Motorist’s Guide to the Going-to-the-Sun Highway

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This Motorist's Guide to the Going-to-the-Sun Highway is the first publication issued by the Glacier Natural History Association in cooperation with the National Park Service. Bulletins covering other phases of the park story will be issued from time to time as funds are available.

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LAKE MCDONALD IN WINTER
MOTORIST'S GUIDE
TO THE
GOING-TO-THE-SUN HIGHWAY
(With a brief account of the Park's Geologic History)

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SPECIAL BULLETIN NO. 1

GLACIER NATURAL HISTORY ASSOCIATION, INC.
In cooperation with
NATIONAL PARK SERVICE
DEPARTMENT OF INTERIOR
THE GEOLOGIC STORY OF GLACIER

The spectacular beauty of Glacier National Park is the result of a long series of geological events, many of which are clearly indicated in the mountains, valleys, and lakes of the park. In order that the visitor may better understand and appreciate the unusual nature of Glacier's scenery as portrayed by a trip over the Going-to-the-Sun Highway, a digest of the geologic story is herewith presented as the introduction to this guide.

The mountains of Glacier are for the most part made up of rocks formed from sediments which started accumulating in a shallow inland sea more than a half-billion years ago. The great thickness of our present day rocks indicates this deposition of material continued over a vast period of geologic time. At intervals muds were laid down which later consolidated to form shales and argillites (a partly-altered, clayey-shale). Limy muds were similarly changed to limestones. Occasional depositions of sands resulted in the formation of sandstones. Thus, alternating horizontal beds of great thickness furnished the bulk of material now forming this portion of the Rocky Mountains.

The final retreat of the sea was caused by an extensive uplift of the land some 60 million years ago causing the once horizontal layers to fold and buckle. As the region attained greater heights, compression and folding increased causing the rock layers to break. A huge block of the earth's crust was uplifted along one of these breaks and shoved northeastward a distance of 15 to 18 miles. This is the famous Lewis Overthrust fault which forms the Lewis Range, named in honor of Meriwether Lewis of Lewis and Clark fame.

Coincident with the uplifting and faulting of the land, erosion was going on. Streams cut deeply into the mountain block, forming cliffs and deep canyons. The crumpled front of the block was also gradually eroded and dissected. Some of the more resistant rock masses, such as Chief Mountain, were left isolated out on the Plains as remnants of the great mountain block. The contact between the
FIG. 1—FOLDING DUE TO HORIZONTAL COMPRESSION.

FIG. 2—FOLD HAS DEVELOPED INTO A THRUST FAULT.

FIG. 3—THE THRUST REACHES ITS MAXIMUM EXTENT, OVERRIDING THE YOUNGER ROCKS OF THE GREAT PLAINS.

FIG. 4—EROSION REDUCES THE THRUST MASS LEAVING ISOLATED REMNANTS OF THE OLDER ROCKS.
older rocks of the Lewis Overthrust and the younger rocks of the Plains upon which they lie, is plainly visible in many places along the eastern front of the range, affording a classic example of this outstanding type of earth movement.

Evidence as to the difference in age between the rocks of the Overthrust and those of the Plains is furnished by their fossil content. The older rocks contain only a few types of primitive fossil material, mainly algal reef colonies, which may be seen at Logan Pass and on the west side of the Garden Wall on the Going-to-the-Sun Highway. The younger rocks of the Plains contain a wealth of plant and animal fossil forms of Cretaceous age (60 to 100 million years old).

During the Ice Age (1 to 2 million years duration), mighty glaciers took up and modified the work of the streams. The most obvious work of the ice was to deepen the main valleys and cut back the base of the cliffs to form a valley profile U-shaped in cross section. Tributary valleys were not worn so deep and thus became hanging valleys over which the streams plunge or cascade, sometimes hundreds of feet to the floor of the main valley below. In addition to changing the character of the valleys, the glaciers cut back into the mountains producing aretes such as the Garden Wall, matterhorns such as Reynolds and Fusillade, and huge amphitheaters, called cirques, many of which contain small glaciers which are still active and give rise to the name, Glacier National Park. Most of the 200 or more lakes of the Park owe their existence to glacial action.

ROCKS OF THE LEWIS OVERTHRUST: There are four principal rock formations, each one thousand to several thousand feet thick, which make up the mountains of the Park traversed by the Going-to-the-Sun Highway. These are most readily discerned on the east side of the Park between Logan Pass and St. Mary.

The lowermost formation, the Altyn, is a very hard limestone of pale bluish tinge which weathers buff. It forms the bases of most of the mountains on the east front of the range, such as Divide, Curley Bear, and Singleshot Mountains in the St. Mary area.

Above the Altyn is the grayish-green Appekuny argillite. It
forms the bases of Red Eagle and Goat Mountains adjacent to St. Mary Lake.

Above the Appekuny is the Grinnell argillite which is dark red in color and forms the summits of Red Eagle and Goat Mountains.

The uppermost and youngest of the four formations is the Siyeh, which is made up principally of hard steel-blue limestone that weathers to a buff. It forms the precipitous cliffs, such as the Garden Wall, and the tops of the higher peaks, which are so characteristic of the Park. In it is found the dark colored diorite band, an igneous intrusion, which is readily visible on the side of Little Chief Mountain and near the summit of Going-to-the-Sun Mountain. The highway is cut into Siyeh limestone throughout its course over Logan Pass and down the Garden Wall.

