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GLACIAL DRIFT

Notes from
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GLACIAL DRIFT

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A pamphlet prepared from time to time by the Museum and Information Department of Glacier National Park and distributed gratis to persons and organizations interested in the park and its natural history.

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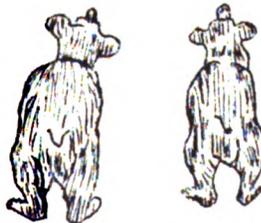


"While some delve deep in musty books
In quest of learning rare,
Ye wise folk walk by trees and brooks,
And gain of wisdom there."



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This world, after all our science and sciences, is still a miracle; wonderful, inscrutable, magical and more, to whosoever will think of it.

- Thomas Carlyle

THE COMING OF GEORGE BIRD GRINNELL

H. Frank Evans, Ranger Naturalist

One day in 1885, as spring was succumbing to summer and the showy blossoms of balsamroot and prickly pear dotted the dusty roadside, the stage from Helena rolled to a jerky stop. Beneath the lusty cottonwoods by the Missouri at Fort Benton, there alighted a young naturalist from New York. Tho but thirty-four, he had already distinguished himself in his field and also as an authority on Indians. Only five years before he had received his doctorate at Yale, yet the West was by no means new to him. He had hunted bison with the Pawnees, had visited the Yellowstone, and had been a member of several other expeditions into the big frontier country. Fortunately for him, he had been unable to accept an invitation from Custer to accompany that ill-fated party in 1876.

The second part of his journey was over. He had travelled by rail from St. Paul to Helena, the end of the Northern Pacific Railroad, and had continued from Helena for one hundred sixteen miles by stagecoach. Ahead lay thirty tiring miles to the Indian Agency on Badger Creek, and this trip across the Plains must be made by buckboard. The rest of the distance to the Land of the Shining Mountains, his objective, was to be covered on horseback. The route taken was no doubt the famous Old North Trail, which paralleled the eastern base of the mountains. This ancient highway, its travois ruts sunk deeply by uncounted generations of nomad tribesmen, remains still faintly traceable today.

So it came about that George Bird Grinnell made his first visit to what is now Glacier National Park. It was a hunting trip precipitated partly by many rumors of the desperate plight of the Blackfeet Indians, partly by the glowing accounts he had heard of the region. He returned in 1887 and annually thereafter for many years to come. On one of the earlier expeditions, he records the abundance of game animals, relating that the party of Kootenais with whom he hunted had killed about eighty beaver, many sheep and goats, and several elk and moose.

Interested in the natives of the western plains, Grinnell studied the Blackfeet Indians and became an authority on them. He was adopted as a member of the tribe, and given the name Pinut-u-ye-is-tsim-o-kan, the Fisher Hat. At the petition of these people, he was appointed to negotiate with them concerning the governmental acquisition of the area east of the Continental Divide. This region was purchased in 1891 and thrown open to prospectors. However, as soon as the mining excitement subsided, Grinnell pointed out the prudence of setting aside this mountainous country as a national preserve. An article by him entitled "The Crown of the Continent" was published in Century Magazine in 1901. This became a milestone on the way to the establishment of the park. After nineteen years of endeavor, the act establishing Glacier National Park was passed by Congress in 1910, and the park became a reality. It will always be regarded as symbolical of the resourcefulness, foresight, and

untiring effort of this man.

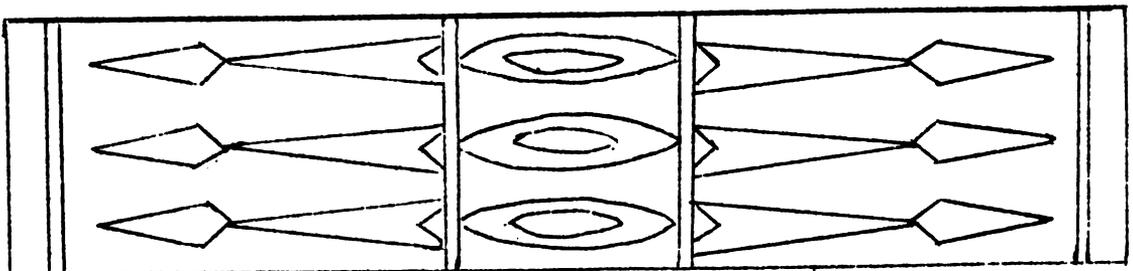
Doctor Grinnell named no less than twenty-five prominent features of the region, many of the names being for Blackfeet of importance. He discovered the glacier which, along with the lake and the mountain, was named after him by Lieutenant J. H. Beacom (later Colonel) when the two explored it together. He spent years among the peaks of the Lewis Range discovering lakes and glaciers, and disclosing the secrets of its snowy fastness. Blackfeet Glacier, the largest mass of ice in the park, was discovered and named by him.

From the governmental bulletin, "Early History of Glacier National Park," by Madison Grant, is taken this estimate of him:

"Mr. Grinnell, perhaps more than any other living man, represents the now disappearing class of educated easterners who went to the frontier in the buffalo and Indians days and devoted their lives to the welfare of the great West. Many men on the plains and in the mountains did the same, but for the most part they were not unmindful of their own material interests, and the credit they deserve for developing the country is perhaps to be qualified somewhat by the fact that they themselves often profited substantially in so doing. Mr. Grinnell, on the other hand, from the year 1870, has freely given his time, his money, his scientific and literary attainments, and his talents, to the cause of the preservation of the forest, the wildlife of the country, and, above all, the welfare of the Indians of the west."

Grinnell passed away April 11, 1938 at his home in New York City in his eighty-ninth year. As editor for thirty-five years of a journal devoted to outdoor life, he exerted a profound influence with his prolific pen. It is befitting that he is known today as the "Father of American Conservation." He founded both the American Audubon Society and the Boone and Crockett Club, and was in 1925 awarded the Roosevelt Medal for Distinguished Service. Many of his books on Indians, conservation, and hunting are still read with savor.

To the many tributes paid him, devotees of the outdoors add their tribute to him as a friend and benefactor of Glacier National Park, an immortal reminder of a great man.



AURORA BOREALIS

H. Frank Evans, Ranger Naturalist

The occasion was a moonlight night on Two Medicine Lake. Few nights equaled that one, for the mellow radiance of the moon revealed a phantom-like reflection of the mountain beauties on the surface of the ancient lake. A lone coyote howled dismally from the lower slopes of Rising Wolf Mountain. Immediately our attention was centered on his eerie song, and again and again the plaintive notes drifted from the mountainside.

Suddenly a faint glow of rose colored the sky above the majestic mountain. It grew steadily in intensity until the mountain became a restless volcano lighting the August sky. Then the color faded and a beam of light like that of an airplane beacon shone from the north above Spot Mountain. This light also faded, a crimson glow reappeared to color the sky above Rising Wolf, while intermittent bands and shafts of luminous colors played across the heavens. The intense light of the full moon possibly dimmed, but could not blot out the luminary phenomenon which was growing increasingly spectacular. Until nearly midnight we were aboard the launch, witnessing this most kaleidoscopic spectacle of nature.

Shortly before midnight the lights reached a zenith and radiated from the center of the night sky. This corona from which the lights dip is called the Aurora glory. The quivering streamers of light are appropriately called merry dancers. While merry dancers were not abundant, the celestial light swelled forth in yellow, mauve, rose, and green lights. The intensity of light pulsed, now fading almost to extinction, now swelling until the whole celestial sphere burst with vivid hues until all were chased from the sky by the light of approaching dawn. By 2:30 o'clock in the morning practically all traces of the phenomenon had been erased.

