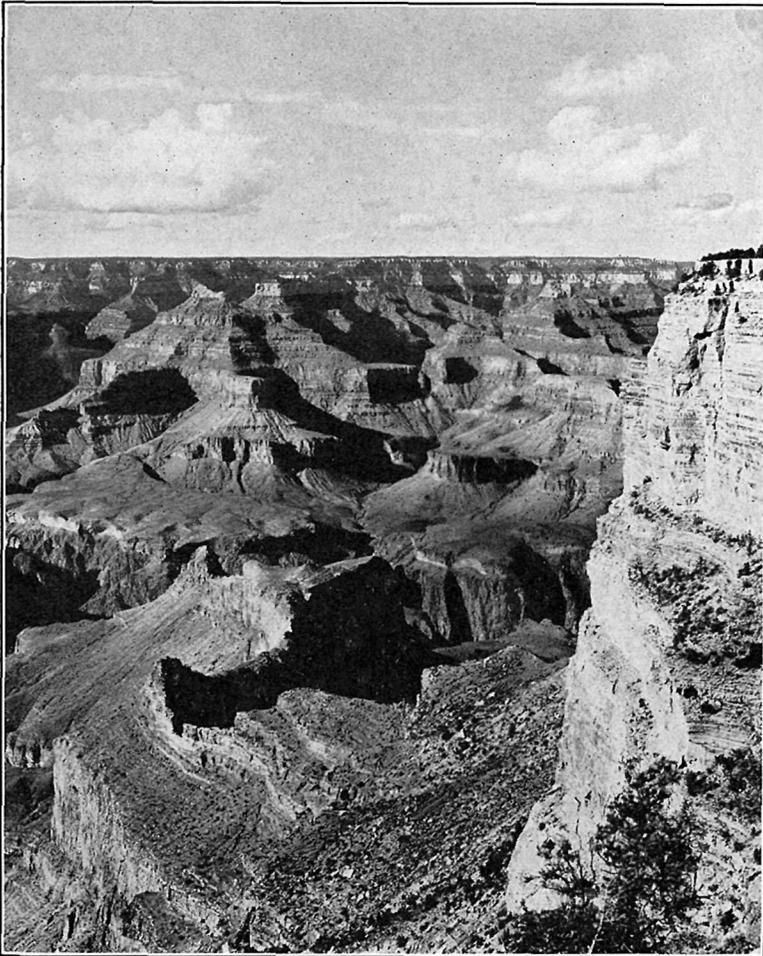


UNITED STATES  
DEPARTMENT OF THE INTERIOR  
RAY LYMAN WILBUR, SECRETARY  
NATIONAL PARK SERVICE  
HORACE M. ALBRIGHT, DIRECTOR