These formations make up the Belt Series, all of Proterozoic age,—rocks formed at the "Dawn of Life." They are the oldest rocks on earth that contain recognizable fossils. The remarkable feature about those exposed in the Park is that they are so slightly changed in character since they were originally laid down some half-billion years ago. Elsewhere in the world rocks of this age have been so greatly altered that they retain very few of their original characteristics.

In conclusion, it should be pointed out that all the mountain peaks of Glacier are made up of these older rocks which normally would be buried deep in the earth by an overlying series of younger rocks. Rocks of equivalent age are found in the mile-deep inner gorge of the Grand Canyon of Arizona and even there the overlying younger rocks represent but a portion of the rocks of the earth that have since been formed.

Further details on the geologic story may be secured from Ranger Naturalists stationed at various stations in the Park. Illustrated talks are given on geology and other subjects at Lake McDonald, St. Mary, Two Medicine, and Many Glacier nightly during July and August. Guided trips are scheduled at regular intervals to point out the evidence on which this story is based. Consult bulletin boards or ask the man in uniform for details of the naturalist program.
LOG—GOING-TO-THE-SUN HIGHWAY EAST-BOUND—WEST GLACIER TO ST. MARY

NOTE: The Going-to-the-Sun Highway is about 50 miles in length. Distances used in this guide represent mileage between points of interest. Cumulative distance is not shown due to the great variation in speedometer mileages between individual cars resulting from tire condition.

0.0 JUNCTION. U. S. Highway No. 2 and Going-to-the-Sun Highway. Great Northern Railway underpass.

0.1 WEST GLACIER, MONTANA (Elev. 3200 ft.) Official mailing address for Glacier National Park. General stores, cafes, service stations, post office, curio shops, cabins, etc.

0.1 Bridge over Middle Fork of the Flathead River, which forms the PARK BOUNDARY line at this point. Glacier National Park was established in 1910 and comprises more than a million acres—nearly 1600 square miles—and is the third largest of our national parks. All national parks and monuments are administered by the National Park Service under the Department of the Interior.

0.4 Junction. Road to right leads to PARK HEADQUARTERS, open the year round. Office of the Superintendent and his staff; residences of permanent park employees.

0.3 WEST ENTRANCE. During the summer season National Park Service rangers are stationed here to record all vehicles entering the park and to collect the prescribed fees for motor vehicles using park roads. Dogs are permitted if kept in the car or on leash. No fishing license is required in the park but fishermen are requested to report information on the fish taken in order to help improve fishing conditions.

0.2 Junction. Road to left leads to APGAR, a privately-owned subdivision at the foot of Lake McDonald. A number of cabin
camps are located there. From Apgar the road continues to Fish Creek Campground and on into the North Fork area of the park.

0.3 The stand of young lodgepole pine and larch along the highway in this vicinity has sprung up since the 1929 FOREST FIRE. Note the burned over hillside to the right and be thankful that only a small portion of the park has been thus scarred. Help us protect the forests and the scenic beauty of the park by being careful. DO NOT THROW BURNING MATERIAL FROM YOUR CAR. FIRE IS OUR GREATEST DANGER.

1.0 Junction. Road to left leads to Apgar and connects again with the main highway at the last junction passed. Ahead is LAKE McDONALD, the largest lake in the park, 10 miles long and 1½ miles wide. Most lakes in the park are of glacial origin, many of them being quite deep. Lake McDonald is over 400 feet deep in some places.

3.2 View up McDONALD VALLEY. Peaks visible ahead from left to right are: Stanton Mtn. (7754), Mt. Vaught (8850), McPartland Mtn. (8300), The Garden Wall (9541), Mt. Cannon (8800), Edwards Mtn. (9065), and Lincoln Peak (7400).

4.0 On the left is the entrance to SPRAGUE CREEK CAMPGROUND. This is one of the many free public campgrounds provided by the National Park Service for Park visitors. Campsites are furnished with outdoor stoves and camp tables; water hydrants and garbage receptacles are located nearby. Parking space is arranged for cars but not for house trailers, which are required to use other campgrounds.

0.8 SNYDER CREEK. Road to left serves the LAKE McDONALD HOTEL. Trails start from this point to the Sperry Chalet (6 miles) and Sperry Glacier (9 miles); other trails lead to Fish Lake, Snyder Lake and Mt. Brown Lookout. Saddle horses and guides are available here.
1.5 JUNCTION. Road to left serves the upper end of Lake McDonald. A ranger station, private homes, and a few cabin camps are located along this road, which dead ends after about three miles.

0.3 McDONALD FALLS. A series of cascades in McDonald Creek that are unusually impressive during early summer. McDonald Creek flows into Lake McDonald.

0.3 Another series of cascades and rapids. Trail underpasses the highway before bridging McDonald Creek. The greenish colored rock in this vicinity is an ARGILLITE—a partly altered clay which was originally part of an ocean bed.

0.7 WILDLIFE AREA. For the next third of a mile the highway traverses a swampy area which is the habitat of beaver, muskrat, moose and ducks. Beaver are most active at night but are occasionally seen swimming in the daytime. Beaver activity can be noted by the tree cuttings and dams. Moose are often seen feeding in the swamps here and at other similar swampy areas along the highway. The moose is the largest of the deer family, standing seven feet in height and weighing around one thousand pounds.

2.8 Entrance to AVALANCHE CAMPGROUND on the right. Starting point of trail to Avalance Lake (1.8 miles). Campfire programs are conducted both here and at Sprague Creek camp-
grounds on a regular schedule during July and August.