The Aurora Borealis, "light of the North" was once popularly thought to be the result of the midnight sun shining on the vast expanses of snow and ice of the north, causing light to be reflected into the heavens. Tho still shrouded with mystery, it is believed by scientists to be caused by a magnetic discharge in the earth's atmosphere. Simultaneous with its occurrence, there is produced a pronounced effect on the compass and it is definitely known to appear at times of sun spot activity.

It is another of the many interesting features of the northerly latitude of Glacier National Park which is common at the height of the open season, and should be watched for by visitors. Poor radio reception betrays sun spot activity, so it might be well to look for Aurora Borealis when radio reception is exceptionally poor.

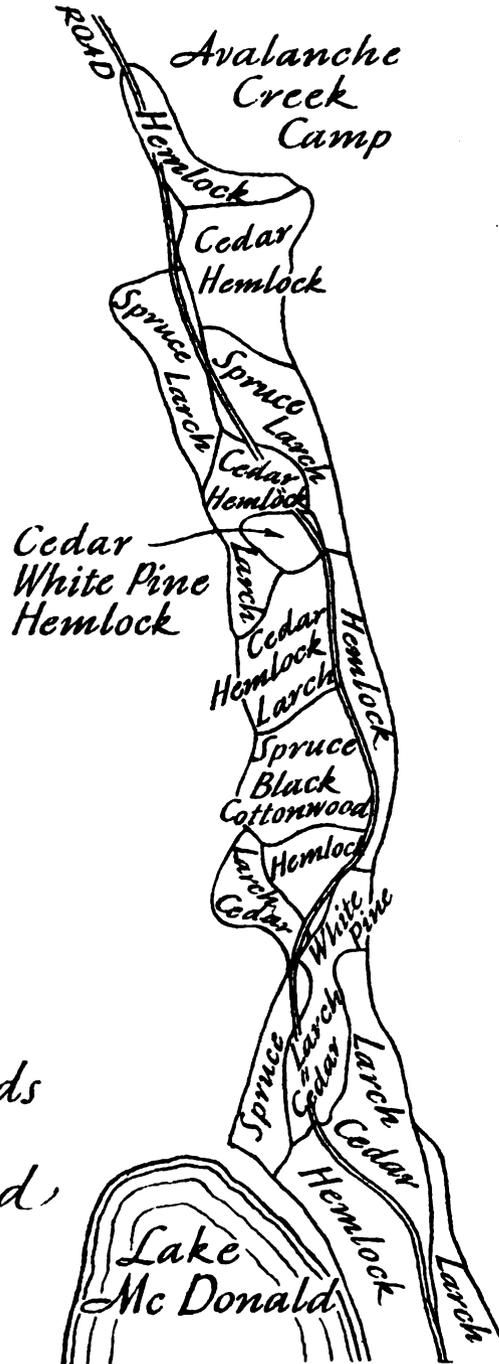
WESTERN RED CEDAR IN THE PARK

Dr. Harold B. Bailey, Ranger Naturalist

The western red cedar attains the largest size of any species in the park, and along with the western hemlock is found in sizeable stands only in one place in the park. This is on the four-and-one-half mile stretch between Lake McDonald Hotel and Avalanche Creek. Scatterings of the tree also occur along the North Fork of the Flathead River and along several of its tributaries, such as Camas Creek. Here, as in McDonald Creek drainage, the tree is usually in association with Engelmann spruce, western larch, or western balsam cottonwood. From the vegetative type map it has been computed that cedar covers about 984 acres. The finest stands occur near the main highway and are easily seen by the park visitor.

The trees are confined to the west side of the park, except for a few specimens on the east side, at Baring Basin near Sun Camp. Why hemlock and cedar occur in sizeable stands only in McDonald drainage is not known, but rich soil, mild climate, ample moisture, and freedom from devastating fire probably furnish the answer.

*Cedar-Hemlock Stands
between
Lake McDonald and
Avalanche Creek
(SCALE · 1 INCH = 1 MILE)*



