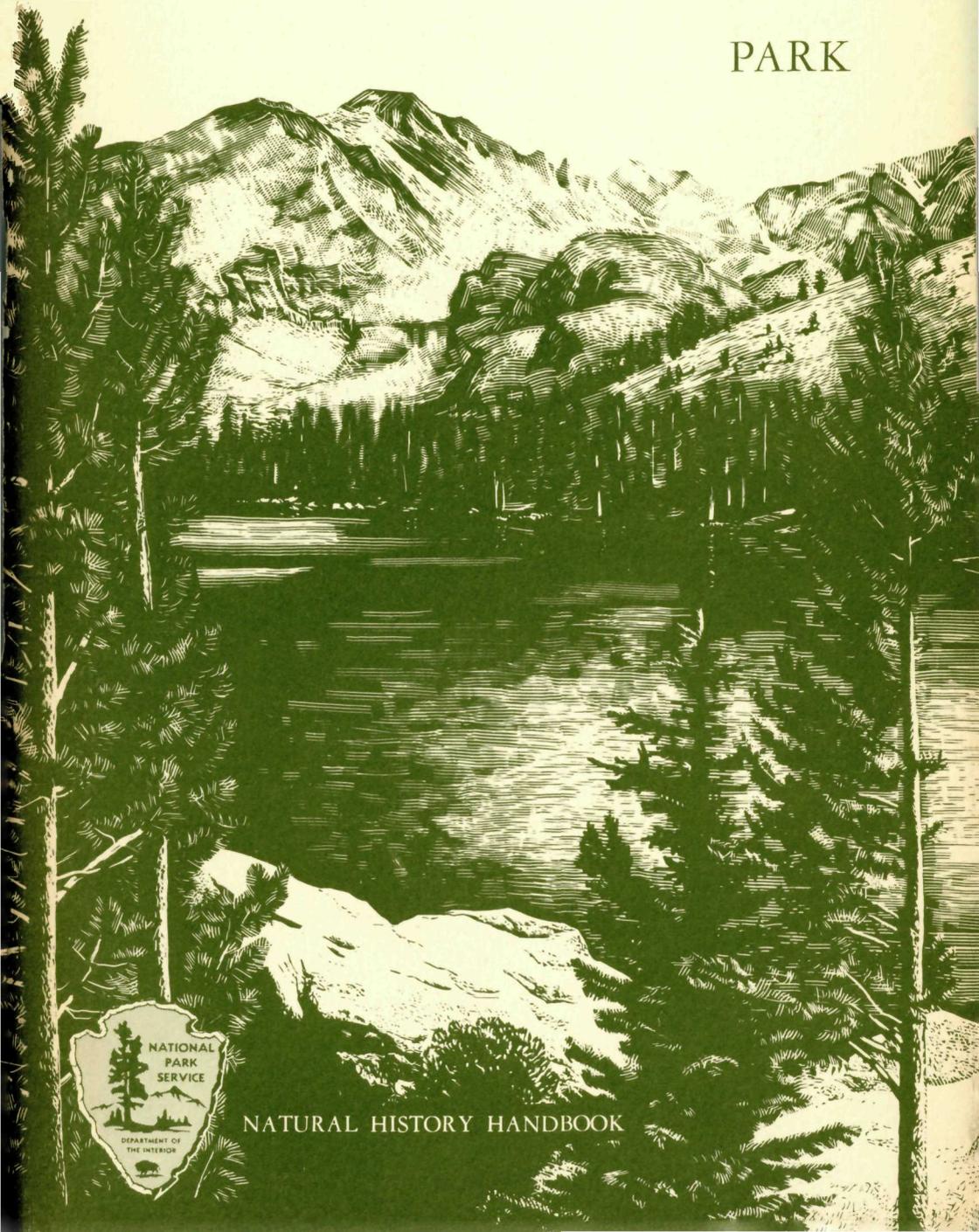


# *Rocky Mountain*

NATIONAL

PARK



NATURAL HISTORY HANDBOOK



UNITED STATES DEPARTMENT OF THE INTERIOR  
Douglas McKay, *Secretary*

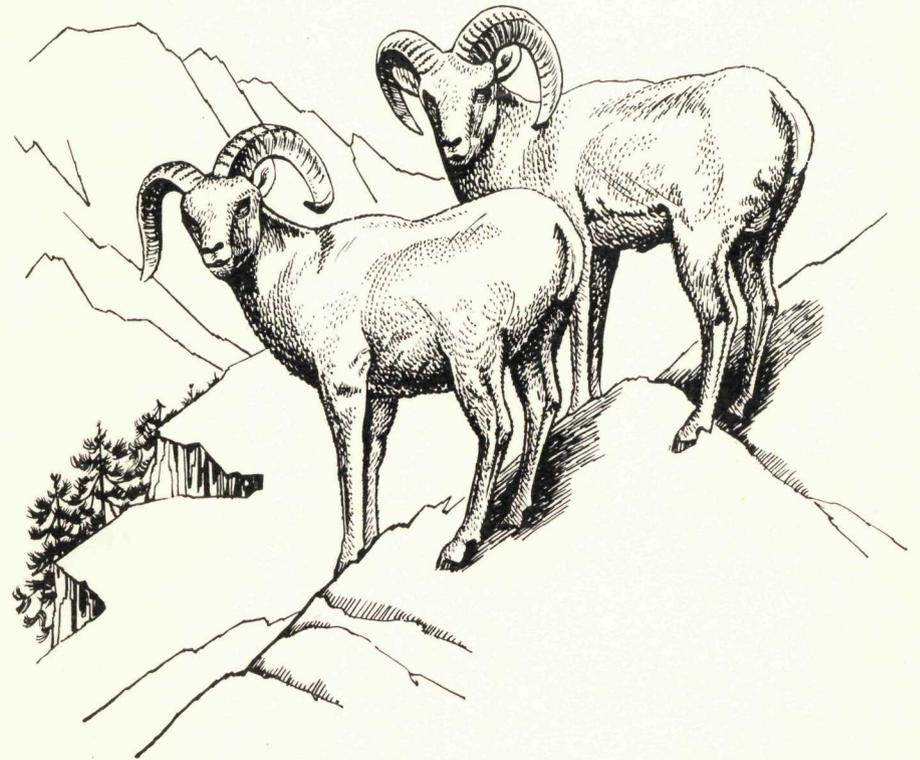
NATIONAL PARK SERVICE  
Conrad L. Wirth, *Director*

*NATURAL HISTORY HANDBOOK NUMBER THREE*

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# Rocky Mountain NATIONAL PARK • *Colorado*

By EDWIN C. ALBERTS



NATURAL HISTORY HANDBOOK SERIES No. 3

WASHINGTON, D. C., 1954

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*The National Park System, of which Rocky Mountain National Park is a unit, is dedicated to the conservation of America's scenic, scientific, and historic heritage for the benefit and enjoyment of the people.*



NOTCHTOP AND LITTLE MATTERHORN FROM FERN LAKE.



### *Theme of the Park*

**I**N 1859, COLORADO HAD A GOLD RUSH. *Although not as important historically as the California discoveries, it led indirectly to the settlement of the verdant meadows at the foot of the Front Range in the vicinity of modern Estes Park, and eventually to a "rush" of vacationists. As the scenic splendor of this region became better known, many public-spirited citizens recognized the need for preserving portions of the area as a national park. In 1915, Rocky Mountain National Park was dedicated in simple ceremonies at what is now called Horseshoe Park. Since that time millions of visitors have enjoyed the natural wonders of the park, including placid mountain lakes, rushing streams, and verdant high-country meadows. Here are trout to catch, native animals and birds to be seen and photographed, and trails to hike.*

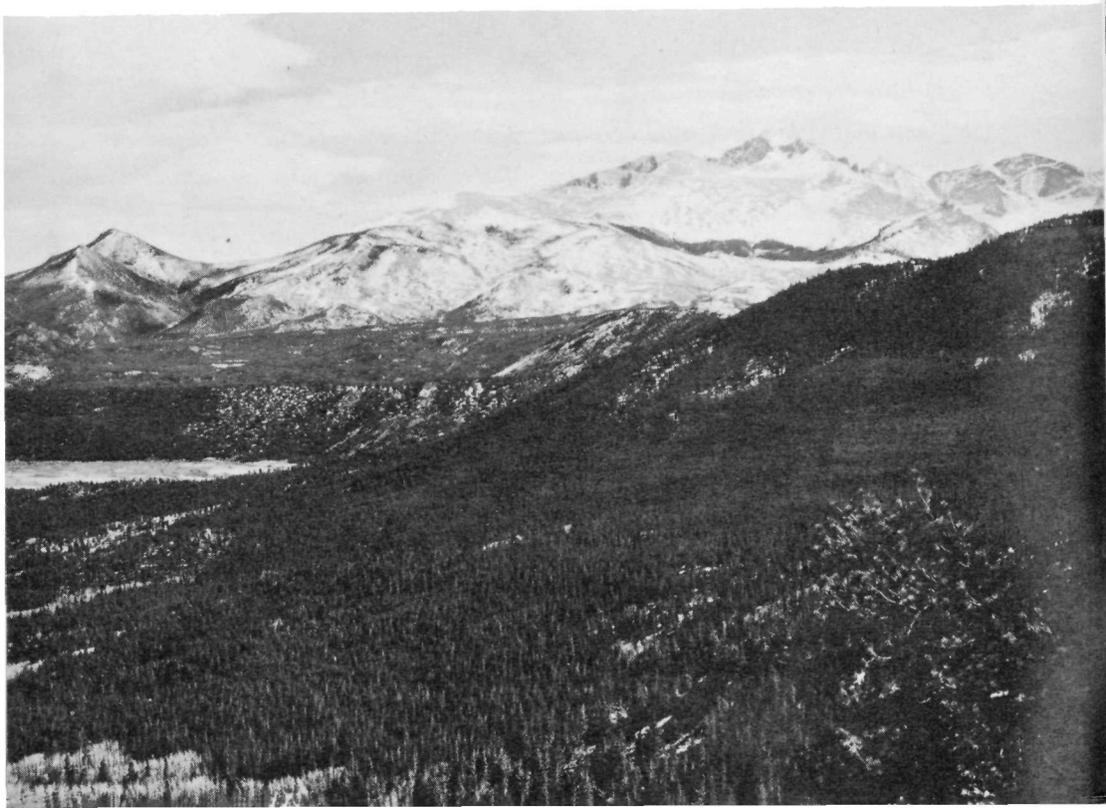
Park rangers are often asked by visitors, "What are the main attractions of Rocky Mountain National Park?" It is hard to answer this question, for the appeal of the park, somewhat like that of a symphony, lies in the varied yet repeated experiences or melodies which may be found within its framework. The raw beauty of the rugged mountains contrasts with the calm loveliness of wildflower gardens growing nearby. Some visitors enjoy the solitude, while others appreciate the opportunity to meet people with like interests and hike with organized groups on some of the 200 miles of trails. Many derive pleasure from

quietly studying the fascinating world of Nature preserved in the park. Some vigorously battle the steep slopes of the mountains; others relax in camp, satisfied by the sound of the wind in the trees. All people enjoy the park in their own way. There are regulations, but no regimentation, no compulsory activities, no "musts." That's one reason the park was established—for all to use, but not to abuse.

Rocky Mountain National Park comprises a bit over 400 square miles of the Front Range. The altitude of the park is high, with cool summers the inevitable result. There are more than 65 named peaks exceeding 10,000 feet. The Continental Divide, separating slopes draining to the Pacific Ocean from those draining to the Gulf of Mexico, runs through the park.

The stories which the park reveals to those who study it are of intense interest. Its climax scenery is made up of great gorges, lofty peaks, and remote lakes—the product of once mighty glaciers. Its forests and wildflowers tell a story of struggle and adjustment to environments which differ with altitude and exposure. Its native populations—deer, elk, bear, beaver, birds and the myriad lesser creatures of the wild—can be seen in their natural habitats. Its streams attract the hopeful fisherman; its unmodified natural compositions enthrall the artist; its cool, green setting appeals to all summer travelers.

GREAT FORESTS, HIGH PEAKS, AND COOL SUMMERS ADD TO THE APPEAL OF ROCKY MOUNTAIN NATIONAL PARK.



Enos Mills, "father" of Rocky Mountain National Park, wrote some 40 years ago:

A National Park is a fountain of life. . . . Without parks and outdoor life all that is best in civilization will be smothered. To save ourselves—to enable us to live at our best and happiest, parks are necessary. Within National Parks is room—glorious room—room in which to find ourselves, in which to think and hope, to dream and plan, to rest and resolve.

His words are even more significant to our generation than they were to his. This handbook is an attempt to provide a concise summary of some of the park's important natural values and to arouse your appetite for further pursuit of the enjoyment they offer. The basic experience in this national park, as in most, is to capture some of the inspiration and spiritual qualities of the landscape which Enos Mills felt so keenly.

### *The Mountains Are Made*

The geological story of Rocky Mountain National Park is a long one. Most of its details are lost in the passage of hundreds of millions of years of geologic time. Some of the story has been put together by scientists from bits of evidence scattered here and there. Like a detective story, the evidence strongly indicates a certain chain of events, but, unlike most such stories, no eyewitnesses are available to confirm the deductions. Few of these events can be proved to everyone's satisfaction; we can but pass on to you some determinations which geologists have made.

Most of the rocks which you see in the park are crystalline and very ancient. The gneiss and schist were, in part, once sediments formed in seas, perhaps a billion years ago, under conditions about which there is little knowledge or general agreement. These sediments were buried beneath thousands of feet of other sediments and were later squeezed, crushed, and elevated by slow, ceaselessly working earth forces which produced mountains even in that ancient time. During this period the sediments were changed to hard rocks, probably due to deep burial under tremendous pressure and considerable heat. Masses of molten rock welled up into these earlier deposits and hardened under the earth's surface. This later (although still very ancient) intrusive material is now exposed as granite in many parts of Rocky Mountain National Park.

These ancient mountains were gradually worn away by wind, rain, and the other agents of erosion which must have attacked the surface of the earth as vigorously then as now. With the passage of millions



ROCKS ONCE BURIED MILES DEEP ARE NOW EXPOSED ON LONGS PEAK, AT AN ALTITUDE OF OVER 14,000 FEET.

of years, these mountains were reduced to a lowland. Another sea gradually lapped over the land where mountains had been, and once again sediments were dropped in its bottom. This new invasion of the ocean affected the park region during many millions of years in which the dinosaurs dominated the earth.

In response to little understood rhythms of the earth's crust, which have lifted mountains ever so slowly at great intervals all over the world, the seas drained away as the crust rose again, and the rising land once more became subject to the ceaseless attack of erosion. This uplift—which began about 60 million years ago—established the present system of mountain ranges and basins which gives Colorado its spectacular scenery and much of its climate. This great period of mountain-making is called the Laramide Revolution, from its early recognition in the Laramie Basin region of Wyoming.

The Front Range, of which this park preserves a choice sample, was buckled in the fashion of a great long wrinkle in a carpet. This "roll" of rock was about 200 miles long and some 40 miles across.

In its earlier stages it was covered by the arched-up sediments, but, as time passed and erosion continued, the inner core of earlier crystalline rocks was exposed once again. Today, all traces of the former thick mantle of sedimentary beds are gone from the park. They are still present beneath the plains to the east and the basins to the west, and the cutoff ends of some of them now lie exposed in a tilted position against both east and west flanks of the mountains. The sandstones of some of the hogback ridges crossed by the approach roads from Lyons and Loveland are a part of this once continuous overburden.

Uplift continued intermittently during many million years. In the western section of the park volcanic eruptions took place. Specimen Mountain is the remnant of a volcano, flows from which make up the cliffs behind Iceberg Lake on Trail Ridge Road. Great sheets of lava and similar rocks piled up in layers now make up much of the colorful Never Summer Range. Eventually, these rocks, too, will be stripped away by the relentless work of erosion; however, this will require millions of years.

An unusual feature of the landscape here is the flat summit of many of its mountains. Trail Ridge Road crosses several miles of plainlike top of the range. These rolling summits appear to be all that is left of an old land surface which once may have been continuous far eastward over the area occupied today by the Great Plains. Such surfaces, of which the mountains in the park show many good samples, are called peneplains. Their presence atop the mountains is a part of the evidence suggesting that the range had been worn down by erosion to a fairly flat upland a few million years ago. Then renewed uplifting occurred, and streams draining the highland gradually cut canyons two or three thousand feet into the elevated surface.

## *The Work of Glaciers*

These canyons were filled by glaciers at intervals during the million years of the Ice Age. This period saw the formation of vast ice fields over much of northern North America. The causes of the Ice Age are complex, but its effects on our landscape are marked and convincing.

Every large high-altitude canyon in what is now Rocky Mountain National Park became filled with snow, much of which, under pressure, turned to ice. Thus, the glaciers by their own great weight moved with slow but tremendous power—broadening, deepening, and straightening the twists and turns of the original river-cut valleys. Great bowls, or cirques, were scooped out bit by bit at the glacier sources. These glaciers quarried and removed untold millions of tons



SANDSTONE HOGBACKS FLANK THE MOUNTAINS ON THE EAST. SCENE NEAR MOUTH OF BIG THOMPSON CANYON, WEST OF LOVELAND.



THE HIGH MOUNTAIN LAKES ARE SET AMONG THE SCARS OF GLACIER EXCAVATION. ARROWHEAD LAKE, IN GORGE LAKES CANYON.

REMNANTS OF AN EROSION SURFACE ON PEAKS SOUTH OF TRAIL RIDGE ROAD.

MORAINES EXTENDING INTO THE MEADOWS, SEEN FROM MANY PARKS CURVE ON THE TRAIL RIDGE ROAD.



of rocks from the upper reaches. Many of the cliffs and lakes of the park are the results of excavating done by the mountain glaciers.