0.7 MT. CANNON is seen nearby on the right. During the early summer mountain goats may often be seen feeding along the low rock ledges.

2.0 Ahead is the best photographic view of THE GARDEN WALL and Mt. GOULD, the highest point. This is the Continental Divide which will later be crossed at Logan Pass. Note the highway ahead which appears as a nearly horizontal line about half way up the wall. The Going-to-the-Sun Highway was constructed at a cost of three million dollars and was 12 years under construction. It was first opened for through travel on July 13, 1933.

1.6 LOGAN CREEK. This creek is fed by melting snow and the numerous waterfalls along the Garden Wall between here and
Logan Pass. It empties into McDonald Creek a few hundred feet from here.

0.7 On the left is the trail bridge crossing McDonald Creek. From here the highway maintains a 6% grade to Logan Pass, ten miles away.

1.7 ALGAL COLONY. At road level on the right the limestone ledge which spans a faint watercourse is faceted with strongly-etched rosettes, a foot or more in diameter, similar in structure to cross-sections of cabbages. These are believed to be the fossil remains of a concentration of single-celled plants (algae) associated together in colonies during the period in which these rocks were being formed under water. This occurred more than a half-billion years ago during the Proterozoic (dawn-of-life) period. The rocks comprising the Garden Wall are therefore among the oldest sedimentary rocks found anywhere in the world. Evidence of life in the Proterozoic is very rare due to the fact that most rocks of this age, other than those found in this area, have been extensively altered by heat and pressure.

0.2 To the left is HEAVENS PEAK (9004), which remains snow-capped through most of the year. A fire lookout is located at the end of the long ridge which extends out to the right.

0.1 TUNNEL. Two openings are cut in the wall of the tunnel and offer interesting photographic possibilities framing views of Heavens Peak. Parking is not permitted within the tunnel, but a small space is available for parking at either end.

0.6 THE LOOP. By means of this switchback, the road reverses its direction from northwest to southeast and in places is built over itself. A parking area affords a safe stopping point to view the splendid panorama of peaks to the north. The burned-over area is the result of the great fire of 1936 which started on the rock shoulder to the left and below Heavens Peak, then swept across McDonald Creek and up over the Garden Wall through Swiftcurrent Pass and down to Many Glacier.

(12)
The Garden Wall forms the Continental Divide in this section of the park. It is part of the Lewis Range from which the Lewis Overthrust gets its name. The peaks visible to the north belong to the Livingstone Range, which parallels the Lewis Range. The Continental Divide shifts from the Lewis Range to Livingstone Range by means of the low Flattop Mountain, part of which is visible to the north.

Start of the short trail to Granite Park where it connects with the Highline Trail.

0.1 GLACIER POLISH. On the left of the highway, road construction has exposed fine ledges of pale-greenish argillite, with edges rounded and surfaces polished and striated by glacial action.

1.3 ALGAL REEF. The core of an algal reef is etched on the wall
above the road. As the crowded colonies of algae grew, the soft limy ooze underneath was depressed and squeezed. Later deposits domed over the colony in the fashion visible.

1.4 Location of the GARDEN WALL ROAD CAMP operated by the National Park Service for maintaining the highway. A telephone is available for emergency use.

0.9 From the parking strip provided here, an excellent view is obtained of the “U” shaped glacial McDONALD VALLEY, 2500 feet below. Panorama of peaks in the Livingstone Range to the north are: (left to right)—Heavens Peak (9004), Longfellow Peak (8900), Anaconda Peak (8300), Mt. Geduhn (8300), Trapper Peak (7675), Vulture Peak (9621) and glacier, Rainbow Peak (9870) and glacier, Mt. Carter (9844).
To the south we see MT. OBERLIN with its cirque and hanging valley from which drops BIRD WOMAN FALL. MT. CANNON forms the right hand wall of the cirque. Note the moraines (rock boulders pushed up in ridges by glaciers) extending out from the backwall of the cirque. A small glacier existed here until quite recently.

1.1 WEEPING WALL. So named from the manner in which water runs or drips over the face of the rock cut. The gentle, sloping watercourse around which the road curves ahead piles up much snow in winter, making this one of the trouble spots in the work of snow-removal each year. It is a tremendous undertaking to clear this highway of snow and slides in order to open it for travel by June 15 each season.
0.6  MT. OBERLIN. Ahead is a close-up view of this much-climbed mountain with its man-made rock cairn on the summit.

0.8  REYNOLDS MOUNTAIN (9157), a typical glacial horn, is seen directly ahead. It has been carved away on all sides by glaciers during the Ice Age.

1.3  LILY MEADOW. The road now curves around a luxuriant alpine meadow which is carpeted with yellow glacier lilies in early summer. White and red heather, globeflower and wild heliotrope may also be found growing with the lilies; fringed parnassia and blue gentians follow later. The stunted trees growing in thick clumps are alpine fir.

0.5  LOGAN PASS (6664) on the Continental Divide separates the watersheds of the Pacific and Atlantic Oceans. Everyone should spend some time here as it is one of the choicest spots of the park reached by car. Ample parking space has been provided and modern rest rooms are available. Ranger Naturalists are on duty during July and August to give information and to point out mountain goats on nearby slopes of Oberlin, Clements, or Reynolds. They also conduct daily walks to Hidden Lake through the Hanging Gardens.

