NATIONAL PARKS *Magazine*

Symbol of wilderness: Dall sheep,
near East Fork of Toklat River, Mount McKinley National Park

September 1968

Common Sense on Park Protection

THE GREAT STORM which will descend on the national parks and other wild lands of America as our population explodes by another 100 million people by the end of the century may be a fearsome thing to behold.

As a matter of common sense, plain, ordinary, minimal prudence, the helmsmen who must steer the responsible public agencies through the typhoon should lash themselves to the mast.

The custodians of these lands have a duty to the American people to take every possible precaution to protect the wild country in natural condition for the benefit of all the people.

We mean the trail and campfire country, the roadless areas which people can visit on their own two feet with packs on their backs, or on horse, sleeping out under the stars, hearing the chorus of birds at dawn.

The National Park Service is more fortunate than the other agencies in having the National Park Service Act of 1916 to rely upon; that act establishes a priority in favor of protection, and requires that all visitation be compatible with protection.

The concept of wilderness preservation provides another valuable protective tool. Whether permanent wilderness areas be established by master planning or by legislation is not the important issue. The essential thing is that the value of the natural areas, protected against roads, buildings and machines, be recognized and that the administrative agencies take all possible precautions to protect them.

The master plans which have been developed by the Park Service during the last four years pursuant to the mandate of the Wilderness Act have not in most cases provided the degree of wilderness protection which most of the conservation organizations, and specifically the National Parks Association, have recommended.

There has been a remarkable consensus among major national conservation organizations that the original proposals by the Service which were presented in public hearings with respect to some twenty units of the national park system were seriously inadequate.

The revisions made in many of these proposals after the hearings were minor; for the most part, the earnest advocates of park and wilderness preservation who appeared at these hearings might as well have held their breath.

The National Parks Association developed detailed professional recommendations in every instance; the plans of all agencies relevant to the proposals were studied; surveys were made of the views of organizations and individuals acquainted with the localities; the proposals were supported by carefully prepared maps showing proposed wilderness areas in the particular park or monument, and demonstrating how visitation could be dispersed into the surrounding public lands and out toward private resorts in the surrounding communities.

The proposals of this Association were directed toward the master planning process, without any necessary relationship to possible recommendations by the Secretary of the Interior or the President of the United States in respect to legislation.

The basic safeguards for wilderness in this approach are the dedication of the administrators and a settled public policy for the dispersion of crowds into the broad regions of public and private lands which surround most of the parks.

After the public hearings the Service expanded its wilderness recommendations in most cases to a slight degree, but the differences between the original and final plans were in most instances not very great. For the most part, no reasons were given for the rejection of the broader proposals of the conservation organizations.

One of the reasons given for this refusal is that the public agencies must reserve flexibility in respect to wilderness in the parks. We say that precisely the opposite is true, and that while there is time to prepare defenses against the onslaught of overcrowding, every possible protective measure should be taken, including the designation of maximum wilderness in the presently undeveloped portions of the parks.

The official plans, both preliminary and final, leave large areas within all the units classified as classes I, II, and III, potential facility areas. The class III, or natural environment areas, where adjacent to wilderness areas, include the so-called "threshold areas," justified officially as needed for the introduction of visitors to wilderness, but retained in our opinion for future facilities; this is what is actually meant by preserving flexibility.

As our readers know, recommendations have been forwarded by the President of the United States to Congress in respect to five units of the system: Craters of the Moon, Lassen Volcanic, Pinnacles, Lava Beds, and Petrified Forest. It is not likely that any of these proposals will be acted on at this session of Congress.

As our readers also know another twenty units of the system, perhaps, will be studied in the next three years, and a final twenty units, more or less, in the following three-year period; about twenty were considered in the first four years of the ten-year review period established by the Wilderness Act of 1964.

This Association has pointed out the availability of the machinery of the President's Council on Recreation and Natural Beauty for the formulation of principles which would guide the public agencies in integrated regional planning for park protection and recreational expansion purposes.

The Vice-President of the United States is chairman of the President's Council which in our judgment has the responsibility for the formulation of a comprehensive national policy in this matter. The Director of the Bureau of Outdoor Recreation has the official responsibility for the development of recommendations to the President's Council. The Secretary of the Interior has the obligation to formulate recommendations to the President, applying general policies to specific cases. The Director of the Park Service has the primary responsibility for presenting recommendations to the Secretary.

All of these public officials, in our judgment, have an inescapable duty to the American people to set up the strongest possible safeguards for the remaining wilderness in the United States for the benefit of the present and future generations, as against the enormous pressures of overcrowding which will develop during the remainder of this century.

This necessary protection will not be accorded merely by espousing the principle of regional planning or setting up commissions or other machinery. What is needed, and immediately, is a clear-cut national policy formulation declaring the importance of the protection of the wild lands in the national parks, national forests, wildlife refuges, and other public lands, implemented by planning and action to provide abundant recreational facilities in the multiple-use areas of the national forests, comparable areas in the other public lands, and on private land outside the public lands.

This kind of policy statement could and should be formulated now by the President's Council and embodied in a signed interagency agreement. It would have the widespread support of practically all the conservation organizations in the country. It would have broad popular endorsement, because the number of people in America who are determined to protect and enjoy the trail country, and who seek to escape the mechanical shambles of our big cities, is growing year by year, and these people are going to be heard in due course, even by the deaf ears of bureaucracy. —*A.W.S.*

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Front cover photograph by Kenneth A. Chambers

From the Brooks Range of far-northern Alaska down through the Yukon and western Mackenzie River country to northern British Columbia ranges Dall's sheep, characterized by one Canadian writer as "the true symbol of wilderness." Actually, the white males on the front cover are members of one of three subspecies that constitute the species. *Ovis d. dalli* occupies the most northerly reaches of the species habitat, while farther south in Alaska and in British Columbia live the darker *Ovis d. stonei* and another white form, *Ovis d. kenaiensis*—Stone's sheep and the Kenai Peninsula sheep. Our outside back cover pictures a group of female Dall sheep; both front and back cover photographs were taken in Mount McKinley National Park by Kenneth Chambers, whose article on one of America's really primitive parks starts on page 4 of this issue.

The Association and the Magazine

The National Parks Association is a completely independent, private, non-profit, public-service organization, educational and scientific in character, with over 37,000 members throughout the United States and abroad. It was established in 1919 by Stephen T. Mather, the first Director of the National Park Service. It publishes the monthly *National Parks Magazine,* received by all members.

The responsibilities of the Association relate primarily to the protection of the great national parks and monuments of America, in which it endeavors to cooperate with the Service, while functioning also as a constructive critic; and secondarily to the protection and restoration of the natural environment generally.

Dues are $6.50 annual, $10.50 supporting, $20 sustaining, $35 contributing, $200 life with no further dues, and $1000 patron with no further dues. Contributions and bequests are also needed. Dues in excess of $6.50 and contributions are deductible for Federal taxable income, and gifts and bequests are deductible for Federal gift and estate tax purposes. As an organization receiving such gifts, the Association is precluded by law and regulations from advocating or opposing legislation to any substantial extent; insofar as our authors may touch on legislation, they write as individuals.

Membership in the Association carries with it subscription to *National Parks Magazine.* School and library subscriptions are $5 a year; individual copies 50 cents. Letters and contributed manuscripts and photographs should be addressed to the Editor at Association headquarters. The Association is not responsible for loss or injury to manuscripts and photographs in transit. Return postage should accompany contributions.

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"Seldom do the dense clouds which hang heavily around McKinley disperse enough to reveal its gigantic form; but when this does occur, when its sparkling white slopes are seen towering majestically into the sky, it is an unforgettable sight."

Mount McKinley National Park

by Kenneth A. Chambers

THE GREAT, SCIMITAR-SHAPED ALASKA RANGE SWEEPS laterally across south-central Alaska for some 600 miles. At its eastern end it is barely separated from the Wrangell Mountains, while westward it merges gradually with the Aleutian Range. Throughout its entire length its rugged bastions can boast less than twenty mountains which exceed 10,000 feet in height; but where the range arcs north to within 250 miles of the Arctic Circle, it reaches a climax unequalled by any other range in North America. Here a group of great peaks rises from the surrounding terrain, their summits permanently draped with snow, their lower slopes gouged by converging glaciers. Yet, impressive as they undoubtedly are, they are merely a backdrop for the massive bulk of Mount McKinley, which, surpassing in height all other mountains on the North American continent, soars to an elevation of 20,320 feet. Seldom do the dense clouds which hang heavily around McKinley disperse enough to reveal its gigantic form; but when this does occur, when its sparkling white slopes are seen towering majestically into the sky, it is indeed an unforgettable sight. Small wonder that the Kuskokwim Indians named it "Denali"—the Great One—and regarded its lofty grandeur with awe; for certainly there are few natural features which compare with its immensity and its breathtaking beauty.

Charles Sheldon, who travelled extensively in this part of Alaska early in the 20th century, was greatly impressed by the splendid mountain scenery, the rolling tundra of the lowlands, and the abundant wildlife. With help from other far-seeing and conservation-minded people he worked assiduously to have the region preserved for the nation. The difficulties and problems to be overcome were considerable; but, in 1917, an area covering 3030 square miles, and

embracing this, the most scenic portion of the Alaska Range, was set aside for all time as Mount McKinley National Park.