CIRCULAR OF GENERAL INFORMATION REGARDING  
**GRAND CANYON**  
**NATIONAL PARK**  
**ARIZONA**



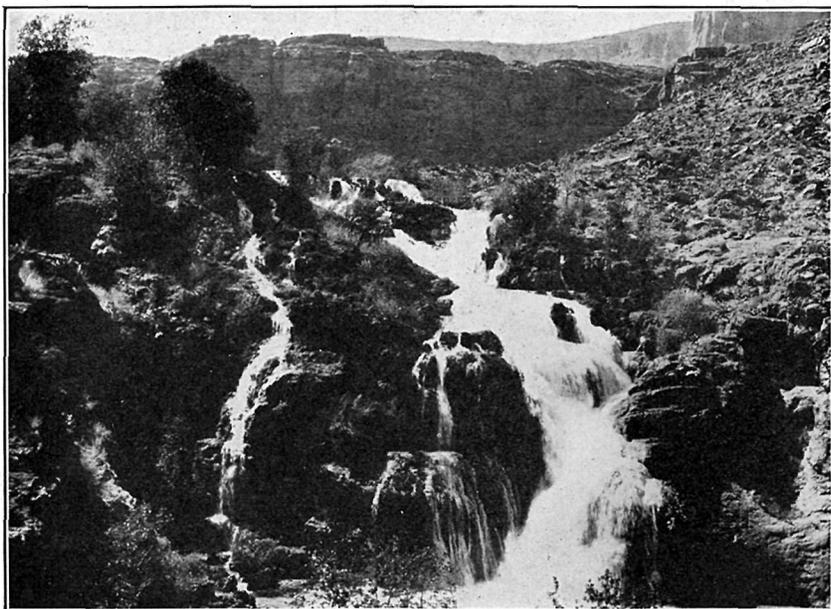
Photograph by Fred Harvey

THE GRAND CANYON FROM NEAR HOPI POINT

**OPEN ALL THE YEAR**



AUTO CAMP LODGE IN PUBLIC CAMP GROUNDS, SOUTH RIM



Photograph by Fred Harvey

NAVAJO FALLS, SUPAI INDIAN RESERVATION IN GRAND CANYON NATIONAL PARK

## CONTENTS

	Page
General description .....	1
A mighty spectacle .....	2
The first view .....	3
Park Service information bureau .....	4
Yavapai Point Observation Station and Trailside Museum .....	4
Living at the Grand Canyon .....	5
Free public camp grounds .....	5
Seeing it from the rim .....	6
Descending the canyon .....	7
The Hermit Trail .....	8
The Kaibab Trail .....	8
The Tonto Trail .....	10
The Havasu Canyon .....	10
Origin and geologic history of the Grand Canyon .....	10
History of the canyon .....	20
The accessibility of the canyon .....	25
The north rim of the canyon .....	25
Tables of distances and altitudes .....	27
Roads .....	27
Trails .....	29
How long to stay .....	31
What to wear .....	31
Administration .....	32
How to reach the park .....	33
Road sign information .....	36
Public utilities and conveniences, south rim .....	38
Automobile supplies .....	38
Groceries .....	38
Water .....	38
Post office .....	38
Telegraph .....	38
Telephone .....	38
Lecture .....	39
Medical service .....	42
National Park Service stations .....	42
Rules and regulations .....	43
Maps .....	49
Literature .....	50
References .....	51
Other national parks .....	54
Authorized rates for public utilities .....	54
The south rim .....	54
The north rim .....	64
Derivation of names used on Grand Canyon maps .....	67
National parks at a glance .....	72

# GRAND CANYON NATIONAL PARK

## GENERAL DESCRIPTION

The Grand Canyon National Park was created by an act of Congress February 26, 1919. It is under the supervision of the National Park Service of the Department of the Interior. Its final creation came 33 years after Benjamin Harrison, then Senator from Indiana, introduced the first of several bills to give it park status. Politics, local apathy, and private interests, which sought to utilize its water power and to find minerals in its depths, were the principal causes of delay. All efforts failing to make it a national park, in 1908 President Roosevelt made it a national monument. Once a railroad was surveyed through it. A scenic railroad was projected along its south rim. Less than a year before it became a park efforts were made in New York to raise money to dam its waters for power and irrigation.

The Grand Canyon National Park is in northern Arizona. Its 1,009 square miles inclose 56 miles of the Grand Canyon stretching west of its beginning at the mouth of the Marble Canyon. Through it winds the Colorado River for a distance of 105 miles. From rim to rim that portion of the canyon within the park varies from 4 to 18 miles in width; it is more than a mile deep measured from the north rim, which averages nearly a thousand feet higher than the south rim. The eastern boundary includes the lofty painted walls, east of which lies the Painted Desert. Its western boundary includes the broad Havasu Canyon, tributary from the south, in whose depths we find the Havasupai Indian Reservation and a group of fine waterfalls markedly different from any in our other national parks.

The park boundaries hug the rims closely. Very little of the country back of the rim is included in the reservation, scarcely enough in places to take care of the great increase of travel which national parkhood will bring to the Grand Canyon during the next several years. These borderlands are wonderfully attractive. The northern rim is heavily forested with pine, fir, and spruce, interspersed with beautiful glades of quaking aspen. The southern rim carries a slender semiarid flowering vegetation of rich beauty and wide variety, and south and east of the railroad station lies about 50 square miles of fine yellow pine forest.

## MAPS AND ILLUSTRATIONS

### COVER

The Grand Canyon from near Hopi Point.....	Front.
Auto Camp Lodge in Public Camp Ground, South Rim.....	Inside front.
Navajo Falls, Supai Indian Reservation, in Grand Canyon National Park.....	Inside front.
The South Rim, across the canyon from Bright Angel Point.....	Inside back.
The North Rim, across the canyon from El Tovar.....	Inside back.
El Tovar Hotel from roof of Hopi House, South Rim.....	Back.
Grand Canyon Lodge, Bright Angel Point, North Rim.....	Back.