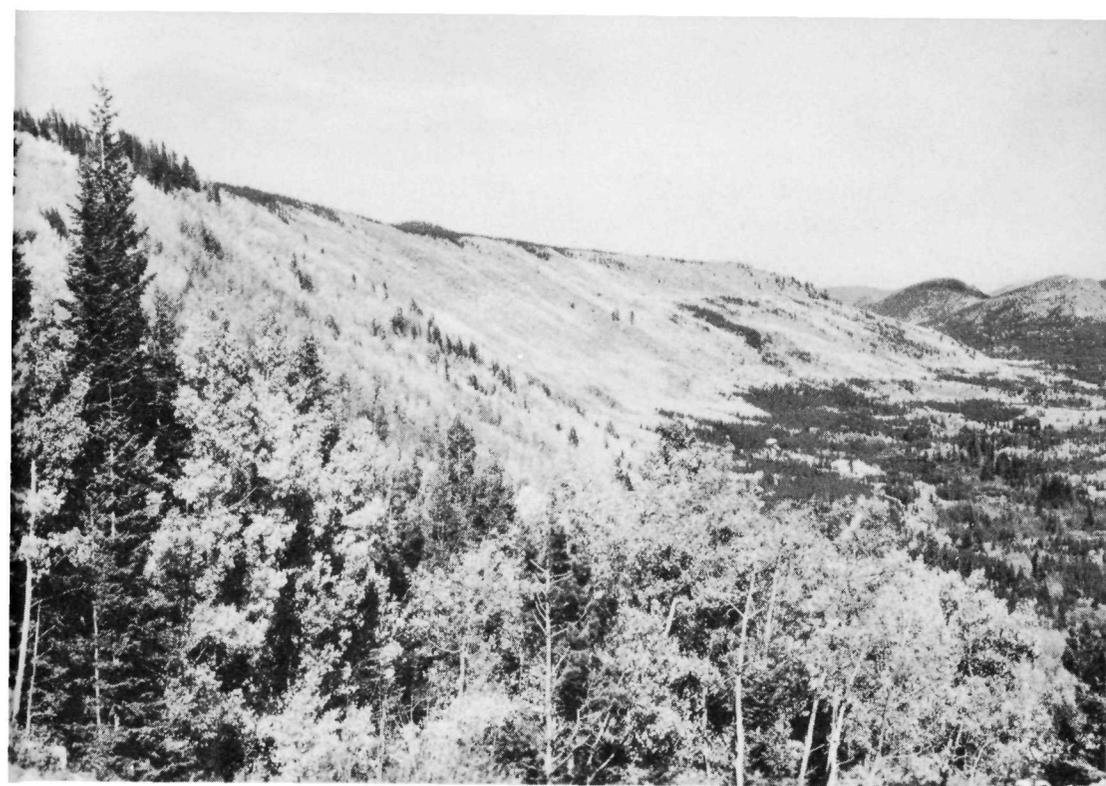
These glaciers were entirely local; they did not extend down to the plains in this region. At what is now an altitude of about 8,200 feet—just below our present Moraine Park, Horseshoe Park, Wild Basin, and a few miles below Grand Lake in the Colorado River valley—the glacier fronts melted as fast as the ice advanced. It was there that most of the rock debris plucked from higher up was dropped. Piles of rock are scattered over most of the meadowlands of this general altitude. These rock deposits are called moraines—ridges and heaps, or scattered masses, of unsorted rock debris dumped where they settled from the melting ice. Classic examples of moraines may be seen in Moraine Park, named for these special features. You can learn more about them at the Moraine Park Museum.

When climatic changes caused the glaciers to melt back faster than they advanced, the moraines, like modern dams, formed lakes behind them whenever stream drainage from the shrinking glaciers was checked. Several such lakes, now silted in and changed to green meadows, occupied lower regions in the park. In Horseshoe Park, lake-shore terraces of an Ice Age lake still remain. Near Wild Basin Ranger Station is Copeland Lake, occupying a basin believed to have been left by the melting of a huge block of ice buried in a mass of glacial debris. The pastoral beauty of the lower mountains, then, owes most of its quality to these now vanished glaciers.

The glaciers invaded the park valleys at least twice during the Ice Age. Usually, two distinguishable ages of moraines can be seen; the older and more extensive one is made up of well-weathered, “rotten” boulders and finer material, while the newer ones are scarcely altered at all. It is thought that the last great glaciers retreated only some 12,000 years ago. Indians lived on the plains at that time!

It is by no means certain that the Glacier Age is entirely a thing of the past. Five small “glacierets” of geologically recent origin—Taylor, Andrews, Tyndall, Rowe, and Sprague’s Glaciers—exist today in the park but are trivial when compared to the “kingsized” earlier glaciers. Since they are ice and they are moving (although very slowly), they are glaciers by definition. They are accessible only by arduous foot travel, but the first three are visible from heavily traveled roads and trails of the park.

The story of the geological events, as we have seen, is long but interesting. The landscape of today, we now realize, is transient. It is the contemporary product of processes which have been working day and night throughout geologic time. These processes will certainly continue into the future, and the present landscape will inevitably change. Every year sees some little modification here and there. These small changes are not linked in our thinking with the vast



BIERSTADT RIDGE, A HUGE GLACIAL MORAINE, SEEN EN ROUTE TO BEAR LAKE.

ANDREWS GLACIER, LATE IN SEASON. NOTE CREVASSES IN UPPER LEFT.



sweep of geologic time, probably because our own lives are so very short. With some reflection we seem to catch glimpses of eternity as we examine the ancient gray cliffs and mighty peaks of Rocky Mountain National Park.

### *The Mountains Are Mantled With Plants*

Having seen that the present mountains are the result of past events, we should not be surprised to learn that the plant cover of the park is also dependent on what has occurred before. Although we are inclined to think of a plant community, such as a forest, as a permanent fixture, actually it is a dynamic, never-stagnant population of individual living things, and resembles a community of people in some ways.

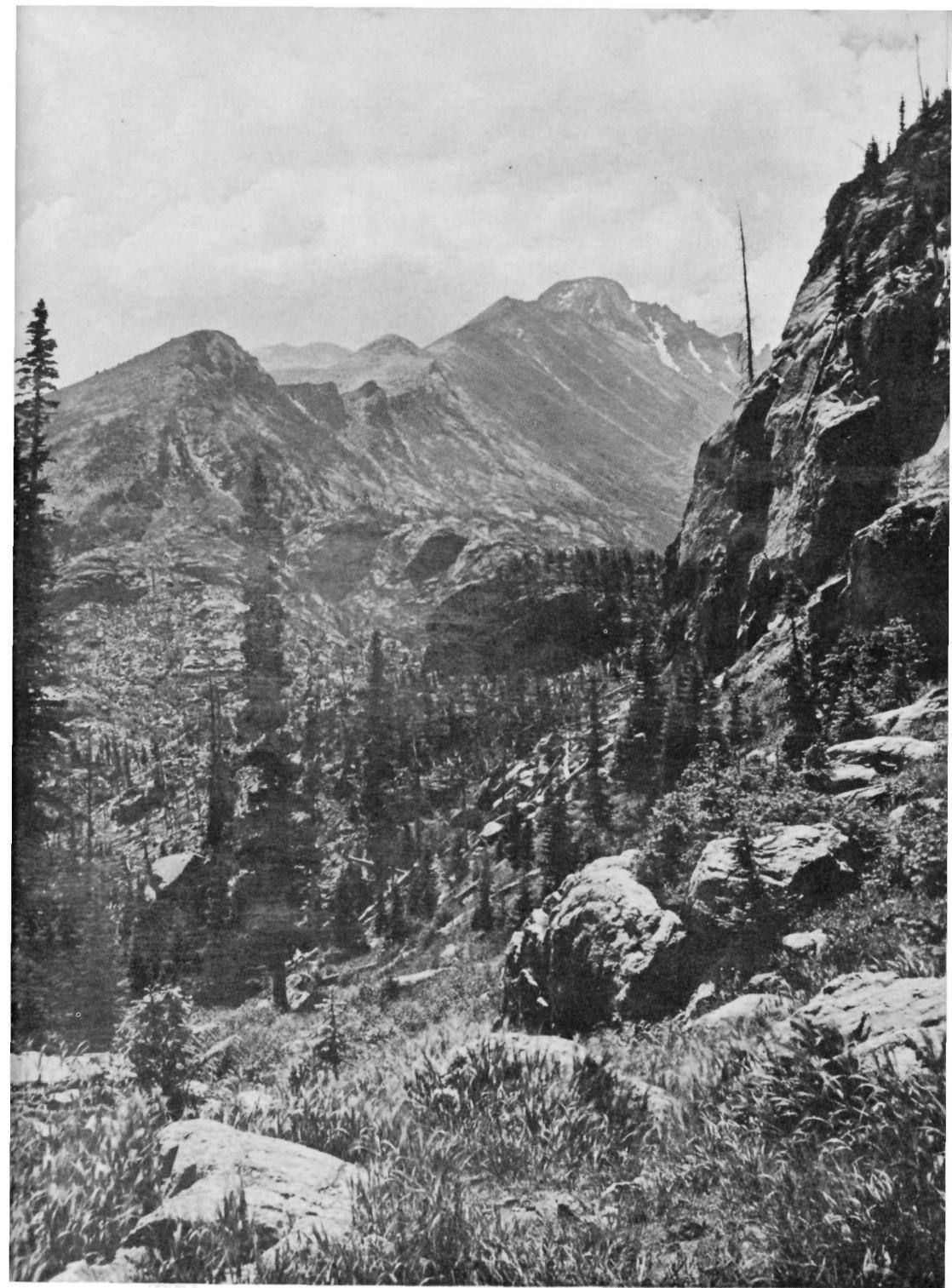
Just as human populations ebb and flow through periods of great numerical growth and dominance, followed by decline and engulfment by invading peoples, so do vegetation types go through periods of dominance and decline. When certain conditions of climate and soil prevail, those kinds of plants best adapted to such conditions will dominate the scene. As conditions change, the flora will change.

In Rocky Mountain National Park, we assume that toward the end of the Ice Age most of the high altitude landscape was either ice-covered or barren, like our present-day rock piles above timberline. As the ice melted and disappeared, the bare rocks of the canyons were exposed, and lakes occupied what are now the meadows. The climate was changing, though, and the rather sparse arctic-type plant life was superseded by another vegetation complex, except on the very tops of the mountains.

The original arctic-type vegetation was presumably connected with that of the regions bordering the Arctic Ocean. The present tundra of the high country in the park is an island of arctic-type vegetation, surrounded on all sides by plant communities of lower latitudes. Will it be engulfed some day and replaced by surrounding plant types? If the climate continues to moderate, the answer may be "Yes."

Most of the original sparse arctic flora has already disappeared. The bare rocks were first invaded by lichens—those plant pioneers still to be seen on bare rocks in the park. In the thin soil formed by their life processes other primitive plants became established. As the climate moderated and soils formed where bare rocks formerly existed, a new vegetation complex replaced the old.

We suppose that all sorts of plants got started on this new land, but only those species which happened to be adapted for the particular conditions of their time would last long enough to become well established and to produce ample seeds for future generations. This



RUGGED CLIFFS AND MIGHTY PEAKS ARE SPECTACULAR PRODUCTS OF GEOLOGIC FORCES.

—A. R. Leding photo.

natural selective elimination of plants which did not adjust to the changing conditions results in the dominance of certain well-adjusted species. In this way according to scientists, a climax vegetation develops for a particular situation. As long as the climate remains about the same, the climax vegetation remains fairly static, but, at best, climax is relative and judged by the time perspective of man.

Although it has been thousands of years since these plant communities first started on the glaciated bedrock, the struggle for dominance among the plants still goes on. Conditions are not yet completely static and probably never will be. The meadows, the forests, and the barrens of today may be quite different in a distant tomorrow.

## *Plant Communities*

### BELOW 9,000 FEET

In the lower slopes of the park, below approximately 9,000 feet altitude, usually described as the Montane Zone, the climate is relatively warm and dry. This type of climate has encouraged a fairly consistent pattern of vegetation that may be considered climax. The forests in this zone are open. The trees are likely to be scattered in characteristically parklike stands and are made up mostly of ponderosa pine, but on cool north slopes the stands are thicker, with Douglas-fir sprinkled in or even dominant. With the ponderosa pine on drier sites is juniper (commonly called cedar), and above 8,000 feet sometimes thick stands of lodgepole pine are admixed. Along the streams are the distinctive and graceful Colorado blue spruce, associated with willows, birch, and alder. Aspen groves and, in lower altitudes, cottonwoods appear here and there. Many types of bushes, some characteristic of the foothills, grow in the Montane Zone.

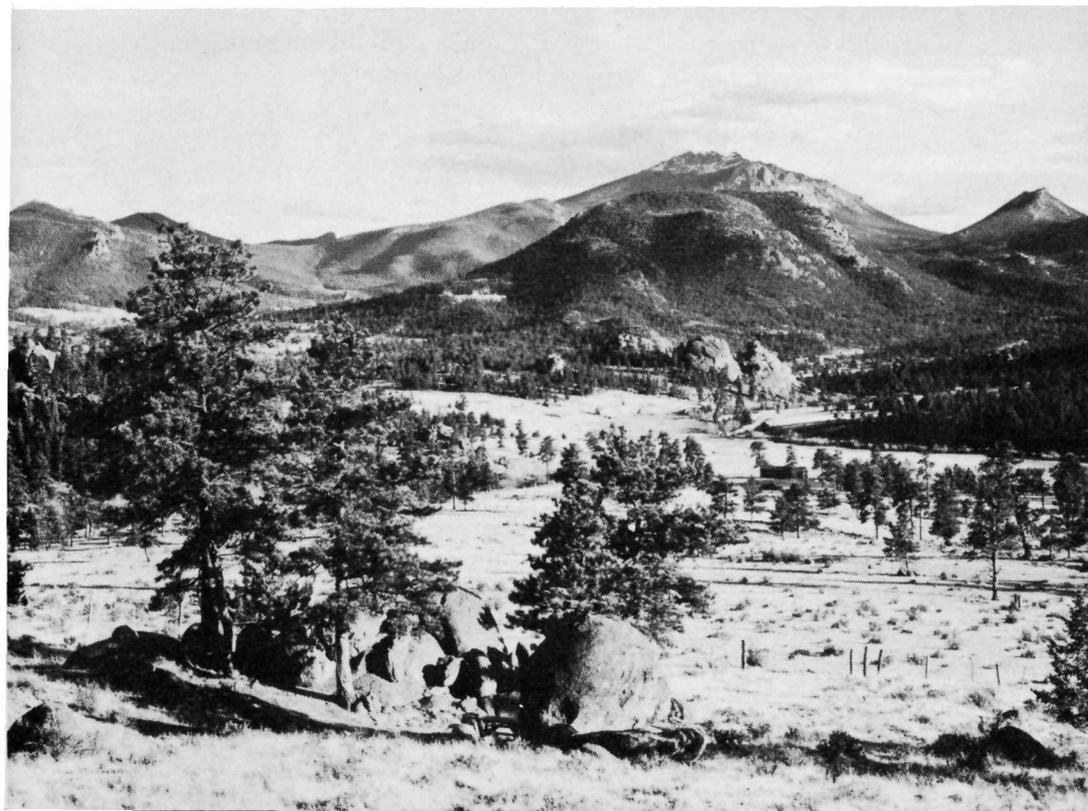
The most characteristic forest tree of the lower part of this zone is the PONDEROSA PINE (*Pinus ponderosa*). It has dull-green needles from 3 to 6 inches long—longer than those of other pines in the park—which are usually in bundles of three. Although the bark on young trees is black, the mature trees have a yellow-brown bark in characteristically rectangular plates. The cones are about 3 inches long, which prickles on the tips of the cone scales. Capable of growing in warm, dry environments, it is an evergreen of south-facing slopes and is widespread as a forest tree in the southwestern United States. On the cooler, north-facing slopes, the DOUGLAS-FIR (*Pseudotsuga menziesii*) mingles with the ponderosa pine. The Douglas-fir is easily distinguished by its needles, which grow singly along the branch instead of in sheaths. The needles are flat, blunt, about 1 inch long, and have a

narrow stalk at the base which pulls off with the needle. This distinguishes it from the blue spruce often found in the same vicinity. The bark is smooth and gray on young trees, but rough, brownish, and deeply furrowed on older trees. The cones are about 2 inches long, made up of broad scales each with a projected 3-pronged bract. Here, the Douglas-fir seldom attains the great size for which it is noted in the Pacific Northwest.

Another conifer growing in this zone, usually along streams or in such other wet locations, is the BLUE SPRUCE (*Picea pungens*), one of the most admired evergreens of the West. Its needles produce a bloom, or powder, which gives the tree a distinctive bluish or silver aspect, especially noticeable in midsummer. The cones are from 3 to 5 inches long, tan-colored, with many scales which end in a narrow tip, but without a prickle.

In the upper parts of the Montane Zone, the LODGEPOLE PINE (*Pinus contorta*) forms dense forests. This tree gets its name from the use which was made of it by the Indians for tepee (or lodge) poles. It is characterized by tall, slender, straight trunks, with most of the foliage near the top. Its trunk is usually much smaller than the other conifers of the region—seldom exceeding 20 inches. The bark is much thinner than that of the ponderosa pine, with gray scales on young trees which become brown with age. The cones are about 2 inches

OPEN STANDS OF PONDEROSA PINE ARE TYPICAL OF THE LOWER PORTION OF THE PARK.



long and are borne in clusters of 2 or 3, tightly attached to the branch. The cones often remain on the tree for years, the seeds retaining their vitality. After a light forest fire, the undamaged cones will open, releasing the seeds. This is Nature's way of reseeded a fire-swept area and explains the extremely dense stands of lodgepole pine which, for example, you will see near Many Parks Curve.