Within the park's boundaries many of the primary rivers, including the Sanctuary, Teklanika, and Toklat, are of the "braided" variety, where constant overloading of the river-bed with silt and other material washed down from the mountains has caused frequent overflowing of the banks, and the consequent cutting of many small, new channels. Thus these rivers now spread out as great stream systems which may completely occupy the broad, glaciated valleys through which they flow. In these valleys black spruce grow in dense stands, their slender shapes rising perhaps sixty to seventy feet, and forming cover for lush carpets of mosses —liberally bedecked from July through August with a profusion of mushrooms and other fungi. The river gravel bars are rarely large enough, or permanent enough, to support spruces, but are frequently at least partly covered with fairly dense growths of willows, or with mats of pea vines, whose roots are much favored by the grizzly bear from spring until early June.

Other forested sections are to be found, usually consisting of white spruce and aspen; but certainly, in Mount McKinley National Park, where timberline occurs no higher than 3000 feet, it is the tundra vegetation which is most widespread, and which provides the greatest variety of plant life. Generally speaking—for there is no hard and fast line of demarcation—this tundra may be divided into two types; the wet tundra of the flatlands and lower hillsides, and the dry tundra which extends on up into the mountain meadows. Each is characterized by a wealth of wildflowers, but the wet tundra has, in addition, a number of dwarfed trees. Of the more than twenty species of willow which occur in the park, most are to be found in these wet tundra areas. Although some of them, especially those growing along the creek banks, may reach heights of seven feet or more, others are much smaller. Their stems lie underground, and only their small leaves and catkins are visible. Blueberry and dwarf Arctic birch also occur, and sometimes, near the hillsides, form dense, foot-high mats. One of the most common and most beautiful flowers growing in both types of tundra is the avens *(Dryas)*, several species of which are present. Their delicate white blossoms may be seen from June through the summer, rising from small, dark-green, deeply-toothed leaves which completely coat the hillsides in places. Where there is some small shelter from the wind, one comes upon a drift of shooting star, their purple flowers seeming almost phosphorescent against the more somber greens and browns of moss and sedge. On the lower hillsides the fuzzy, pink flowers of bistort, borne on twelve-inch stems, rise above most other plants, and add another touch of color. Higher up, where there are constant winds, and where the soil is thin, are the "cushion-plants": the dwarf pink *(Silene)*, the white-flowered *Diapensia*, and the alpine azalea, their tiny flowers forming clumps of color almost flat to the ground. Higher yet, where there is barely any soil at all, where the avens and its numerous companions disappear, and where even the cushion plants are few and far between, the orange-yellow, daisy-like blossom of the *Arnica*, and the occasional deep purple of a dwarf fireweed *(Epilobeum)* may still be seen, eking out a precarious existence on an inhospitable talus slope.

Even with this spectacular display of plants, however, it is the animal life which attracts most visitors to the area. In Mount McKinley Park birds and mammals are present in both number and variety unparalleled in most places of comparable size, the latter ranging from the great Alaska moose, which may weigh up to 1200 pounds or more, to the tiny pygmy shrew which, with a weight less than that of a dime, is probably the smallest mammal in the world.

Ways of the Alaska Moose

The moose are most numerous in the bottomlands, where it is not uncommon to see one browsing contentedly upon the willows, or moving slowly through the spruce in search of succulent grasses and sedges. In June and July the cows will often be accompanied by gawky-looking, orange-brown calves, who gaze curiously at any intruder for a moment before trotting to the protective bulk of their mothers. The bulls frequently form small bands of three or four animals at this time of year, and it is most impressive to see a group of the enormous mammals standing shoulder-high in the willows, their great antlers encased in fuzzy skin. As in all members of the deer family this "velvet" remains as a protective coating on the antlers until the year's growth has been completed, shortly before the fall rutting season. By then the males are solitary, and anything which moves may be regarded as a potential rival as they seek frantically for mates. In places where the moose habitually browse the ground is dotted with clusters of their small, oval droppings. Some of the more decomposed of these droppings may be covered by a beautiful moss *(Splachnum)*, which gives rise to delicate, parasol-shaped structures carried on four-inch stems.

Among the wooded sections one may be fortunate enough

Within Mount McKinley Park are many classic examples of the so-called "braided" river, where overloading of river bed with silt and sand causes cutting of many small channels. Such a braided river is shown in view from Polychrome Pass, at left.

Among the many mammals of Mount McKinley park are the moose. . . .

to catch a glimpse of a lynx padding silently along with disdainful bearing, its ears pricked forward to pick up the slightest sound made by an unwary vole or a snowshoe hare. At the time this article was written the snowshoe hare —favorite food of the lynx—was present only in very small numbers in Mount McKinley Park, and this low point in its population cycle has resulted in the lynx now constituting one of the rarest mammals of the park. This situation will probably continue until the hares once again begin to build up to a population peak, at which time it is to be expected that the lynx will increase proportionately.

Porcupines, red squirrels, and such birds as gray jays, redpolls, siskins, white-crowned sparrows and varied thrushes are common in the bottomlands. During late June and early July, when there are only two or three hours of darkness in every twenty-four hours, it is a strange experience to hear some of these birds singing blithely at two o'clock in the morning!

As one leaves the shelter of the spruce and moves out on the wet tundra, there is a subtle change in the animal life. Moose may still be observed in some of the taller willow patches, but they are no longer one of the dominant mammals; gray jays are still sometimes seen, but they are usually en route from one wooded area to another. Here is the favored domain of the barren-ground caribou, the wolf, and the grizzly bear. Here is to be found the willow ptarmigan, that strange, deep-voiced member of the grouse family which changes the colors of its plumage with the season—from reddish-brown in summer to almost completely white in winter.

With good reason the caribou are often referred to as the "nomads of the north," for they appear to be forever driven, by some strange instinct, to wander the wilderness regions of the northland. In early June small herds move into the park from its northern boundaries and, moving east, eventually cross the Alaska Range to its south side. A few weeks later they reappear, this time in large herds which sometimes exceed a thousand animals. Except for small bands or individuals that may remain in the park all summer, the herds then retrace their steps westward, along ancestral trails which have been so often used that they are deeply etched into the face of the tundra, and along the slopes of the hills. During these annual movements the wolves hunt them consistently, and the passing of the herds is marked by clusters of bones. For many years it was thought that the wolves were threats to the existence of the caribou; but with true observation instead of hearsay, and painstaking research instead of preconceived notions, has come the realization that the wolves actually keep the herds healthy, by removing the weak and deformed adults and calves so that only the strong characters are passed on to the next generation. Unlike other North American deer both sexes bear antlers, but compared to the magnificent, backward-sweeping racks of the bulls, the females' antlers are spindly and insignificant.

Parasites of the Caribou

In spring and summer the caribou are subjected to attack by parasitic flies. One species, the warble fly *(Oedemagena tarandi)*, is a common pest of domestic livestock as well as of wildlife. It attaches its eggs to the animal's hair, and when they hatch the resultant larvae burrow under the skin. Another of these parasites is a fly *(Cephanomyia nasalis)*, which enters the nostrils, and whose larvae are found in the upper throat. The caribou greatly fear both of these flies, and are often seen galloping wildly across the landscape tossing their heads and kicking frantically to escape the warble flies, or standing forlornly on patches of

. . . and the pika, pint-sized member of the rabbit clan.

snow, noses hard against its surface to prevent the entrance of nostril flies.

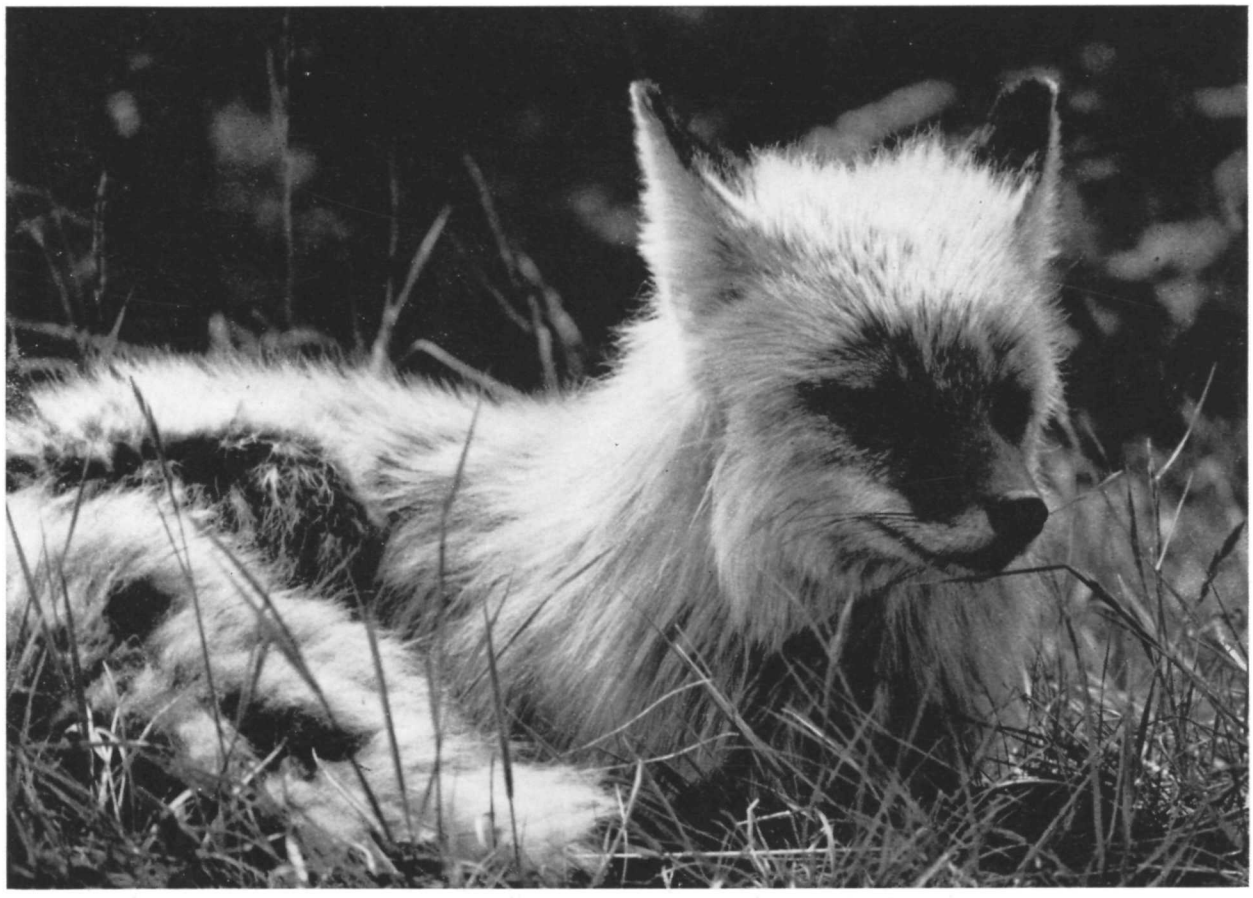
The wolves of Mount McKinley National Park, while being fairly numerous in recent years, are not commonly seen. Several family groups roam the tundra, and sometimes, when caribou and other staple food animals are scarce, some of these bands will take to the hills in search of sheep. Within the park the wolves are safe from persecution by man. Here they are free to raise their families in reasonable security, and to pursue their hereditary role as a natural control on the populations of other species. Unfortunately their hunts may carry them many miles from their dens and rendezvous points, so that they cross the park's boundaries to terrain in which every man's hand is against them. It seems strange that, while almost every American respects and admires the African lion—even though he realizes that this animal preys upon many kinds of graceful, hoofed creatures—the wolf of our own continent is generally hated and feared for carrying out much the same type of activity. The wolf is no better, but certainly no worse, than the animals upon which it feeds; it is merely an integral and important part of the natural scene.