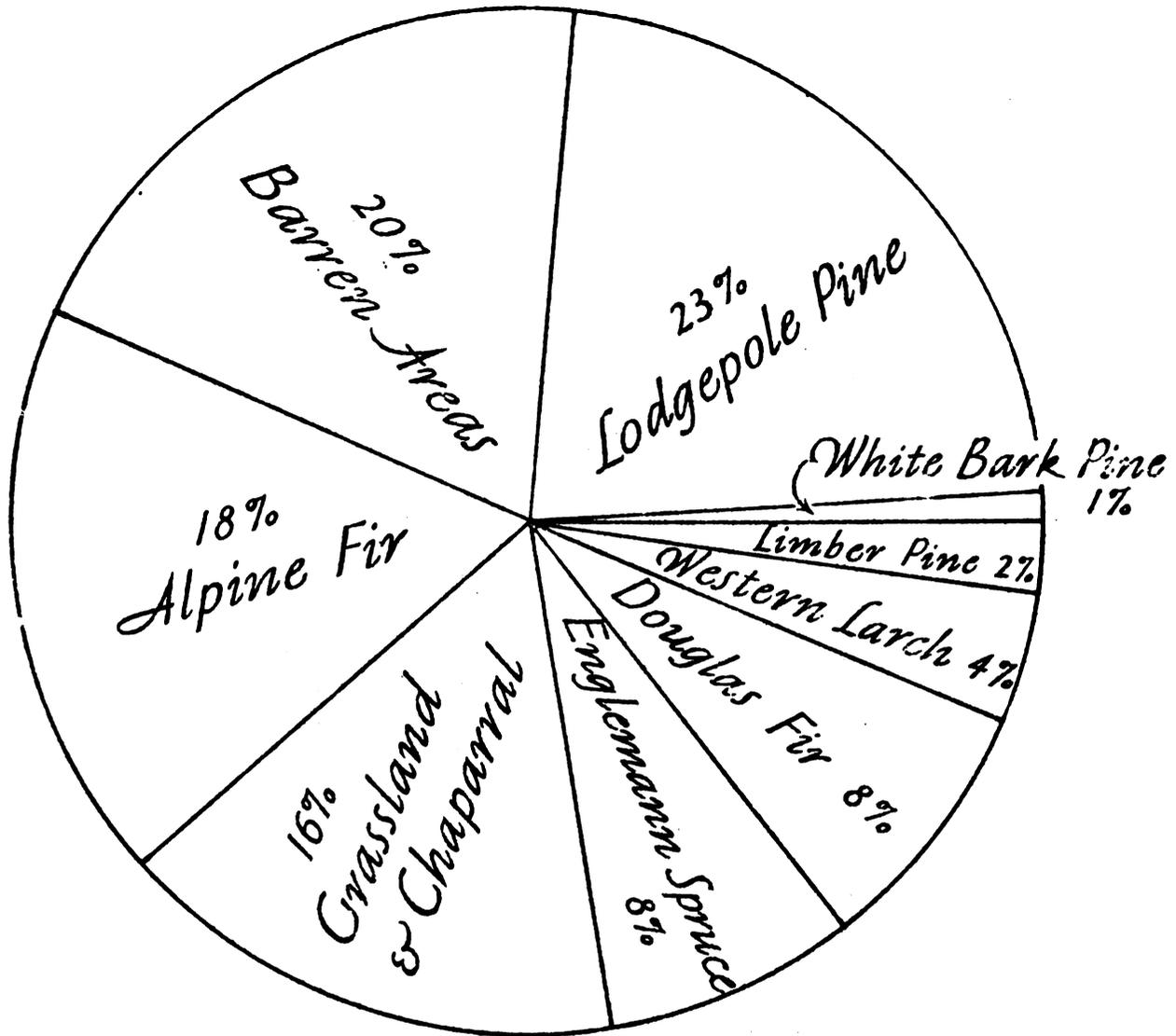


DIAGRAM
 showing
 Abundance of Park Trees

THE ABUNDANCE OF PARK TREES

Dr. Harold E. Bailey, Ranger Naturalist

A survey of the vegetative cover of the park recently completed by the National Park Service reveals interesting facts regarding the abundance of certain trees in the park and the composition of the forest cover. Approximately two-thirds of the park is covered with timber; the remaining area consists of barren areas, glaciers, grasslands, and chaparral. Computing the abundance of the trees and arranging them in the order of their relative acreage, they are as follows: lodgepole pine, 23 acres; alpine fir, 18; Douglas fir, 8; Engelmann spruce, 8; western larch, 4; limber pine, 2; whitebark pine, 1. Thus it is seen that lodge pole pine is twenty-three times as common as is whitebark pine and forms about a quarter of the vegetated part of the park. Or, more accurately, areas in which lodgepole pine is the commonest tree total twenty-three times as much as areas in which whitebark pine is the commonest tree. It usually occurs in pure stands. Alpine fir is the next most common tree and covers about a fifth of the total vegetated part of the park. With it is often associated Engelmann spruce. Both are trees of middle to high elevations, as contrasted with lodgepole pine, which is found most abundantly at the lower elevations. Western larch is confined to the west side of the park and covers about one-twelfth of the vegetated area, as often as not in association with Douglas fir. The larch is particularly common in the lower, rolling country of the northwestern and southern sections of the park. Douglas fir is equal in importance to larch, and covers about the same acreage.

Except when bearing their cones, limber pine and whitebark pine can seldom be differentiated. The former grows on the east side of the park, while the latter occurs more commonly on the west side. The distinction is based on the fact that the immature cones of the limber pine are green, those of the whitebark are purple. The area in which limber pine is the principal tree is twice as large as that in which whitebark pine is the principal tree. It is only during special growing seasons that immature cones are to be found on the trees, so this criterion is not always usable in the field. Yet it is the only difference readily so recognized.

Considered in the same relative proportions, each of the other conifers, such as the western white pine, the ponderosa pine, and the alpine larch, covers less than a tenth of one part of the vegetated area. Broadleaf trees, too, altho widely scattered thruout the park, do not enter as pre-dominant components of the vegetative types. Aspen is the most abundant broadleaf tree, but occurs mostly as an associated species in other stands of timber.

The above ratios are based upon dominance of these species over all other associated trees or shrubs. Some trees, however, are common

only as lesser associated species. Considered from the stand point of areas in which various species are found, these trees occur in a relative proportion* entirely different: alpine fir, 10 acres; western larch, 9; Engelmann spruce, 7; lodgepole pine, 5; limber pine, 4; whitebark pine, 2; aspen, 1. In other words, the acreage in which alpine fir is found, whether as the dominant species or as one associated in smaller numbers among other trees, is ten times as large as the acreage on which aspen grows.

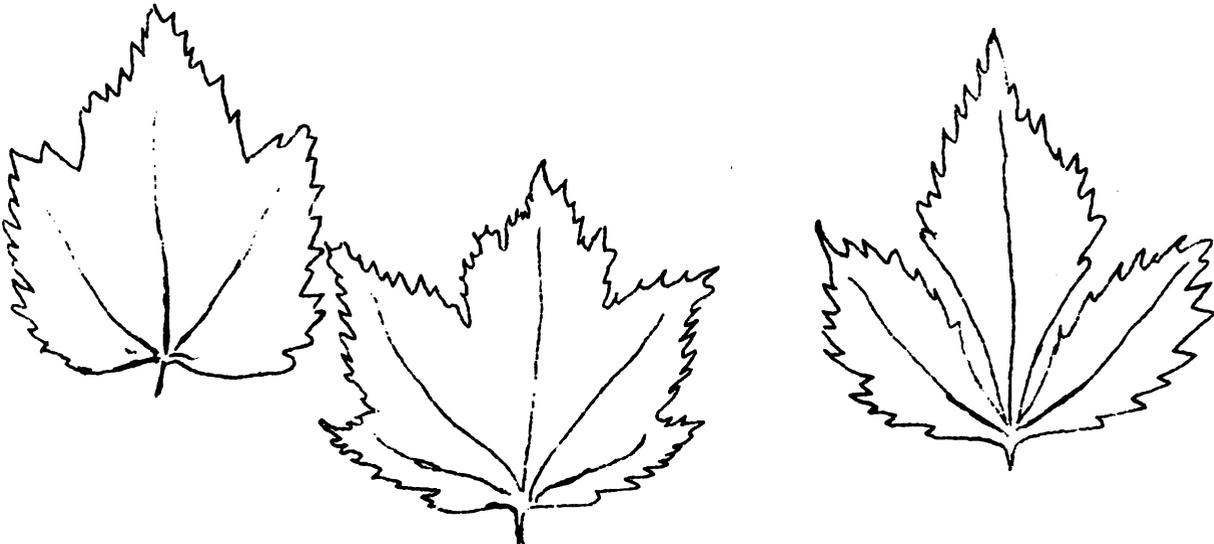
*All of the figures in this article were computed from the map of forest cover in the park. In preparing this map, species forming less than ten per cent of a stand were ignored.

* * *

VARIATION IN DOUGLAS MAPLE

By V. E. Bailey

The characteristics which distinguish mountain maple (*Acer glabrum*) from Douglas maple (*Acer Douglasii*) are often puzzling when one tries to apply them to the maples of Glacier National Park. Standley, in his "Flora of Glacier National Park," says, "It is doubtful whether lobes or divisions in the leaf is sometimes used to distinguish between the two species: leaves of the Douglas maple have three lobes; those of mountain maple have five. In the park, many specimens are found which have both types of leaves on the same bush. Other plants have some or all of the leaves entirely divided into three leaflets.

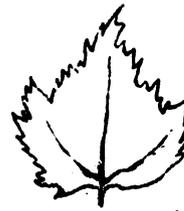


Collected at Belton x 1

Many Glacier Region x 1

According to the Range Plant Handbook (1937) which uses both leaf and fruit characters to distinguish between the species, Douglas maple

has leaves with the lobes toothed to the base, while those of mountain maple have the middle lobe usually narrowed and entire below the middle. Our specimens are of the former type, and hence, should be classed as Douglas maple, if this character is to be considered valid. Sudworth illustrates both types in his treatment of mountain maple in "Forest Trees of the Pacific Slope".



Douglas
Maple



Mountain
Maple

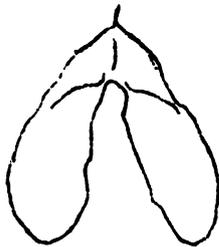
Regarding the fruits, the Range Plant Handbook describes those of mountain maple as having "wings spreading at an acute or right angle and nearly straight on the back; sinuses usually acute"; and for Douglas maple, "wings incurved on back; sinuses usually rounded." However specimens collected around Belton and along the Going - to - the - Sun Highway show both types of fruits, or transitions between the two types.



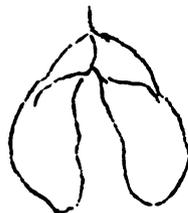
Mountain
Maple



sinus
Douglas
Maple



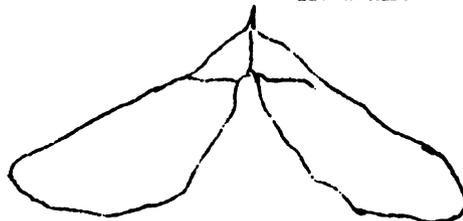
Below Sun Camp x 1



Above
Avalanche Camp x 1



Near
Avalanche Camp x 1



Belton (near hydro-electric plant) x 1



Ranger Elmer Ness reported a badger along the Logan Pass Road just above the Narrows of St. Mary Lake. It is unusual to see a badger as high in the park. The altitude is approximately 4500 feet.