ROCKY MOUNTAIN JUNIPER (*Juniperus scopulorum*) may be seen on dry hills and rocky canyon walls in the park. Its scalelike leaves (not needles) are small and flattened against the innumerable branches. It has no cones, but bears little, bluish berries, which require two seasons to ripen. Usually this juniper grows in a squat and sprawling manner.

The most common deciduous tree in the park is the QUAKING ASPEN (*Populus tremuloides*). It is immediately recognized by its smooth, white bark and its small, green leaves which tremble with the slightest breeze, because of the curious flattening of the petiole at right angles to the leaf blade. Aspen grows to considerable size in beautiful groves of tall trees, where the moisture and shelter are sufficient, but is more often seen in scrubby thickets on rocky, drier slopes. In September the leaves turn to a golden color, giving early autumn travelers a matchless visual experience. The NARROW-LEAF COTTONWOOD (*Populus angustifolia*) grows along streams in the lower altitudes of the park. Many willows also occupy stream-bank environments, the most common being the SCOULER WILLOW (*Salix scouleriana*), with characteristic willow leaves and large oval catkins which are quite conspicuous in May and early June.

WATER BIRCH (*Betula occidentalis*) is a thin-leaved, graceful shrub, sometimes growing to tree size, commonly seen along streams in the lower forests. It can be recognized by its graceful, almost delicate, appearance. THINLEAF ALDER (*Alnus tenuifolia*) is also abundant along streams, with the birch. It often grows in great clumps, overhanging the streams, with many stems growing from the same root. Widespread throughout the West, the alder provides habitat for many bird groups. You may also recognize, by its leaf, the ROCKY MOUNTAIN MAPLE (*Acer glabrum*), which grows here and there in the park up to about 11,000 feet altitude. It is a distant relative of the sugar maple of the East.

The shrubs most commonly observed by the visitor are:

ANTELOPE BITTERBRUSH (*Purshia tridentata*)—A low, tough, much-branched shrub, with many fragrant, pale-yellow blossoms in May and June. Its leaves are less than 1 inch long, wedged-shaped and 3-toothed at the apex. The spindle-shaped seeds are important food for chipmunks and ground squirrels, and mule deer depend on the shrub for browse. BOULDER RASPBERRY (*Rubus deliciosus*)—A common bush with showy, 5-petalled white blossoms, up to 3 inches across.

During May and June this shrub adds much beauty to the landscape. The berries are eaten avidly by birds. WAX CURRANT (*Ribes cereum*)—A common shrub found also in the highest forests. It forms rounded clumps, 1 to 3 feet high, with rigid, much-branched stems and rounded leaves. The red berries ripen in summer and are eaten by many birds and small rodents. This plant is alternate host to blister rust (a disease which may affect the limber pine in the park in the near future), and much of it has been eradicated in areas where limber pine grows. SAGEBRUSH (*Artemisia tridentata*) is a familiar plant in much of the West. In the park, it grows in a dwarf form, and is common in Glacier Basin and on the southwest slopes of Deer Mountain. This woody shrub, about 1 foot high, with 3-toothed, wedge-shaped, silvery leaves, is good forage for mule deer.

Conspicuous wildflowers which grow below 9,000 feet in the park and which will attract the visitor's attention in their blossoming season are:

Early in the season—as early as March—the PASQUEFLOWER (*Anemone patens*) exhibits its large lavender blossoms as a sign of spring. As the season advances, its blossoming follows the melting snow up the mountain slopes, where it may be seen into July. This flower, without petals (the sepals resemble petals) but with a gold

SAGEBRUSH IS ONE OF THE SHRUBS HEAVILY BROWSED BY MULE DEER.





THE SPREADING PASQUEFLOWER HERALDS THE ARRIVAL OF SPRING.

center, looks somewhat like the garden crocus. It is covered with silky hairs—almost “fur-covered.” Another early blooming flower is the COMMON STARLILY (*Leucocrinum montanum*), commonly known as sandlily, which displays narrow grasslike leaves and white, stemless flowers in early spring. It is rare in the park, but abundant near the village of Estes Park during May.

The STEMLESS TOWNSENDIA (*Townsendia exscapa*), locally called Easter-daisy, is another early bloomer—most abundant in May. The inch-wide flower heads are pale pink or white with yellow centers and are clustered on the crowns of the plant. It is one of the Composite Family and is easily recognized by the general similarity of the flower heads to those of the larger, taller oxeye-daisy. The arnicas have several representatives in the park region. An early blooming variety is the HEARTLEAF ARNICA (*Arnica cordifolia*) which is common in the moist fields and open ponderosa pine forests in May and June. It has large, yellow composite blossoms, from 2 to 3 inches across; the heart-shaped leaves are best developed at the base of the stem. ROCKY MOUNTAIN IRIS (*Iris missouriensis*) is common in meadows of this zone, with its light-blue flower adding color to the “parks” of the region where



THE GAILLARDIA IS ONE OF THE SHOWIEST COMPOSITES.

moist conditions permit. THERMOPSIS, OR GOLDEN BANNER, (*Thermopsis divaricarpa*) colors the open areas with yellow during June and July. This common plant is a pea, as its flowers suggest, and as the long, flat seed pods prove. The flowers appear in clusters along the top of the stem. The PLAINS ERYSIMUM (*Erysimum asperum*), better known locally as western wallflower, is also yellow, common, and conspicuous during June and early July. Sometimes mistaken for the golden banner by visitors who drive rapidly past the meadows, it has quite a different flower pattern, being a mustard with spikes of many small 4-petalled flowers.

As summer advances, other flowers become abundant. The penstemons present their showy purple spikes of flowers during July. Most abundant and conspicuous is the TALL PENSTEMON (*Penstemon unilateralis*), usually a foot or more in height, which often colors the meadows blue. All the penstemons are easily recognized by their lobed, generally bell-shaped flowers. The common name beardtongue is applied to certain species which have a flattened and bearded sterile stamen on the inside of the flower tube. This fifth sterile stamen, whether smooth or bearded, is the source of the generic name Penstemon. The LAMBERT CRAZYWEED (*Oxytropis lamberti*), also known as Colorado locoweed, is abundant through July. It can be recognized by its spike of reddish-purple blossoms and the narrow pinnately compound leaves. Curiously enough, the locoweed blooms twice during the summer, the August period of blossoming being less noticeable. The FREMONT GERANIUM, or wild pink geranium (*Geranium fremonti*), is a lovely plant of the open pine forests, with typical 5-petalled pink geranium blossoms. The common perennial GAILLARDIA (*Gaillardia aristata*) is a showy composite. The flower heads are 2 to 3 inches across, with deep-maroon to brownish centers and bright-yellow rays, often with dark bases. The tips of these ray flowers have three distinct indentations, serving to help distinguish this plant from the BLACK-EYED-SUSAN (*Rudbeckia hirta*), which is also common in the mountain meadows.

FIREWEED (*Epilobium angustifolium*), as its name suggests, commonly blooms on areas devastated by forest fire or other destructive agencies. Its silky seeds are easily carried by the wind to these areas, where it becomes dominant. It blooms from early July into September, and the deep-pink, 4-petalled flowers are borne in long graceful spikes. It is a common roadside plant. MINERS' CANDLE (*Oreocarya virgata*) is a hairy-stemmed plant with innumerable close-set clusters of small, white flowers throughout its stout, straight stem. It also is common along roadsides.

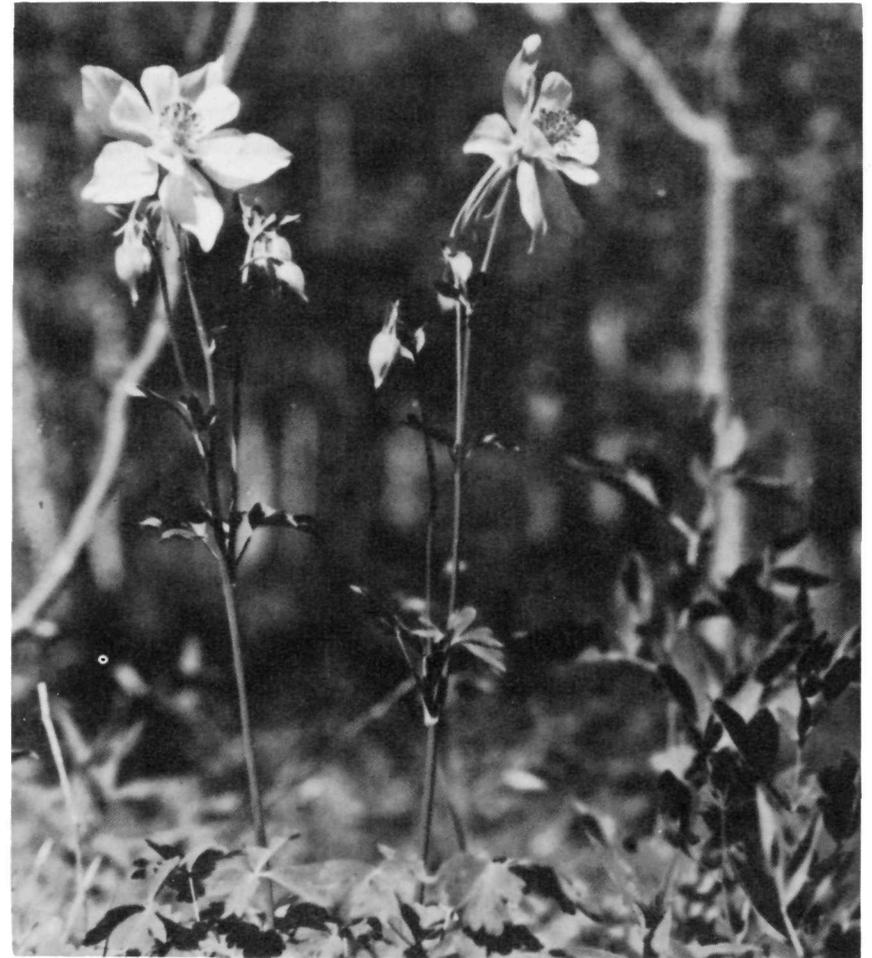
Autumn flowers become increasingly abundant in the late summer. Conspicuous are the shrubby composites and types of sunflowers. They include several kinds of groundsels, some sunflowers, and purple asters. While the peak of the flower display comes during July for this lower zone, many attractive wildflowers can be seen until mid-September.

#### THE MIDDLE BELT

Above an altitude of approximately 9,000 feet, the forests show a different aspect. This is another zone, called the Subalpine by some botanists and Canadian by others. It is characterized by forests of stately ENGELMANN SPRUCE (*Picea engelmanni*) and ALPINE FIR (*Abies lasiocarpa*). You can tell one from the other by touching the needles.

The spruce needles are 4-sided, rigid to the touch, and sharp-pointed; the fir needles are flattened and softer to the touch. From your car, you can spot the firs by their erect, dark-colored cones, mostly high in the tree. This type of forest is the climax developed in this climatic belt which receives twice as much snow and rain as the zone below. This relatively abundant moisture (much less, however, than in most of the eastern States with their broadleaf forests) supports a luxuriant conifer cover. Wildflower gardens of rare beauty and startling luxuriance are found in natural openings within the forest. The distinctive blue COLORADO COLUMBINE (*Aquilegia coerulea*), which ranges from the lowest elevations up to 13,000 feet, seems to reach its best development here.

THE BLUE COLUMBINE—COLORADO'S STATE FLOWER.



Other plants of the open forests in this zone include the WHITE GLOBEFLOWER (*Trollius albiflorus*), with its cream-colored, cup-shaped flower; the MONKSHOOD (*Aconitum columbianum*), with its helmeted blue or white flowers; the ELKSLIP MARSH-MARIGOLD (*Caltha leptosepala*), with numerous oval white sepals which are often mistaken for petals; and the strikingly beautiful PARRY PRIMROSE (*Primula parryi*), with clusters of brilliant purple flowers often growing along the edge of a stream. Common shrubs include the MOUNTAIN-ASH (*Sorbus scopulina*), whose large clusters of white flowers are replaced by bright red berries in autumn; the BEARBERRY HONEYSUCKLE (*Lonicera involucrata*), better known in the Rockies as twinberry, a honeysuckle with large ovate leaves 3 to 5 inches long and pairs of yellow flowers; and the WILD RED RASPBERRY (*Rubus idaeus*), with prickly stems, 5-petaled white flowers, and delicious red fruit which is relished by birds and hikers alike.

In the cool, shadowed depths of the forest where light is dim, another community of plants is found, including the CALYPSO, OR FAIRY-SLIPPER (*Calypso bulbosa*), a dainty orchid with rose-colored blossoms formed in a curious slipperlike shape; the PYROLAS (*Pyrola* spp.), a group of low, hardy perennial herbs with white or pink flowers having 5 thick petals and 10 stamens; the CORALROOT (*Corallorhiza multiflora*), a plant which, getting its nourishment from decaying vegetation, has no green leaves, but bears purple-spotted flowers on its brown stem; and the TWINFLOWER (*Linnaea americana*), a trailing plant of the Honeysuckle Family, often forming dense mats with upright, forked flower stems bearing a pair of pink, bell-shaped flowers.

After fire or other catastrophe wipes out the spruce-fir forests, a cycle of natural revegetation must take place before the climax forest again becomes established. The first step in this recovery process is the appearance of fireweed and many annual herbs, among which shrubs such as JAMESIA, OR WAXFLOWER, become established, and aspens begin to appear as succession plant types. They are replaced eventually by longer-lived lodgepole pines, also sunloving and tolerant of burned or denuded sites. The trees increase the wetness of the forest floor, provide the shady sites necessary for seeds to grow in, and shelter the young spruce and firs as they slowly increase and approach maturity. Eventually, the spruce and fir trees crowd out the pioneers which have helped them get established. This dense spruce-fir forest seems to resist competition of other species and will maintain itself indefinitely by gradual replenishment of its own kind, unless again it is fire-swept or there is a change of climate. The spruce-fir forests of the park seem to be as nearly fixed and static as forests can be, or, in the scientists' words, they are the climax forest for the sites they occupy.

The higher part of the Subalpine Zone (10,500 to 11,500 feet) is often called Hudsonian for its biological similarity to the region

around Hudson Bay. It is a sort of frontier zone where the climate is more severe. Not only is it colder, but it is much windier, and loss of water by evaporation is much greater than it is a thousand feet lower in altitude. Although spruce and fir remain the dominant species, they are usually shorter and less symmetrical in appearance. Near the upper limits of this zone the trees are twisted and grotesque, often flat and ground-hugging, sprawled behind boulders or fingering into the dwarf willow clumps so characteristic of the alpine mountain-tops. Here also, the only 5-needle pine in the park, LIMBER PINE (*Pinus flexilis*), a rocky soil tree of the Subalpine Zone, assumes its most picturesque aspect. Limber pine at timberline is readily identified by its grotesque, twisted, ragged appearance. Several splendid specimens can be seen beside the Trail Ridge Road about a half mile above Rainbow Curve. The name, limber pine, comes from the ease with which the branches can be bent without breaking. The cones are often 6 inches long, the largest of any conifer in Colorado.

The limber pine stands in the shadow of threatened extermination by a tree disease—blister rust. This is a fungus disease which attacks, girdles, and destroys all species of 5-needled pines. It has already wrought havoc in many parts of the country. Like so many of our virulent forest diseases, it was introduced from abroad. Since no

LODGEPOLE PINE FORESTS ALONG TRAIL RIDGE ROAD.—A. R. Leding photo.





LIMBER PINE AT TIMBERLINE.

list of plant species is great. Showiest of the alpine flowers are the ALPINE BUTTERCUP (*Ranunculus adoneus*), with large, yellow, poppy-like flowers, often blooming at the very edges of snowbanks; the ALPINE FORGET-ME-NOT (*Eritrichium argenteum*), which grows in dense, low clumps and presents thick patches of bright-blue flowers; the MOSS SILENE, or MOSS CAMPION (*Silene acaulis*), a mosslike cushion plant with pink flowers (also found in Greenland and Alaska); the GRAYLOCKS ACTINEA (*Actinea grandiflora*), sometimes called "Old Man of the Mountain," with bright-yellow flower heads, usually wind-blown and ragged, almost as broad as the plant is tall; the TUFTED PHLOX (*Phlox caespitosa*), better known here as alpine phlox, the cushion of which is sometimes entirely covered with pale-blue or white flowers; the BISTORT (*Polygonum bistortoides*), with dense spikes of tiny white flowers standing like miniature bottle brushes above the tundra grasses; the KINGS CROWN (*Sedum integrifolium*), a fleshy plant with dark-red blossoms, the whole plant often turning completely red in late summer; and the MOUNTAIN DRYAD (*Dryas octopetala*), with its curious 8-petalled, cream-colored flowers.

The manner in which these plants have adjusted themselves to their harsh environment is a fascinating story—one told effectively by the ranger naturalists in the high-country conducted trips which the

known natural checks on it exist in this country, it is almost impossible to eradicate. Fortunately, it spreads to pines only from its alternate hosts, the WAX CURRANT, and other species of *Ribes*, and, if they are eradicated from the vicinity, the pines can be preserved. The work of eradication is costly, but without it the limber pine might be lost forever from the park. The Federal Government is doing such work in selected forests on the northeast slope of Longs Peak and near Estes Cone where many splendid specimens of this tree occur.

