. They lifted their heads, water dripping from the plants in their mouths. For a few moments they looked us over then slowly ambled from the water and melted into the forest.

We spoke but little as we continued down the Pigeon. Human noise seemed out of place in such a setting. A hawk screamed in the distance—had he missed? A blue jay's cry came on its heels—was he laughing at the larger bird? A small grayish hawk glided over our heads, the river's namesake. Flowers in full bloom lined both banks.

About midafternoon we arrived at the end of the road coming into Partridge Falls in the Grand Portage Chippewa Indian Reservation. Here we would be picked up the next day. We continued to the head of Partridge and made camp on its brink. The next morning we portaged around the falls and continued downstream to our destination: the site of Fort Charlotte, on the western end of the Grand Portage. Tying the canoe to the alders, we stepped ashore.

As we stood on the site of the old fort, we could imagine the scene 200 years ago. It would have been a bedlam of sound, with Voyageurs scurrying to unload and reload the North canoes lined up along the bank. French and English would have filled the air as bent backs shucked their loads

and great bundles of furs replaced them. Laughter and shouts and curses would have echoed through the clearing.

But on this day it was quiet, very quiet. The clearing was shrinking, as trees reclaimed the land. The Grand Portage led into the forest, and we followed it. Our moccasins were silent on the needles. Ghosts of Voyageurs and Indians walked with us.

Yes, we knew some of the answers to those questions about why the Voyageur did what he did. He lived his life of toil because he knew greater happiness in the wilderness than elsewhere. I am sure he understood the concept that Thoreau put into words a century ago: "In wildness is the preservation of the world."

The Voyageur knew, or felt, that the sun and soil, the air and water, are as necessary to man as they are to the moose, the loon, and the pine; that without them nothing survives. So the Voyageur went where he could hear the wind whisper through fragrant balsam, where he could hear the lonely call of the loon, where he could taste the clean water. The rain and the mud, the sweat and flies, were but part of it—a price to be paid for belonging. And the Voyageur paid that price willingly and eagerly. ■

Raymond L. Nelson is the Superintendent of the National Park Service's Mather Training Center, Harpers Ferry, West Virginia.



Ecological Christmas

This year—Earth Year—how about putting the much-lamented personal touch back into the holiday season, while at the same time reducing the impact of Christmas commercialism on the Earth?

Use a Live or Artificial Tree. The maximum height for a live tree would be 4-5 feet because of the weight of the root ball. Stand the tree in a tub with an inch of water, and cover it with a sheet. Dig the planting hole before the ground freezes and cover it and the dirt with plastic. Plant as soon as the holiday is past. Follow your nurseryman's planting directions. Or plant your tree in half a barrel for use year after year. Artificial trees are less trouble and can be used again and again. Granted, they are not as nice as real trees, but why kill a tree?

Recycle Gift Wrapping. Wrap presents without tape so wrapping paper can be removed intact for reuse. Keep packaging to a minimum. Preferably get by with one piece of white tissue paper or old newspaper per package. If you want color, improvise your own designs with vegetable dyes or poster paints—for example, try colored Rorschach blots. Or wrap gifts in colorful bandannas, linen napkins, dyed old sheets, scraps of cotton print, or other cloth that can return to other duty later.