THE HANGING GARDENS between Logan Pass, Reynolds and Clements Mountains are celebrated for their wealth of alpine flowers, starting in early summer with a mass display of glacier lilies which give way later to a succession of showy flowering species of every shade and hue. Here was the birthplace of the great glaciers that fashioned our present peaks and valleys. Evidence of their work and size is everywhere apparent.
HIDDEN LAKE is a choice blue gem set in a deep basin surrounded by sheer walls, well worth the stroll from Logan Pass. Mountain goats, mountain sheep, marmots, conies, weasels, ground squirrels and chipmunks are often seen, while occasionally hikers will encounter the fairly rare ptarmigan with her band of chicks.

Trails from Logan Pass include the scenic highline trail along the Garden Wall to Granite Park, Waterton Lake and Many Glacier.

Leaving Logan Pass, the highway starts downgrade towards St. Mary, 18 miles away.

0.1 On the left is POLLOCK MOUNTAIN (9221) which terminates the Garden Wall. Mountain sheep are occasionally seen on its slopes.

0.3 View down ST. MARY VALLEY. Peaks: (left) Piegan Mtn. (9240), (ahead) Going-to-the-Sun Mtn. (9604), (down valley left to right) Red Eagle, Mahtotopa, Little Chief, and Citadel Mountains.
0.3 The road swings around a flower-carpeted cirque with the red tabular summit of POLLOCK MTN. in the back, flanked by PIEGAN MTN. on the right. Snow remains in shady portions of this basin throughout most of the summer.

0.4 TUNNEL through a spur of limestone on Piegan Mountain.

0.6 Emergency telephone located on road shoulder at right.

0.7 Barren MT. SIYEH (10,014) is visible ahead and GOING-TO-THE-SUN MTN. (9604) across the valley to the right. Siyeh Pass is between these two peaks. Ahead to the left the trail to Many Glacier may be seen high on the side of CATARACT MTN. (8000). Piegan Pass is between Piegan Mtn. on the left and Cataract Mtn.

0.3 SIYEH CREEK. The road bends sharply and descends along the southerly side of Going-to-the-Sun Mt., after which the highway is named. After rounding the turn, a brief view of BLACKFOOT MTN. (9607) and the upper portion of the BLACKFOOT GLACIER is had ahead. MT. JACKSON (10,033) now comes into view beyond the forested ridge ahead on the right.

1.9 Parking turnout for roadside exhibit and view of a part of Blackfoot Glacier, formerly one of the largest glaciers in the Rocky Mountains. It has melted so rapidly in recent years that it is now divided into several smaller ice bodies. The segment seen here is now known as JACKSON GLACIER; It lies between Blackfoot Mtn. on the left and Mt. Jackson on the right. This division of a once large glacier explains why estimates of the number of present day glaciers existing in the park varies from time to time. Over sixty glaciers are still in existence. THE REYNOLDS FIRE LOOKOUT may be seen near the end of the spur which leads down the valley from Mt. Reynolds at Logan Pass.

2.1 Upper end of ST. MARY LAKE is visible ahead and to the right. VIRGINIA FALLS may be seen across St. Mary Valley.
0.7 BARING CREEK AND SUNRIFT GORGE. After crossing the highway bridge, parking space is provided for visitors wishing to view Sunrift Gorge, seventy-five feet away. The gorge follows a set of vertical fractures in the rock at right angles to the normal stream course. The stream has cut deeply in fractured rock and presents an interesting spectacle.

The trail beyond Sunrift Gorge ascends past the Sexton Glacier to Siyeh Pass, then over Piegan Pass to Many Glacier.

BARING FALLS is located about one-fourth mile down the trail from this point, only a short distance from the edge of St. Mary Lake. This is a favorite haunt of the Water Ouzel or Dipper, a pair of these interesting birds are believed to nest back of the waterfall. The trail continues beyond Baring Falls up St. Mary Valley to Jackson and Blackfoot Glaciers, Gunsight Lake and Pass, and on to Sperry Chalet and Lake McDonald Hotel.

The bright red rock in this vicinity is Grinnell argillite, one of the four formations of the older Proterozoic rocks making up the Lewis Overthrust.

0.6 JUNCTION. Spur road to right leads to parking area of GOING-TO-THE-SUN POINT. Outstanding photographic views and exhibits. Naturalist on duty at Government Information Office daily, July and August. Former site of Going-to-the-Sun Chalets.

0.4 LOST LAKE is just a few feet off the highway to the left but is seldom seen unless one is on the lookout for it. It is stocked with both black-spotted and eastern brook trout and fishing is fairly good early in the summer.

1.0 ST. MARY LAKE (4483 ft. elev.), is ten miles long and from a quarter to a mile wide. In some places it is nearly 300 feet deep. It offers good fishing for several species of trout, including the large Mackinaw.
The small rocky island in the lake was for years the nesting site of a pair of wild geese, hence its name "WILD GOOSE ISLAND."

Excellent view of four major mountains across the lake, left to right: RED EAGLE MTN. (8800), MAHTOTOPA MTN. (8730), LITTLE CHIEF MTN. (9552), and CITADEL MTN. (9034). Little Chief Mountain rises more than 5,000 feet above the lake surface.

The road-cut exposes the greenish-gray APPEKUNNY ARGILLITE, next to the oldest rock formation in the park. It lies immediately on top of the Altyn Limestone.