#### ABOVE TIMBERLINE

Above the Subalpine Zone—timberline marks its lower limit—lies the Alpine, or Arctic-Alpine, Zone. This is the distinctive "Land of Lilliput" of the plant kingdom, where nearly all existing plant species are in dwarf form. Some of the zone is barren rock, with only algae and lichen growth. Vast expanses of it, however, are covered with a cold, wet soil mantle which, during the brief summertime, presents a myriad of low, cushionlike flower clumps. Sometimes—usually throughout July—the effect is that of a vast carpet of flowers. The

TIMBERLINE IS AT ABOUT 11,500 FEET ALTITUDE NEAR TRAIL RIDGE ROAD.



National Park Service offers in summer. Some plants have coverings of soft "fur," others store liquids in fleshy parts, while still others have a hard outer coat. These adaptations protect them from loss of vital fluids due to the cold, dry air of these high altitudes. Reduced size also helps to conserve the energies of the plant; the dwarf willows, for example, have stems scarcely longer than the seed catkins they bear. These plants must condense their year's active life into the short span—as little as 5 weeks—of the growing season.

The story of the park's trees and flowers is intensely interesting, but can best be understood by more careful study than is possible in this brief handbook. Several excellent botanical bulletins are available for the more interested visitor, and we urge you to invest in one of them.

## *Animal Life*

A national park is a spacious natural reserve, and in it those creatures which have survived through the past are protected from harm by humans. They are not protected from each other, there being no attempt to change natural relationships of predator and prey.

Since the animals are in their natural habitats, and not in cages, you may not be able to see at close range the kinds of animals you may want to see at any time you like. Instead, you must carefully watch for them at their convenience, not yours. This requires a bit of time, but is a boon to the observant outdoorsman. An occasional glimpse of a bull elk grazing free in his native meadow may be more satisfying than the most detailed inspection of a confined creature in a zoological garden. Our society needs both types of experiences.

Although there are about 35 species of mammals in the park, this booklet can present brief descriptions of only a few of those likely to be of greatest interest.

### HOOFED ANIMALS

The largest of our mammals is known either as **ROCKY MOUNTAIN ELK**, or **WAPITI**. We shall use the name, elk, in this booklet. It is really a "big deer"—distinctly larger than our local mule deer and usually with a more reddish or brownish coat. The elk were almost exterminated here by ruthless hunting in pre-park days. Small bands introduced here in 1913 and 1914 from Yellowstone National Park made possible the present herd of over 800 elk.

During summer, the elk are usually high in the mountains taking advantage of the lush grass of the widespread tundra or the forest

glades. Their food consists mostly of grass, herbs, and twigs of woody plants. The summer is a short but prosperous time for these animals. Usually by early autumn, fierce storms in the high country put an end to days of ample forage and most of the elk move down into the relatively small and few lower meadows. In late September, as the mating season begins and the bulls fight for possession of the herds, large groups of elk can be seen in such places as Horseshoe Park and Beaver Meadows. This is when the challenging bugle of the bulls can be heard echoing across the valleys. In November, this period ends and the more prosaic struggle for survival on the limited winter range begins.

Formerly, during the winter, the elk could scatter well below the present site of Estes Park village; now they are "bottled up" within the park meadows, because of the encircling human developments. Or perhaps these introduced elk and their descendants never developed a more extensive winter migration pattern, for the more venturesome individuals among them would have been killed or harried by hunters in the lower country east of the park. In any case, today the bulk of them do not move out of the park.

ALTHOUGH ELK, ESPECIALLY THE BULLS, OCCASIONALLY STAY HIGH IN THE DEEP SNOW BELT, MOST OF THEM FEED IN LOWER MEADOWS DURING THE WINTER.





MULE DEER ARE COMMON. THE FAWNS, BORN IN EARLY JUNE, ARE SPOTTED WHEN YOUNG.—Fred Packard photo.

THE MALE BIGHORN DISPLAY THE HORNS WHICH HAVE MADE THEM FAMOUS.



Times are hard for the elk until spring permits their return to the high country, where ample feed awaits them. Grave concern is felt by wildlife experts about the winter food shortages confronting this species. Without deliberate control by the park rangers, in order to keep the population at a level which can be supported by the limited and overused vegetation of the park's winter ranges, the herd itself would face mass starvation. The absence or near disappearance from this region of some of the most effective predators of the elk—the mountain lion, wolf, and grizzly bear—has removed most of the aboriginal population controls.

Whether you visit the park in summer or winter, you should be able to see elk—at least with binoculars. In summer (especially in the evenings) you may see them along the Trail Ridge Highway, emerging from the forests below Fall River Pass or the Rock Cut area. The cirque below the Fall River Pass exhibit room is a good place to look for them with binoculars. From mid-September until March or April, herds of elk are normally to be seen in Beaver Meadows, Horseshoe Park, and in the meadows north of Grand Lake, but it often requires patience and some keenness as an observer.

It should be easier to see the MULE DEER which are a familiar sight in many areas in early morning or evening, even in midsummer. Hikers encounter them on the trails throughout the park. When alarmed, they escape, characteristically bounding from all four feet at once and hopping away in graceful jumps. This odd movement is helpful for ascending rocky slopes and in traversing brush and tall herbage.

The males of both deer and elk grow antlers annually. For a short period in late winter and spring they have no antlers at all, but by June the new growths begin, getting larger and larger until August, when they attain full size. Until then, the antlers are “in velvet”—with a soft, hairy covering—which dries up and peels or is rubbed off. Often the animal is aided by rubbing the antlers against trees and branches. Many “rubbing” trees can be seen along the trails. With polished, full-sized antlers, the mating season is entered, and these majestic adornments are worn until the season of shedding. Most of the discarded antlers contain much salt and calcium and are eaten by porcupines and other rodents. Therefore, few shed antlers are seen by visitors, although at first thought one would expect to find them everywhere.

During the summer, deer are seen singly or in small groups browsing in the higher country, and, like the elk, descend into the lower meadows in autumn. They, too, find the winter difficult, because of limited range. Deer are browsing animals, eating such things as willow, aspen, antelope bitterbrush, and even pine needles. Much of



BROWN BEAR ARE PRESENT IN THE PARK, BUT NOT IN LARGE NUMBERS.  
—Fish and Wildlife Service photo.

their natural food has been overbrowsed, and this condition has helped to make “beggars” of many of them. It is not unusual to see them in the streets of Estes Park village or near the town garbage dump looking for something to eat. June, however, brings the lush green vegetation on which they regain their strength. That month also is the fawning time. The spotted youngsters are usually hidden in the woods and are nursed twice a day by the mother, who stays nearby but out of sight. Sometimes well-meaning visitors report an abandoned baby deer. In most instances, the fawn has not been abandoned; the visitors merely failed to see the mother in the background. Fawns, which keep their spots until autumn, run with the mother until the next spring.

The greatest thrill for many park visitors is when a BIGHORN, or MOUNTAIN SHEEP, comes close enough to be photographed; however, those occasions are rare. Like most wild animals of the West, the bighorn was on the verge of extinction 40 years ago, but, thanks to various conservation measures, it is no longer in jeopardy. Formerly, bighorns were distributed throughout the park and beyond to the foothills. Today, they are largely restricted, by man's necessary settlement of the land, to portions of the park remote from man's developments. Most visitors—when they get to see them at all—spot bighorn near Milner Pass, on the Trail Ridge Road, on Specimen Mountain, or in the Mummy Range. During June, and again in the autumn, they are sometimes seen near Sheep Lake (in Horseshoe Park), usually in small family groups of ewes and lambs. Most successful pictures of them have been made in this vicinity in the early morning.

#### PREDATORS

Yellowstone and Yosemite are two national parks where visitors have ample opportunity to become acquainted with the BLACK BEAR. Many people foolishly have become too intimately acquainted by feeding or petting these wild animals and have been injured in the process. Here in Rocky Mountain National Park, these opportunities seldom occur, for our bear population is low. If you are lucky enough to see one of these bulky, furry creatures lumbering along the road, do not try to fraternize with it.

Although the species present here is called the black bear, there are blondes among them, too. The brown bear and the cinnamon bear are merely color phases of the black bear. Bears eat almost everything, including roots, berries, ants, frogs, fish, carrion, and such small animals or birds as get into their clutches. They seem to be particularly voracious in eating garbage—discarded lunches, bacon, and similar material likely to be present in a campground. The bear is a relatively



YOUNG MARTENS SHOW THE CURIOSITY TYPICAL OF THEIR KIND.  
—Colorado Game and Fish Department photo.

solitary animal, with poor eyesight, but it can hear and smell efficiently. Bears usually hibernate in fitful sleep, living off stored-up layers of body fat. The young are born in February during the hibernation period and are surprisingly small, being about the size of a squirrel. The female defends her young with proper motherly concern. In this region, the grizzly bear was hunted to extinction long ago, before the park was established, so you need not be nervous about meeting this savage beast.

The MOUNTAIN LION has many aliases throughout the country—cougar, painter, panther, puma—depending upon the locality. Almost 9 feet long, including the 3-foot tail, the adult cougar may weigh over 200 pounds. It is colored a dull, yellowish brown, and has acute powers of sight, smell, and hearing. A sly, crafty, and tireless hunter, it is not often seen by man even where it is abundant. The mountain lion is part of the natural wildlife community of the park, and is protected from hunters within its boundaries. The chances of seeing one here are remote, for many who have spent a lifetime in these mountains never have reported seeing one.

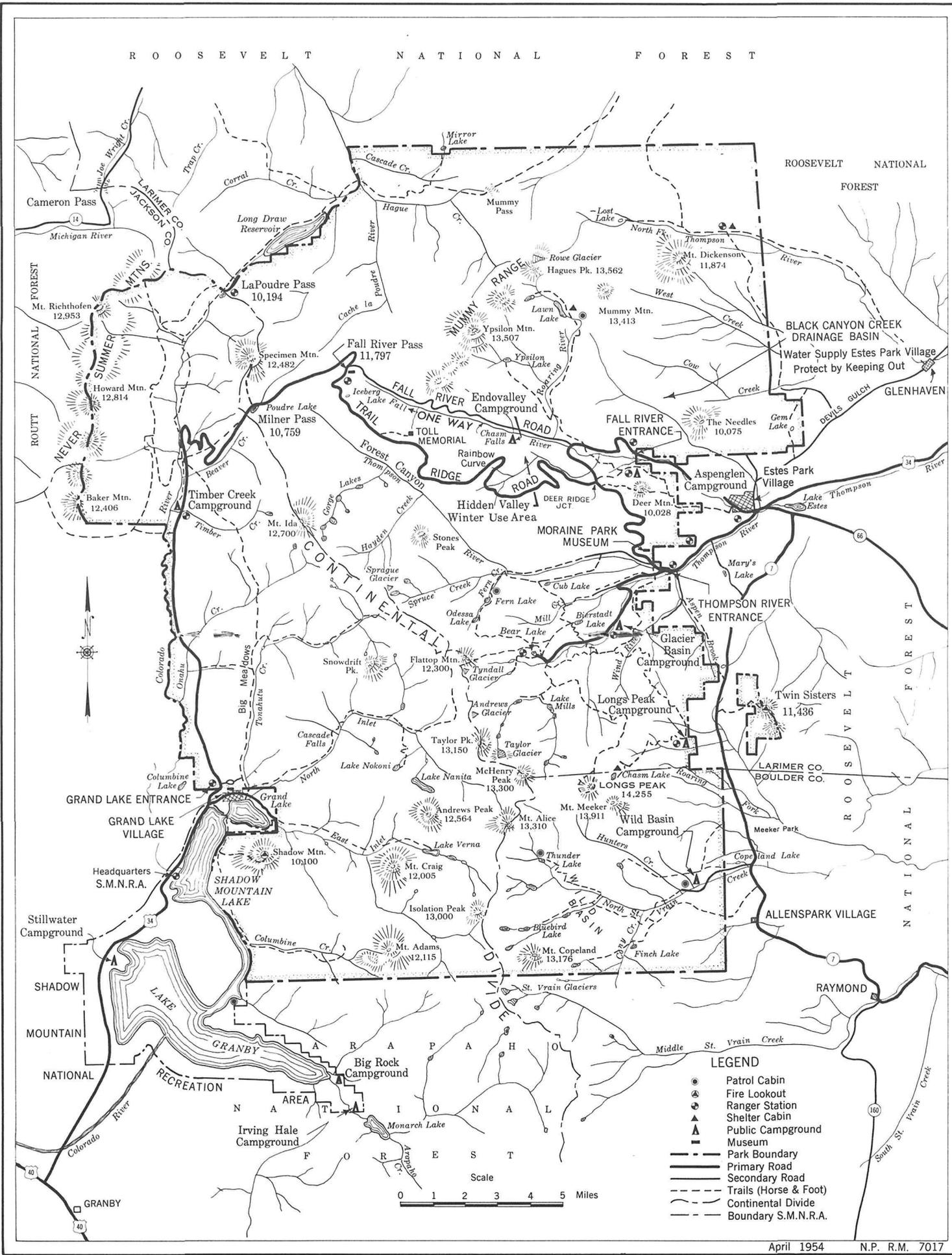
A much smaller cat, which is occasionally seen in the park, is the BOBCAT. It roams the forested areas of the park principally searching for small rodents and rabbits. Grouse also are taken, and on forays above timberline the bobcat may feed upon ptarmigan. It lives in dens in the rocks and sometimes in a hollow tree. Like the snowshoe rabbit upon which it preys, the bobcat has natural “snowshoes.” The feet are expanded in winter by longer hairs which help to support the animal on the snow.

A close cousin to your own dog is the COYOTE. It is as smart as any of our wild animals, actually extending its range despite man’s attempts to wipe it out. The coyote is very common in the park. Few people fail to thrill at hearing the song of the coyote—a high, staccato yipping which often is heard by visitors as they leave the evening talks at the Moraine Museum. You may expect to see coyotes almost anywhere in the park; early morning is a good time to look for them in the grassy meadows.

Another doglike animal is the RED FOX, which is seen occasionally by visitors in the park. Notoriously wary and cunning, it is faster afoot than a coyote, although much slower than a jack rabbit. Its homelife meets approval by most humans, since the male actually feeds the female during the lying-in period and has been seen leading hunters away from the den and its helpless occupants at the risk of its own life. Its food includes almost everything edible, although small rodents are preferred.

People often bring back tales of unusual beasts on the trail above Bear Lake. Usually, they have seen the MARTEN, the largest of our remaining local weasels and an altogether interesting animal. This creature is at home in the treetops or on the forest floor. Like all weasels, it is a voracious feeder and a peril to its neighbors. It can successfully hunt birds and squirrels in the trees, and it preys on rats, rabbits, fish, grouse, frogs, insects, and other weasels. It has quite a repertory of sounds including a hiss, squall, bark, growl, and shriek. It breeds in summer, but the young are not born until the following spring. The life span of the marten is about 18 years. It is closely related to the famous Russian sable and has been nearly extirpated by trapping through most of its original range.

The MINK is a rare animal in the park, but occasionally one may be seen on Glacier Creek. It is a weasel-like animal and is an excellent swimmer, catching fish with ease. It has dense and oily fur which keeps it warm in cold water, but lacks any other adaptations to an aquatic life. So agile an animal has few natural enemies apart from



- LEGEND**
- Patrol Cabin
  - ⊙ Fire Lookout
  - ⊙ Ranger Station
  - ⊙ Shelter Cabin
  - ▲ Public Campground
  - Museum
  - Park Boundary
  - Primary Road
  - Secondary Road
  - - - Trails (Horse & Foot)
  - - - Continental Divide
  - - - Boundary S.M.N.R.A.



ROCKY MOUNTAIN NATIONAL PARK

disease; its most important predator is, oddly enough, the great horned owl. The young are born blind and helpless, and only the size of one's finger, but by summer's end they become self-sufficient.

The WEASEL is a small, sharp-eyed creature with an extremely long body, small triangular head, and furtive ways. Weasels are successful hunters, searching through brush piles, rock heaps, and in underground burrows for rodents of all kinds. There are two species in the park—the BRIDLED WEASEL and the DWARF WEASEL. The latter is less than half as large as the former. Like that of certain other mountain dwellers, the fur of weasels becomes white as the snows of winter approach, replacing the brown of summer.

Horseback riders crossing Moraine Park and Beaver Meadows are usually wary of the large holes which are the work of the BADGER. Although a creature of the plains rather than of the mountains, the badger lives in some of the lower meadows of the park, and there have been reports of individuals sighted near Fall River Pass. It is a meat eater, and its large front feet have long claws which enable it speedily to dig out a ground squirrel.

#### RODENTS AND RABBITS

Although every park visitor sees numerous examples of its work, relatively few see the BEAVER. Working at night, as a rule, it usually remains out of sight when humans are abroad. These interesting animals are rodents—relatives of the chipmunk and marmot. They become quite large; some have been live-trapped locally and their weight found to be over 90 pounds. Beaver pelts were part of the lure which led to the early exploration of the West. Almost exterminated about 40 years ago, they are now relatively abundant in Rocky Mountain National Park.

The beaver is well adapted to its watery environment. The hind legs are webbed for efficient swimming, and the tail is broad and horizontally flattened, making an excellent rudder. Its swimming speed at the surface of the water is only about 2 miles per hour. Beaver can remain submerged for over 5 minutes, which is helpful in escaping enemies.

Beaver dams are abundant in the park. Many typical examples can be seen in Horseshoe Park, along Trail Ridge Road, in Hidden Valley, at Milner Pass, and on the Colorado River. Nearly all of the park trails pass beaver workings. The dams are built of various materials in this region, but most commonly of parts of aspens, mud, and other debris. They are started from the upstream side—usually on shallow creeks—and as the water level rises so does the dam. The beaver uses



THE WEASEL IS AN AGILE CREATURE, RELENTLESS IN SEARCH OF SMALL RODENT PREY.  
—Fish and Wildlife Service photo, courtesy Robert Flint.

its front paws almost as hands. The load of mud or sticks sometimes is carried by being pressed against the chest as the animal walks on its hind feet to the top of the structure it is building. The dam is made to create a stabilized water level. This is essential for protection of the beaver's island den—a lodge made of sticks and mud. The beaver house starts as a solid heap of debris, but the animal chews and digs out a couple of underwater tunnels, as well as one or more dome-shaped rooms with the floor a few inches above the water level. In this dry retreat the beaver rests, sleeps, and rears its family. Few



THE BEAVER IS SOMETIMES SEEN BY ALERT OBSERVERS IN LATE AFTERNOON OR EARLY MORNING.