LADYSLIPPER

H. Frank Evans, Ranger Naturalist



Cyripedium
montanum x $\frac{1}{2}$

While Standley reports the likelihood of ladyslippers in the park, no occurrence of that flower had been officially reported. In the middle of June, 1938, a specimen of Cyripedium montanum was found blooming in the moist semi-open lowlands along banks of the middle fork of the Flathead River near park headquarters. The delicate blossom which is white and pencilled with purple, was collected for the herbarium. Care was taken not to injure the plant by collection. Park policies favor conservation before science, so the entire plant was not collected in a hope that it would reproduce its kind. Upon seeing the plant, others assured me that they had seen it previously in McDonald and other western valleys in the park. However they were unaware that it was a rarity and so did not report its occurrence.

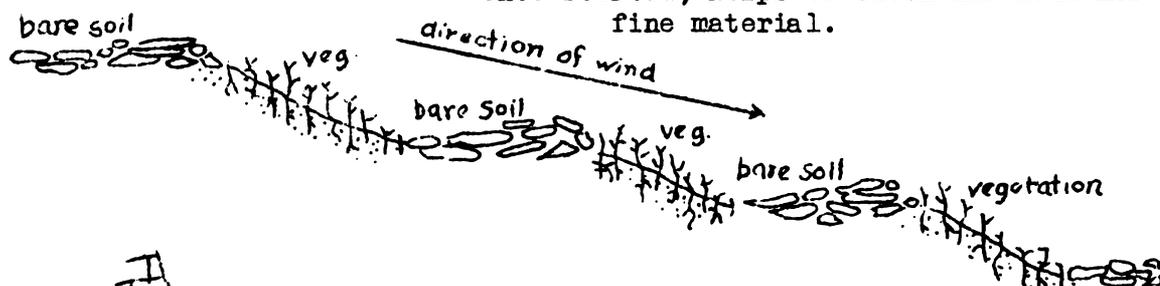
* * *

ALIGNED VEGETATION

Dr. Geo. R. Gibson, Ranger Naturalist

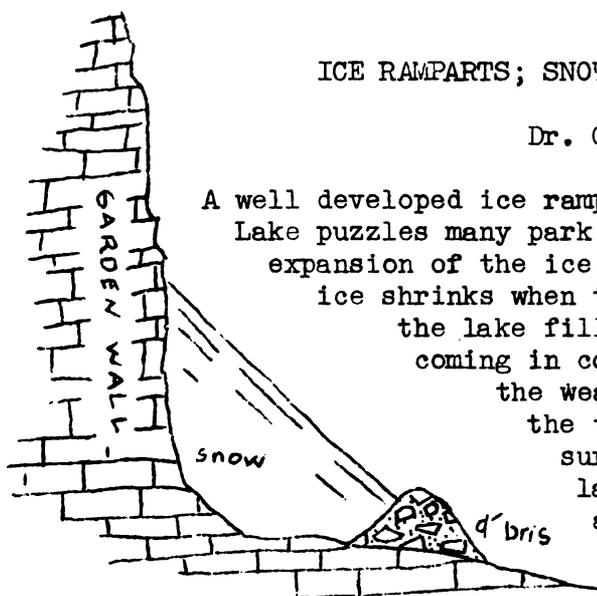
Piegan Pass is noted for its severe winds which occasionally blow with such strong gusts that saddle-horse parties along narrow and precipitous stretches of the trail have been forced to dismount for the safety of both horses and riders.

The vegetation near the pass occurs in a series of waves or rows, the trend of which seems to be at right angles to the wind. As a result, the gravel and soil have been thrown into a number of ridges one to two feet high. On the windward side of each ridge is coarse gravel which is free of vegetation. All the finer material has been blown out by the wind. On the leeward side there is a matting of vegetation. On inspecting the ground under the plants, one finds that it is composed of finer material. The wind has blown this material from the windward side to the leeward side where vegetation is able to thrive because of less wind-velocity and better soil. The vegetation once started, helps to catch and hold more fine material.



ICE RAMPARTS; SNOW RIDGES

Dr. Geo. R. Gibson, Ranger Naturalist



A well developed ice rampart on the east shore of Iceberg Lake puzzles many park visitors. This is caused by the expansion of the ice during the thawing weather. The ice shrinks when the temperature drops; water from the lake fills up the cracks and freezes upon coming in contact with the colder air. When the weather becomes a trifle warmer and the temperature of the air rises, the surface ice expands and becomes too large for the lake; the ice pushes against the shore, shoving rubble on or near the shore ahead of it. After repeated action such as this a ridge or rampart is formed.

Another feature, interesting to the visitor and queried about by the geological observant, is the ridge of the talus which parallels the base of the cliff in Cataract Canyon. This is twenty five feet high and a hundred or so feet from the foot of the cliff. It is built up in winter time by the accumulation of debris falling from the cliff and sliding over the snow bank. Ridges of this sort are numerous all along the Garden Wall; all are parallel to the edges of snow banks. Apparently most of the breaking up of rocks to form these ridges is by mechanical weathering and takes place while these banks of snow are present.

DECORATED LODGES

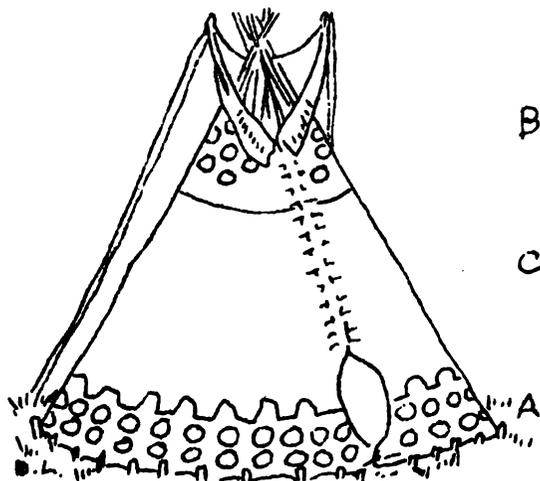
May E. Bloss

A Blackfeet circle camp of a hundred years ago must have been an impressive sight with its wide sweep of shining lodges, many of which were brightly painted, with feathers twirling on lodgepoles and buffalo hooves rattling over doorways. Each lodge was invariably pitched with doorway facing to the east.

Like those of all Plains tribes, the lodges of the Blackfeet were formerly made of buffalo skins sewed together with sinew, and stretched over a conical framework of slender poles of lodgepole pine or spruce. Those of prominent tribesmen were decorated with paintings representing sacred animals or objects imbued with protective powers that assured with a certain immunity the owners and their families against irascible and potent evil spirits who constantly waylaid unwitting transgressors.

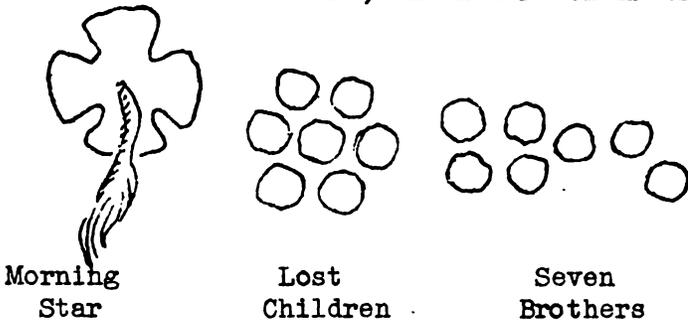
Each painted lodge had associated with it its own sacred bundle and a ceremony that were inseparable from the design on the lodge cover. These were commonly imparted in a dream to the originator from whom they might be bought, tho they must not be copied.