THE NARROWS of St. Mary Lake were formed by the resistant ledge of Altyn limestone at the face of the Lewis Overthrust. It is the lowest stratum of the overthrust mass and rests on the much younger rocks of the Great Plains. Freshly fractured, it is a pale bluish gray, which on weathering turns buff. The front of the Lewis Overthrust is but a short distance ahead.
0.4 Junction. Road to the left enters the RISING SUN CAMP-GROUND. Trail starts from here to Otokomi Lake (5 miles).

0.3 Junction. Road to left serves RISING SUN CABINS & COFFEE SHOP. Former name was East Glacier.

1.7 TRIPLE DIVIDE PEAK (8011) is visible up Red Eagle Valley. Its location is designated on the roadside exhibit erected at this site. Water from this peak flows into three drainages; through the Mississippi system to the Gulf of Mexico; through the Columbia system to the Pacific Ocean; and through the Saskatchewan-Nelson system to Hudson Bay.

0.3 SINGLESHTO MTN. (7700) on the left. The light colored bands in the upper part of the mountain are quartzite and are members of the Appekunny formation. At the base of the cliff a thin band of Altyn limestone is found which rests on the soft, dark shales and sandstones of Cretaceous age.

Across the lake to the right are: (left to right) DIVIDE MTN. (8657), which marks the eastern boundary of the park at that point, and CURLEY BEAR MTN. (8300).

3.2 ST. MARY RIVER. Outlet of St. Mary Lake. Flows into Lower St. Mary Lake, a mile away.

0.6 ST. MARY ENTRANCE STATION. Ranger station and government utility area reached by spur road to right. This road also connects with the trail to Red Eagle Lake.

0.3 ST. MARY JUNCTION. Eastern terminus of the Going-to-the-Sun Highway. Blackfeet Highway parallels the park boundary going north to Many Glacier and Canada and south to Cut Bank Valley, Two Medicine, East Glacier Park and connects with U. S. Highway No. 2.
LOG—GOING-TO-THE-SUN HIGHWAY WEST-BOUND—ST. MARY TO WEST GLACIER

NOTE: The Going-to-the-Sun Highway is about 50 miles in length. Distances used in this guide represent mileage between points of interest. Cumulative distance is not shown due to the great variation in speedometer mileages between individual cars resulting from tire condition.

0.0 JUNCTION. Blackfeet Highway and Going-to-the-Sun Highway at St. Mary.

0.2 ST. MARY ENTRANCE STATION. During the summer season National Park Service Rangers are stationed here to record all visitors entering the park and to collect the prescribed entrance fees. Dogs are permitted if kept in the car or on leash. No fishing license is required in the park but fishermen are requested to report information on fish taken in order to assist fish planting studies.

The spur road to the left just beyond the station leads to the St. Mary Ranger Station and government utility area. It also connects with the trail leading to Red Eagle Lake.

0.6 ST. MARY RIVER connects St. Mary Lake with Lower St. Mary Lake, one mile away.

0.6 ST. MARY LAKE AND VALLEY (4483 ft. elev.) St. Mary Lake is ten miles long and varies in width from one-quarter mile to a mile. In some places it is nearly 300 feet deep. Across the lake to the left is DIVIDE MTN. (8657) which marks the eastern boundary of the park at that point, and to the right is CURLEY BEAR MTN. (8300).

1.1 RED EAGLE MTN. (8800) is seen ahead across the lake while SINGLESHOT MTN. (7700) is to the right of the highway. Note the light colored, nearly horizontal bands in the upper part of the mountain. These are quartzite members of the Appekunny formation.
1.9 TRIPLE DIVIDE PEAK (8011) is visible up Red Eagle Valley. Its location is designated on the roadside exhibit adjacent to the highway on the left. Water from this peak can flow into any one of three drainages; through the Mississippi system to the Gulf of Mexico; through the Columbia system to the Pacific, or through the Saskatchewan-Nelson system to Hudson Bay.

1.4 OTOKOMI MTN. is on the right.

0.3 Junction. Road to the right serves the RISING SUN CABINS & COFFEE SHOP. Formerly known as East Glacier.

0.3 Junction. Road to right serves RISING SUN CAMPGROUND. This is one of the many free public campgrounds provided by the National Park Service for Park visitors. Campsites are furnished with outdoor stoves and camp tables. Water hydrants, garbage receptacles, and restrooms are located at convenient intervals. The trail to Otokomi (formerly Roes Lake) starts from the rear of the campground.

0.1 LIMESTONE CLIFF. This ledge of Altyn limestone is on the face of the Lewis Overthrust. Freshly fractured, it is pale bluish-gray, which weathers to buff.

0.3 THE NARROWS of St. Mary Lake was formed by the resistant ledge of Altyn limestone at the face of the Lewis Overthrust fault. Good photographic view up St. Mary Lake at various points nearby.
0.5 GOAT MTN. (8826) is ahead. Named by James Willard Schultz, who in 1887 counted 42 goats on the mountain.

1.0 APPEKUNNY ARGILLITE. The road-cut exposes the greenish-gray Appekunny argillite, next to the oldest rock formation in the park. It lies immediately on top of the Altyn limestone.

0.3 Peaks across St. Mary Lake, left to right, are: RED EAGLE MTN. (8800), MAHTOTOPA MTN. (8730), LITTLE CHIEF MTN. (9552), and CITADEL MTN. (9034). Little Chief Mountain rises more than 5,000 feet above the lake level.

1.0 LOST LAKE, next to the highway on the right, is easily missed by most visitors. It offers fair fishing for eastern brook and black-spotted trout early in the season.