But, while the wolf is safe from all other inhabitants of Mount McKinley Park, it is the grizzly which reigns supreme. Although it was recently given the dubious distinction of making the "endangered species" list, it is still quite common in this area. These mighty carnivores, which sometimes weigh 600 pounds or more, are here very light-colored in spring and summer, save for dark-brown legs and muzzles; but in late summer they molt this bleached hair and grow a pelage of dark brown before retiring to their dens for the long winter months. Although grizzlies are surly and unpredictable, and certainly potentially dangerous if encountered at close quarters, their reputation for being fierce, bloodthirsty killers is quite without foundation. Even though they are placed with the carnivores, they are primarily vegetarians. In the spring they may be spotted out on the river bars or along the lower hillsides, digging industriously for the sweet roots of wild pea vines. Large patches of sod may be pawed up in their searching, and the scars of such past digging are very apparent in many parts of the park. Later on they become grazers and are to be seen moving slowly along cropping grass and horse-tail *(Equisetum)*. In the fall their diet changes again and consists largely of the many species of berries which are everywhere in evidence at that time of year. Other than an occasional caribou calf, carrion, or food caches left by wolves and other predators, their meat is largely restricted to Arctic ground squirrels, which are abundant throughout the region and which the bears laboriously dig from their burrows.

A Restricted Grizzly Area

Because the grizzlies are much sought after by enthusiastic photographers, and because they are easily scared away into the interior if too much disturbed, the tundra on both sides of a five-mile stretch of the park road has been designated a restricted area, where one may not set foot off the road. It is hoped that this will encourage the bears to remain in this favored portion of their habitat so that visitors may have the chance to see one or two at fairly close range.

During the warmer seasons of the year the wet tundra provides nesting sites for many birds. Everywhere the calls of whimbrels and golden plovers, yellowlegs and mew gulls —plus a variety of other shorebirds—are to be heard. On the shores of the "kettles" (small pools filling the depressions formed where blocks of ice settled after being left by retreating glaciers) the northern phalaropes and old squaw ducks have their nests, and in the early morning the



Where the wet tundra meets the lower slopes of the hills in Mount McKinley Park the red fox is frequently encountered, some of which will allow the visitor to approach within a few feet. Below, a hoary marmot is photographed in the park; the mammal is a close relative of the more familiar woodchuck, but larger, with a black and white facial pattern.

quavering cry of the loon echoes across the quiet waters.

Where the wet tundra meets the lower slopes of the hills the red fox is frequently encountered. In Mount McKinley Park these animals are usually extremely tame, and in some cases will allow approach to within a few feet. They may often be observed trotting daintily along the hillsides, pausing to sniff at grass tussocks, and occasionally making sudden dashes in pursuit of ground squirrels who may have incautiously strayed too far from their burrows. There are few sights more charming than a family of fox cubs playing together in the evening, wrestling with each other and leaping about in high spirits near the entrance to a den.

But, of all the varied habitats within the park, each with its own distinctive brand of interest, this writer prefers the hill country and the rocky tundra which is to be found there. As one climbs up out of the valleys and flatlands one passes first through the periphery of the wet tundra, with small willows growing in profusion, and the ground still soggy underfoot. This is followed by a brief transition belt where dwarf Arctic birch mingles with willows and shrubby cinquefoil *(Potentilla);* and from then on, plants growing more than four or five inches from the ground are in the minority. The hillsides are steep, but the solid carpet of spongy, ground-hugging plant life makes for good footing. Gradually the rolling tundra drops away, the willows becoming mere patches of light green against the darker background of mosses and sedges. The wind hums in one's ears. Now the full glory of the mountains can be seen; rank upon rank of rugged peaks, stretching away into the distance

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until becoming lost in lowering banks of cloud. Or, if it is a clear, sunny day, the mountain tops stand starkly against a blue sky, their crests sparkling with snow, forming a scintillating frame for mighty Mount McKinley itself, rearing over the entire landscape like a brooding colossus.

The climb up these hillsides may have yielded one or more flocks of white Dall sheep. Almost certainly these flocks will have been composed of ewes, lambs, and perhaps one or two young rams; for during the summer the older rams form bands of their own, and are usually to be found at higher elevations or on the sloping meadows along the back side of the hills which border the main park valley.

Groups of two or three caribou bulls may also have been seen, possibly having been driven to these breezy heights by parasitic flies.

Where a talus slope has formed at the base of a rock wall, a wheezy, piping call heralds the presence of pikas. During the short summer months these pint-sized members of the rabbit clan are busily engaged in gathering grasses and wildflowers, and piling them in small crevices exposed to the sun. Once they are completely dried out these miniature haystacks are used as a winter supply of food when fresh greens are unobtainable. The scurrying forms of these "rock conies" may sometimes be seen as they hurry busily along their trails among the rocks; but they rarely show themselves for more than a few moments lest a golden eagle, or some other predator, should pounce upon them.

Now and then the top of a rock may seem suddenly to come to life, as a hoary marmot which has been lying flat and motionless decides to slip away and into its burrow. These chunky, bushy-tailed rodents are closely related to the woodchuck, but are larger in size and have a black and white facial pattern. They, too, must keep a constant lookout for enemies, and their loud, prolonged warning whistles soon become a familiar sound in the more mountainous sections of the park.

The Wilderness Experience

Once across the crest of the hills there appears a broad expanse of green, sloping meadows, broken by an occasional jagged rock outcropping, and formed into a series of long, rolling ridges. If Dall rams are visible they may normally be approached fairly easily, provided that care is taken to remain in their sight, to approach slowly, and to stay slightly below them so that an uphill escape route is left open to them. There are few more satisfying experiences with wildlife than to be able to keep company with a group of these noble-looking creatures as they graze quietly along the hillside, or lie amid the wildflowers placidly chewing their cuds, their great wide-curling horns golden against the white of their bodies.

Here, in the haunt of the white sheep and the golden eagle, the marmot and the rosy finch; where the blooms of the arnica and the mountain avens nod to the wind, and where the verdant slopes are brilliant with sunlight at one moment and, at the next, soft-shadowed by a passing cloud; here, in the high country, is peace and solitude—the very essence of the wilderness.

As more and more people flock to the national parks, so their effectiveness as wildlife refuges inevitably decreases; for, even with protection from hunting and trapping, wild animals still require freedom from disturbance in order to raise their families and carry on their regular activities. Animals which are kept constantly on the move by well-meaning but overly-enthusiastic photographers and other excited vacationers are not at liberty to live out their lives naturally. Finding little privacy, they may move out of the park to areas where they would be at the mercy of anyone with a gun.

Mount McKinley National Park is one of the most isolated of all of the areas which have been set aside from the ravages of man. Yet, even here, the rapidly-increasing human population of North America is bound to exert growing pressure. Once the highways leading into Alaska have been paved and the roadside facilities improved, it is not difficult to visualize the annual invasion which the park will then have to endure. Although it is only just now beginning to experience the first disquieting rumblings of this future problem there are signs that some of the animals, especially the grizzlies, are already feeling the impact. Three thousand square miles of wilderness is a sizable area, but more is needed. Currently much of the adjacent land is federally owned, and now would seem to be the time to add as much of this land as feasible to Mount McKinley Park. Whether or not such an additional region could presently be reached by the general public, or adequately patrolled by the National Park Service, should be regarded as unimportant for the time being. The crux of the matter is that it should be set aside now; for, as has so often been the case in the past, the future may well prove to be too late. ■

". . . In the early morning the quavering cry of the loon echoes across the quiet waters." The loon in the picture below was photographed on its nest at the edge of Wonder Lake.