### TEXT

FIG. 1. Generalized columnar section, showing position and structural relations of the rocks of the Grand Canyon National Park.....	12
FIG. 2. Generalized sections across Grand Canyon.....	14
Map showing principal automobile routes in Colorado, Utah, Arizona, and New Mexico.....	32
Map showing railroad routes to Grand Canyon, Yellowstone, Rocky Mountain, Mesa Verde, and Zion National Parks.....	37
Map of Grand Canyon National Park.....	36

## A MIGHTY SPECTACLE

There is no doubt that the Grand Canyon is one of the world's greatest spectacles. It is impossible to compare it with the tremendous white spectacle of the Himalayas, or with the House of Everlasting Fire of the Hawaii National Park, or with the 17,000 feet of snow and glacier which rise abruptly between the observers' eyes and the summit of Mount McKinley, because it has nothing in common with any of these. But of its own kind there is nothing in the world which approaches it in form, size, and glowing color; it is much the greatest example of stream erosion. And in its power to rouse the emotion of the looker-on, to stupefy or to exhilarate, it has no equal of any kind anywhere, unless it be the starry firmament itself.

Approaching by rail or road, the visitor comes upon it suddenly. Pushing through the woods from the motor camping ground, or climbing the stairs from the railroad station, it is there at one's feet, disclosed in the sublimity of its templed depths, in the bewildering glory of its gorgeous coloring. There is no preparation of mind and spirit. To some the revelation is a shock, no matter what the expectation. The rim of the Grand Canyon is one of the stillest places on earth, even when it is crowded with people.

To describe the Grand Canyon is as impossible as it is unnecessary. Few natural spectacles have been so fully pictured, few are so familiar even to the untraveled. Its motionless unreality is one of the first and most powerful impressions it makes. And yet the Grand Canyon is really a motion picture. There is no moment that it does not change. Always its shadows are insensibly altering, disappearing here, appearing there; lengthening here, shortening there. There is continual movement. With every quarter hour its difference may be measured.

There is the Grand Canyon of the early morning, when the light slants lengthwise from the Painted Desert. The great capes of the northern rim shoot into the picture, outlined in golden light against which their shapes gloom in hazy blues. Certain temples seem to rise slowly from the depths, or to step forward from hiding places in the opposite walls. Down on the green floor the twisting inner gorge discloses here and there lengths of gleaming water, sunlit and yellow.

An hour later all is wholly changed. The dark capes have retired somewhat and now are brilliant-hued and thoroughly defined. The temples of the dawn have become remodeled, and scores of others have emerged from the purple gloom. The Granite Gorge, now detailed fully, displays waters which are plainly muddy even at this great distance. And now the opposite wall is seen to be convoluted, possessing many headlands and intervening gulfs.

And so, from hour to hour, the spectacle develops. Midday, with sun high behind the south rim, is the time of least charm, for the opposite walls have flattened, and the temples of the depths have lost their defining shadows. But as afternoon progresses the spectacles of the morning creep back, now reversed and strangely altered in outline. It is a new Grand Canyon, the same but wonderfully different.

And just after sunset the reds deepen to dim purples and the grays and yellows and greens change to magical blues. In the dark of a moonless night the canyon suggests unimaginable mysteries.

## THE FIRST VIEW

From the railroad station the south rim visitor ascends to El Tovar Hotel and a view of the canyon at a very interesting point. Here is where the temples loom up in contrast to the plateau at their feet; the plateau still being 1,200 feet above the river. The view at El Tovar is restricted by the extension of Grandeur Point and Maricopa Point on either side. These cut off the view of the great reaches of the canyon east and west. El Tovar view is a framed picture of limited size. It is better so; better for the newcomer to enter gradually into the realization of the whole which will come when he walks or rides out to the many points which push northward from the south rim; better also to return to after days spent on the rim or in the canyon's depths.

Those visiting the north rim gain their first idea of the sights in store for them from fleeting glimpses of Roaring Springs Canyon, a tributary of the Grand Canyon, as the approach road to Bright Angel Point and Grand Canyon Lodge skirts its rim on the last mile of the trip by motor car. From Bright Angel Point or from the lounge room of the lodge the full panorama of the Grand Canyon bursts into view as a sweeping vista across the Transept and the canyon of Bright Angel Creek.

Having studied either of these views for general outlines and the canyon's conformation, stratification, and coloring, the visitor will find for himself, on foot or by motor stage or horseback, many points which will afford him varied outlooks upon the broad reaches of the canyon. It is advisable to see the canyon from end to end from the rim before exploring the trails to the floor and the river.