0.4 JUNCTION. Road to left leads to GOING-TO-THE-SUN POINT. Outstanding photographic views and exhibits. Naturalist on duty at Government Information Office daily during July and August. Former site of Going-to-the-Sun Chalets.

0.1 GOING-TO-THE-SUN MTN. AND SEXTON GLACIER (9594) may be seen ahead to the right. Only a small portion of the glacier is visible and is easily confused with snow patches on the mountainside which often remain until late summer. The highway is named after this mountain.

0.5 BARING CREEK AND SUNRIFT GORGE. Park car this side of bridge and walk 75 feet to view Sunrift Gorge. This gorge follows a set of vertical fractures in the rock at right angles to the normal flow of Baring Creek. The creek has cut deeply in the soft rock producing a deep, narrow rift which is in full sunlight only for a short period each day.
LITTLE CHIEF MOUNTAIN FROM THE GOING-TO-THE-SUN HIGHWAY
Baring Creek forms a series of turbulent cascades as it descends from the highway bridge to St. Mary Lake. Baring Falls, haunt of the interesting thrush, the Water Ouzel, is well worth the round trip of one-half mile. The trail continues from Baring Falls up St. Mary Valley to Jackson Glacier, Gunsight Lake and Pass, and on to Sperry Chalet and the Lake McDonald hotel. From Sunrift Gorge the trail ascends past Sexton Glacier to Siyeh and Piegan Passes, then down to Many Glacier.

The bright red rock in this vicinity is the Grinnell argillite, one of the four formations of the older Proterozoic rocks of the park.

The remainder of the highway over Logan Pass and along the Garden Wall is cut in Siyeh limestone, the uppermost and youngest of the four formations.
0.7 VIRGINIA FALLS can be seen across St. Mary Valley beyond the head of St. Mary Lake. There are many waterfalls, glaciers, and other points of interest in Glacier National Park that can be reached only by trail. Over one thousand miles of trails have been constructed in the park for fire protection and visitor use.

1.4 The parking strip along the highway offers a good vantage point for MT. JACKSON, the snow-lined peak ahead to the left. GUN SIGHT MTN. and GUN SIGHT PASS may be seen in the distance to the right of Mt. Jackson. The trail from the highway a short distance ahead goes over Gunsight Pass to Sperry Chalet then on to Lake McDonald—a spectacular two or three-day trip which takes in glaciers, lakes, high peaks, and flower-filled meadows. Mountain goats are encountered at close range. To the right we see FUSILLADE MTN., REYNOLDS MTN., HEAVY RUNNER MTN., and at the extreme right—CLEMENTS MTN.

GLACIAL HORNS are peaks that have been cut away on three or more sides by glaciers, leaving sharp rock spires. Fusillade and Reynolds Mountains are typical examples.

0.8 JACKSON GLACIER AND MT. JACKSON (10,033). A parking strip along the left side of the highway permits viewing or photographing these features. Jackson Glacier was formerly a part of the Blackfoot Glacier, which ten years ago was the largest in the Rocky Mountains. Now the Blackfoot Glacier has divided into several smaller ice bodies, one of which has been named for Mt. Jackson, third highest peak in the park. The peak is visible in part just to the right. (Roadside exhibit.)

The Reynolds Ridge Fire Lookout may be seen near the end of the wooded spur which leads down the valley from Mt. Reynolds. GOING-TO-THE-SUN MTN. is on the right of the highway.
0.9 PIEGAN MTN. (9240) is directly ahead. It was named for the Piegan tribe of the Blackfeet Indians. CLEMENTS MTN. (8774) to the left towards Logan Pass is a good photographic subject from here. This peak can easily be identified due to the likeness of its profile to that of a gorilla looking south.

0.9 MT. SIYEH (10,014) is ahead and to the right. The trail to Piegan Pass may be seen along the rockslide slope high up on the mountain.

0.1 SIYEH CREEK. The road makes a sharp bend at this point, reversing direction for a short distance.

0.2 BLACKFOOT GLACIER AND MTN. (9607). The upper portion of the now small Blackfoot Glacier may be seen in the far distance near the top of Blackfoot Mountain. All glaciers in the United States are rapidly dwindling in size, some of those in Glacier having completely disappeared during the last twenty years.

0.8 Emergency telephone located on left road shoulder. Excellent view of HEAVY RUNNER (across valley). REYNOLDS Mtn. (to right) and CLEMENTS Mtn. (ahead). Looking back one sees the glacier-carved St. Mary Valley.

0.6 TUNNEL through a spur of limestone on Piegan Mountain.

0.4 PIEGAN CIRQUE. This attractive little amphitheater is the result of glacier cutting. Snow remains in shaded pockets throughout the summer and wild flowers grow in profusion.

0.6 POLLOCK MTN. (9221) on the right is the southern terminus of the Garden Wall. Mountain sheep may sometimes be seen on its slopes.

0.2 LOGAN PASS (6664) astride the Continental Divide separates the watersheds of the Pacific and Atlantic Oceans. Everyone
should spend some time here as it is one of the choice scenic spots of the park available by car. Ample parking space has been provided; modern restrooms are available.

Ranger Naturalists are on duty during July and August to give information and to point out interesting features, including mountain goats on nearby slopes. Conducted trips through the Hanging Gardens and to Hidden Lake are scheduled several times daily, weather permitting. Several main trails are reached from Logan Pass, including the scenic highline trail along the Garden Wall to Granite Park, Many Glacier and Waterton Lake.