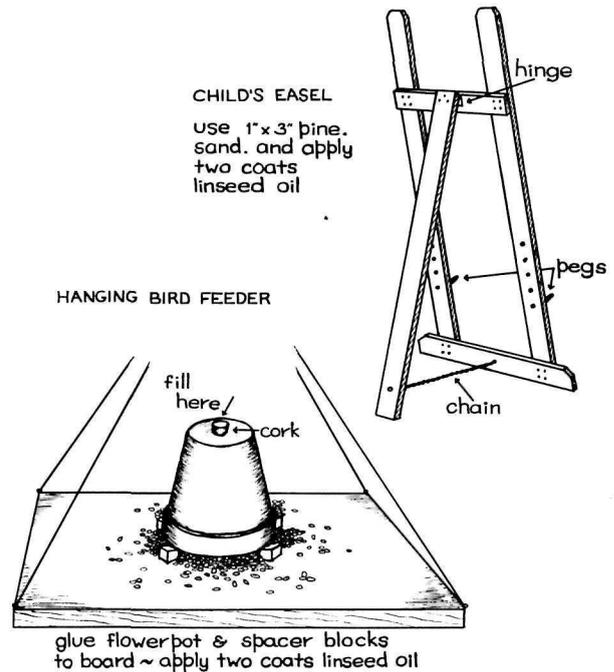
Decorations. A lot of the fun of old-fashioned Christmas came from making decorations of gingerbread, popcorn and cranberries strung on thread, popcorn balls, papier-mâché, figures cut out of scrap cardboard and painted, and so on. You might cut out pictures from old magazines or last year's Christmas cards or wrapping and paste them onto cardboard cutouts for tree ornaments. Fallen pine cones, dried seedheads, and other dried vegetation gathered in the fall, collages of fallen leaves, and potted plants all make fine fall and winter decorations—and gifts. Discourage cutting greenery from live trees by not using it. Attractive and reusable wreaths can be made from pine cones, acorns, twigs, nuts, and seedheads glued to a doughnut-shaped piece of plywood. The whole lashup may be gilded or left natural with a coat of lacquer.

Christmas Cards. First, cut down the list of people to whom you send cards to reduce post-Christmas waste disposal. Second, make your own cards.

Gifts. Make gifts out of things that otherwise might be discarded. Make dollhouses of cardboard cartons, sculptures of wire scraps. Make a child's easel.

Put your sewing machine to work. Or make preserves, cookies, and plum puddings. Dip candles. Stud oranges and apples with cloves and dust them with cinnamon. Tied in scraps of colorful cloth, these pomander balls give a spicy odor to drawers and closets. Make rubbings of leaves, wood, or other natural objects. Make terrariums or bottle gardens of old bottles and jars. For directions, see *Gardens In Glass Containers*, Robert C. Baur, Hearthside Press, New York, 1970. Or give the book itself. You might give books such as *Design With Nature* by Ian McHarg, Rachel Carson's *Sense of Wonder*, *Wildlife in Danger* by Fischer, Simon, and Vincent, and *The Invisible Pyramid* by Loren Eiseley. Give field guides or one of the better books of photographs of our remaining wild places.

Give birdhouses or bird feeders you make yourself. Drill or whittle small cavities along a 2-foot length of dead branch 3 or 4 inches thick. Line the cavities with bits of waxed paper, and



fill them with suet mashed with birdseed or nutmeats, or peanut butter mixed with cornmeal (the cornmeal prevents birds from choking). Hang the feeder by one end.

Resurrect the art of papier-mâché as a way to use up old newspapers, magazines, and other waste paper. Papier-mâché starts out as alternating layers of glue and wet newspaper strips. Dried thoroughly, it becomes hard, strong, and lightweight—suitable for sanding, painting, and decorating. A bowl, ball, or balloon the size of your child's head can be a mold on which to make costume heads, astronaut helmets, and other paraphernalia. (Grease your mold first with petroleum jelly.) Fashion scraps of wire mesh into forms on which to build items of papier-mâché, from wastebaskets for adults to more or less portable grottoes for children. Make whimsical papier-mâché animals, candlesticks, beads, mirror or picture frames, fruits, or vegetables. Forms may be made from bottles, wood blocks, cardboard, or simply balled-up newspaper. The technique is simple.

For detailed instructions on all these suggestions consult your local library for books on crafts. Women's magazines, especially holiday issues, offer a wealth of ideas and instructions.

Whatever you do, use as much as possible of what you have already on hand, what is about to become garbage, or what already has served its function in nature. Conversely, buy as little as possible. Most manufactured items mean pollution of one sort or another, so if you can get along without them, Earth is that much ahead. What you give should have a chance of surviving at least to next Christmas without becoming solid waste. Maybe at the same time you will have put more self than money into your gifts—and had fun to boot!