Most decorations of lodges were arranged with a fine feeling of structural fitness, the horizontal divisions of the cone being particularly pleasing in proportion. There were three principal decorative fields: A- the bottom: An encircling dark band represented the earth. Within this were two rows of pale colored discs called fallen or dusty stars. The familiar puffballs, which eject brown puffs of "dust" when stepped upon, were the "dusty stars" of the Indians, who believed that meteors fallen from the sky during the night sprang up as puffballs by morning. Upon this earth-border rested a series of dark projections



rounded to represent foothills or ridges on the prairie, or sharp-pointed to represent the high mountains. B- the top and the ears: This was black to represent the sky at night. In this field at the rear of the tipi was a Maltese Cross to represent the Morning Star or the Butterfly, that brings pleasant dreams to the inmates. Its placement upon the lodge signified the origin of the design in a dream. From the center of the cross was hung a sacred buffalo tail. Also within this area, upon the ears, were symbols for the

constellations, groups of pale discs representing on the left the Lost Children (Pleiades), and on the right the Seven Brothers (Great Dipper). C- upon the large field between these borders were the specific protective symbols which gave the lodge its name and which were usually of three classes: (1) Mythical originator of the design and his wife; (2) their home; and (3) their trails. Some animal was usually the originator, in which case pairs were always drawn, females being on the north side of the lodge and males on the south, except in Buffalo lodges, where the female is at the rear and the male at the front. Their homes were often shown as large dome-shaped areas at the rear of the lodge and sometimes at the door, resting upon the earth-border. About the top immediately below the black area, were often four or six bands in red or other colors, which were their trails.



Morning
Star

Lost
Children

Seven
Brothers

Since the buffalo was the staff of life of the Indians, the most important lodges were painted with its image, and certain of the sacred bundles were kept only in these lodges. But many other animals of sky, earth, and water, the deer and elk, the eagle and the raven,

the beaver, the otter and the mink, are variously potent, and their help was also needed.

There were "above people", who had certain powers, so the great Sun, the Moon, the stars, the night, the lightning, the rainbow and the rosy morning clouds were called upon for protection.

Most awesome manifestation of the earth was the lofty mountain range, which towered above the prairie-dwelling Blackfeet and which was the home of the Wind Makers, that breathed the violent storms and tempests down upon them. They venerated it, as well as peculiar formations of rock random upon the plains, and placed symbols of them upon their houses.

A somewhat different type of decoration was used in painting war lodges. The owners prowess was displayed in narrative pictographs rather than a protective motif, altho here too the intention was doubtless more of frightening away wicked spirits by pictured bravery.

When a decorated cover became too shabby for further use, it was carried into a deep lake and sunk to the bottom with heavy stones. With appropriate ceremony a new one was sewed, painted and dedicated to replace it.

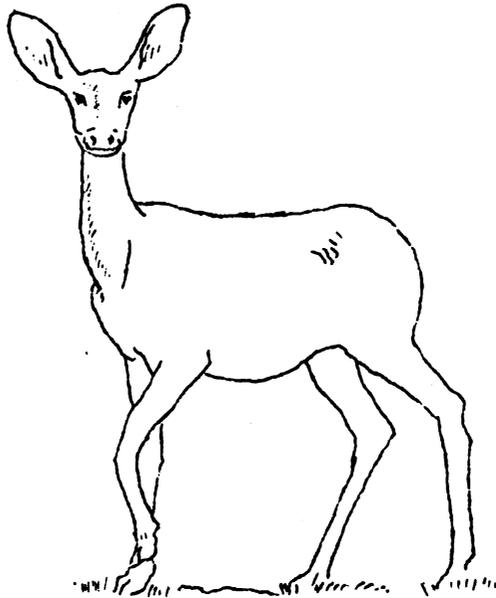
THE PASSING OF FANNY

George Parke, Ranger Naturalist

Fanny, the famous whitetail doe and undoubtedly the most photographed animal in the park, died March 7, 1938, of natural causes at an age of fifteen years.

No accurate record is available as to when she first made her home near Lake McDonald Hotel, but local residents claim that Fanny was brought to McDonald from the North Fork region. Others say that she was born and reared near the hotel.

Fanny's most prolific years were between 1928 and 1933 when for six consecutive years she greeted the hotel guests with twin fawns. She added measurably to the deer population in that vicinity, but none of her offspring lingered about the hotel long enough to become tame.



In 1932 Fanny was struck by an automobile, and her right fore-leg was broken. Despite good care and much attention the leg did not heal straight. Nevertheless, Fanny went about her business of caring for her young, begging food, and entertaining park guests by posing for pictures. On another occasion, Fanny cut herself severely when hurdling a fence and received much attention from the local doctor.

A resident relates an amusing incident concerning this well-known deer. One day toward the end of the season, Fanny ate all but one of the geranium blossoms by the hotel porch. The observer said, "Well, Fanny, you might just as well take that last flower; it will freeze anyway." Fanny, as if following his suggestion, hobbled over and gobbled the remaining blossom.

Many incidents involving Fanny have been written and published in GLACIAL DRIFT, in magazines, and in newspaper.

Fanny's passing was highly publicized because thousands of persons throughout the country who had visited Glacier had known her.

SPOTLIGHT REACTION

Late one August night after a weary day on Blackfeet Glacier, two ranger naturalists were trudging in the dim starlight along the trail below Gunsight Lake.

"Better use the flashlight, there are lots of porcupines up here," suggested the man in the rear.

"Aw! I don't need it; I can feel the trail better with my feet, and -- by golly, there's a porcupine now!" came the answer.

"Yeh, he's a little fellow, isn't he?" agreed the second, as the leader stooped low, pressed the light against the plodding, unhurried creature.

A sudden animation, commotion, and a stench came simultaneously. "Skunk! They aren't supposed to be above timberline," was the despairing exclamation, as another learned by sad experience that while a skunk turns tail quickly enough, nothing on earth seems to make it run.

The sequel was natural: the ride home by the stricken one on the running board of the automobile; the disrobing out-of-doors at midnight and the hanging of scented clothes high in the lake breezes outside the ranger station; the ranger's caustic: "There's been a-----skunk outside the cabin all night that stunk up the place so bad, I couldn't sleep a wink;" the fervid but futile efforts to eradicate the stench; the edging away of friends for the next few weeks when one stood in a crowd; the tell-tale return of the odor on the clothes for months to come whenever it rained or was damp. Is it surprising our naturalist reddened and felt chagrined whenever encountering a skunk was mentioned?

Our naturalist friend might have been interested to know that Dr. Francois E. Matthes of the United States Geological Survey has a method of removing skunk odor. The doctor learned the remedy from his packer when he was mapping in Yosemite Valley, where skunks are particularly abundant and where, in order to endure, it became frequently necessary either to destroy the odor, to burn one's tainted clothes and eventually become nudist, or to break up camp. Dr. Matthes found that boiling the odoriferous articles in water works wonders.



GLACIAL DRIFT
AUTOMOBILES AND GRIZZLIES

G. C. Ruhle, Park Naturalist



The reaction of wild animals to automobiles and their riders is often the subject of discussion. Visitors to the National Parks in South Africa are instructed that as long as they remain quietly inside their cars, there is no danger of attack from lions or other beasts. But stories have been told of enraged bulls, like Don Quixotes, attacking machines. There happen near or in the park frequent incidents which show that bull moose, especially in the rutting season, can be harried to attack a car or tractor, altho most encounters stop short of actual damage to the machine. Specifically, what would be the reaction of a grizzly, short-sighted as he is, to a disturbing automobile is a topic for road crews, trail workers, and others in the Service.