Peaks nearby include REYNOLDS MTN. (9157) to the south,
CLEMENTS MTN. (8774) to the west, and MT. OBERLIN to the north. The HANGING GARDENS between these peaks are celebrated for their wealth of alpine flowers starting in early summer with mass displays of yellow glacier lilies, which give way later to a continuous succession of showy flowering species of every color. Here was the great gathering field of glaciers that descended both St. Mary and McDonald Valleys during the Ice Age producing the unusual sculptured rock features we see today.

Mountain goats, mountain sheep, hoary marmots, conies or pikas, and deer are but a few of the interesting animals that live at this high elevation. White-tailed ptarmigan are sometimes observed with their brood of chicks near melting snowbanks.

Leaving Logan Pass, the highway starts downgrade towards Lake McDonald and West Glacier, 32 miles away.

0.6 THE GARDEN WALL extends northward from Logan Pass, our road descending gradually along its flank. HAYSTACK BUTTE is the prominent square-topped spur in the middle foreground. Snowbanks alongside the road here often remain throughout the summer.

2.4 WEEPING WALL. Rounding the big bend where Logan Creek descends in a series of foaming cascades, we observe a rock wall on the right over which water runs continuously. During early summer there is an extensive flow which diminishes with the summer until there is the characteristic dripping whereby the name originates.

0.2 MT. OBERLIN AND BIRD WOMAN FALL. Looking back to the right of Logan Pass, a splendid view is obtained of Mt. Oberlin, its cirque and hanging valley from which Bird Woman Fall drops. To the right is Mt. Cannon (8800).
1.0 McDONALD VALLEY. Parking at the edge of the road, an excellent view is had of the "U"-shaped, glaciated valley of McDonald Creek, far below. The highway over which we are soon to travel stretches as a tiny ribbon 2500 feet below. Panorama of peaks in the Livingstone Range to the north from left to right are: HEAVENS PEAK (9004), LONGFELLOW (8900), ANACONDA (8300), TRAPPER (7675), VULTURE (9611) and its glacier, pyramid-shaped RAINBOW PEAK (9870) and its glacier, and MT. CARTER (9844).

0.9 GARDEN WALL ROAD CAMP operated by the National Park Service for maintaining the highway. A telephone is available for emergency use.

1.3 ALGAL COLONY. At car level on the rock wall to the right is a splendid display of an algal colony shown in etched cross section. These circular structures are believed to be the fossil remains of a concentration of single-celled plants (algae) associated together in colonies during the period when these rocks were being formed in an ancient inland sea, more than a half-billion years ago. They represent one of the few evidences of life during the Proterozoic period found anywhere in the world today.

As the crowded concentric colonies of algae grew, the limy ooze underneath was soft enough to be depressed and squeezed. Later deposits domed over the colony in the fashion visible.

1.1 GLACIER POLISH may be seen on the rounded edges of the ledges of pale-green argillite in the rock cuts to the right. These
rocks have polished surfaces and minute scratches or striations, representing glacial abrasion. This evidence is well preserved due to having been protected by a dirt covering prior to construction of the highway.

0.2 THE LOOP. By means of this switchback, the highway is able to maintain its 6% grade. Direction of travel is reversed and the road ahead actually cuts under the road above in places. The parking area affords good views of the peaks to the north and area burned over by the great fire of 1936 which swept up over the Garden Wall and burned down to Many Glacier. The trail from here leads to Granite Park, Swiftcurrent Pass and Many Glacier.

0.5 TUNNEL. Two openings cut in the outer wall form frames for viewing or photographing Heavens Peak. Parking is not permitted in the tunnel but a small space is available for parking at either end.

0.4 ALGAL REEF. At road level on the left, the limestone ledge which spans a faint watercourse is faceted with strongly-etched rosettes, a foot or more in diameter, which resemble the concentric structure of cabbage. This is another algal colony similar to the one previously described.

1.6 End of 6% grade. McDonald Creek trail bridge on right.

0.8 LOGAN CREEK. Mt. Cannon ahead to the left.

1.7 PHOTOGRAPHIC LOCATION. Looking back, the Garden Wall presents an interesting subject for photography. The highway appears as a nearly horizontal line about one-third way up. Mt. Gould, directly above Haystack Butte, is the highest point. The portion of the Going-to-the-Sun Highway visible here was the most expensive and difficult to construct. The entire highway cost three million dollars and was twelve years in the building. It was first opened for through travel on July 13, 1933.

0.6 To the left on the side of Mt. Cannon a typical AVALANCHE CHUTE may be seen. Snow slides bring down rocks and trees
which make opening the road difficult in the spring.

1.3 View of MT. BROWN ahead. A fire lookout is located on a shoulder of this peak.

0.9 AVALANCHE CREEK AND CAMPGROUND. Starting point of trail to Avalanche Lake, 1.8 miles away. Interesting pot holes and gorge adjacent to the campground. Parking space for trailers. Campfire programs and guided trips to Avalanche Lake are conducted by ranger naturalists on a regular schedule during the summer.

2.5 BEAVER AREA. The next third-mile offers evidence of beaver activity. This swampy area is the home of beaver, muskrat, moose, and offers nesting sites for several species of ducks. Note the tree cuttings and dams. Beaver and moose may best be seen in early evening about dusk.

0.6 FALLS of McDonald Creek. Several parking areas are provided in the next half-mile to afford vistas of the foaming cascades of McDonald Creek.