RATLIKE TAIL DISTINGUISHES THE MUSKRAT, WHICH MAY LIVE IN THE SAME VICINITY AS BEAVERS.—*Fish and Wildlife Service photo.*

natural enemies can pursue it through the underwater entrances. Its food is chiefly aspen bark and twigs obtained in water, principally from the "foodpile."

Because of its energy, the beaver has become a symbol of eagerness. It is also often credited with intelligence, which it probably does not possess. Its apparently ceaseless work is more likely due to inherited instincts than to reasoning. Nevertheless, it is one of the most interesting animals in the park.

The MUSKRAT is frequently active in daylight hours. It lives in the same environment as the beaver, but in the park has a much more limited distribution and is confined to lower elevations. It builds lodges, too, although much smaller than those of the beaver, which are largely composed of mud and herbaceous matter. The lodge serves as a secondary food source in the winter, and many muskrat houses are practically eaten away by spring. Unlike the beaver, which is a vegetarian, the muskrat also eats other food, including fish, insects, and any birds it can catch. The muskrat has not attained the ability to build dams, but does make rafts of sticks and twigs. Few people mistake a muskrat for a beaver when seen closely, for it is much smaller and has a slender tail, somewhat flattened vertically, quite unlike that of the beaver.

Probably everyone recognizes the PORCUPINE. It is a large, short-legged rodent, rather clumsy of behavior, and usually seen either sleeping or leisurely chewing the bark of a tree. The porcupine survives, despite its sluggish behavior, because of the protection afforded by some 30,000 quills in its pelage. Although it cannot "throw" these quills, they are very loosely attached, and when the tail is vigorously thrashed about it is inevitable that some of the quills become detached and fall away. The unlucky recipient of such a slap of the tail will be convinced that the quills were thrown, although the effective embedding of quills is done by direct contact.

The MARMOT, with its reddish underpart and grizzly-gray colored back and bushy tail, is seen by nearly all park visitors. Although it is more common in lower altitudes, it also may be seen high along Trail Ridge Road, and a pair, reportedly, is living atop Longs Peak! Marmots live in dens, usually rockpiles, into which they pack twigs and grass to make a comfortable nest. They store up a heavy layer of fat in the summer and hibernate during the cold winter. Their natural food consists of grass, berries, and roots. Their short, sharp whistle can be heard a mile distant. During the summer, hikers occasionally see rather humanlike family scenes, as the marmot family sun themselves on the "front porch" of their rockpile home.

The TUFT-EARED, OR ABERT, SQUIRREL is an excellent example of the zonal specialization of mammals. It is almost entirely restricted to the ponderosa pine forest belt. The showy ear tufts of this squirrel set it apart from other local squirrels, although these are often absent during the summer. It feeds mostly on ponderosa pine seeds, the bark of twigs and young trees of this species, and such wild fruits and succulent vegetation as is available. The Abert squirrel builds nests in the trees and is a familiar sight to hikers in the ponderosa pine forests. It is usually gray-colored, but may be brown or even completely black.

Another small arboreal rodent, the PINE SQUIRREL, OR CHICKAREE, exceeds the Abert squirrel in its chattering and scolding when a stranger enters its patch of forest. It roams both the lodgepole pine and the higher spruce-fir forests with their bitter winters, yet it does not hibernate. Even after the most severe storms it will emerge to travel through the treetop world which it occupies. Some bird enthusiasts have little sympathy for it, because of its habit of eating eggs and young birds whenever the opportunity presents itself. However, in a national park the squirrel's desire to live is considered to be as important as is the bird's. A certain "balance" of population is the result, which is, after all, one of the desirable features in an area dedicated to preserving natural conditions.

THE MARMOT IS SEEN BY ALMOST ALL PARK VISITORS.



FRIENDLY CHIPMUNKS MAKE THEMSELVES KNOWN THROUGHOUT THE PARK.

A familiar small rodent of the Trail Ridge Road parking areas is the CHIPMUNK. It is reddish-brown in color and has four white stripes running along the back. It has a definite stripe across its face, distinguishing it from the Say's ground squirrel with which it is often found.

SAY'S GROUND SQUIRREL is often confused with the smaller chipmunk, which it joins in "begging" for visitor handouts at the lower-elevation parking areas on the Trail Ridge Road. It hibernates through the winter. Its natural food is succulent plant material and seeds, but many of these gregarious little animals are more or less becoming dependent upon food offered them by humans. You can see them most conveniently at Many Parks Curve.

Another little rodent abundant in the lower meadows is the WYOMING GROUND SQUIRREL, often called "picket-pin." It lives in colonies, after the fashion of the prairie dog of the plains. This species may be extending its range to the higher altitudes. It is abundant in Moraine Park.

The COTTONTAIL is often seen in the lower forests. Despite heavy predation by many natural enemies, the cottontail manages to maintain itself because of its high birth rate. One mother may produce a total of 25 young in the 4 or 5 litters born during the year. It is fairly small, grayish-brown in color, with rather short ears, and a



THE SNOWSHOE RABBIT IN ITS WINTER ENVIRONMENT.  
—Fish and Wildlife Service photo.

conspicuous cottony tail resembling a powder puff. It lives in underground burrows and retains the same color winter and summer.

The so-called SNOWSHOE RABBIT is a hare which nests on the surface of the ground. Its fur changes in color from grayish-brown in summer to white in winter. It is a denizen of the spruce-fir and lodgepole pine forests and the tundra. It hops about the snow on its huge, furry, snowshoe feet, apparently finding the severe winters of the high country no great hardship. It is not common in the park, and therefore is not often seen.

Motorists on the highest parts of the Trail Ridge Road often see the PIKA, an interesting little creature which looks like a small, grayish guinea pig but is really a near relative of the rabbit. It is always found in the high country, seldom going below 9,000 feet altitude. This little animal spends its life in the rock slides and talus piles mostly above timberline. Despite the subzero temperature of the tundra belt, it does not hibernate. Its habit of storing up little bundles of mountain grasses and other alpine plants has given it the name of alpine hay-maker. It seems to have favorite sunning spots from which it greets the traveler with shrill squeaks. A common name for it is cony, which is better reserved for an Old World mammal with which it is quite unrelated. A good place to see the pika is Rock Cut on Trail Ridge Road.

## GUIDE TO MAMMAL OBSERVATION

### *Hoofed Animals*

*Bighorn* (mountain sheep)—Best seen on Sheep Rock south of Poudre Lake; less often at Sheep Lake, Shipler and Specimen Mountains, and Hallett's Peak.

*Deer, mule*—Occasional in open pine country, especially early and late. Hillside above Camp Woods, Moraine Museum, Trail Ridge, and Grand Lake Valley.

*Elk, Rocky Mountain*—At the timberline on Trail Ridge and near Lawn Lake during summer; occasionally in Hallowell and Horseshoe Parks during bad weather. Large herds in lower meadows from October to April.

### *Predators*

*Badger*—Occasional in Moraine Park.

*Bears, black*—Uncommon, sometimes around garbage areas at lodges, especially on Grand Lake side and South St. Vrain Highway.

*Bobcat*—Uncommon, but in ravine country, especially at lower elevations.

*Coyote*—Hallowell Park, lower Cub Lake Valley, Moraine Park, lower Beaver Meadows; signs on Deer and Specimen Mountains.

*Fox, red*—Rare at or above timberline.

*Lion, mountain*—Rare, but might be seen above Loch Vale, Horseshoe Park, upper Fall River Valley; typical habitat around Gem Lake.

*Marten*—Occasional at Bear Lake, Haiyaha, Fern-Odesa Trail, Lulu City; usually in spruce-fir forest.

*Mink*—Occasional along higher waterways and lakes like Haiyaha.

*Weasel*—Occasionally seen above timberline on Trail Ridge at Rock Cabins and Rock Cut; and in woodpiles in lower meadows.

### *Rodents and Rabbits*

*Beaver*—Workings along Glacier Creek near Sprague's Lodge, in Hallowell Park, west end of Moraine Park, Grand Lake Valley. Seen early or late in the day.

*Chipmunk*—Common everywhere in rocky country, especially on Trail Ridge and Gem Lake Trail.

*Marmot*—Common everywhere in rocky country, especially on lower Cub Lake Trail.

*Mouse, meadow*—Runs common in grassland like Hallowell, Moraine, and Horseshoe Parks; mice sometimes seen in daylight.

*Mouse, red-backed*—Uncommon in moist spruce-fir forest.

*Mouse, white-footed*—Common everywhere at night, often seen running across road or heard in cabins and tents.

*Mouse, jumping*—Uncommon, but sometimes seen hopping across roads in spruce-fir country.

*Muskrat*—Often seen at twilight in Sheep Lake and nearby ponds, also in old beaver ponds along lower Cub Lake Trail.

*Pika*—Fairly common in rockpiles at Rock Cut on Trail Ridge, along trail on Flattop, above Bear Lake Lodge, Longs Peak Boulder Field.

*Pocket gopher, western*—Piled diggings evident in most grassland, especially in high country.

*Porcupine*—Common in ponderosa and lodgepole forests; often encountered on Bear Lake and Grand Lake Highways at night. Dens in rocks.

*Rabbit, cottontail*—Fairly common in rocky areas, especially along Gem Lake Trail.

*Rabbit, snowshoe*—Occasional in spruce-fir forests and down to about 8,500 feet. Common around Phantom Valley Ranch.

*Rabbit, white-tailed jack*—Uncommon above timberline on Trail Ridge.

*Squirrel, pine*—Fairly common in spruce-fir forest, especially around Bierstadt Lake, Cub Lake, Brinwood to Pool, upper Hidden Valley, Wild Basin, and lower Lawn Lake Trail.

*Squirrel, Say's ground*—Common everywhere in rocky country, especially on Trail Ridge, at Bear Lake, and along lower Cub Lake Trail.

*Squirrel, tuft-eared*—Occasional in ponderosa pines at Sheep Lake, Camp Woods, and Gem Lake Trail.

*Squirrel, Wyoming ground*—Common everywhere in grassland at middle elevations, especially Moraine Park and Estes parkland.

### COLD-BLOODED ANIMALS

Many creatures inhabit the earth which do not possess an adequate mechanism for maintenance of even body heat. Some of these animals, taking advantage of the slowness with which water changes temperature, live mostly in an aquatic environment. Few such creatures can endure the high altitude and cold winters of the park area.

Unlike other animals in national parks, fish may be taken by hook and line under regulations which are designed to conserve the resource. As long as you have a State fishing license, you may exercise this privilege in Rocky Mountain National Park. The season and catch limits vary from year to year, and you are urged to ask a park ranger about the current regulations.

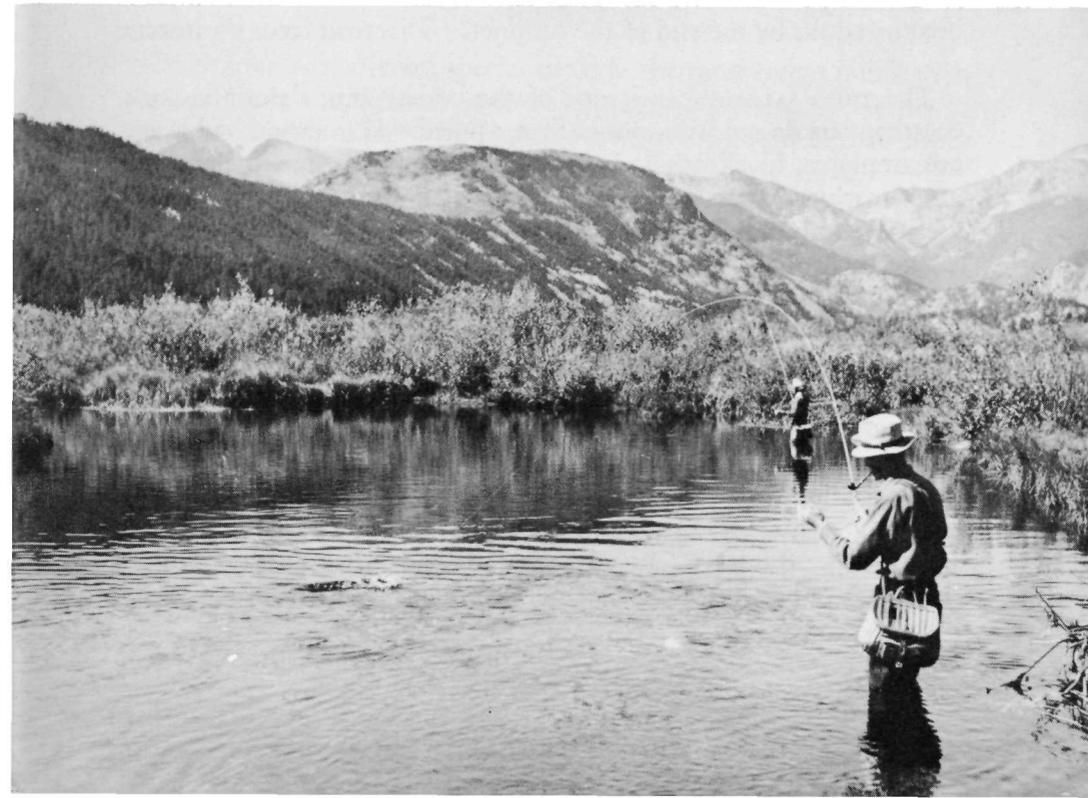
The original trout in the park is the **BLACK SPOTTED, OR CUTTHROAT, TROUT**. Once found only in the northern Rockies, it has been transplanted widely. It has numerous subspecies and color variations, but here it is usually an olive-green on back and upper sides, shading into a yellowish cast on lower sides. The lower surface becomes red at spawning time. The body and fins are black-spotted. The red streak

on both sides of the lower jaw have given it the name "cutthroat." Its principal foods are flies, insects, and small aquatic animals. Spawning takes place in midsummer in the high country.

The **BROOK TROUT** has been introduced here. Originally not found west of the Mississippi, this trout has been planted all over the West. Its color is olive-green to gray; its sides are sprinkled with red and gray spots; and the fronts of the lower fins and the lower edge of the tail have a distinctive white border. It is not a true trout, being a "charr," but trout fishermen are happy to catch it. Its food includes insects, worms, small minnows, and crustaceans. This trout spawns in autumn, the female preparing the nest by scooping out a depression in the sand. After the eggs are fertilized, the female covers them with sand and gravel and leaves them to hatch out alone.

The **RAINBOW TROUT** is another nonnative trout of the park waters. Its original range was on the Pacific slope of the Sierras and the Cascades, but it has been transplanted widely. Its color is bluish-olive above the lateral line, but shades into silvery-green on the sides. A broad reddish band along the sides has given it the name "rainbow." Its food includes flies, insects, worms, minnows, and smaller fishes. It is a favorite of the angler for its fighting ability and tendency to

FISHING IS A POPULAR RECREATION MADE DOUBLY ATTRACTIVE BY THE MOUNTAIN SETTING OF THE PARK WATERS.



break water when hooked. Spawning takes place from autumn to spring, depending on the altitude.

The most common amphibian in the park is the LEOPARD FROG. It varies in color from bright-green to tan, depending on the background. Restricted to damp areas near ponds or creeks, it is most likely to be seen in spring and early summer when the gelatinous masses of eggs are being laid. The tadpoles develop into mature frogs in about 3 years. Until then, the diet is vegetarian; after maturity, insects and worms are eaten. This little frog is found in Moraine Park, Horse-shoe Park, and other moist grassland valleys.

The THREE-LINED TREE FROG is our smallest amphibian—only an inch or so long—and often is mistaken for a young leopard frog. Although it is one of the tree frogs and possesses disks on its toes, it is seldom seen in trees, preferring small ponds or swampy grassland. It is sometimes found under rockpiles or pieces of damp wood. Despite its small size, its loud chirps in spring and summer can be heard a half mile away. During its singing, a vocal sac beneath the lower jaw inflates to a size larger than the creature's head. It is easily recognized by the three stripes down its back. Gem Lake is a good place to see this diminutive amphibian.

The MOUNTAIN TOAD is a nondescript denizen of marshy lake vicinities. It is common in Cub Lake Valley, Hallowell Park, and in the Ouzel Lake area in Wild Basin. In late spring, large numbers congregate in ponds, where strings of eggs are laid. The small tadpoles become adults by the end of the summer. This toad feeds on insects.

The TIGER SALAMANDER is one of the oddest animals of the park. Salamanders do not walk out of fires, as medieval tradition had it, but are amphibia, like frogs and toads, except that they retain their tails after reaching maturity. The young hatch from eggs and live in shallow ponds, breathing by means of feathery external gills attached at the back of the head. Later, the gills are absorbed and the salamander begins breathing by means of lungs; it then leaves the water for a moist underground burrow, returning to ponds in early spring to lay eggs on plants or debris in the water near the shore. In southern latitudes, the larvae (gill-breathing forms) are able to lay eggs and are the *axolotls* of Mexico. Our local variety of the tiger salamander is about 8 inches long, gray-brown in color, with dark spots. It is found in Sheep Lake (from whence mass movements occur during spawning season) and is often seen in suitable habitats along the Cub Lake Trail. It feeds on insects, insect larvae, worms, and small snails. Although rather hideous in appearance, it is quite harmless.