The traveler who is unlucky enough to have no more time at his disposal may, even in one day, see much of the Grand Canyon either from the rim or by mule-back descent to the depths as preference dictates. Probably the 1-day visitor on the south rim can see more by taking the 16-mile round-trip Hermit Rim Road drive west in the forenoon and the 60-mile round-trip drive east to Grand View

and Desert View in the afternoon than in any other way. Both the rim drives and the descent into the canyon may be made in two days. Every day added to the schedule will give the visitor further novel experiences and glorious views, such as the Hermit Loop trip, the Phantom Ranch trip, or to the north rim of the canyon, visiting Ribbon Falls and Roaring Springs en route, or the long motor trip over the Navahopi Road to Tuba City and Moenkopi.

The north rim visitor may, in one day, make the trip by auto to Point Imperial, Natchi Point, and Purple River, or later in the summer to Point Sublime, when the road to the latter point is completed. A canyon trip by mule back may be had in one day, going as far as Roaring Springs only. Two days are required for the round trip to the Colorado River from the north rim.

When you go to the Grand Canyon leave the duration of your stay open for decision when there. You will probably then remain from five days to two weeks. Two weeks of fairly steady going will enable you to see the Grand Canyon thoroughly without undertaking trips which are a hardship to persons unaccustomed to trail riding.

#### PARK SERVICE INFORMATION BUREAU

A free information bureau is maintained by the National Park Service in the Administration Building, 100 yards east of El Tovar and at the foot of the hill, where the superintendent's offices are located. Park visitors are welcomed and are advised to apply to the ranger in charge of this bureau for official information of any kind.

A collection of various geological and paleontological specimens of the Grand Canyon is on exhibition, as well as charts of flowers and birds.

A suitable reference library is being accumulated for the use of visitors, and the Government maps and other publications relating to the Grand Canyon may be consulted or secured here.

Automobile arrivals are requested to register at this bureau, unless previously registered at a checking station.

During the summer the park naturalist will conduct short trail trips along the canyon rim, starting at 2 p. m. He will explain all features relating to the natural history of the canyon. Full information regarding these trips may be had at the Park Information Office.

#### YAVAPAI POINT OBSERVATION STATION AND TRAILSIDE MUSEUM

At Yavapai Point, 1½ miles east of El Tovar, the National Park Service maintains an observation station and trailside museum, admission to which is free. Here may be found a model of the

Grand Canyon, samples of the various formations which go to make up the canyon walls, specimens of the flora and fauna common to the Grand Canyon region, fossil remains of prehistoric plant and animal life, and complete maps and charts from which a better understanding may be had of the Grand Canyon and the forces of nature which formed it. A battery of high-power telescopes is also available. Each afternoon during the summer season there is given at this station by the park naturalist or by other geologists and scientists of note a series of informal lectures on the origin, history, animal, and plant life of the Grand Canyon. Yavapai Point may be reached by auto road or by the paved footpath leading eastward along the rim from El Tovar Hotel.

#### LIVING AT THE GRAND CANYON

Living is pleasant and comfortable. El Tovar Hotel, on the south rim, operated by Fred Harvey on the American plan, offers delightful conditions at rates reasonable for its high-class accommodations. Its porches are broad, its garden a collection of interesting semiarid vegetation, its rim walks inspiring.

Near El Tovar is a comfortable but lower priced European plan hotel, also under Fred Harvey management, and known as Bright Angel Cottages.

There are comfortable cottages at Hermit Creek Cabins on the Hermit Trail and at Phantom Ranch across the Colorado River. The latter cottages are built of the native rock, with mess hall, etc. Both these resorts are first class in every respect.

Grand Canyon Lodge at Bright Angel Point on the north rim provides excellent accommodations for visitors. This hotel is operated on the American plan by the Utah Parks Co.

On either rim there is horseback riding through many miles of yellow-pine forest and out to viewpoints on the rim, but there are no sports. There is neither golf nor tennis. The canyon absorbs the whole attention of its visitors.

#### FREE PUBLIC CAMP GROUNDS

From April to November the south rim is free from snow, and the free public camp ground near Grand Canyon Village is available to campers. Motorists are urged to bring their own camp equipment and make use of this camp which is maintained by the National Park Service. No charge is made for camp sites, firewood, water, etc. Sanitary flush toilet facilities are provided, as are also open-air fireplaces for cooking, benches, tables, etc. Water is hauled to the canyon by rail, and campers are urged to save water in every way possible.