One night in 1929, I was driving slowly in an open roadster with dim headlights, when I encountered a grizzly in the middle of the road above Lake McDonald Hotel. He reared on his hind legs, spread wide a pair of ape-like arms whose hug is death, and, --well perhaps it was just the glint of the lights in his eyes that gave them an appalling look of rage. It was probably all for closer scrutiny, anyway, for a bear's eyesight is notoriously poor. He immediately dropped to all four and rolled off the right-of-way to let the car go by untouched.

Not quite so untouched was the car of Bill Yenne, park packer, in a similar night meeting last summer on the road along Sherburne Lake. As suddenly as such things generally happen, a grizzly loomed in the darkness of the middle of the road. Surprised and angered by the approaching headlights, this creature rushed the speeding car. A deft swerve failed to prevent sideswiping the bear, which picked himself up, shamefacedly we suppose, and vanished into the timber nearby. A damaged radiator and fender left evidence and reminder of the surprise encounter.

THE EGG THIEF

Rare in any part of the United States, the fisher, prized for its valuable fur, was once common enuf in the park. As is often the custom among those who have lived for a long time in one place to express an exalted opinion, so old timers around the park, some of whom, it must be admitted, possessing a respectable knowledge gained from long trapping activities over a big country, have asserted that long before the region was made a National Park, before mining activities were great within the region, the St. Mary and tributary valleys were the best fisher country on the continent. Altho several animals were trapped in the region just before it became a park, and others were reported to be observed in its earliest days, the fisher in the past decade has been generally thot to be extinct there. The rangers were urged to keep special watch for signs of fishers in their districts, but until this summer, not a trace has been reported.

Near the unfrequented head of McDonald Creek, there was located this year a trail camp known as Number 34. One day the cook discovered a fisher carefully removing eggs from a crate with his forepaws. Its dark appearance with no light underparts, its large size, its shape like that of its congener, the marten, immediately revealed its identity to the cook, born a backwoodsman. Thus, this interesting animal must be placed back on the list of park animals thot to be extinct, but seen within the past ten years: The wolverine, the caribou, the timber wolf, and possibly also the antelope, which has several times been observed just outside the park boundaries.

Fishers are close relatives of the pine marten, tho the full-grown animals are almost twice as large. Their fur is black, dark gray, or brownish black. The name, fisher, is a misnomer, for the animal is not known to catch fish. Like the marten, it spends much of its time in trees, and hunts the forests for its prey of rabbits, squirrels, and grouse.



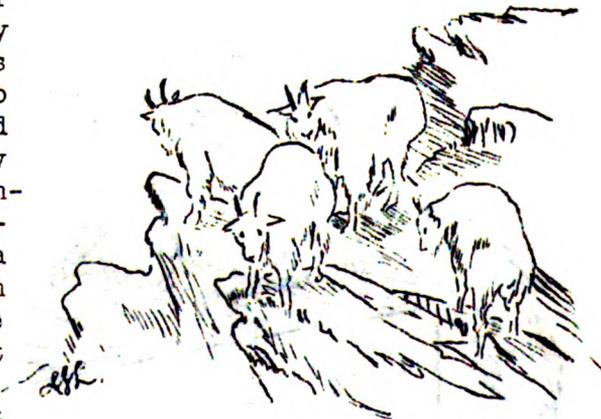
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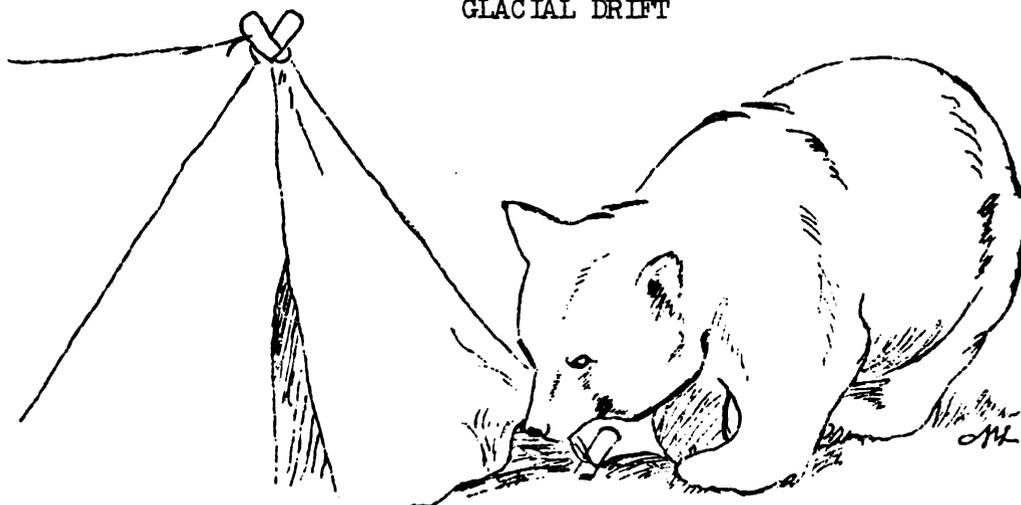
New Chief Ranger - Mr. George Miller, formerly of Salt Lake City, who for twelve years has been a member of the ranger force in Yellowstone National Park, was appointed Chief Ranger of Glacier Park in April, 1938. He served for eight years as Assistant Chief Ranger in Yellowstone, and replaces Mr. Hugh Peyton, who was transferred to that park.

Sheep and Goats at Many Glacier - As many as eight ewes and seven lambs and two rams have been down to the salt lick near Many Glacier Hotel this year. This is the largest number of sheep reported at one time this season, altho, much to the joy of the hotel visitors, both rams and ewes have often made their appearance during the mornings. Goats have been seen much more readily and frequently this year than the sheep have been. During the latter part of the season it was not unusual for the visitors to report seeing a total of a dozen or more goats at different points in the Swiftcurrent drainage.

Incident on Going-to-the-Sun Mountain - On July 27, a companion and I made the first recorded ascent of Going-to-the-Sun Mountain since August 13, 1937. We were the forty-fourth and forty-fifth to sign the register on the summit since its installation by Francis Barbour Wynn in 1919. An animal had chewed the edge of the book which was only partially protected by the tin container. Just before we reached the crest, we had been watched by six goats above us. As we climbed they grew more and more restless and as we neared their level, they made a rapid descent over a cliff which was nearly sheer. They dropped a thousand feet in less than ten minutes. It seemed to us as if they were galloping head foremost down the cliff, as they bounded from one slim ledge to another, most of the time in vertical positions. The leader, a very large goat, descended with more ease and rapidity than the others, altho a kid was close at his heels all the way.



- J. L. Dyson, Ranger Naturalist



Furry Fact - Two high school boys from Detroit learned first-hand that bear stories of Glacier National Park are founded in furry fact. The young men were asleep in their tent, pitched on the beach at the head of Waterton Lake, when one of them was awakened by an animal poking under the canvas floor. "I thought it was a packrat after our food so I kicked him on the nose," he said, "but when he swelled as big as a mountain and scrambled away, grunting 'woof!'", I knew it was no packrat!"