Finally, make an outdoor Christmas tree for wildlife with "decorations" of popcorn and cranberry strings, suet, nuts, seeds, grain, and bread scraps. And have an ecological Christmas. ■

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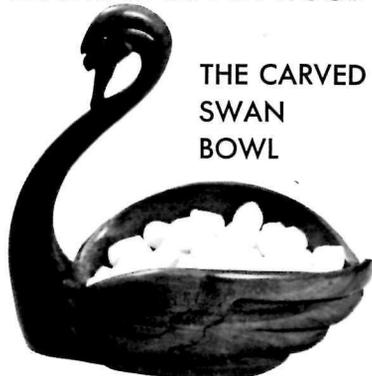
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LIBRARY RECEIVES COLLECTION

NPCA's library is the recipient of a large collection of public relations material gathered for the observance of the 50th anniversary of the National Park Service in 1966. The donor is Miss Marcia Kraf-sur, Boston public relations consultant, who took a leave of absence from her own business to work with the NPS in planning the anniversary observance.

The publications and background material will be made available to the public as well as to the Bicentennial Commission, the Council on Environmental Quality, the Park Service itself, and the Discover America Travel Organizations, Inc. The collection includes not only information on the Park Service, but also on the environment in general, on national monuments, on American history, and on travel in the United States. Outside of the Park Service, this is probably the largest collection of this kind of material in any private library.

GLOBAL TOUR PLANNED

Plans are being made by the NPCA for one of the most unusual and exotic around-the-world tours ever offered to conservationists.

Tentatively scheduled for seven weeks beginning September 11, 1971, the tour will concentrate on the Far East and will include generous stays in Japan, Hong Kong, the Philippines, Thailand, India, and Iran.

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The tour will be led by Mr. Robert C. Cook, NPCA Board Member and Consultant, who is an experienced world traveler. If you would like further information on this ecological around-the-world trip, write the NPCA Travel Desk for details.

NPCA ON PROPOSED PARKS

In response to a request for its views from the chairman of the House Parks and Recreation Subcommittee, NPCA sent a letter outlining its views on a proposal for a Capitol Reef National Park. The letter reiterated the stand that visitor facilities, mining, and grazing be kept out of parks.

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I certify that the statements made by me above are correct and complete: *Christopher M. May*, Business Manager