Gasoline and oil may be obtained in the camp grounds as well as at the garage in the village. There is also a general store near by where groceries can be purchased.

Housekeeping cottages are available on auto camp grounds at reasonable rates. Autoists may rent blankets, linen, etc., in the event they do not have such equipment of their own.

In the camp lodge complete delicatessen service may be had. Newspapers, magazines, etc., are for sale. There is also a large rest room for the convenience of campers and for shelter in inclement weather. This is equipped with fireplace and a large covered porch and may be used by all campers free of charge, whether or not they patronize housekeeping cottages.

During the summer months a camp-fire lecture on the history and formation of the canyon is given by the park naturalist at 8.30 o'clock each evening. Free public camp grounds are also maintained at Desert View on the south rim.

The north rim free public auto camp is located on Bright Angel Point convenient to the hotel and garage. This site is in a beautiful grove of heavy pine and fir timber with an understory of quaking aspen and is located on the rim in such a way that splendid canyon views are obtainable. No charge is made for fuel or water, but visitors are requested to conserve water in every way possible, since it is pumped from near the bottom of the canyon at considerable expense. Toilet facilities are provided, as are also open-air fireplaces for cooking, tables, benches, etc. It should be borne in mind that on account of snow and weather conditions the camp grounds on the north rim are open from June 1 to October 1 only.

#### SEEING IT FROM THE RIM

East of El Tovar are several points reached by motor roads which afford fine views of the upper half of the Grand Canyon. The most famous of these is Grand View, where still stands the first regular hotel of the canyon, now private property and not affording hotel accommodations. The eastern terminus of the road is Desert View, which offers a view up the Marble Canyon and eastward over the famous Painted Desert. West of the hotel the auto stages stop at a succession of fine points, each with its own individual view of the mighty spectacle.

There is much to see also in the neighborhood of El Tovar.

The Yavapai footpath extends eastward along the rim to Grandeur and Yavapai Points. This footpath is constructed of asphaltic macadam and is so located as to give the best views of the canyon.

A similar footpath extends along the rim westward to Powell Memorial. The views from this footpath are very inspiring.

From Grand Canyon Lodge on the north rim trips by auto bus may be made to Point Imperial, Farview, Vista Encantada, and a number of other very interesting points on the road eastward, and later in the summer the road to Point Sublime to the west will be completed. Point Imperial (elevation 8,801 feet) is the highest point on either rim of the canyon. From it and from other stopping places on this road may be had splendid views across Marble Canyon and the Little Colorado River over the colorful Painted Desert.

A recently constructed footpath enables the hiker to make the walk along the rim of the Transept and Roaring Springs Canyons from the hotel to the public camp ground, Bright Angel Point, prehistoric cliff dwellings, and other points of interest.

#### DESCENDING THE CANYON

There are three practicable trails from the south rim to the river. The one commonly used starts near El Tovar Hotel and descends the deep alcove between Grandeur and Maricopa Points. This is the celebrated Bright Angel Trail.

The descent of this trail is made on mule back in parties led by guides. It is a sad mistake for persons not in the soundest physical training to attempt it on foot, for the apparent distance as seen from the rim is misleading, and the climb back is most arduous at that elevation. The south rim of the canyon at park headquarters is 6,886 feet above sea level. Nearly every day one or more hikers, overconfident of their endurance, find the way up too arduous and have to be assisted by guides and mules sent down for them from the rim.

The descent is an experience of great charm. The trail is well built and kept in good condition. The traveler passes in review all the strata which form the canyon walls; their close examination will be a source of pleasure. Just under the rim the trail passes through a fine stand of Douglas fir, and from this down to the sage desert of the green floor the traveler will also pass in review a succession of plant growth equivalent to several climatic zones, and representing floral changes such as may be seen ordinarily only by traversing many hundreds of miles of level country. There are two steep cliffs which the trail descends in series of short zigzags, one of which, known as Jacob's Ladder, carries the traveler down across the famous Redwall limestone, which is so distinct a scenic feature of the canyon from every rim view. But there need be no alarm about these descents, for the zigzags, short and numerous though they are, maintain always a uniformly safe grade. It may affect the unaccustomed nervously to see his mule hang his head over short abysses at the turns, but the traveler himself does not hang over them, and the mule is sure-

footed, stolid, and indifferent. There is only one creature with less imagination than a mule, and that is his near relative, the burro.