- Owen Grinde

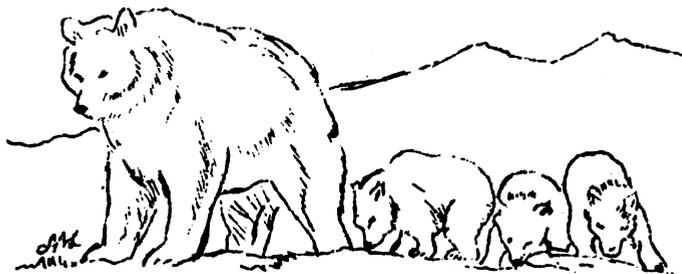
A Black Grizzly - It was reported that an unusually large black bear was raiding the supplies of the trail camps and was becoming quite bold and surly. When Assistant Chief Ranger Fladmark went up to investigate, he found to his surprise that a black grizzly was causing the trouble. This he deduced from the characteristic claws, pronounced hump on the shoulders, and general behavior. Grizzlies ordinarily do not cause much trouble in camps, so the misinformation was natural. Furthermore, the Montana grizzly is of a deep brown color darkening to brownish black along the spine and is grizzled or frosted over with a white tipping of the hair on the upper parts of the body. Seton states, however, that grizzlies are occasionally black.

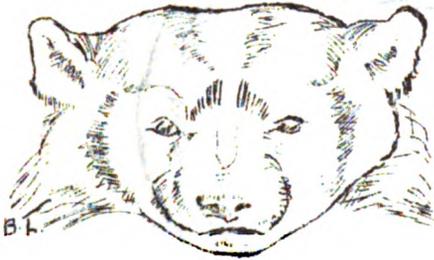
- Geo. Miller, Chief Ranger

Grizzly Triplets -

A grizzly followed by three cubs was seen on a snow field in Hole-in-the-Wall Basin. Triplets among Silvertips are a rare occurrence here; this the first report in Glacier National Park for some time.

- Fred Modesett,
Telephone Foreman





Badger Fight - Ranger Andy Fleutsch maintains that if a badger were as big as a grizzly, and still retained his degree of fight per pound, he would be the ugliest and most formidable animal in the world. "Pound for pound, the most irascible member of the park family" might suit Andy's description. While Andy was driving along the road to Bowman Lake with a companion one day, he noticed a badger in the road. They were surprised

to see the animal suddenly attack the truck. It reared on its hind legs, bear fashion, snarling and ready to take on even such a disproportionate opponent.

A Beaver Foil - A beaver which was bent upon building a dam at the head of a railroad culvert has been stopped without resort to live traps. A wire was stretched across the mouth of the culvert and burlap sacks soaked in crude oil were hung upon it. This solved the problem.

- Elmer Ness, District Ranger.

Cony Colonies - Conies are most common at high elevations above timber line, but occasionally they are found at relatively low elevations in the park. Frank Guardipee reports seeing them at Hidden Lake Ranger Station, located at an elevation of about 3700 feet. The park naturalist pointed out to members of his staff a colony below the tunnel opposite Heaven's Peak on the Going-to-the-Sun-Highway. This is at a similar elevation. The elevation of the colony at Many Glacier is 5000 feet. It has long been a special attraction for park visitors who are unable to get to the higher country to see conies. The vegetation in the vicinity of the cony colony at Many Glacier was destroyed by fire in 1936, and it was wondered if the inmates would remain. Some at least have decided to stay, since bleats are heard as one passes its site in the rock slides. - Dr. H. E. Bailey, Ranger Naturalist.

Hot Feet - A pet chipmunk probably lost its faith in civilization last week. Altho it was accustomed to jump from chair to table for scraps of food left there for it by the lookout on Bear Mountain, the fat chipmunk decided that the top of the cookstove might be an ideal place to find food. But it chose the wrong time for its exploration of the kitchen range. Result: four hot feet.

- Owen Grinde

Columbia Ground Squirrels Hibernating - Ranger Ben Miller reported that in the vicinity of Lake McDonald at an elevation of 3200 feet, the Columbian ground squirrels went into hibernation about August 21. The Apgar Lookout reported seeing the last ground squirrels on August 27; the last two on Logan Pass were seen in August 30. Young squirrels were seen as late as September 10 at Grinnell Lake. This was a week later than they were seen at the Many Glacier Camp.

Bedsheet - On August 31, the ground squirrels on Logan Pass were busy carrying grass into their burrows into which they would vanish in a few days. I discovered one, trying to pull a handkerchief down a hole. He was having a difficult time, trying to pull it in while standing on it, but he will have a sheet for his bed this winter.

-Frank Evans, Ranger Naturalist



Tame Ptarmigan - A ptarmigan hen with a brood of five was observed above the moraine on the trail to Hidden Lake. We almost stepped on her as she hovered the four young snuggled under her. The fifth was busy on a snow bank nearby, now and then pecking at real or imaginary food. Upon being disturbed, she led her chicks away leisurely, thrilling my party by walking right between the legs of one of its members.

- Dr. W. T. McLaughlin

Air Attack - While a hungry hawk circled overhead, a Richardson grouse and five chicks searched for food near the Fire Lookout on Huckleberry Mountain last summer. The hawk singled out a chick and swooped earthward. Just above the ground he was unexpectedly greeted by the infuriated mother, whose hardy blows with her wings convincingly taught him that she did not relish such attack.

- Owen Grinde

Schooling for Water Ouzel - At Baring Falls an interesting feature of bird behavior was observed. A female water ouzel was demonstrating to a fledgeling how one shifts for oneself. The adult bird staged one of the classiest aquatic shows I have ever seen. She left out nothing from her stock of tricks: diving, floating, walking and swimming under water, tobogganning down rapids, staying under water. This was all for the benefit of the youngling that had a grandstand seat for the entire performance.

Every now and then the mother would carry an insect or other delicious morsel to the young bird that gaped its mouth, teetered its tail, and fluttered its wings in joyful expectation. But mother was only tantalizing: She herself would gulp the food, and follow with flying back into the creek, in manner of coaxing, "Now come on in; this is how you do it; and you had better learn, for winter will soon be here."

- J. L. Dyson, Ranger Naturalist



Bird Notes in 1937 - A western solitary sandpiper chose the beach near the outlet of Josephine Lake as her nesting site, affording interesting visits to the naturalist and his group on bird walks. Ranger H. O. Krause observed thru the whole period of occupancy, the nest of a Sora rail in a marsh near his Lubec Ranger station. Likewise, a nest of waxwings at Belton Headquarters was watched by gardener Tait and others. Magpies are common in the park every winter, tho an authority like Mrs. Vernon Bailey writes (1918) that they are not present in the park in summertime. The magpie at Many Glacier Hotel in August, 1937, presented an exception. There too, were uncommon numbers of cliff swallows, and cross bills were again numerous all thru the park thruout the summer. As erratic in their visits as the crossbills, the many Bonaparte gulls on Waterton Lake were another familiar sight thruout the season.

- G. C. Ruhle, Park Naturalist

No Fish - The only complaints received during the month of August were relative to fishing. The complaint was that the fish won't bite. The National Park Service cannot do much about this. I told the complainers that 600,000 native and 250,000 rainbow trout have been planted in the park lakes and streams this season, and that a new park hatchery near Kalispell will be in operation before the opening of the 1939 season. Provisions are being made to raise the fish to legal size before planting by installing twenty-four rearing ponds. This generally pacified the fishermen. The need for raising fish to at least fingerling size before planting was well illustrated by the catch of a six inch eastern brook trout which had fifty rainbow fry in its stomach. The fry had been planted in the lake just a few days before.