conservation news

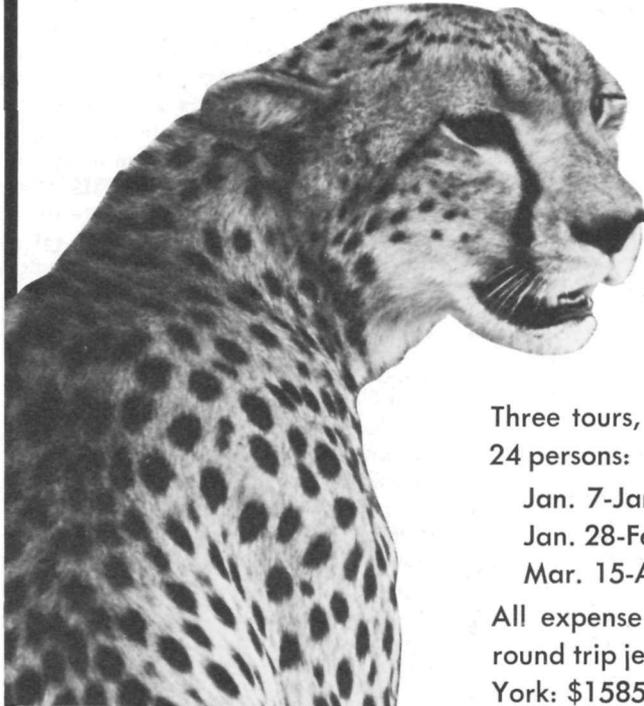
PROTECTION OF THE EVERGLADES

Twenty-three leaders of conservation and economic organizations met with Interior Secretary Hickel on Monday, October 5, 1970, recommending federal insistence on an early decision on an alternative site for the previously proposed giant jetport in Big Cypress Swamp in the Florida Everglades country. The conference was held under the auspices of the Everglades Coalition, of which the co-chairmen are Dr. Elvis J. Stahr, President of the National Audubon Society, and Mr. Anthony Wayne Smith, President and General Counsel of the National Parks and Conservation Association. Spokesmen for the conservationists also pointed out the importance of bringing a substantial portion of Big Cypress Swamp into public ownership promptly; it was indicated that some 400,000 acres would be needed at an average cost of \$200 an acre for a total of \$80 million. Dr. Spencer M. Smith, Jr., Secretary of the Citizens Committee on Natural Resources, explained that the funds were readily available in the Land and Water Conservation Fund; Joseph Browder, Special Representative of the Everglades Coalition, pointed out that the entire Florida Delegation in Congress is on record as favoring the acquisition of Big Cypress Swamp. It was noted that the area could be protected as a National Recreation Area within the National Park System. Water flowing through the area accounts for perhaps 60% of all fresh water flows into Everglades National Park. Destruction of the swamp lands by dredging, filling, and drainage, it was explained, would bring ruin to the Park; the purpose of conservationists in opposing the jetport had been to protect the Big Cypress country for that reason. Among the delegation visiting the Secretary was Andrew Paulich, representing Olga M. Madar, Vice President and Director of Conservation, International Union, United Automobile Workers of America.

THE RIVERS & HARBORS BILL

A sizeable array of conservation and economic leaders testified before the Subcommittee on Flood Control, House Committee on Public Works, on October 8, 1970, in respect to the Omnibus Bill on Rivers and Harbors, the biennial measure authorizing the construction of dams on rivers by the Army Engineers. These leaders were practically unanimous

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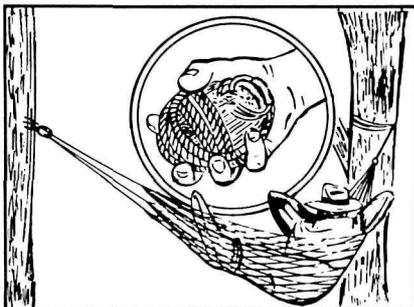
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A CITIZEN'S VOICE IN GOVERNMENT

Organizations like the National Parks Association, which enjoy special privileges of tax exemption, may not advocate or oppose legislation to any substantial extent.

Individual citizens of a democracy, however, enjoy the right and share the responsibility of participating in the legislative process. One of the ways citizens of a democracy can take part in their government at state and federal levels is by keeping in touch with their representatives in the legislature; by writing, telegraphing, or telephoning their views; by visiting and talking with their representatives in the national capital or in the home town between sessions. Every American has two senators and one congressman with whom he may keep contact in this manner.

The best source of information for such purposes is the official *Congressional Directory*, which can be bought through the Government Printing Office, Washington, D.C. 20402, at the price of \$4.00. It tells you who your senators and congressmen are and lists the membership of the various Congressional committees. It also gives full information on the personnel of the various executive bureaus of the government whom one may contact about administrative programs and policies.

against authorization, noting that the Army Engineers failed to comply with the National Environmental Policy Act requiring the submission of environmental impact reports and comments by federal agencies having jurisdiction or expertise in environmental matters. Witnesses included Anthony Wayne Smith, appearing individually as Chairman of the Environmental Coalition for North America; Spencer M. Smith, Jr., Secretary, Citizens Committee on Natural Resources; Jonas B. Morris, Special Representative, Citizens Permanent Conference on the Potomac River Basin; Walter S. Boardman, President, Potomac Valley Recreation and Conservation Association; Lloyd W. Tupling, Washington Representative, The Sierra Club; George Alderson, Legislative Representative, Friends of the Earth; and John Scott, Master of the National Grange. Among the Directors of the Environmental Coalition, who serve as individuals, is Walter J. Burke, Secretary of the International Union, United Steelworkers of America.