Indian Garden, which lies on the floor of the canyon on the Tonto Plateau, is so named because Havasupai Indians once cultivated the soil through which passes the stream which originates in springs below the Redwall. It is called Garden Creek. The Indian Garden now is a tangle of high brush, principally willow, through which the trail passes out upon the Tonto Plateau, and presently plunges down the rocky gorge which leads to the edge of the muddy Colorado.

#### THE HERMIT TRAIL

A much finer trail from every point of view than the Bright Angel starts from Hermit Rest, southwest of Pima Point, and descends the Hermit Canyon. It begins 8 miles west of El Tovar. This is a two days' journey, including a night spent in Hermit Creek Cabins well down in the canyon. It involves an experience worth many times the additional day which it requires.

The Hermit Canyon is one of extreme beauty; there is probably no other which equals it in gorgeous coloring and the variety of its rock forms. The grades on this trail are less than those on Bright Angel Trail, and it is also more scenic. It is longer than the Bright Angel Trail and leads out upon impressive points overlooking fascinating views. About 1,000 feet under the rim, at a place known locally as the White Zig Zags, may be seen an interesting series of prehistoric animal tracks in the sandstone. Over 20 kinds of animals, mostly primitive reptiles and amphibians, left their footprints in the white sands of this geological formation when it was being laid down in a sand dune country many—perhaps 200—million years ago.

The night at Hermit Cabins, under a towering crimson gable, with colorful Hermit Canyon on the south and Grand Canyon opening northward over the green shale of the Tonto Platform, or "lower plateau," is as comfortable as it is fascinating. The trip to the river and back to the camp is usually made the first day.

#### THE KAIBAB TRAIL

By far the best trail from the scenic as well as the engineering standpoint is the new Kaibab Trail, the only transcanyon trail. It is uniformly broad, has no excessive grades, is well drained, and well maintained. Starting at Yaki Point, some  $3\frac{1}{2}$  miles east of El Tovar, the Kaibab Trail is built near the top of a spur jutting into the canyon, and it therefore affords an unobstructed view both up and down the Grand Canyon. Along this trail there are in place and accessible to the tourist several very interesting displays of prehistoric animal tracks and fossil ferns.

The trail crosses the Colorado River by means of the Kaibab Suspension Bridge. This is a thoroughly modern structure, built by the National Park Service and completed in the summer of 1928. The bridge is 440 feet long, supported from eight  $1\frac{1}{2}$ -inch steel cables, provided with a structural steel truss acting both as a stiffening member and as guard rails. It is further stiffened by two  $1\frac{1}{2}$ -inch wind cables, and, unlike the old "swinging bridge" which it replaces, the new bridge is free from sway or vibration even when loaded to capacity with a full string of saddle or pack animals. The south approach to the new bridge is through a tunnel 105 feet long, cut from the solid granite walls of which the inner gorge is formed.

About three-quarters of a mile beyond the Kaibab Bridge is Phantom Ranch, above which the trail continues through the spectacular Box Canyon of Bright Angel Creek, following for a distance of 8 miles the waters of this large and beautifully clear mountain stream, which was gratefully so named by Major Powell in 1869, in contrast to an unusually muddy creek found farther up the Colorado River and called by him the "Dirty Devil." Five and a half miles above Phantom Ranch on this trail is Ribbon Falls.

At the mouth of Manzanita Creek the Kaibab Trail leaves Bright Angel Canyon, and starts its long climb to the north rim by way of Roaring Springs Canyon and over grades averaging not more than 15 per cent. From this section may be seen one of the most beautiful sights in the entire Grand Canyon, the spectacular springs which gush forth with a loud roaring sound from beneath the Redwall limestone, and cascade in three large main streams down an oak-covered mountain side to the bottom of the canyon, 40 feet below.

The construction of the Kaibab Trail through the Redwall limestone is both daring and ingenious. Here, with drill and powder, the trail was hewn from the solid rock cliff in half tunnel sections. At such points, however, the trail is made sufficiently wide, and it is provided with a heavy rock guard wall of such proportions that the traveler has no feeling of insecurity. At one point in the red sandstone of the Supai formation the trail passes through a full tunnel some 38 feet long. Above this it climbs through oak brush, pine, fir, and finally quaking aspen to top out on Bright Angel Point at an elevation of 8,350 feet.