The ladybug or lady beetle, of which there are a number of species, is one of the farmer's best friends. Those above were photographed atop 8414-foot Mill Point in Montana Bitterroots.

THE LADYBUG: INTREPID MOUNTAINEER

By STEPHEN F. ARNO

Photographs by the author

SUPPOSE THAT A CONVENTION of learned outdoorsmen and alpine biologists was held to determine which among the earth's living things is the greatest mountaineer. The hardy rock primrose, sky pilot, edelweiss, the lichens, and other plants could be disqualified because they are stationary; and mountaineers are renowned for their mobility.

Someone would surely nominate "mankind" at the outset, arguing that he has conquered the world's highest peaks. However, only a tiny fraction of *Homo sapiens* ever climbs high mountains—and most of these climbers choose the easiest routes and the best season, must rely on elaborate equipment, and spend just a small part of their lives in the heights.

The coyote and other predators (who roam high ridges much of the year), bighorn sheep (who summer in the alpine), and ptarmigan (Arctic and alpine grouse) might be mentioned. A Himalaya climber would likely suggest two birds—the "chough," a kind of alpine camp-robber that has visited expedition camps at nearly 27,000 feet, and bar-headed geese, which have been reported to fly over the summit of Mount Everest. But these avians do not reside in the alpine terrain, like some mammals.

A strong case could be made for the mountain goat, who may spend almost half the year sauntering about the alpine crags; nevertheless, in winter the goat usually retreats to south-facing cliffs at lower elevations.

The pika, which is a plant-harvesting "rock rabbit" the size of a guinea pig, is an exceptional mountain dweller, for it lives in alpine boulder-piles the year around without hibernation. Still, the pika's winter quarters are crannies deep inside the rockpiles, which are protected from the elements by a thick blanket of snow.

Perhaps just when it seemed that the list of nominees was complete, a man in the back row would propose a new candidate, one that spends fall, winter, and spring among the windswept rocks on the very tips of alpine mountains. Although there is never an insulating layer of snow here, literally thousands of these animals use such an icy summit as their homing site, and after they survive months of bitter cold, they come out to bask in the sunshine of late spring when the air temperature may be a balmy 40° F.

Who would guess that this "intrepid mountaineer" is a common ladybug?

Down through the centuries "ladybugs," "ladybirds," or "lady beetles" have been highly regarded as being beneficial to human field crops. The term "lady" is said to refer to the Biblical Mother Mary. The typical lady beetles of this article are red or orange with a variable number of black spots on their backs (outer wing coverings), and they belong to the family *Coccinellidae*. In the past entomologists thought that the number of spots alone would suffice for species identification; however, it has since been discovered that this characteristic is inconclusive, and the structure of male genitalia must now be used for taxonomic classification.

Most species of lady beetles feed on aphids, and, according to a West Coast entomologist, their role as predators probably prevents annual outbreaks of aphids. In the early 1900's when it was learned that an adult lady beetle is capable of consuming up to 60 aphids a day, entomologists and entrepreneurs began to collect these beetles at the sites where they mass and hibernate. Two men could gather 50 to 100 pounds of lady beetles (23,000 to the pound) per day in winter. Then they would keep the insects in cold storage and sell them to farmers for release on field crops in the spring.

Much to their dismay, the farmers soon learned that ladybugs would not stay in the fields where they had been released. Four hundred thousand ladybugs were once sprayed with gold paint before being set free in California's Imperial Valley, and only 19 of the marked insects were found during an intensive search that followed over the next three weeks. On another occasion 600,000 marked ladybugs were released and only two of them were recovered in the next 14 days.

The trouble was that man had been disregarding the beetle's natural life-cycle. After feeding in the fields the insects typically migrate en masse to certain homing sites where they congregate and hibernate. They spend winter here, and then upon emerging from dormancy they instinctively fly away, back to the fields.

The study of ladybug ecology is complicated by the fact that each species has a different life history. Furthermore, not all individuals of a given species living in one region will necessarily conform to the same schedule.

Specific instances of lady beetles massing atop alpine peaks have been recorded in many parts of the world. Once, in the 1800's, J. H. Fabre found ladybugs *(Coccinella septempunctata)* swarming on the chapel at the summit of 6000-foot Mont Ventoux in the French Alps. "They covered the walls and roof so that, at a short distance, the building appeared as if it was (sic) made of globules of coral." [1]

Migration and Hibernation

Mani [2] describes great numbers of lady beetles migrating during autumn out of the Himalaya forests to aggregate above timberline in rocky areas amidst snowfields. They hibernate here beneath a heavy winter snowpack; but although these are "alpine colonies" they contrast markedly with those of North America, where the beetles seek out jagged, rocky peaks that do not retain snow cover which could protect them from subzero temperatures.

In mid-May, Mani found one congregation estimated at two million ladybugs, which had just emerged from the snowfield among the rocks of a 14,000-foot pass in the Himalaya; but the beetles have been found nearly that high in the Western United States in the harsher environment of exposed mountain peaks.

Our Western ladybugs seem to be visually attracted to their promontory homes; in the plains they often mass on telephone poles and fence posts. A Russian scientist placed dead bodies of lady beetles in some sites which he selected in the field, and shortly thereafter two species of living ladybugs congregated at the sites. This and other evidence suggests that the odor of dead beetles attracts living ones back to the same sites year after year.

Snowshoe Peak, at 8712 feet highest in Montana's Cabinet Mountains, is one of several alpine crags where the author discovered ladybugs congregating during the summer of 1968.

Aside from directing the migrating beetles to certain sites, the insects' protective odor, which apparently repels certain enemies, is enhanced by aggregation. However, some animals, such as the grizzly bear, seem to have been attracted to alpine swarms of lady beetles under rocks because of the odor.[3] Twelve grizzlies were observed overturning rocks and eating beetles on the north side of 9868-foot McDonald Peak in Montana's Mission Range on August 3, 1932, and similar incidents have been reported more recently. Mani states that predatory insects, insectivorous birds, and bears feed upon Himalayan ladybug colonies, which in effect provide an "air-lift of refrigerated food."

J. Gordon Edwards [4] observed alpine colonies of ladybugs in Mount Rainier and Glacier Parks, and, late in March, 1956, he found the bugs massing atop 11,049-foot Telescope Peak in Death Valley Monument. Still, he stated, ". . . I believe it is very unlikely that ladybugs will intentionally overwinter on the high, frigid, . . . peaks of the Cascades, the Rockies, or the Sierra, and it is these 'major' peaks where the true alpine conditions exist. . . ."

Edwards hypothesized that the ladybugs he observed congregating in summer on alpine summits in the Pacific Northwest return to valleys below the peaks in October. Here they might again aggregate in sites which would be protected from subzero cold by deep snows. This layer of insulation would seemingly be important to the insects in light of a report from Iowa that a sudden drop of temperature in the fall to 10° F. (without snow) killed all of the local lady beetles.

On the other hand, Hagen [5] feels that alpine peaks themselves are the hibernation sites for some species. He pointed out that just before hibernating the beetles build up large reserves of fat and develop a high ratio of fat to water in their bodies, which should enable them to endure subfreezing temperatures without harm.

Large numbers of dead ladybugs occur at most of the alpine massing sites, superficially suggesting that Edwards' hypothesis is correct; however, it is also possible that the corpses represent normal death from "old age," especially if it is true that the beetles spend most of their lives on the mountaintops.

Although there have been numerous observations of ladybugs thronging to Western alpine peaks, the ones recorded in scientific literature have been restricted to summer and early fall. The issue might be resolved if only there were a sequence of observations from a known massing site through the winter. However, winter climbs of the appropriate mountains might require a vertical mile of snowshoeing—a sport that is far less popular than summertime hiking.

Some Ladybug Sightings

During the summer of 1967 I saw colonies of the beetles among the rocks on three summits: in mid-June on 9500-foot East Boulder Peak and 8414-foot Mill Point, both on the boundary of the Selway-Bitterroot Wilderness in the Montana Bitterroots south of Missoula; and in mid-August on 7200-foot Challenger Arm in the North Cascades. Consequently, when I began to compile a review of the literature on this subject early in March, 1968, the idea struck me that I could easily test the respective hypotheses—whether or not the ladybugs actually stay through the winter on the peaks.

Living and dead beetles had been especially abundant on Mill Point, and logistically it would be best for a one-day visit. Tor Fageraas and I set off together on skis and snowshoes March 10, 1968, to check this ladybug homing site.

I had been operating two weather stations (at 8100 and 9300 feet) on nearby Saint Mary Peak and was inwardly skeptical that ladybugs could have survived the cold temperatures without the protection of snow. Both stations had a mean air temperature of about 12.5° F. for December 1967, the coldest month this past winter, and the absolute minimum at each station registered —12° F.

But apparently the beetles did not listen to biological reason. We reached the barren summit stones and found several handfulls of the insects packed tightly together in cracks between rocks and especially under rocks where there was a little decayed organic material. When we exposed them to winter sunshine (air temperature about 20°) or the heat of a human hand, the ladybugs soon began to crawl, although none of them attempted flight.

We found large numbers of beetle corpses from past seasons; but few if any of the insects had apparently died recently. As is typical of the rocky alpine homing sites, there had been no snow accumulation here although the adjacent terrain held a snowpack ranging from six to twelve feet.