The only reptile in the park is the MOUNTAIN GARTER SNAKE, which is found throughout the mountainous areas of Colorado. Because of its fondness for water, it is often erroneously called a "water snake." It has a greenish-gray color and may reach a length of over 2 feet. It feeds on frogs and worms and is entirely harmless to man, but it is capable of giving off an offensive odor when handled. The young are born alive in midsummer. These harmless garter snakes may be seen near most of the marshy ponds or slow-moving streams in the park. The ponds in Cub Lake Valley and in Hallowell Park are favorite haunts of these interesting creatures.

No rattlesnakes or other poisonous reptiles have ever been found in the park. Reports of rattlesnakes near Glen Haven mark the highest known occurrences in this region. This, no doubt, contributes to the visitor's peace of mind, but puzzles many people.

The absence, or relative scarcity, of cold-blooded animals is probably due to the climate. The long, cold winters, the chilly summer evenings, and the lower amount of oxygen at high altitudes are probably all contributing factors. On the tundra, for example, many of the pools are free of ice for only about 6 weeks—scarcely time for a frog's eggs to hatch and for the larvae to develop lungs before the water freezes again. The cold nights, even in midsummer, would inhibit a large snake's movements to such a degree that it would probably starve. The result is that you may hike in the park in complete freedom from possible poisonous snakebites.

## BIRDS

With over 250 different species listed in the most recent publication on local birds, it is difficult to give adequate attention to the subject in the limited space of this handbook. Park birds, like our human population, can be classified as visitors and residents. Some birds, en route to other nesting areas, visit the park for only a few days; some remain a month or two; many are permanent residents. Occasionally a "straggler" appears, far from its usual haunts. Birds, like human visitors to the park, can be further classified by their preferences as to locale. As some tourists prefer to visit the high peaks and lofty tundra areas, so some birds prefer these areas. A few people come here only to fish; the belted kingfisher does so, too. Like most humans, many birds may be seen almost anywhere in the park, and the greatest variety and population of birds occur in the summer season.

A number of park birds—both permanent and migratory—have specific preferences. For instance, if a bird's diet is mostly seeds from pine cones, it will usually be found in pine forests, and if it has become adapted to the Arctic tundra region—perhaps from ancestors in an

earlier time—it will today remain there. Typical park environments and the characteristic bird life of zones are outlined on pages 50 and 51. Most of the birds breed in these associations.

The lower altitudes of the park—ponderosa pine forests and grassy meadows—have a large and varied population of birds during the summer. Here lives the LONG-CRESTED JAY, easily recognized by its rich-blue wings, sharp crest, and saucy manner. The MAGPIE is a member of the jay family with conspicuously long tail, large greenish-iridescent black and white body, and propensity for scavenging small animals killed by autos. The NATALIE'S SAPSUCKER is always associated with the ponderosa pine, pecking its sap-holes; and the RED-NAPED SAPSUCKER, with its bright-red throat and crown, usually is seen working on aspens. The GREEN-TAILED TOWHEE nests in the shrubs of the Montane Zone during June. RED-EYED VIREOS are found in the forested valleys from June into August and are characterized by the gray cap and black-bordered white stripe over the eye. The PYGMY NUTHATCH, a tiny, noisy bird, with a brown head and white underparts, wanders in small flocks through the pine forests in spring and fall calling noisily, but scatters during the nesting season. There is some migration of pigmy nuthatches to the plains when winter comes. The chickadees, both the MOUNTAIN CHICKADEE, which remains in the park during the winter and has a typical black cap, broken by a white line above the eye, and the completely black-capped LONG-TAILED CHICKADEE, which becomes scarce in the winter, belong in the Montane Zone. The VIOLET-GREEN SWALLOW is an abundant species in this zone. The MOUNTAIN BLUEBIRD arrives in "waves" during April, to leave scattered pairs to nest in holes in aspens or other cavities. This species lacks the rufous breast, but has the characteristic azure color its name suggests. The WESTERN Tanager, the most colorful bird in the park, is mainly black and yellow with a red face. It arrives in the park in mid-May and leaves during August.

Also nesting in this general zone, but in rocky cliffs and canyons, is the rare GOLDEN EAGLE (empty nests have been found, and a few sight observations are made every summer); the CANYON WREN, never numerous, but its characteristic "laughing" song is often heard during May and June; and the WHITE-THROATED SWIFT, which arrives early in May to nest in crannies in the cliffs at the very east edge of the park, only to leave in June.

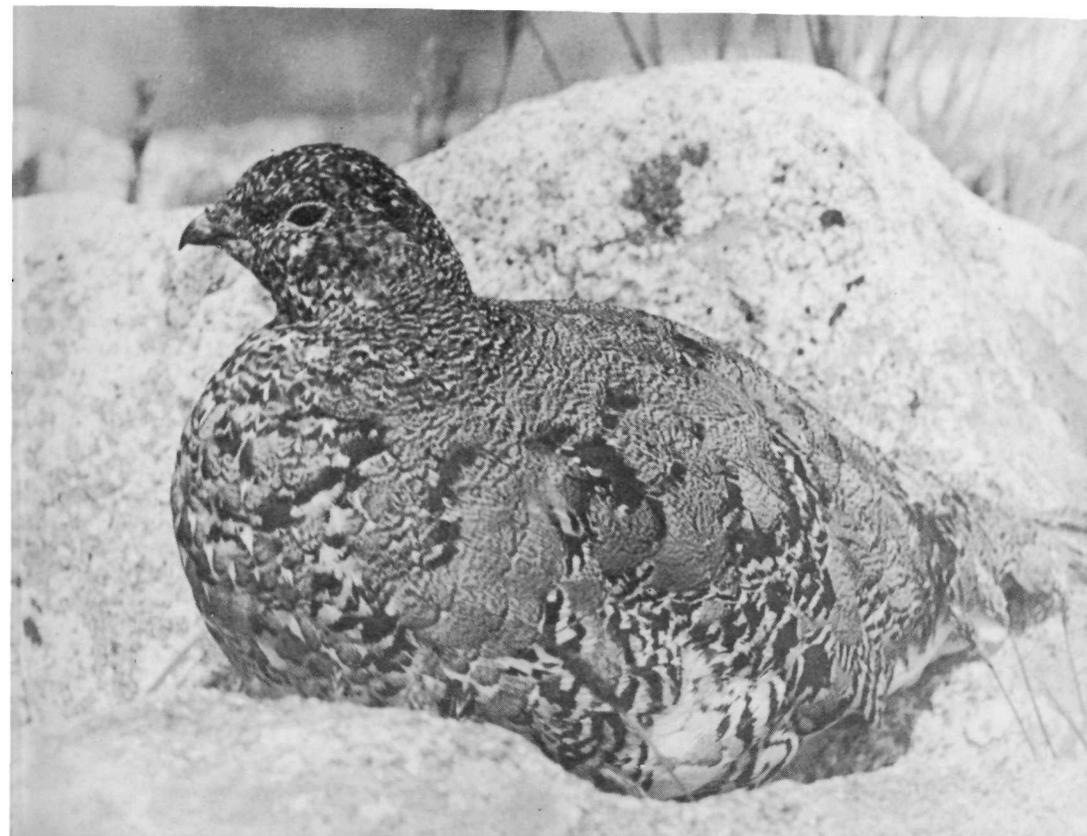
In the lodgepole and aspen forests from about 8,500 feet upward, other birds generally prefer to nest and are relatively common. These include the WOOD PEWEE, with a dark-gray back, dull-gray underparts, and two white bars on the long wings; the WARBLING VIREO, a migrant which arrives in a "wave" late in May; the LINCOLN'S SPARROW, streaked, with a short tail, which spends only 2 months in the park; the RUBY-CROWNED KINGLET, which appears suddenly in late April and fills the

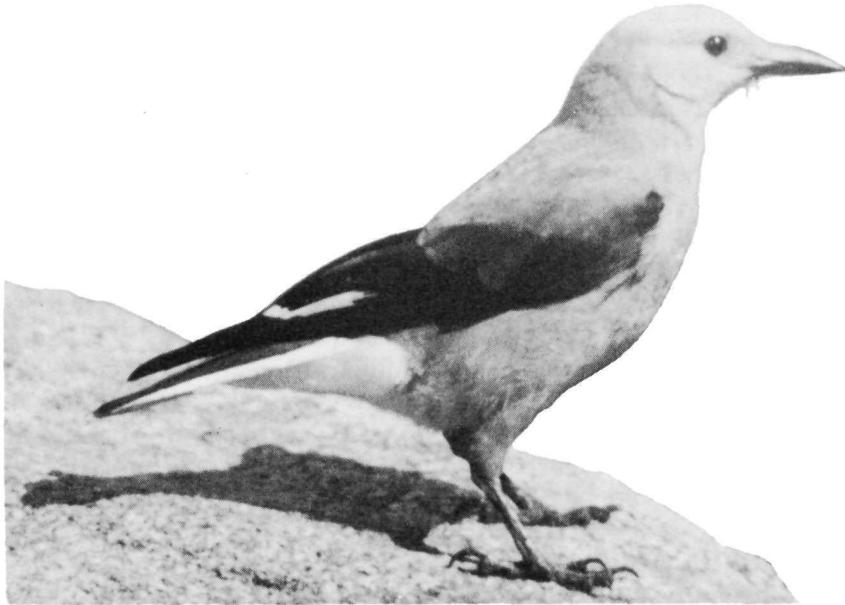
forests with its song during June; the showy AUDUBON'S WARBLER, with its bright-yellow throat; and the AUDUBON'S HERMIT THRUSH, the songs of which ring through the lodgepole and spruce-fir forests and along the streams through July.

In the spruce-fir forest, nesting birds which you may expect to see include the PINE GROSBEAK, a large finch, the male of which has a rich rose-red head; and the BROWN CREEPER, named for its habit of creeping up tree trunks. Thickets near timberline are the nesting area of the WHITE-CROWNED SPARROW, a bird with strikingly black-and-white striped crown. It is as much at home above timberline as below, usually ready to scold all hikers who invade its territory. The PILEO-LATED WARBLER, with yellow body and black cap, nests in the willows at this altitude, but leaves the heights in August and returns in May.

Above the forests, on the wind-swept tundra, are some of the most interesting birds of the park. Here the WHITE-TAILED PTARMIGANS spend the entire year. These alpine grouse, mottled-brown in summer, become pure white in midwinter. They assemble in small flocks in September to spend the winter together, but disperse during May and June for courtship and to raise a family. Nesting ptarmigans have been seen close by the busy Trail Ridge Road. Depending upon

THE PTARMIGAN'S SUMMER COAT RESEMBLES LICHEN-COVERED BOULDERS OF THE HIGH MEADOWS WHERE IT LIVES.—*Fish and Wildlife Service photo.*





CLARK'S NUTCRACKER, FAMILIAR AT THE PARKING AREAS, OFTEN CONFUSED WITH THE "CAMP ROBBER," OR ROCKY MOUNTAIN JAY.—Clark Blickensderfer photo.

their natural camouflage for protection, they seldom act alarmed when closely approached. Ornithologists travel far to see the BROWN-CAPPED ROSY FINCHES which occur only in Colorado and immediate regions. Nesting in the cliffs above timberline during summer, these birds band together in autumn to descend into the ponderosa forests for the winter. A third common bird of the tundra is the ROCKY MOUNTAIN PIPIT, a small ground bird. The tail, which shows white outer feathers, is almost constantly in wagging motion. Pipits have an interesting courtship flight and during midsummer are seen only above timberline, where they nest. By late August they descend to the lower altitudes, not to return until June.

Even the most casual visitor notices the "camp robber" and its "cousin," the CLARK'S NUTCRACKER. These members of the jay family are common at Bear Lake and at Many Parks and Rainbow Curve parking areas on Trail Ridge Road, where they compete with the chipmunks for handouts from the motorists. The "camp robber," known as the ROCKY MOUNTAIN JAY, is the local race of the CANADA JAY, with dull-gray body, lighter-gray head, and a shorter bill than the Clark's nutcracker, with which it is usually seen. The larger gray-bodied nutcracker has distinctly black wings and tail and large white patches. It tends to range both above timberline and down into the ponderosa pine belt during the summer, whereas the "camp robber"

has a more restricted distribution. The AMERICAN RAVEN is often seen soaring over the canyons. RED-TAILED HAWKS are fairly common—those which nest on the cliffs southeast of the museum are almost always to be seen in Moraine Park during the summer. The WESTERN ROBIN is abundant and widely distributed in the park during the summer. Flocks of robins are to be seen above timberline into October. The sleek BOHEMIAN WAXWING passes through the park in winter. Along the beaver ponds, in the willows, the showy THICK-BILLED REDWING may be seen from May until July.

Possibly the most unusual bird of the park is the WATER OUZEL, or DIPPER, which is seen only near a rushing mountain stream or waterfall.

ROCKY MOUNTAIN JAY, OR "CAMP ROBBER," WHICH OFTEN VISITS THE TOURISTS DURING LUNCH STOPS.—Clark Blickensderfer photo.



This is a chunky little dark-gray bird, with a habit of bobbing up and down constantly. It hops into rushing water in search of aquatic insects—an apparently suicidal method of food-gathering that does it no harm. The mossy, dome-shaped nest is usually built where spray can keep it moist. You might see one of these amazing creatures at Chasm Falls, at The Pool, along Mill Creek, or in some of the cascades in Wild Basin.

It is hoped that this brief treatment of the birds will arouse your interest in these important members of the park's wildlife. Naturalist-conducted bird hikes are scheduled during the summer, and an assortment of bird books is on sale at Moraine Museum. Birds are an important element in the enjoyment of the park, and you are invited to take advantage of the opportunity to become acquainted with them.

### GUIDE TO BIRD WATCHING

SPECIES	AREAS (see key below)									
	1	2	3	4	5	6	7	8	9	10
Blackbird, Brewer's	X		X							
Bluebird, mountain	X		X	X	X					
Chickadee, mountain		X	X	X	X	X	X	X		
Chickadee, long-tailed		X	X	X	X	X	X			
Creepers, brown					X	X	X			
Dipper, or water ouzel							X		X	
Eagle, golden		X	X							
Finch, brown-capped rosy										X
Finch, house	X									
Finch, purple	X			X						
Flicker, red-shafted	X			X	X	X	X	X		
Flycatcher, olive-sided					X	X				
Flycatcher, western							X			
Goshawk					X	X	X			
Grosbeak, black-headed	X									
Grosbeak, pine									X	
Grouse, dusky							X		X	
Hawk, red-tailed	X	X		X	X					
Hummingbird, broad- tailed	X	X		X	X	X	X	X	X	
Jay, long-crested		X		X	X	X	X			
Jay, Rocky Mountain					X				X	
Junco, gray-headed		X		X	X			X	X	
Kingfisher, belted	X							X		
Kinglet, golden-crowned							X		X	
Kinglet, ruby-crowned		X			X	X	X	X	X	

### GUIDE TO BIRD WATCHING—Continued

SPECIES	AREAS (see key below)									
	1	2	3	4	5	6	7	8	9	10
Lark, horned										X
Magpie					X	X	X	X		
Mallard					X	X		X		
Nutcracker, Clark's	X	X		X	X	X	X	X	X	X
Nuthatch, pygmy	X	X	X	X	X	X	X	X		
Nuthatch, white- breasted		X		X		X	X	X		
Pewee, wood	X	X	X	X	X	X	X	X		
Pigeon, band-tailed						X		X	X	
Pipit, Rocky Mountain										X
Ptarmigan, white-tailed										X
Raven, American									X	X
Red-wing, thick-billed								X		
Robin, western	X	X	X	X	X	X	X	X	X	X
Sandpiper, spotted							X	X	X	
Sapsucker, red-naped	X			X	X	X	X	X		
Sapsucker, Natalie's				X	X	X	X			
Siskin, pine	X	X		X	X	X	X	X	X	
Solitaire, Townsend's		X			X	X	X		X	
Sparrow, chipping			X	X	X					
Sparrow, Lincoln's				X	X	X				
Sparrow, song	X			X	X	X				
Sparrow, vesper			X							
Sparrow, white-crowned									X	X
Starling	X									
Swallow, tree					X					
Swallow, violet-green	X	X	X	X	X	X	X	X		
Swift, white-throated	X	X	X		X		X	X		
Tanager, western		X		X	X	X	X	X		
Thrush, Audubon's her- mit		X				X			X	
Towhee, green-tailed		X		X	X	X	X	X		
Vireo, red-eyed	X	X	X	X		X	X			
Vireo, warbling	X	X			X	X	X	X		
Warbler, Audubon's		X	X	X	X	X	X	X	X	
Warbler, Macgillivray's						X	X			
Warbler, pileolated						X		X	X	X
Warbler, yellow	X									
Wren, canyon		X	X							
Wren, house		X			X	X	X	X		

- 1—Estes Park village area.
- 2—Gem Lake—Needles Ridge area.
- 3—Devil's Gulch—North Fork area.
- 4—Camp Woods—YMCA area.
- 5—Mill Creek Valley.

- 6—Cub Lake Valley.
- 7—Brinwood to Pool Trail.
- 8—Sheep Lake and Horseshoe Park.
- 9—Bear Lake district.
- 10—Trail Ridge Rock Cabins to Rock Cut vicinity.



BOTH UTE AND ARAPAHO INDIANS HUNTED IN THESE MOUNTAINS. (FROM AN EXHIBIT IN MORAINE PARK MUSEUM.)

## *Man in the Rockies*

At least a thousand years ago many Indians passed through the park region. Evidences of their presence are few but conclusive. Arrow points, hand hammers, and even crude pottery fragments have been collected, and some are on display in the Moraine Museum. In the past 200 years or so, the park was the haunt of the Utes (whose main territory was west of the Continental Divide) and, latterly, of the Arapahoes, who ranged the plains below the park. Many old Indian trails have been logged in the park; Trail Ridge was named from its Indian trail.