- Ben Miller, Park Ranger

Cone Crops - Last year most of the mature firs in the park had a large crop of cones. This year scarcely a cone could be found. Dr. Aven Nelson of the Department of Botany of the University of Wyoming who visited the park in September remarked that he had noted this same condition existing at several points visited in the Rocky Mountains this summer. Only two small cones, both on small trees were found along the trail to Baring Falls. These were instructive for showing visitors what an alpine fir cone looked like. These cones disappeared later, being removed by a squirrel or a person. As a consequence parties had to go all of the way to Sunrift Gorge to observe a single alpine fir cone. Fortunately, there is never a dearth of lodgepole pine cones in the park. An interesting exhibit along the Baring Falls Nature Trail is a lodgepole pine which has retained practically all of its cones. Determining the age by counting back from the tip, cones produced during the last one hundred and fifty years can be seen on one of the larger limbs. Not only that, but the cones are all unopened. Nature keeps them thus waiting for a fire to release their load of seeds.

- Dr. J. L. Dyson, Ranger Naturalist

Erosion and Slope of Strata - The structure of Mount Jackson is such that the mountain disintegrates faster than most peaks in the park, because the northeast and east slope of the mountain have the same steep inclination as do the strata. The park visitor on the Going-to-the-Sun Highway may observe the same feature in Heaven's Peak across McDonald Valley. Aided by numerous joints, the rocks break up into blocks which slide without obstruction down the dip on the surface of the underlying layers. In other words, the slope of the mountain is always maintained as a huge sliding-board for the big blocks of rock which frost heaving pries loose.

- Dr. J. L. Dyson, Ranger Naturalist

Visitors to Overthrust - Professor Knopf of Yale University and his wife, both famous geologists, accompanied me on a trip to the contact zone of the Lewis Overthrust on Wynn Mountain. They were delighted when shown the line of contact, as sharp as a knife blade, between the Pre-cambrian and the Cretaceous rocks. Often between such a contact there may be several feet of broken crushed debris. They recommended that a trail be built to this point, and also that the contact at Roes Creek be dug out so that it would show the fault plainly.

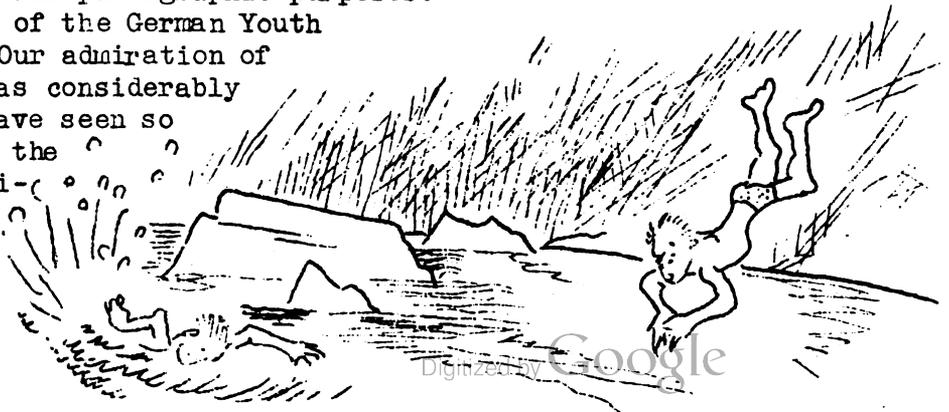
- Dr. G.R. Gibson, Ranger Naturalist

Guide Gags-Living in the park region for a great many years, one of the best known guides working for the Saddle Horse Company is Jim Whilt, who was assigned the trip to Grinnell Glacier five years ago. Jim claims this was done because it would be no loss to the company if he fell into a crevasse "whereas if another guide met the same fate, it would be a severe loss." Jim delights his audience with his formula for coffee which he calls "the real arbutle mud". His formula is simple: merely place a horseshoe in the bottom of the coffee pot; when it rises to the surface the coffee is done. He advises those who have never ridden a horse before to inform him of the fact in advance so that he can pick out a horse that has never been ridden, and the two can learn together.

- H. E. Bailey, Ranger Naturalist

Swimming with Icebergs - Presence of icebergs did not deter from their swim members of several troops of Boy Scouts, Campfire Girls, and others that travelled and camped in the park during the past summer. But the dip into the lake while it was still partly frozen over was mostly a stunt for photographic purposes.

Visiting members of the German Youth Movement said, "Our admiration of American Youth has considerably grown since we have seen so many hiking over the trails and especially swimming in the lakes with icebergs."



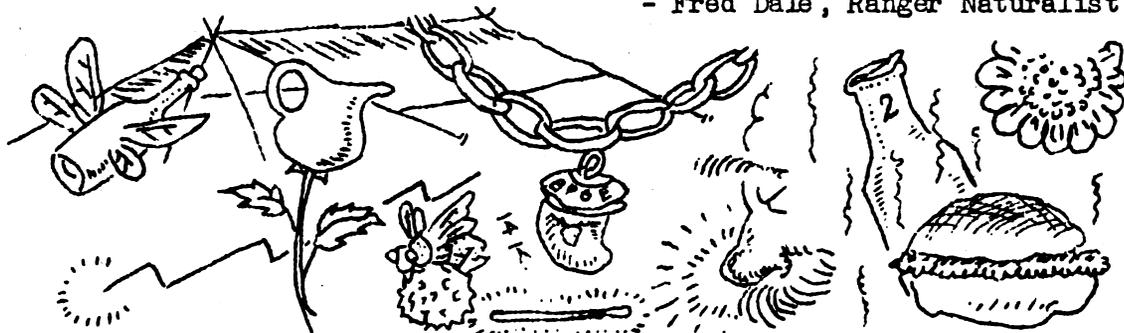
Color Photography - Regarded as the foremost color-photographer of the world, and known for the brilliance of his photographs, Mr. Anton Baumann, of the Leica Camera company, spent a week in July in the park taking color pictures, and delivered several lectures on colored photography, using over one hundred slides in natural color for illustration. The appeal of pictures in natural color was well demonstrated by the size and response of his audiences. Practically every one at Many Glacier turned out whether guests or workers to see the slides. One consequent important result is the fact that it will not be long before the ranger naturalists will use lantern slides in natural colors for their illustrated lectures. Mr. Baumann made trips over Gunsight and Siyeh Passes and to Grinnell Glacier and Iceberg Lake. Credited with visits to fifty-two countries, Mr. Baumann expressed great pleasure in the park scenery. He pronounced its quality from a photographer's viewpoint as unsurpassed anywhere.

- G. C. Ruhle, Park Naturalist

Nonsense - On August 8 the annual penny carnival was held at Hotel Lake McDonald, the receipts from which were used to recompense the members of the local orchestra who volunteer their services for the summer. Ranger Naturalists Evans, Greene and Dale put on a Naturalist Exhibit which, like all naturalist services, was free, but a bucket caught unsolicited donations. The following are the nonsensical items which were used, like puns, for a flower and animal exhibit:

- | | | |
|-----------------|---|--|
| <u>Flowers</u> | Paint brush-----An artist's brush | |
| | Golden rod-----A yellow metal rod | |
| | Blue flag-----A blue cloth flag | |
| | Ladyslipper-----A woman's shoe | |
| | Pitcher plant-----A water pitcher | |
| | Everlasting-----A paper flower | |
| | Currant-----A flashlight battery | |
| | Poppy-----A picture of an old drunk | |
| <u>Trees</u> | Fir tree-----Wire tree with fur on it | |
| | Trees-----Shoe trees | |
| <u>Insects</u> | Bottle fly-----Blue bottles with a tent fly | |
| | Butterfly-----Butter with a fly on it | |
| <u>Animals</u> | Lynx-----A chain | |
| | Elk-----A picture of a B. P. O. E. | |
| | Ground Squirrel-----Hamburger | |
| <u>Minerals</u> | Quartz-----Two quart milk bottles | |

- Fred Dale, Ranger Naturalist



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