I gathered up some of the beetles in a plastic bag to take them home for species identification. It must have been like a journey into spring for them, because they became very active in the "warm" confines of our refrigerator. Their companions who remained on Mill Point would not experience similar warmth for several more weeks. Probably they crawl out on the rocks to enjoy spring sunshine, but they may not begin to migrate back down to the valley until their fat reserves are nearly gone and late spring brings its 50° afternoons.

Then it is likely that the ladybugs move down to the expansive Bitterroot Valley to lay eggs and indulge in their annual aphid feast. In perhaps two months the crops dry out and aphids become scarce. By this time a new generation of adult beetles will have emerged from the pupae, so young and old ladybugs will heed the advice of human children: "Ladybug, ladybug, fly away home . . ." And off they will wing, these intrepid mountaineers, to spend another long winter in the crags.

On June 17, 1968, I saw large masses of lady beetles mating on the rocks atop 7795-foot Old Glory Mountain in British Columbia; beetle corpses were also abundant, and the government weather station here has recorded winter temperatures as low as —30° F.

On June 26, 1968, I found ladybug colonies atop 9804-foot main Boulder Peak in the Montana Bitterroots, and during early July the ubiquitous beetles got into my weather instruments and crawled over three of us as we lunched on 9335-foot Saint Mary Peak. At about the same time hordes of ladybugs were reported elsewhere on peaks near Missoula, and I found them sunning on the lofty stones of Northwest Peak, 7705 feet high, near the point where Montana meets Idaho and British Columbia. ■

[1] Williams, C. B. 1958. *Insect Migration.* Macmillan Co. 235 pp.

[2] Mani, M. S. 1962. *Introduction to High Altitude Entomology.* Methuen & Co., London. 302 pp.

[3] Chapman, J. A., J. I. Romer and J. Stark. 1955. "Ladybird beetles and army cutworm adults as food for grizzly bears in Montana." *Ecology* 36:157-158.

[4] Edwards, J. Gordon. 1957. "Entomolgy above Timberline. II: The attraction of ladybird beetles to mountain tops." *Coleopterists' Bull.* 11:41-46.

[5] Hagen, Kenneth S. 1962. "Biology and ecology of predaceous *Coccinelliade.*" *Ann. Review Entomol.* 7:289-326.

ON KNOWING THE SOUNDS OF BIRDS

By Frederick E. Lowell

I WAS ON MY WAY HOME after a fruitless search along the river for wood ducks, and stopped to chat with my neighbor. I was feeling rather sorry for him. He was blind and could not enjoy the sights of that May morning.

"You were on the wrong bank," he said. "Your wood ducks are nesting on this side."

"How do you know?" I asked in astonishment.

"I've been hearing their whispering calls. They've ignored your nest box and have taken over that hole the flickers hollowed out last year."

"And how did you know where I'd been?"

"Some crows gave warning, a scolding catbird followed you along the bank, and there was the startled cry of a green heron as you crossed the bridge."

My sorrow changed to something like envy. I had tramped all over the countryside, yet he had actually "seen" more.

"Birds give free voice to their feelings," he explained. "They tell us what is going on. Better use your ears instead of your field glass. Be a bird listener."

I decided to try it and under my neighbor's guidance discovered the wonderful world of bird sounds. I learned that the catbird, though a mimic, has several distinct calls of his own, that the bluejay's range of sounds is almost unlimited, that a robin emits a twelve-thousand-cycle note from the top of a tall tree. At dawn when the birds are singing their loudest I found I could identify at least ten different species from my bedroom window. I learned to my surprise that many birds I had thought were rare are fairly common around our New England farm.

The flickers my friend had mentioned were making happy noises as they carved out a new home in the dead elm. Their loud, irregular tapping sounded very different from the male's drumming. From under the eaves came the faint chirps of newly hatched robins. Every so often their parents would drive off a pair of inquisitive bluejays with much snapping of bills and angry shrieks. When not looking for trouble the jays would sit in a small white pine and make strange noises quite unlike their harsh screams and loud whistles. The pine was their nest site, and according to my neighbor they were imitating the cries of their young. It seems that many birds when nesting make juvenile sounds—a sort of baby-talk.

One morning the robins and bluejays were screaming at the top of their lungs and in the background were the plaintive alarm notes of flickers and the subdued, worried *quoik* of a catbird. Something was wrong.

I went to investigate. A large blacksnake had a baby robin in its mouth. I seized the back of its head and gently released the bird. But while I was watching the bird flutter away, the snake slipped through my grasp and opened a long gash in my arm.

"It served you right," said my neighbor. "You shouldn't have interfered."

"But I couldn't let the snake swallow that poor little bird."

He shrugged his shoulders. "You'd better harden yourself to such things. Predators are very necessary, and blacksnakes perform a useful service by keeping down the numbers of the more common birds."

He was right. An observer of nature is bound to witness some gruesome sights, and the sounds of birds may tell a very sad story.

I will never forget the call of a certain young crow. I had often heard crows greet their parents with harsh, excited cries that reached a ridiculous climax as they gulped down their food. But this one never made those happy noises. What was wrong?

"He's been abandoned," my neighbor said.

Again came that lonely, desperate call. It was the saddest sound I had ever heard. I longed to rescue him.

My neighbor shook his head. "Better let him starve. He'd die anyway, probably of encephalitis."

"His parents know he's sick?"

"They always know. Last year my wife took pity on a baby mallard. Two days later he was seized with convulsions, a death far worse than starvation. Wild creatures know instinctively when their young are unfit for life."

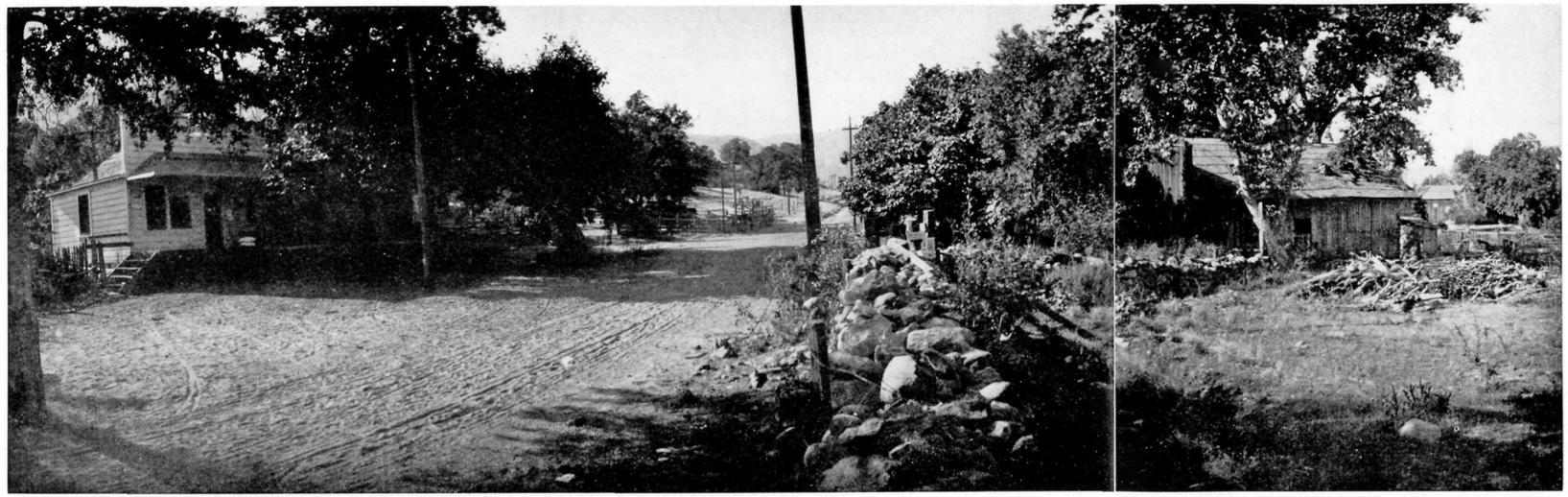
But the pleasure of bird listening more than makes up for these grim tragedies. An ovenbird sings his ecstatic flight song before diving into the forest. An exuberant catbird pours out his potpourri of music—snatches of a red-eyed vireo's song, a robin's excited shriek, the watery trill of a tree frog. A bluejay practices the hawk's cry or makes absurd attempts to sing. A starling hops up and down on a rooftop mimicking sounds his European ancestors never heard. A young cowbird calls hungrily and a scolding *chut chut* nearby lets me know that he was adopted by Maryland yellowthroats.

Some sounds are quite similar. It takes practice to distinguish the hawk's piercing cry from the bluejay's clever imitation, or the chipping sparrow's little song from the slightly faster trill of the pine warbler.

One also learns to recognize individual birds by peculiar variations in their songs. Once when I was lost I heard a field sparrow in the distance. Only one bird living in a certain pasture had that particular rhythm. By listening to his song I got my bearings. It occurred to me then that Indians on the trail often relied on the sounds of birds to find their way.

Bird sounds change with the seasons. The tremulous wail of the screech owl marks the end of summer. In the fall robins flock together and utter squeaky migrating calls. Then a host of northern birds passes through and there are new sounds, like the clear, musical notes of the white-throated sparrow. In winter one hears juncos and tree sparrows squabbling over a food tray.

Then spring comes around again. What nests will be in the garden this year? Will the wood ducks use my nest box? What birds will occupy the flicker hole in the elm, and where will the flickers make their new home? I will be listening for their sounds to find the answers. ■



In the earlier part of the twentieth century the road which led into the Giant Forest from California's San Joaquin Valley passed, as it does today, through the village of Three Rivers, now a modest-sized gateway community for Sequoia and Kings Canyon National Parks.