After the United States acquired the region through the Louisiana Purchase, a number of explorers and adventurers passed near the park in their travels, such as Long in 1820, Ashley in 1825, Dodge in 1835, Farnham in 1839, Wislizenus in 1839, Rufus Sage in 1840, Fremont in 1843 and 1844, Parkman in 1846, and Ruxton in 1847. From his narrative, there is reason to think that Sage might have been in Wild Basin; if so, this would mean that he was the first explorer to set foot in what is now Rocky Mountain National Park.

It was on October 15, 1859, that Joel Estes and his son topped Park Hill and saw what is now Estes Park. The next year, Estes settled

his family in the grassy meadows here. The meadow—a “park” in Colorado terminology—quickly became known as Estes Park, a name still in familiar use. By 1867, the Estes family claim was acquired by Griff Evans, who later transferred his rights to a British nobleman, the Earl of Dunraven.

Dunraven’s influence on the region was, perhaps, more beneficial than his antagonists would have admitted. Many enterprises, which would have seriously marred the matchless landscape, were kept out of his feudal regime, saving (although quite accidentally) many beauty spots for our later generation. He also did much to publicize the region; one of his guests was the artist Albert Bierstadt.

During the 1880’s, a mining boom occurred in what is now the west side of the park, leading to the establishment of Lulu City, Dutchtown, and Teller. Grand Lake had already been discovered, and a small but rather exciting community grew up on its shore, serving the needs of the new mining camps. You can see the crumbling cabins of Lulu City by taking a 3-mile hike up the valley of the Colorado River.

By 1910, many people began thinking of a national park here, as that new invention, the automobile, was finally proving practicable as a means of travel. Although there were many supporters of the national park idea throughout the land, one man is credited with carrying the idea to a tangible result. This man was Enos Mills—a naturalist, philosopher, and writer. Years of hard work and innumerable frustrations were rewarded by his participation in the dedication ceremonies for Rocky Mountain National Park, held September 4, 1915.

## *Climate*

The climate of any part of the world is due to many complex forces—basically, the amount of energy received from the sun. In mountainous areas, such as Rocky Mountain National Park, the climate is made more variable by the different altitudes, slopes, and exposure to solar radiation. Like all midlatitude regions, too, the park experiences invasions of different air masses with their varying qualities and the storms associated with their fronts.

Few frontal storms are experienced during the summer season. Most of the frequent thunderstorms are produced by the elevation of warm air from the Gulf of Mexico as it streams into the mountains from the south and east. It is this season that provides the great cumulus clouds which are such a delight to the photographer. During autumn, winter, and early spring the weather is determined by alternate invasions of cold Canadian air and cool Pacific air. The latter brings much snow to the western side of the park, but usually

results in favorable weather on the eastern slope; the warm chinook winds are associated with these conditions. The Canadian air—usually heralded by blizzards on the plains below the mountains—brings snow and below-zero temperatures to the east slope. The winter weather at the village of Estes Park is often milder than in most of the Missouri Valley to the east, because of the protection afforded by the mountains from the full forces of these air movements.

In general, the weather is ideal for summer vacations, with cool, clear nights and sunny days. The frequent afternoon showers are mere refreshing interludes in an otherwise delightful season. The winter weather, although often rigorous, is relatively mild for the region's altitude, and, although the high Trail Ridge Road is snow-blocked, scarcely ever is it a problem to drive from Estes Park village to Denver or other plains communities.

It is always cool at night, even in midsummer, so bring warm clothes; western garb is always socially acceptable. The region is noted for its friendly informality. For hiking on trails and camping, old field clothes are desirable, and stout, comfortable shoes are a necessity. A slicker is important, since afternoon showers may be expected.

### *Park Season*

Although the park is officially open to travel all year, the summer—June through September—is the “regular” season. From October until May high altitude roads are blocked by snow. Most of the park trails are also snow-blocked in winter. The park museum is closed, and naturalist hikes and other activities are not scheduled after September 15. Camping is difficult from September to May because of adverse weather and limited facilities. However, the roads to both Estes Park and Grand Lake are usually open throughout the winter, and satisfactory accommodations are available in both gateway towns during the off-season.

### *How To Reach the Park*

Motorists from eastern points approach the park over U. S. 34, via Loveland, through the scenic Big Thompson Canyon; or via Longmont, to Lyons, where there is a choice between the North St. Vrain Highway (State Route 66), and the longer but more scenic South St. Vrain Highway (State Route 7), via Raymond and Allenspark. Travel from the west approaches the Grand Lake entrance to the

park, over U. S. 34 from its junction with U. S. 40 near Granby. Nearly all oil companies and service stations can supply dependable road maps, or you may consult your local travel agency for details.

Connections with transcontinental airlines, railroads, or bus lines are made at Denver, Greeley, and Granby by the Colorado Transportation Co. during the travel season.

All-expense tours, covering loop trips from Denver to Estes Park over the Trail Ridge Road, returning, via Granby and Berthoud Pass, over U. S. 40, are offered during the summer. Special trips within the park are conducted under Government franchise. Touring car service is available at established rates. Further information may be obtained from the Colorado Transportation Co., 1730 Glenarm Place, Denver 2, Colo. But service to the park begins in early June and continues until late September. Limited service is available the entire year to the village of Estes Park.

### *Accommodations and Services*

The summer season permits considerable choice of the type of lodging or meals desired. Some prefer to camp out in one of the six free campgrounds in the park. Others prefer the smooth

WINTER SNOWS LIE DEEP IN THE HIGHER ALTITUDES OF THE PARK.



comfort of the many fine hotels and lodges of the region. Western-style guest ranches, with the usual facilities, modern motels, and modest housekeeping cabins are all abundant. Several lodges are located within Rocky Mountain National Park; many others are located outside the park boundaries but within easy driving distance of the park. Prices for comparable accommodations are about the same throughout the region.

Medical services are available at Estes Park and Grand Lake where there are well-equipped clinics. At Estes Park, several doctors maintain offices during the summer, and three remain the year round.

Summer telegraph offices are operated in Estes Park and Grand Lake, providing service for all hotels and lodges in and near the park. Telegraph and telephone services are available throughout the year.

Catholic and Protestant religious services are conducted each Sunday in Estes Park, at the YMCA conference grounds, and at Grand Lake village.

Mail arrives and departs several times a day at Estes Park and is on a daily schedule at Grand Lake.

Saddle horses may be rented by the hour, day, week, month, or season at prevailing rates from numerous livery stables in and near the park.

## *What To Do*

Viewing the scenic splendors of Rocky Mountain National Park has the greatest appeal for most of the people visiting the area. Several auto drives are available, and miles of trail for foot or horseback travel beckon the visitor. A few of the principal automobile and trail trips are described on pages 57 to 66.

The free ranger-naturalist programs are popular. Many people fish in the park (a State license is required); others prefer mountain climbing or other outdoor recreation. All activities within the park are keyed to the natural scene; outside the park, in the gateway towns, are movies and other commercial amusements.

The principal winter-use area in Rocky Mountain National Park is at Hidden Valley along the Trail Ridge Road, 12 miles west of Estes Park. There are down-mountain ski trails and several practice areas so that either the expert or the novice skier will find slopes and ski runs to his liking. Ski tows service popular slopes. Warming shelters are provided at two popular locations within the area for the use of winter sports enthusiasts. Cross-country skiing may be enjoyed by the experienced skier at numerous locations on the eastern side of Rocky Mountain National Park and on the western slope in the vicinity of Grand Lake.



NATURALISTS CONDUCT FIELD TRIPS DURING THE SUMMER SEASON.

Following are a few hints for the photographer: The light is intense in high altitudes; many shots are made at half the exposure needed nearer sea level. Mornings are best for pictures; afternoons are often cloudy. Use side-light for depth and break up the foreground on long shots. Color film will not register accurately the intense light of the sky and the dark green of the forest on the same exposure. Join one of the naturalist photo caravans (weekly in summer) for help. Film, filters, and other photographic supplies and equipment are available at the gateway towns. Color slide duplicates are for sale at most curio shops as well as at Moraine Museum.

### AUTOMOBILE TRIPS

Mountain driving is different. In the park a speed limit of 35 miles per hour is enforced (20 m. p. h. on curves). This permits leisurely driving for sightseeing; however, you should not stop on the road. Park in a parking area and walk back to a scenic point, if necessary. Vapor lock, which often stalls cars, is caused, in part, by forcing the motor up grades in high gear; use lower gears and keep the motor

cooler. Most cars stalled by vapor lock will start after cooling off for about 10 minutes. Keep your car in gear and use lower gears, if possible, on down grades, too; do not use overdrive. Drive carefully and courteously and enjoy the trip. The gateway towns have all the usual auto services.

*Trail Ridge Road.*—The 50-mile drive from Estes Park to Grand Lake across the Front Range in Rocky Mountain National Park is one of America's most magnificent auto trips. Trail Ridge Road above Hidden Valley is closed during the winter, but is usually open to through travel from early June until mid-October. A modern, hard-surfaced highway, it presents no unusual problems to the driver. For sheer scenic beauty, for easy access to the fantasies of timberline, the interesting tundra, and for variety of natural landscapes within a few miles, Trail Ridge Road has few equals anywhere in the world.

Trail Ridge proper is a massive ridge extending easterly from the Continental Divide. In the early days an Indian trail crossed the mountains via this ridge—hence the name. The present highway was built by the National Park Service during the early 1930's. The route was chosen to provide maximum scenic possibilities and minimum snow-clearance problems.

The lofty peaks of the Colorado Rockies have been sculptured by glaciers into a bewildering network of rocky ridges, sheer cliffs, needle-like crags, and great cirques. Until roads were built, much of this breathtaking scenery was accessible only to the hardy mountain climber. Now, almost everyone can see choice samples of the high country from their car windows.

Two approaches are available to Trail Ridge from the east. One—marked U. S. 34—passes through the Horseshoe Park and by Sheep Lake to Deer Ridge junction where it joins the other approach road, which leaves Estes Park as State Route 262 along the Thompson River and traverses Moraine Park and Beaver Meadows before it reaches Deer Ridge. From this point the route is one road—U. S. 34 on most road maps—to Grand Lake.

Although every mile of this road affords the motorist rare beauty and scenic appeal, there are several interesting points which deserve special attention. Many Parks Curve permits close observation of the chipmunk, Say's ground squirrel, and Clark's nutcracker. The views of the many parks, or meadows, from this vantage point are excellent. To the north is Fall River Valley, with the peaks of the Mummy Range towering beyond. This valley was the melting basin of a great glacier. A fine view is to be had toward the south as well. Here, Longs Peak (altitude 14,255 feet) towers far beyond the green flats of Beaver Meadows and Moraine Park. Several moraines—long, generally parallel ridges of broken rocks built up at the edges of glaciers

and now heavily forested—stretch out before you, separating one park from the other.

Above Many Parks Curve, the highway climbs along the north side of Trail Ridge, loops about the head of upper Hidden Valley (where skiing is in vogue during the winter), passes the 2-mile elevation sign, and reaches another parking area at Rainbow Curve, about 8 miles from Deer Ridge, and one-half mile higher in altitude. The view from Rainbow Curve is vast, open, and superb, with the Great Plains visible far to the east and forested canyons or glacial meadows nearer at hand. Many interesting geological features are pointed out on the roadside exhibit panels at this point.

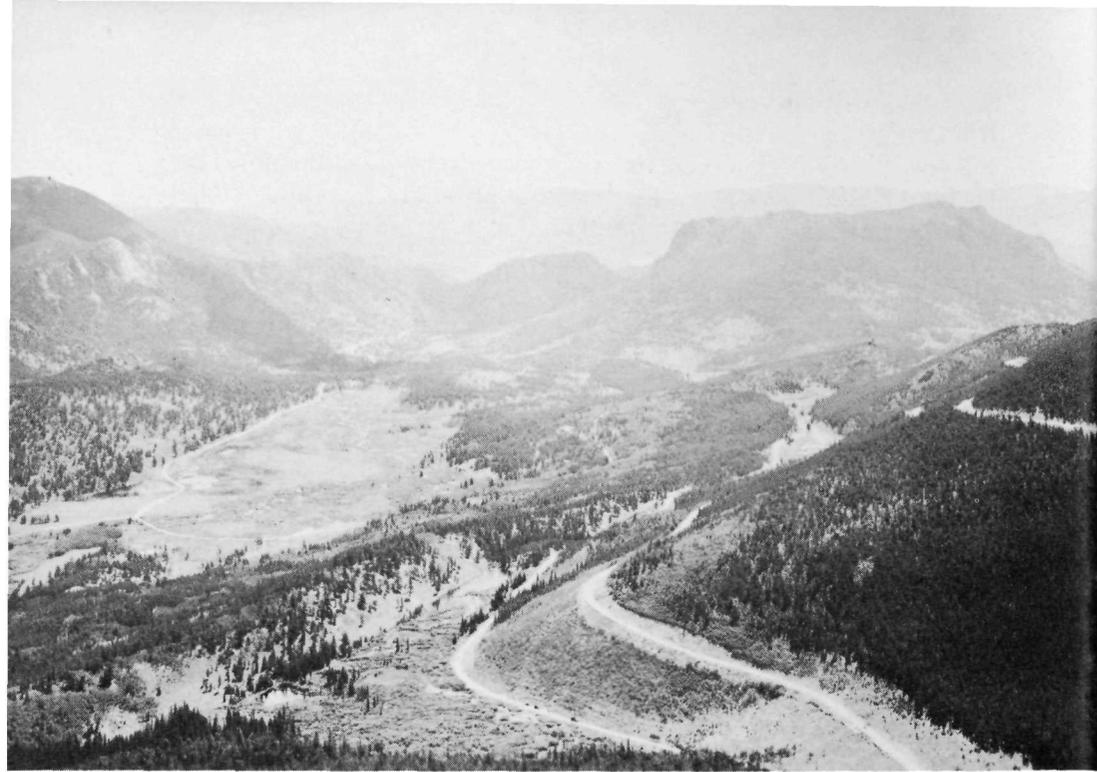
Leaving Rainbow Curve, the road follows the rim of another deep canyon, passing through a ghost forest, scene of a devastating fire in the 1870's. Grotesquely formed timberline trees indicate the harsh climate at this high altitude. As the Rock Cabins are passed, a superlative view opens up to the south across Forest Canyon. For several miles the road traverses the tundra of the Alpine Zone which is carpeted during July by low-growing, colorful flowers.

At Rock Cut (altitude 12,110 feet) the glaciated mountains to the south appear to best advantage. The Gorge Lakes, Forest Canyon,

NEARING BEAVER MEADOWS, THOMPSON RIVER APPROACH TO TRAIL RIDGE ROAD.

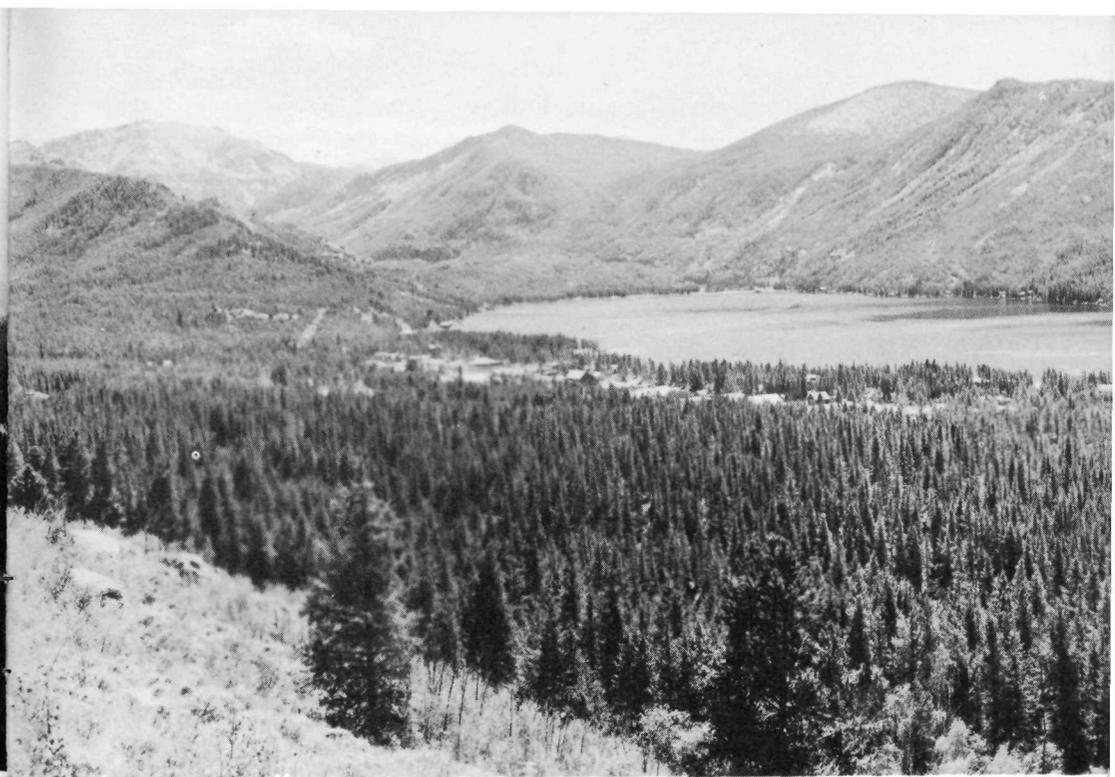
—A. R. Leding photo.