Most of the witnesses recommended specifically against the authorization of two dams, proposed many years ago by the Army Engineers for the Potomac, at least until several pending official reports have been completed on the availability of the fresh-water estuary at Washington for metropolitan municipal water supply purposes.

PRESIDENT HITS PORK BARREL

President Nixon on October 7 signed the fiscal 1971 funding bill for the Army Corps of Engineers and Bureau of Reclamation, but with a barb. Noting he had requested starts on \$1.3 billion worth of work, he pointed out Congress had boosted this to \$4.5 billion. "Many of these added starts are for projects which

would benefit some particularly interested group but would be of little value to the people generally. There is too much pork in this barrel. It is my intention to consider all means possible to minimize the impact of these . . . appropriations, including deferment of the proposed starts and the withholding of funds."

JERSEY ZOO NEEDS MONEY

The Jersey Wildlife Preservation Trust needs money to buy the property that until now it has leased on the island of Jersey in the English Channel.

This small zoo was founded by author Gerald Durrell, who at one time collected animals around the world for visitor-oriented zoos and science. His travels convinced him of the need for a breeding center for species near extinction in the wild—a form of survival insurance. This the Trust is struggling to provide. It needs the money now going into rent for more animal work. Readers may send contributions to Peter Clay, a Trust member, at 701 Greenwood Ave., Glencoe, Ill. 60022.

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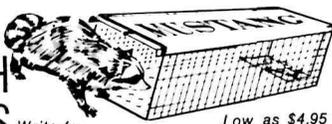
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conservation docket

A public hearing has been scheduled in Charleston, S.C., on a proposed wilderness plan for the 28,000-acre Cape Romain Wilderness Area in the Cape Romain National Wildlife Refuge. The hearing will begin at 9 a.m., January 15, in the Charleston County Library. Individuals or organizations may express their views in person at the hearing or in writing for inclusion in the hearing record. Write to: Regional Director, Bureau of Sport Fisheries and Wildlife, Peachtree-Seventh Building, Atlanta, Ga. 30323.

Following is a list of areas currently

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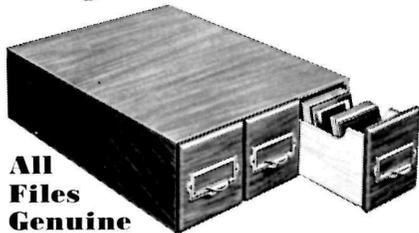
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being studied for wilderness or master plans. The former will determine the areas to be given legal protection as wilderness. Master plans set the course of future management. Readers may write to the addresses given to express their views or to get on the mailing list to be informed when public meetings are scheduled.

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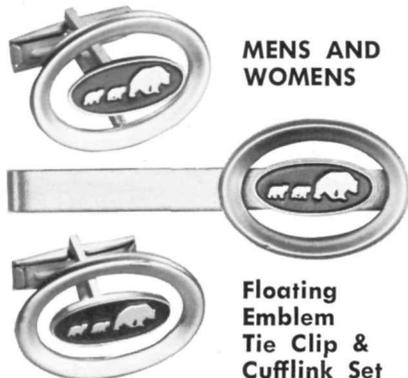
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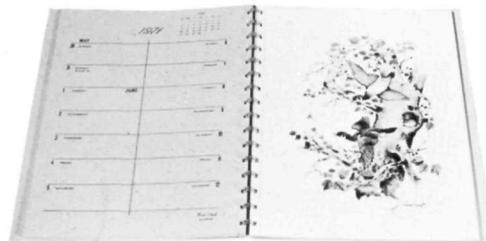
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- Composite calendars for 1970, 1971, 1972.
- 3 extra pages for important names, addresses, telephone numbers.
- Book is wire-o-bound to lie flat when in use.
- Paintings include woodcock, wood duck, raccoon, bob-white, ruffed grouse, black duck and magpie, wild turkey and white-tailed deer.

A Gift Presentation Card Is Included With Each Book