The photographs accompaying this article are part of Mrs. Starry's collection of historical material on southern and central California.

Beyond Three Rivers the dirt road into the Giant Forest passed Colony Mill as it climbed up to a camping spot in the groves of Big Trees.

CAMPING SEQUOIA SIXTY YEARS AGO

By Roberta M. Starry

SIXTY YEARS AGO camping was the new "in thing" for summer. For the most part, bohemians, scientists, and a few early conservationists were the outdoor devotees before that time; but "suddenly all classes of society were infected with the camping craze," in the words of a California publication.

Newspapers carried advertisements that teased the reader with glowing descriptions of camping equipment available in the pages of their vacation departments. Items offered included boots, leggings, camp stoves, tents with "adequate pockets for little personal belongings that add much to the comfort of daily living," while also suggested were "Chinese lanterns, with candles, for evening enchantment."

Persons living or vacationing in California were especially fortunate when planning to take a fling at camping. They were assured by resort and real estate agents that: "Absolutely no rain falls during the summer. One can reckon upon clear skies until at least the last week in September and safely take chances until mid-October."

For the uninitiated camper there were helpful magazine articles, how-to books, and lectures. Handsome, tanned outdoors men appeared on travel programs or lectured to ladies' clubs. Even preachers were known to recommend from their pulpits the benefits of casting aside "harassing cares and brain-wearing routines" for a few weeks of inspiration, to be acquired by camping in the mountains or along the ocean.

Individuals craving the ultimate in adventure were encouraged to buy a pack mule or a rig and go gypsying to the Big Trees or the Coast redwoods. It was pointed out that a rig was the most desirable of the two means of travel, as adequate equipment could be carried, reducing camping discomforts to a minimum.

For example, the "how-to" books set forth the proper procedure for camping once a party reached the Big Trees of the California Sierra. How one packed all the recommended gear and coaxed a team to pull the overloaded rig up the rough, steep road to the Big Trees was a question left

to the adventurer—or rather, perhaps, to his horses.

Once in the shadows of the ancient trees, one was to take great care in selecting a campsite. "Keep in mind adequate living space and privacy. Another camp within sight could be disturbing." A chapter on setting up camp admonished the beginner to pitch the tents as soon as a site was selected, and to keep in mind that tents were to be regarded as sleeping areas only. A wood floor would prove helpful in keeping a clean tent after the first excitement of camp life wore off. The yards of dark colored art-denim, listed as a necessity, could now be used to cover cots, chairs and trunks.

With the sleeping area completed, work on the kitchen was to come next. It was suggested that the kitchen area be tucked out of sight in a convenient clump of second-growth trees. For housekeeping convenience, the packing boxes should be emptied and converted into cupboards where the canned goods could be sorted and stored. Pots and skillets were to be hung from tree-pegs, and the stove checked and ready for cooking the first camp meal.

The dining room would be set up next, with sturdy table and benches. If lumber had been brought in rather than finished articles, there would be considerable loss of time in setting up camp. Table linen and china were not recommended; enamel cloth and white granite dishes were considered more suitable. A helpful bit of advice reads: "What is cooked or how it is served is less important than that there be a sufficient amount. Appetites mount from outdoor living."

The team that pulled the camper and his rig into the Giant Forest could also be used for exploring trails and visiting the remarkable trees.

Last on the list for making camp—but considered just as important as the other ingredients of the site—was the lounging room. Here, in a quiet nook, hammocks would be hung for long hours of relaxation in the afternoon and for lazy enjoyment of an evening campfire, with colorful Chinese lanterns swinging from low branches. "A magic place for birds and squirrels to visit in the day hours and camping neighbors to visit in the evening." The city-bound reader dreamed of wonderful, long hours in a swaying hammock, the sound of a distant bird, the bit of blue sky showing through towering trees.

With all the detailed advice on how to camp, one important chapter was omitted in the literature of the day. What was one to do when the joy of the swaying hammock dulled? Because of the great distances traveled to reach the Big Trees, a camping trip encompassed weeks, not days; and whole families settled in for the summer. Some soon tired of camp life, and boredom set in; visiting camp neighbors was not like visiting friends at home. Sight-seeing called for miles of hiking or more rough travel. The departure of one unhappy camper was hardly noticed as many of the others were occupied in discovering the wonderful world about them.

There was no end of foot-paths to explore. Lumber roads gave access to much of the country where nature's great wonders were still to be found, in spite of the scars man had carelessly inflicted. Some people forgot that they had traveled to the Big Trees for peace and quiet and spent days watching the rhythmical swing of axes, felt the earth shake as a giant fell, and saw the teams strain to move the massive tree for its trip to the sawmill.

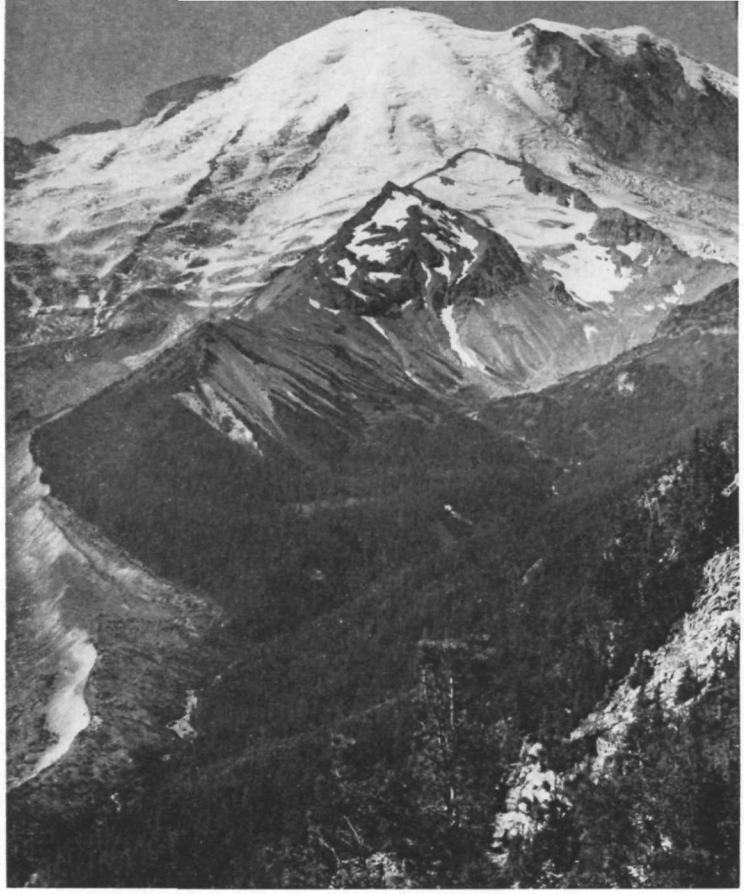
Watching the Giants Dismembered

In Converse Basin the Abbott Mill was running, filling the air with dust and smoke. The once-beautiful meadow was now a bed of discarded wood and rows of lumber, while the quiet of the forest was shattered by the whine of saws and the wailing of locomotives. The whole lumbering process held a fascination for most Sequoia visitors, and Sunday was like a holiday at the mill, where one could become acquainted with the hardy men who conquered the giant trees. The more adventurous visitors rode the log-flume that day to experience the thrill or injury that came with traveling down a steep mountain and around sharp curves on a bed of fast-moving water.

The camping "advisors," in public print or from lecture platform, promised those individuals with courage to camp in the mountains that they would become stronger and more effective in their everyday life; and that the future would be more bearable for having spent weeks "breathing the resinous perfume of the forest and relaxing in the whispering melody of wind in the trees."

That was camping in the Great Forest sixty years ago. ■

Above and below, camping scenes in the Big Trees during the summer of 1908, with the approved styles in vehicles and camping attire much in evidence. Hammock at far right in upper picture was considered necessary to proper relaxation.



Steamboat Prow, as seen from Sunrise Park side of Mount Rainier National Park, is the site of Camp Schurman, half-way point and resting camp for those attempting the summit climb via the Emmons Glacier. Lower portion of the glacier is now covered with tons of debris from avalanching.

WHY HARD HATS ON MOUNT RAINIER?

BY MARY L. TURNER
PHOTOGRAPHS BY CAL TURNER

THE SHARP CRY OF "ROCK!" strikes fear in the heart of the hardiest mountaineer. As he presses himself close to the mountain and listens to the plunk of flying rocks on his hard hat he is happy with its protection, although he may have cursed its bulkiness and bemoaned its discomforts earlier in the climb.

During the 1967 season, climbers of 14,410-foot, heavily glaciated Mount Rainier in Washington were required by the National Park Service to wear hard hats for the first time. The Park Service has for some time required that all climbers register with a park ranger at the beginning and at the end of each trip. The ranger grants permission for a summit attempt on the basis of a climber's previous experience, physical condition, and possession of proper equipment. Anyone attempting the climb without a park ranger's permission may be heavily fined.

Several factors contributed to the decision that year that all climbers wear hard hats. Although Mount Rainier is called a "dormant" volcano, summit climbers have often described how the crater steams, melting the snow to hot water and forming steam caves. These caves have at times saved the lives of climbers caught in an unexpected storm. Geologists feel this same steam is a contributing factor in the avalanching of the "rotten" volcanic rock, which takes place somewhere on the mountain almost daily.

During the winter of 1963-1964 the Emmons Glacier, which had been famous for its beauty, was covered with a dark rock debris from Little Tahoma Peak. Park Service officials asked Dr. Dwight Crandell and Dr. Robert Fahnestock to survey the area, and their report is printed in U. S. Geological Survey Bulletin 1221-A.

