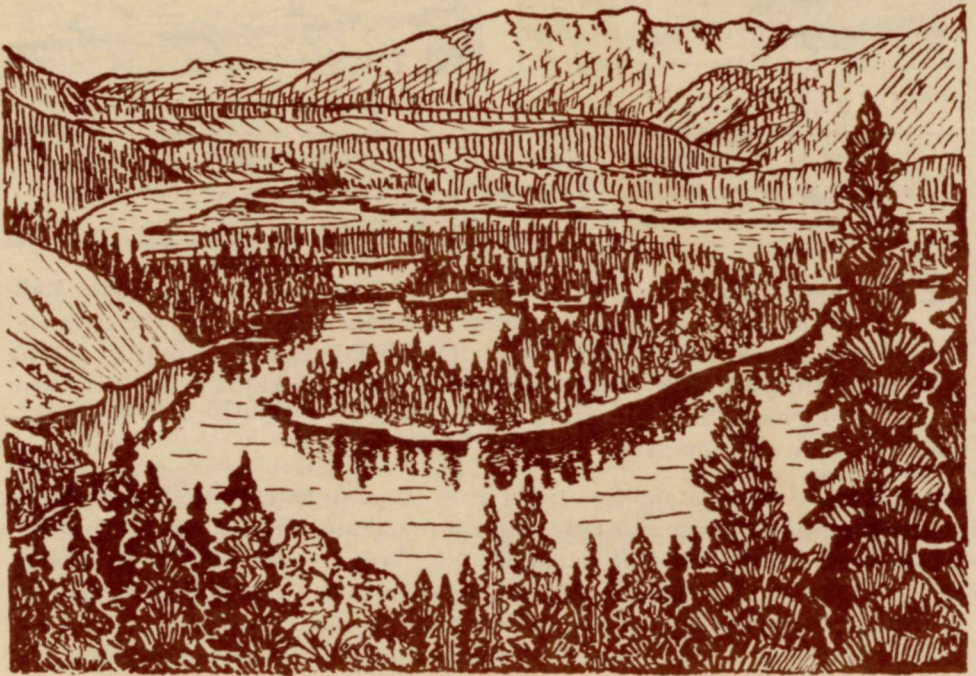


Horseshoe Lake

Nature Trail

Mount McKinley National Park

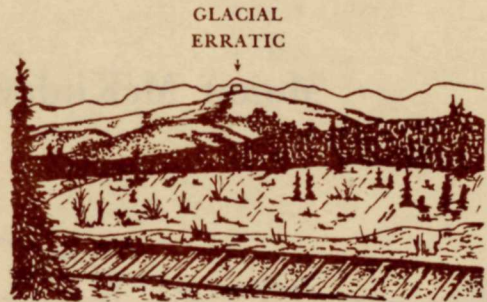


Nature has devoted a half billion years shaping the landscape surrounding the Horseshoe Lake nature trail. A pleasant hour's walk reveals that plants, wild-life and man have been influenced by this landscape and that they in turn have attempted to modify it to meet their needs. Bring walking shoes, insect repellent, a camera, perhaps a raincoat and most of all a sense of adventure.

You may borrow this leaflet and return it after your walk
or you may purchase it for ten cents.

1. The pass in which you stand has been formed by the Nenana River as it flowed across the Alaska Range. Streams do not normally cross mountain ranges but the river was here before the range achieved its present height. As the mountains gradually lifted, the river continued to flow and cut this canyon at a rate that equaled or exceeded the growth of the range.

One way the landscape is shaped is demonstrated by the large boulder on the slope to the southwest. It is composed of a type of granite which is not found in the Alaska Range and is one piece of evidence testifying to the presence of ice age glaciation in the park. This "glacial erratic" weighs many tons and could only have been carried to that slope by a powerful glacier.



You are a visitor in an "outdoor museum" preserved as a living community for your benefit. Enjoy this living community but pay it the same respect you would have any great museum.

2. Man and animals use this pass as transportation routes. The Alaska Railroad and Alaska Highway 3 serve as important links between the coast and the interior of Alaska. Sometimes man and animals come into conflict during their use of this pass. Each winter a number of moose are killed in collisions with trains because moose find that railroad tracks which are kept clear of snow make good trails. On occasion moose may even charge trains!