0.7 JUNCTION. The road to the right serves the upper end of Lake McDonald. Considerable privately-owned land adjoins the lake and this road gives access to a number of cabin camps and private homes. The Upper Lake McDonald ranger station is also located on this road.

1.4 JUNCTION. The Lake McDonald Hotel is located to the right. There is also a store and soda fountain where campers at the nearby Sprague Creek Campground can obtain supplies. Launch trips are scheduled several times daily on Lake McDonald, starting from the hotel dock. Saddle horses with guides are available for trail trips. Trails start from this point.
to Sperry Chalet (6 miles) and Sperry Glacier (9 miles); other trails lead to Fish Lake, Snyder Lake, and Mt. Brown Lookout. Sperry and Mt. Brown are the best spots for photographing mountain goats at close range.

LAKE MCDONALD HOTEL

0.9 SPRAGUE CREEK CAMPGROUND. Trailer sites not available. For the next seven miles the highway follows closely along the shore of LAKE MCDONALD, the largest lake in Glacier National Park. It is ten miles long and at places a mile and one-half wide. Most lakes in the park are of glacial origin and some of them are quite deep. Lake McDonald in places is over 400 feet deep.

Looking back from vantage points along the lake, the peaks from left to right are: STANTON MTN. (7754), MT. VAUGHT (8850), McPARTLAND MTN. (8300), THE GARDEN WALL (9551), MT. CANNON (8800), EDWARDS MTN. (9065), and LINCOLN PEAK (7400). The wooded ridge across Lake McDonald is Howe Ridge, which has the highest fire incident of lightning strikes of any spot in the park. While most of our forest fires are caused by lightning, quite a few are caused by the carelessness of man.
PLEASE BE CAREFUL WITH FIRE. DO NOT THROW BURNING MATERIAL FROM YOUR CAR.

7.2 JUNCTION. Road to right serves private homes and cabin camps at the foot of Lake McDonald. This subdivision is called APGAR, after one of the early pioneers. From Apgar a dirt road leads north into the semi-primitive North Fork area, making Kintla and Bowman Lakes accessible by car. The next mile is through the area burned in the 1929 FIRE. A young forest of lodgepole pine is springing up here but it will take many years to hide the fire scars on the surrounding hills.

1.6 WEST ENTRANCE. Your journey across Glacier National Park is nearly completed, yet you have had only a glimpse of the million acres—nearly 1600 square miles—that comprise the park. Over one thousand miles of trails have been constructed for fire protection and visitor use, serving some of the most scenic sections of the country.

0.3 JUNCTION. Road to left leads to PARK HEADQUARTERS, open the year round. Offices of the Superintendent and his staff, shops, warehouses, and residences of permanent park employees are located here. Glacier National Park is the third largest of the national parks administered by the National Park Service under the Department of the Interior. Information and literature may be secured at the Administration Building.

0.3 MIDDLE FORK of the FLATHEAD RIVER marks the boundary of the park. Immediately across the bridge is the town of WEST GLACIER, MONTANA (elev. 3200 feet)—official mail address of the park. Stores, cafes, service stations, post office, cabins, chalets, and curio shops are located here.

0.3 JUNCTION. Going-to-the-Sun Highway with U. S. Highway No. 2 just beyond the Great Northern Railway underpass. To the left, the road leads to Browning and points east; to the right to Whitefish and Kalispell and points west.
HERE TODAY—GONE TOMORROW?

Unfortunately some visitors, after a trip over the Going-to-the-Sun Highway, think they have SEEN Glacier National Park. Actually they have had but a fleeting glimpse—a mere sample—of what the park has to offer.

Glacier is essentially a trail park and one can spend weeks, even months, riding or hiking the thousand miles of trails that penetrate its unspoiled wilderness. To those who have the time and willingness to explore, Glacier's back-country offers an unrivalled experience. The grandeur and magnificence of scenery will bring full appreciation of the wisdom of John Muir's advice:

"GIVE A MONTH AT LEAST TO THIS PRECIOUS PRESERVE. THE TIME WILL NOT BE TAKEN FROM THE SUM OF YOUR LIFE. INSTEAD OF SHORTENING IT WILL INDEFINITELY LENGTHEN IT AND MAKE YOU TRULY IMMORTAL."
### Road Mileages—Glacier National Park and Vicinity

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<th>Baboquivari</th>
<th>Browning</th>
<th>Two Medicine</th>
<th>Waterton Lakes Park</th>
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(a) Via Going-to-the-Sun Highway  
(b) Via U. S. Highway No. 2  
(c) Via Kiowa Junction  
(d) Via Apgar
Principal Aims of the
GLACIER NATURAL HISTORY ASSOCIATION, Inc.

Glacier National Park
West Glacier, Montana

Organized for the purpose of cooperating with the National Park Service by assisting the Naturalist Department of Glacier National Park in the development of a broad public understanding of the geology, plant and animal life, history, Indians and related subjects bearing on the park region. It aids in the development of the Glacier National Park museum library, museums and wayside exhibits; offers books on natural history pertaining to this area for sale to the public; assists in the acquisition of non-federally owned lands within the park in behalf of the United States government; and cooperates with government projects in the completion and development of Glacier National Park as needed.

Revenue derived from the activities of the Glacier Natural History Association is devoted entirely to the purposes outlined. Any person interested in the furtherance of these purposes may become a member upon payment of the annual fee of one dollar. Gifts and donations are accepted for land acquisition or general use.