Although no one has a definite answer to what causes the avalanches on Rainier, Dr. Crandell advances the theory that they are perhaps triggered by small steam explosions within the mountain. He recalls the experience of a climbing guide at Camp Muir who, on a summer night of 1961, heard an explosion at Gibraltar Rock. The next morning he could see large quantities of fresh rock debris on Cowlitz Glacier downslope from a scar at the south end of the Rock. The guide saw a large steam jet spouting from cracks in

the scar under such pressure that he could hear its high-pitched whine. This lasted for about five weeks. Dr. Crandell writes in his report: "Such explosions in unstable areas undoubtedly have contributed substantial quantities of rock debris to glaciers on Rainier in the past."

Since this avalanching has been going on for years, climbers might ask why the Park Service decided to make hard hats required equipment for the ascent.

In 1967 this mountain—which has been known to make its own weather regardless of the weather around it—stood glistening and shining during 70 days of practically cloudless skies. Visitors to both the Paradise Valley and Sunrise areas were rewarded daily with beautiful views of the mountain, so often wrapped in a cloak of clouds. But this warm, clear weather, which delighted Mount Rainier Park visitors from the 50 States, imposed many new problems on the more than 800 adventuresome people who attempted the summit climb.

The sun on the glaciers melted snow bridges across crevasses and the ice lost much of its cover of snow, becoming hard and slick. A fall on the ice or a slip into a crevass required, aside from some good luck, special head protection. Avalanching either became more frequent or was seen more often because of the unusual visibility. Climbers who traditionally left Camp Muir or Camp Schurman in early afternoon were forced to leave as early as ten o'clock in the evening in order to reach the summit by dawn and avoid the rockfalls that occur during the daytime. As the season progressed, loss of the snow bridges caused the Rainier Guide Service to place four aluminum ladders across crevasses leading to its route up Disappointment Cleaver.

Such unusual conditions indicated that every possible precaution should be taken by climbers in the interest of safety. The Park Service "hard hat" rule for climbing Mount Rainier was a vital factor in keeping injuries to a minimum, and climbers watching boulders cascade from Gibraltar Rock had occasion to appreciate the reason for their inconvenient headgear. ■

Tumbling volcanic rock creates billows of dust as it cascades down Gibraltar Rock to the Cowlitz Glacier of 14,410-foot Mount Rainier, making the glacier crossing extremely hazardous. National Park Service rangers, who must approve the gear, physical condition and abilities of all who attempt the summit, have added hard hats to the list of required equipment.

News and Commentary

An American Chestnut Program?

A long-range program for the restoration of the American chestnut through genetic selection of blight-resistant trees may be undertaken soon by Stronghold, Inc., private, non-profit corporation which owns and operates the beautiful mountain estate of the late Gordon Strong on Sugarloaf Mountain near Frederick, Maryland. Mr. Strong left his estate in public trust that its natural beauty and value might be used for the betterment of man. The Stronghold preservation covers several thousand acres of mountain land and is ideally situated for such a long-range genetic selection program; it is in the heartland of the original range of theAmerican chestnut forest which was ravaged by the chestnut blight fungus, imported from the Orient around the turn of the 19th century.

Sea Otter Transplant

The Atomic Energy Commission is proceeding with its program of underground nuclear testing on Amchitka Island in the Aleutian Islands National Wildlife Refuge. Dr. Glenn T. Seaborg, AEC chairman, replying to NPA President Smith's letter to him pointing out the vital importance of Amchitka to the sea otter and certain seals, said "there is an urgent requirement for exploring Amchitka at this time." He added that AEC was attempting to prevent damage from the presence of human population and heavy equipment as well as from the tests, and that nesting grounds of the bald eagle and the Canada goose have been declared off limits to all personnel.

Plans have been made to capture about 250 sea otters and transplant them in groups of 50 at areas selected by the Alaska Department of Fish and Game. Washington, Oregon and British Columbia are also interested in re-establishing the animals in their coastal waters. In the late nineteenth and early twentieth centuries these marine mammals were nearly exterminated throughout their historic North Pacific range by the fur trade, until they numbered only about 500. Alaska's sea otter population is now estimated at 25,000 to 30,000 animals. It is said that there is reason to believe that the techniques worked out by Alaska's biologists for trapping, holding and air transporting the animals in 1959, 1965 and 1966 will be effective. It should be noted, however that past efforts at transplanting sea otters were not particularly successful, and that substantial losses are to be expected in such a program.

Chesapeake Bay: Foundation and Problem

Chesapeake Bay is a biological entity which could be hopelessly lost through the "brinkmanship" of the area's present water management practices. This is the premise of the Chesapeake Bay Foundation, established to "preserve the environmental integrity" of the extremely valuable estuary. Organized by Maryland and Virginia professional and scientific men, it will not be bound by state lines but will concern itself with the Bay as a whole.

Chesapeake Bay is a great harbor, a provider of abundant excellent food, and an historic area offering great scenery and recreation and the greatest industrial water supply on the continent. The same values render it susceptible to environmental change, yet the growth of the surrounding area will require some development, some modification. The Foundation was created specifically to act as an agent for the public interest in all matters relating to the Bay, and as such expects to perform a variety of public service functions. It will have a full-time professional staff headed by Jess W. Malcolm, previously staff biologist for the Delaware River Basin Commission.

Incidentally, the course of events seems to be moving in the wrong direction on the Bay at the moment. A petroleum distributor for the Washington, D. C., metropolitan area has recently made application to build a $40 million petroleum refinery and "free port" at Piney Point, deep in the heart of the "land of gracious living" country, to use a phrase

The Lackawaxen Bridge: A Possible Historical Landmark?

A number of years ago the National Park Service launched an admirable program for identifying and lending official recognition to the most significant exemplars of the nation's human history—the National Historical Landmark program, in which the Service cooperates with private individuals and organizations in helping protect important American historical landmarks.

A number of conservationists on the East Coast feel that a worthwhile addition to the Landmark program would be a handsome suspension bridge across the Delaware River at Lackawaxen, Pennsylvania, designed and built in 1848 by John Roebling, who was later to build the Brooklyn Bridge and many other notable spans; and this Association concurs in this view. The Lackawaxen Bridge, shown at left, is one of the first suspension bridges to be built in the America of a hundred and twenty years ago, and is still in excellent repair.

widely heard on local TV in publicizing the region just south of the confluence of the Patuxent River and Chesapeake Bay on the bay's west side.

This is a region of beautiful estuaries on the Potomac, large and small—a scenic land of crab fishing, water everywhere, tree-lined river banks and relatively little development. Up until the recent past the application has apparently had sailing as smooth as that found on favored days in the Bay itself, because the public has been largely unaware of developments. One of the commissioners of St. Mary's County has indicated that this lack of public information was essentially in the interest of the public itself—what the public does not know, it will not be upset about. This idea was discarded by many of the professions years ago. Another gem emanates from R. M. Sparks, deputy director of the Maryland Department of Economic Development, who reportedly said that "there's certain things that it's not in the interest of the people to know until the right time." The right time for this kind of operation, apparently, is that moment when the public can be presented with an accomplished fact. Further digging into the situation by angry residents of Saint Mary's County, many of whom like their country living, brought to the surface a reported statement from an oil distributor representative to the effect that: "We're not trying to hide anything from the public," but it would be "premature for us to be talking in public about something the Maryland Port Authority is going to do before they do it." All of which seems to push one toward the question of open planning by governments, state and federal—an area in which there is presently room for a great deal of improvement.

Biological Insect Controls

Research on nonchemical control of insects will be the activity at new greenhouses and a new laboratory recently dedicated on the Columbia campus of the

(continued on page 22)

University of Missouri. Scientists of the Agricultural Research Service of the Department of Agriculture will cooperate with the University on programs of mutual interest.

The researchers will determine if various Midwestern environmental conditions are suitable for the release of promising insect predators and parasites from other regions.

L. O. Rothschild Honored

Admirers of the Hudson River Highlands joined in a reception honoring Mr. L. O. Rothschild at the Biltmore Hotel in New York on the afternoon of June 26. Over one hundred persons gathered to honor the one person who, above all others, has successfully sparked efforts to protect and preserve the scenic beauty of the Hudson River from New York to Poughkeepsie. Mr. Rothschild's work began in 1928 when he saw in the construction of the George Washington Bridge an immediate threat to the Palisades. His efforts then culminated in the acquisition of the critical area for park purposes through the generosity of the Rockefeller family. Later he was a key figure in the opposition to the destruction of Mt. Taurus by a crushed stone operation.

Since 1962, as chairman of the Scenic Hudson Preservation Conference, he has been a guiding light in the public campaign to prevent the construction of a pumped-storage hydroelectric power plant on Storm King Mountain. This effort has resulted in a court ruling that has nation-wide implications in the legal aspects of natural beauty protection.

William Vogt

With the passing of William Vogt, formerly director of Planned Parenthood and secretary of the Conservation Foundation, who died July 11 in New York, a great humanitarian voice has been stilled. In his *Road To Survival* in 1948, he warned that the volcanic upheavals in population the world over which had followed revolutionary advances in medicine, reducing death rates drastically, but leaving birth rates unchanged, would lead to widespread human hunger and misery. Too few of his contemporaries took him seriously, infatuated as they were with the seeming power of technology to spawn hybrids, fertilizers, pesticides, and machines toward infinity. Hopefully, the technocrats, with even the atmosphere of the earth in danger, know better now. Vogt was a true prophet and a seer, in the sense of a man with distance vision who saw the facts twenty years ago which others preferred not to see. The best tribute anyone can give now to Bill Vogt is to work with dedication, each in his own sphere, to battle that great menace to all life on earth, human overpopulation, twin only to war.