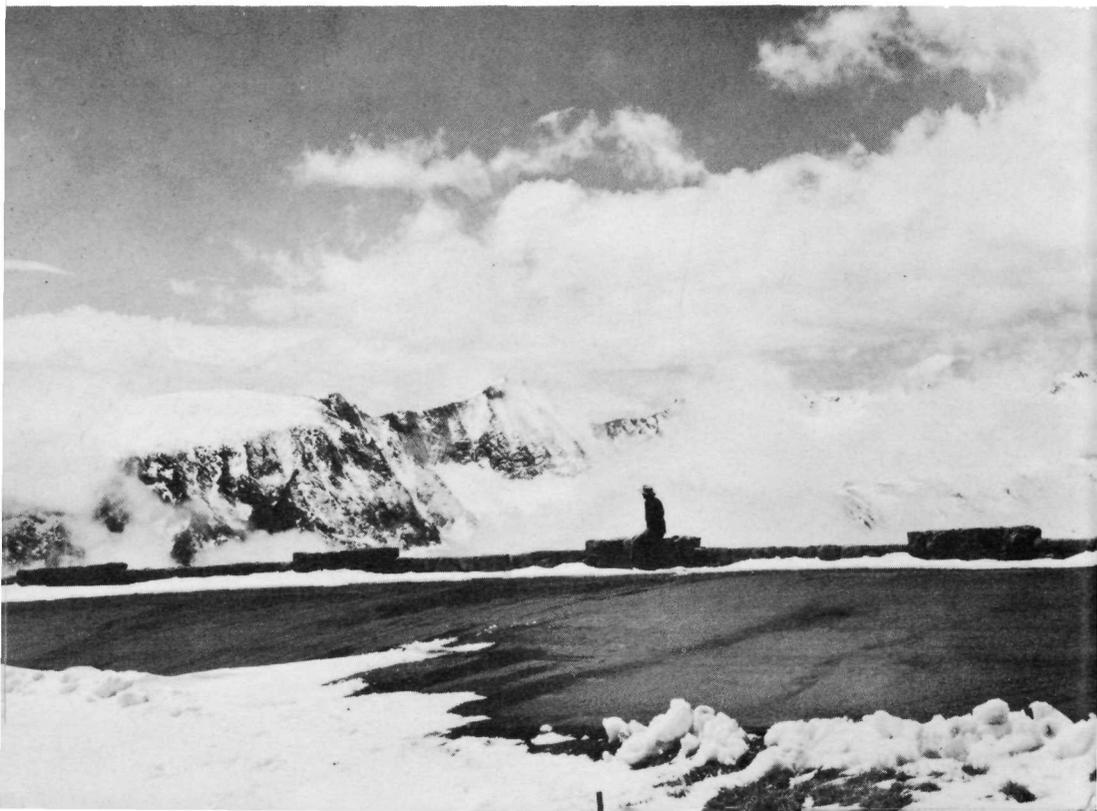


FROM RAINBOW CURVE, AN EXTENSIVE VIEW TO THE EAST AFFORDS GLIMPSES OF THE LOWER LEVELS OF TRAIL RIDGE ROAD.

TRAIL RIDGE ROAD, ALTITUDE OVER 12,000 FEET, EXPERIENCES WINTER MOST OF THE YEAR. IT IS OPEN TO MOTOR TRAVEL DURING SUMMER ONLY.



ALTHOUGH GRAND LAKE IS OUTSIDE THE PARK, THIS VIEW IS FROM THE LODGE, WITHIN THE PARK, A HALF-MILE OFF TRAIL RIDGE ROAD.



and other landscape features are indicated in the roadside exhibits. If time permits, a short hike can be made over a nature trail to the nearby Roger W. Toll Memorial Peakfinder. A walk along this trail provides a rare opportunity to become acquainted with the tundra; however, the high altitude affects some people adversely, so it may not be advisable for persons with heart ailments to attempt the trip.

Iceberg Lake, which occupies a glacial cirque, was named from the presence of blocks of ice on its surface even in late summer, except in extremely warm and dry years. The reddish cliffs at this point are made up of relatively recent lava, which is not common in the park. The highest point (altitude 12,183 feet) is indicated by a sign, between Iceberg Lake and Fall River Pass. The pass is a popular stopping place, where there are restrooms, an alpine exhibit room, and a lunch counter.

Below Fall River Pass the road continues downhill all the way to Grand Lake. The Continental Divide is crossed at Milner Pass at an altitude of 10,759 feet, in the midst of a typical spruce-fir forest. As Far View Curve is approached, the valley of the Colorado River comes into view, and the rugged Never Summer Range looms up to the west. The road descends from this point in sharp switchback curves to reach

the wide floor of the Colorado Valley. From here to Grand Lake, the route follows the valley. Deer and elk are often seen in this vicinity. Grand Lake can be seen to good advantage from the heights at Grand Lake Lodge, one-half mile off the Trail Ridge Road. The lake itself, over 250 feet deep, is one of Colorado's scenic gems. The town of Grand Lake, outside the park, is a friendly western town with the usual resort accommodations.

*Bear Lake Road.*—This is a short spur road, leading from State Route 262—on one of the eastern approaches to Trail Ridge—to Bear Lake, nestled at the foot of the high mountains. Everyone should make this trip, if time permits—an extra hour or so will do it. The road traverses glaciated meadows and moraines; it affords splendid views of Longs Peak. The great stands of aspen on Bierstadt Ridge make this a colorful drive in the autumn. Bear Lake, the end of the road, is the only high lake in the park accessible by auto. The lake is a foreground for the view up Tyndall Gorge, with the sheer cliff of Hallett's Peak making a dramatic backdrop to this alpine scene. A half-mile trail encircles the lake, giving different scenic effects with every step, and nature-trail labels aid in enjoyment of the rocks, flowers, and trees. A short hike—a mile or so—can be taken from Bear Lake to Dream Lake. This gives you a good opportunity to see some of the park and to escape auto traffic, without undertaking too arduous a climb.

*Old Fall River Road.*—This is the original road-crossing of the mountains and is rough, narrow, and steep. It is restricted to one-way *up travel* above Chasm Falls. Normally dangerous but passable, it is not recommended for any but experienced mountain drivers. It is wise to ask the rangers about this road, as it is sometimes temporarily closed by rock slides. The road takes you through beautiful mountain scenery, however, and permits an excellent circle drive from Estes Park, since it joins the modern highway at Fall River Pass, permitting return via Trail Ridge Road.

### TRAIL TRIPS

You are urged to take at least one trail trip before leaving the park. This is sage advice, for only on the trails can the real feel of the mountains be experienced. Everyone has his favorite trail, and you may make your own selection. The first decision is whether to hike or to ride a horse. Perhaps you may want to experience both methods. In any case, you should leave your car behind for at least 1 day of your stay here.

Certain rules covering trail use should be observed:

To avoid getting lost, stay on designated trails. Repeated short cuts damage the trails, necessitating repairs.

If you are hiking, yield right-of-way to horses by standing quietly off the trail as the riders pass.

By depositing trash in receptacles, you help to keep the trails free from litter and refuse.

If you plan to cook out, obtain a fire permit from a ranger. This is a fire-protection regulation.

Leave dogs behind. Their presence along the trails disturbs wildlife.

With some 200 miles of trails in the park, beginning at a dozen different points and ending at scores of destinations, you may have difficulty planning your trail trips before you arrive. Information on the various trail trips is best obtained after you get to the park. The park rangers, the museum attendants, the naturalists, and the saddle-horse operators are all happy to outline trip possibilities for you.

A brief description of a few of the popular trips follows.

*Trails from Bear Lake.*—One of the trail hubs of the park is Bear Lake. A "must" is the 1-mile hike to Dream Lake, near the foot of Hallett's Peak. From Dream Lake you may take a primitive trail another

A SHORT HIKE FROM BEAR LAKE TAKES YOU TO DREAM LAKE, WITH ITS MATCHLESS VIEW UP TYNDALL GORGE.



mile to Emerald Lake in Tyndall Gorge or a developed trail to Lake Haiyaha in Chaos Canyon. Each trip is an excellent half-day hike. You may want to go eastward along the big moraine to Bierstadt Lake or to the top of Flattop Mountain from Bear Lake—a long, uphill climb, with a reward of marvelous views. The splendid all-day hike to Odessa and Fern Lakes begins here, too. This can be as a loop trip, via Cub Lake, returning to Bear Lake; or, if you can arrange to be met in Moraine Park, an excellent 9-mile “through” hike with a minimum of uphill walking is possible.

*Glacier Gorge Trails.*—A mile below Bear Lake is a parking area from which trails lead in several directions. Two short hikes—about 4 hours each—are possible from here to Lake Mills in Glacier Gorge (at the foot of Longs Peak) and to the Loch, a lovely mountain lake. From these lakes, dim “fishermen’s” tracks lead on to higher and more remote lakes. From the Loch a primitive path leads to Andrews Glacier. These latter tracks are not really trails and, although easily followed, usually require some local specific information. There is also a seldom-used, constructed trail from Glacier Gorge parking area up to the Boulder Field near the top of Longs Peak. This makes a good horseback trip but is not popular with hikers because the destination is so much more easily reached by the shorter trail from Longs Peak Campground. A spur from this trail leads, via Storm Pass, to Tahosa Valley.

*Fern Lake Trail.*—At the end of the Brinwood Road in Moraine Park is a picnic area. A trail begins here which follows the Thompson River, past beaver houses and “The Pool,” to Fern Falls and Fern Lake. From Fern Lake the trail continues to Odessa Lake and on to Bear Lake. Many people leave Bear Lake, reaching Moraine Park by this trail. The trip is about 9 miles; 6 hours give ample time for a leisurely pace.

*Wild Basin Trails.*—Many persons consider Wild Basin the finest area in the park. Trails begin here at the road’s end and lead up the branches of the North St. Vrain River to many beautiful lakes. One popular hike (about 4 hours) is to Ouzel Falls, via Calypso Cascades, and return. Most of the other trips in Wild Basin are longer and make more suitable all-day hikes. Thunder Lake is one of these spots. Ouzel and Bluebird Lakes make another 1-day trip combination. There is no trail across the range here, but some fine, back-country hiking possibilities exist for the sturdy, seasoned hiker.

*Western Slope Trails.*—Many people hike or ride horseback from Bear Lake over Flattop Mountain to Grand Lake via either the Big Meadows or North Inlet. This takes all day as compared with 2 or 3 hours by highway. However, the trail trip is through much splendid



ONLY BY TRAIL CAN YOU VISIT SUCH HIGH-COUNTRY LAKES AS THIS.

scenic country which is not seen by the highway traveler between these two points. Hikes in the Grand Lake vicinity include one to Shadow Mountain Fire Lookout, with matchless panoramic views, and the interesting “trail to nowhere,” up Columbine Creek. The trail distances to major points of interest on the west slope are longer than on the east side of the park, and many people prefer to use horses. By riding, trips to Lake Verna in the East Inlet and Lakes Nokoni and Nanita in the North Inlet can be made in 1 day. A number of spectacular horseback trips in the Never Summer Range are possible. Saddle-horse operators can help you plan such trips in this vicinity.

*Trails in the Estes Park Vicinity.*—Several interesting trail trips near Estes Park village and in the lower altitudes of the park are available. These are especially pleasant early or late in the season when many of the higher trails are snow-blocked. Gem Lake is reached by a 2-mile trail (3 hours or so) which begins about 1 mile from town on the Devils Gulch Road. This trip presents interesting rock formations and fine panoramic views. Twin Sisters is a high, isolated mountain south of Estes Park, reached by a trail beginning on State Route 7. A good hike for about 7 hours takes one to the top of this mountain

and back in a leisurely manner. The view of the plains from Twin Sisters is extensive, and timberline flowers add color to the trip. Several other trails permit hiking in these lower altitudes.

*Trails near Trail Ridge Road.*—At Deer Ridge, a trail leads to the commanding summit of Deer Mountain, which is a fine, early-season hike although dry in midsummer. On the tundra, a trail leads from Rock Cut on the highway to the Memorial Peakfinder. A trail also leads from Iceberg Lake to Fall River Pass. At Milner Pass a trail leaves the highway, passes through an especially beautiful forest, and reaches the top of Specimen Mountain. This hike affords matchless scenic views, particularly of the Never Summer Range, fine displays of wild-flowers, and possible glimpses of bighorn. At Phantom Valley Ranch (on the western slopes) a trail leads up the Colorado River to the ghost town of Lulu City, and branches continue to Poudre Pass, Thunder Pass, and beyond.

Nearly all of these trails—and many others—can be covered by visitors on trips with the ranger naturalists during the summer. These escorted hikes help you to get your bearings in the park, as well as to enjoy and understand the great scenes and natural features encountered along the route. If you are interested in hiking, you should join a few of these naturalist trips. In this way, you quickly realize the possibilities for your unescorted hikes, if you prefer to travel on your own. The ranger naturalists will help you plan other hikes and will do all they can to make your trail trips safe, interesting, and enjoyable.

This outline of trail-trip possibilities is only a beginning. In addition, there are trips to Lawn Lake, Tyndall Glacier, Windy Gulch, the North Fork of the Thompson River, and Chasm Lake. Information on trips to peak tops is not included in this booklet, as they are far more difficult than those described here. If you expect to ascend such mountains as Longs Peak or Mount McHenry, be sure to consult the park ranger at the nearest ranger station or go to the chief ranger's office in Estes Park village. Routes to be followed may vary from week to week because of changes in snow conditions. The rangers can give you up-to-date information. Remember to get a fire permit if you camp out on the trail.

## *Park Administration*

Rocky Mountain National Park was established by act of Congress, on January 26, 1915, and contains approximately 254,995 acres of federally owned land. It is administered by the National Park Service,

of the United States Department of the Interior, with a superintendent in immediate charge. National park headquarters are in Estes Park village, on the east side of the park, where offices of the superintendent and chief ranger are located. Communications regarding the park should be addressed to the Superintendent, Rocky Mountain National Park, Estes Park, Colo.

The chief ranger's office handles lost and found articles, fire permits, and such emergencies as auto accidents, fires, lost persons, and related unusual incidents. Law and order are maintained by a staff of park rangers, who man the entrances and ranger stations and who patrol roads and trails. Park rangers will help you with any problems, serious or trivial. When in doubt, ask a ranger.

## *Suggested References*

This handbook may help your understanding and appreciation of Rocky Mountain National Park, but in its limited pages only a superficial treatment can be given. The following publications—nearly all of them available for reference or purchase at the park museum information office or Fall River Pass exhibit room—have been found helpful sources for more detailed interpretation of the story of this park:

### *General Orientation*

*Colorado Guide.* One of the prewar Federal Writers Project accomplishments, still an indispensable item for the inquisitive tourist.

GREGG, H. RAYMOND. *Descriptive Guide to Rocky Mountain National Park.* A handy, inexpensive booklet which gives a concise description of the park and the Trail Ridge Road.

### *Mountain Climbing*

HENDERSON, KENNETH. *Handbook of American Mountaineering.* A pocket-size book, almost encyclopedic in its scope, giving detailed information about mountain climbing and life on the trail.

NESBIT, PAUL. *Longs Peak.* An excellent story of the highest peak of the park, with information of interest to climbers.

ORMES, ROBERT F. *Guide to the Colorado Mountains.* A splendid compilation of data on the routes to and ascents of scores of Colorado's peaks.

### *Human History*

CAROTHERS, JUNE. *Estes Park, Past and Present.* A useful and authoritative summary of the human history of the eastern side of the park.

FOSCUE, EDWIN, and QUAM, LOUIS. *Estes Park, Resort in the Rockies.* Another compact summary of the geography and human history of the eastern side of the park.

## Geology

WEGEMANN, CARROLL. *A Guide to the Geology of Rocky Mountain National Park*. An excellent, inexpensive Government booklet, giving helpful road logs and the general geological story of the park.

## Botany

- CLEMENTS, EDITH. *Flowers of Mountain and Plain*. A classic on the region's flora, with numerous color plates.
- MORE, ROBERT W. *Evergreens of Colorado*. Admirable guide to the conifers of the region, with choice photographic illustrations.
- NELSON, RUTH A. *Plants of Rocky Mountain National Park*. The basic reference on the flowers of the region, and almost indispensable.
- PESMAN, M. WALTER. *Meet the Natives*. An excellent guide to the flora of the region, useful anywhere in Colorado, with a color key arrangement.
- PRESTON, RICHARD. *Rocky Mountain Trees*. A complete, well-illustrated book, covering all species of trees occurring in the Rocky Mountain region.

## Mammals

- CAHALANE, VICTOR H. *Meeting the Mammals*. A most interesting popular guide to the mammals of all our national parks.
- GILLIGAN, JAMES. *Wild Animals of the Rockies*. A good booklet on park mammals, written by a former ranger naturalist.
- RODECK, HUGO G. *Guide to the Mammals of Colorado*. An excellent, well-illustrated, inexpensive field guide to all the mammals of Colorado.

## Birds

- KLEINSCHNITZ, FERD. *Manual of Birds of Rocky Mountain National Park*. A good, inexpensive, one-unit guide for the park's birds.
- PACKARD, FRED M. *Birds of Rocky Mountain National Park*. The most recent checklist of the birds, with brief descriptions. Should be used as an inexpensive auxiliary to the Peterson guide, unless one is already well acquainted with birds.
- PETERSON, ROGER T. *Field Guide to Western Birds*. An essential manual for birds of the entire West, well illustrated, cloth bound.

## Parks in General

- BUTCHER, DEVEREUX. *Exploring Our National Parks and Monuments*. Available in cloth or paper covers, this beautifully illustrated book gives succinct background information on all our park areas with natural history significance.
- SHANKLAND, ROBERT. *Steve Mather of the National Parks*. An excellent history of the evolution of our National Park System and the life of Mr. Mather, first director of the National Park Service.
- TILDEN, FREEMAN. *The National Parks: What They Mean to You and Me*. Written with rare good humor, this book contains a wealth of factual material on the parks, their significance, origins, and characteristics.

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