3. Because the river and pass are here, the taiga (subarctic forest) is also here. Throughout much of Alaska, taiga is found along rivers and in mountain passes where climate and soil conditions favor tree growth. These trees in turn influence the land by regulating the rate of erosion, contributing organic material to the soil, and increasing soil acidity. Trees also capture energy from the sun and make it available as food to many members of the wildlife community that live in the taiga.

4. Some of the geological history of the Nenana River canyon is written on the landscape. The broad "U" shape of the upper portion of the canyon is the signature of a glacier that gouged its way through the pass which the river had created.

After the glacier left, the canyon was occupied by a 10 mile long lake when glacier debris dammed the canyon downstream. The ridge on which you stand is in part composed of material that was deposited as sediments in that lake. Since then the river has notched out a "V" shaped gorge to form the bottom of the canyon. The river has also been shifting. Horseshoe Lake was once a horseshoe shaped bend in the river. As the years passed the ends of the bend were gradually brought closer together until they met. Then the river cut a new course and the main current bypassed the new lake.

5. A strand of the largest crustal break in North America, the 1300 mile long Denali fault system, passes near here separating the oldest rocks in Alaska from those of younger age. Facing east you see Sugarloaf Mountain on your left and Mount Fellows to your right. This strand of the fault formed the saddle on the slope of Sugarloaf. The rocks of Mount Fellows were created about 60 million years ago, but the rocks that make up the bulk of Sugarloaf were deposited as sediments in a sea which covered this area about one half billion years ago.



Moose and other creatures of the taiga regard this place as their home and *aggressively* defend themselves *especially if they have young*. A healthy moose or grizzly can fight off a pack of wolves. Even the smallest animals bite. Tread carefully!

6. Many animals are here because of the mountain, the river, the lake, and the taiga. For example, sheep find safety on the steep slopes of Sugarloaf and fish swim the Nenana River. All of the animals that use this land have influenced it, but few so obviously as the beavers that cut these trees. You will see many examples of their work along the rest of the trail, but these workers are gone. They no longer live in Horseshoe Lake. Can you guess why? Consider how far these trees are from Horseshoe Lake. The answer will be revealed as you approach the lake.

7. Trees are important components of the landscape even after they fall. For example, a snowshoe hare has been known to seek shelter under these roots in winter and a parka squirrel burrow exits from the ground beneath them.

8. Notice the point of land which juts across the Nenana River canyon beyond Horseshoe Lake. The point owes its existence to a small stream which is depositing material eroded from Mount Healy on the left. Notice also how the railroad and the river were forced to detour around these deposits.

9. Near streams and lakesides trees usually fall toward the water because heavier growth occurs on that side of the tree. However, at this distance from the water the direction a tree falls may be random or controlled by factors such as wind or slope of the ground.

10. This chewed up forest provides a clue to the reason beavers no longer live in Horseshoe Lake. To a large extent beavers depend on aspen, willow and cottonwood for food and building materials. They also depend on water for safety. When the beavers depleted the supply of these trees near the lake, they were forced to operate at greater distances from the water. They had to be especially alert to danger. Interruptions in their work became frequent. The time came when they decided to move on to "greener pastures".

11. The river was a prime architect of the landscape when the beavers moved to Horseshoe Lake. In many respects conditions were ideal as all the resources that beavers needed were here. Yet the beavers "improved" these surroundings, at least from their viewpoint, by building a lodge on the opposite shore and a dam across the outlet of the lake so that the level of the lake was raised. People often marvel at the beaver's ability to make these kinds of changes because they so closely resemble man's own engineering feats!

12. All dams and lakes are temporary features when viewed in terms of geologic time. Today, streams are carrying soil and silt into Horseshoe Lake. The lake will become a meadow and after that a forest. The forest will also be temporary because the Nenana River and the streams that drain into it will keep cutting canyons and passes. The landscape will always be changing and plants and animals and man will always be responding to these changes.

END OF TRAIL

As you retrace your steps, consider the landscape and the life it supports in terms of the vast amount of energy necessary to make this system function. Rarely is energy expended explosively. Quietly and relentlessly mountains build and wear away, trees grow and fall, and animals pursue their livelihood. In time the changes which result are enormous.



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