Monitoring the Sonic Boom

In conversations with officials of the Federal Aviation Administration and the National Park Service, the Association has learned that a modest program has been launched to monitor sonic booms occurring in four national parks. At NPS' request the FAA has installed a transient data recorder in Mesa Verde Park and is putting one in Bryce Canyon. Yosemite will also have one, and Yellowstone two.

From the tapes the National Aviation Facilities Experimental Center will be able to advise the Park Service of exact times shock waves occurred and the amount of atmospheric overpressure of each.

The concern of Park Service archeologists with damage to ancient Indian dwellings and geological formations was reported in an article by Bruce J. Welch written for this magazine's March issue. Rockfall from canyonsides and along trails has been continuing in the archeological parks, the most serious known recent incident being a fall of 66,000 tons of rock in Mesa Verde following an overflight by two jets on February 21, 1968. In studying the data obtained from the tapes NPS will try to ascertain the physical damage, if any, from specific flights. In Yellowstone the Service will also attempt to observe disturbance to wildlife resulting from any booms.

Along this line, we note a recent Associated Press report of damages paid by the British Ministry of Technology to a woman who lost her hearing and a boy who was kicked by a bolting horse, both of whom attributed their injuries to sonic booms during tests for the Concorde supersonic jetliner.

Reviews

A GUIDE TO THE WESTERN NATIONAL PARKS: THEIR LANDSCAPE AND GEOLOGY. By William H. Matthews III. Volume I. 480 pages, with illustrations, $7.95, *and* A GUIDE TO THE EASTERN NATIONAL PARKS: THEIR LANDSCAPE AND GEOLOGY. By William H. Matthews III. Volume II. 287 pages, with illustrations. 1968. Natural History Press, Garden City, New York. $6.95.

Back in the middle part of the nineteenth century Edward Hitchcock, president and professor of geology in Amherst College, scandalized his faculty by taking his classes out into the regional countryside and introducing them to the landforms they had read about in their textbooks. This crass conduct, said the other instructors, was destructive of discipline and degrading to the teaching profession. If the students wanted information, it was in the books. But Hitchcock did even worse. He actually invited the town boys and girls to go along on his explorations. A last straw! As though country bumpkins and farm lasses should know anything about the earth sciences! But Hitchcock, one of the best American geologists of his time, lives in science as the "father of ichnology." And the rebellious faculty? Gone are the snows of yesteryear.

One believes, indeed one knows, that the good Edward Hitchcock would be delighted to realize that long after his passing a competent and painstaking interpreter of the mother science would take all kinds of people by the hand and ask them to accompany him into our national parks, there to point out the events of natural history that have produced what the eyes now perceive. Matthews has done his job well and truly. He has bridged that awful gulf between the "too-scientific" and the "too-cozy." His own enthusiasm and ability as interpreter should make his readers informed and eager. Incidentally, I wondered as I began his excellent chapter on Grand Canyon, whether he would deal with the current research that tends to consider Major Powell's explanation of the origin of the Colorado Plateau and River as over-simplified. Matthews is perfectly aware, of course, of this research, but I think he did well to leave the Powell hypothesis as it stands until much more is established by the diligent students of the region. After all, the Powell peneplain-and-meandering-river is true as far as it goes, and is readily grasped. When we know more, more can be told.

As to these two volumes, one wishes that the production had been as good as Matthews' text. Perhaps it was not the best idea to make a geological interpretation and also a guide (where-to-go-and-what-to-see) in the same book. There was no real harm in the dual role, but apparently it led to production difficulties that were not happily solved. The text, when the pinch came, proved too formidable for a conveniently portable single volume. Then it was decided, as it looks, to make two volumes, one of the western parks and another of the eastern. But the difficulty there was that the eastern parks are so few: and thus we find, to our astonishment, that Big Bend, Carlsbad Caverns, Wind Cave, Guadalupe and several other parks have been moved considerably eastward for publication exigency. The jet-age has cut travel time, but geography remains unimpaired. It seems that by merely adopting an alphabetical arrangement this could have been avoided. Yet perhaps that device would have had its drawbacks, also.

It could be wished, also, that the lithographer had been a little kinder to the many and discreetly selected pictures that Matthews assembled. But all said and done, the interpretive value of these volumes is highly praiseworthy and Matthews is to be congratulated on a job well done. —*Freeman Tilden*

PATHWAYS: A STORY OF TRAILS AND MEN. By John W. Bingaman. End-Kian Publishing Company, Lodi, California 95240. 1968. 54 pages, with maps. Paperbound, $2.50.

In his retired years John W. Bingaman, for 35 years a ranger in Yosemite National Park, has put together his research into Yosemite's past human and natural history with some of his own long experience in the Park Service in occasional small volumes of valuable material. Such is *Pathways: A Story of Trails and Men*, which for the most part deals with the early Indian and white history of the Yosemite region and the people who blazed the trails there. Many of the present foot-trails in Yosemite Park, it should be noted, follow trails cut by former Indian inhabitants of the Valley, by the whites who followed, and by the Army protectors of the park before establishment of a National Park Service; and the volume is intended, as the author states in his short preface, to "serve as an authentic source of information" on the history of the trails before that history is lost to future generations.

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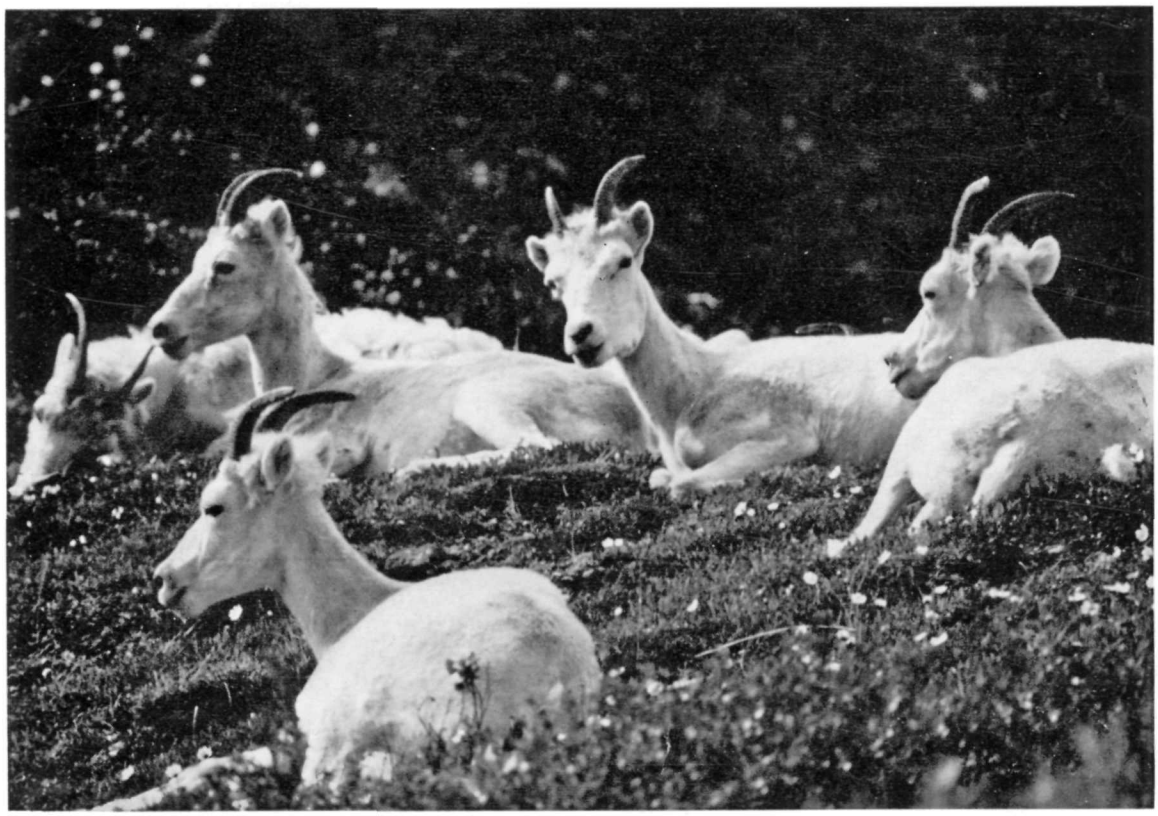

Photograph by Kenneth A. Chambers

Female Dall sheep on Igloo Mountain in Mount McKinley National Park, Alaska.

MOUNT McKINLEY NATIONAL PARK IN ALASKA

is one of our true wilderness preservations, spacious enough to contain the immense bulk of the highest peak on the North American continent and the watersheds of the icewater streams that flow from the northerly slopes of the park portion of the Alaska Range. Mount McKinley is spacious enough also to provide habitat for many plants and animals native to, or comfortable in, a sub-Arctic terrain and climate.

It has been suggested by some noted conservationists and scientists in recent years that a substantial addition be made to the park along its northern border to better serve the needs of wildlife, especially the park's larger mammals. The National Parks Association, as the nation's leading private conservation organization primarily concerned with the welfare of the national park system, undertakes careful studies of proposals like this, looking toward eventual recommendations to the appropriate government officials. These studies require adequate finance; and one of the ways in which members of the Association can be helpful is through contribution to the Association's general funds over and above basic annual dues. Such a contribution is deductible for Federal income tax purposes.

National Parks Association

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