The Kaibab Trail, the north section of which was completed during the winter of 1927-28, shortens the travel distance between El Tovar on the south rim and Grand Canyon Lodge on the north rim to about 25.6 miles, of which approximately 20.6 miles is made by trail between the two rims and the remainder of the distance may be covered by automobile on both rims. It is open for travel the year round between the south rim and Roaring Springs, and from there to the north rim from about May 15 until October 15.

### THE TONTO TRAIL

Too few visitors to Hermit Creek Cabins combine the two trail trips with a journey between them over the Tonto Plateau. The descent is by the Hermit Trail with a night at its foot. The next morning the journey is made on mule back along the Tonto Plateau to the Indian Gardens. This journey is extremely interesting. The side walls of the canyon and the numerous temples give one the sense of being in the mountains instead of halfway down the depths of a canyon. A band of antelope is always in evidence along this trail. From Indian Garden, after lunch by the stream side, parties ascend Bright Angel Trail to El Tovar.

### THE HAVASU CANYON

The Havasu Canyon, in the far western end of the national park, is rarely visited. The trail begins at the end of a long semidesert road by descending precipitously to a gorge through which the Havasupai Indian Reservation is reached. There are less than 200 Indians on the reservation. These live by farming the land irrigated from Havasu Creek; corn is their principal product, but melons, figs, and peaches are also produced. The reservation fills a broad amphitheater in the gorge, surrounded by lofty red sandstone cliffs of the Supai formation. There are no hotels or camps, and the heat is intense in summer. The Havasu Creek water is strongly impregnated with lime, and unpalatable though entirely wholesome. Nevertheless, the visit to the reservation is one of unusual character and charm for those who do not object to a little hardship.

Below the reservation the canyon breaks into a series of waterfalls, three of which are unusual in kind and beauty. These are the Navajo, Havasu, and Mooney Falls. The former is a series of beautiful cascades, while the latter two drop over lofty shelves which are plastered on back and sides by richly carved festoons of lime travertine. Bright green cottonwoods, cactus, and other desert vegetation enliven the scene, which is as different as imagination can well paint from anything else in the Grand Canyon National Park. These and many other fascinating spectacles, now little known, will become familiar sights to many. The destiny of the Grand Canyon is to become one of the most used national parks.

### ORIGIN AND GEOLOGIC HISTORY OF THE GRAND CANYON<sup>1</sup>

The Grand Canyon is the deepest, widest, and wildest, of a long series of canyons through which the Colorado River flows for 500 miles across a region of high table-lands known as the plateau prov-

<sup>1</sup> By L. F. Noble, geologist, U. S. Geological Survey.

ince or the Colorado Plateaus. These canyons are unusually steep sided and unusually deep, but they are merely parts of the valley of the river, and, like most other river valleys, they have been formed by the stream that occupies them; they are not, as some who are unfamiliar with geologic processes have supposed, due to any violent or catastrophic breaking of the earth's crust. The Grand Canyon is the world's most spectacular illustration of erosion—of the combined action of running water, rain, wind, and the various atmospheric agencies that attack the rocks and sculpture them into the forms that give character to a landscape.

### A PECULIAR TYPE OF LAND SCULPTURE

The scenery of the Grand Canyon is the supreme expression of a type of land sculpture that is peculiar to the plateau country, a type whose elements are cliffs and tabular forms—butes, mesas, terraces, and plateaus. The high plateau into which the river has cut its way is built up of layer upon layer of rock beds that lie nearly level and that extend continuously over great distances. These beds, as one may see in the walls of the canyon, consist of sandstone, shale, and limestone, which have been grouped by geologists into the formations shown in the generalized columnar section forming Figure 1. This figure presents a summary of the facts relating to the character of the rocks exposed in the Grand Canyon National Park and the thickness, attitude, order of accumulation, and structural relations of the formations.<sup>2</sup>

### ARCHITECTURAL FORMS DOMINATE THE CANYON

As the formations lie in orderly horizontal layers, like beds of masonry, they have been carved into definite architectural forms, which are everywhere comparable in profile though varied and irregular in plan, and as they vary in their resistance to erosion, some being hard, some soft, every part of the canyon wall, every pinnacle and butte, is characterized by its own steplike alternation of cliff, slope, and shelf. Each resistant bed stands forth as a cliff, and each weak bed is marked by a slope. Each shelf or platform is made by the wasting back of a weak stratum that lies upon a resistant, cliff-making stratum, and the greater the thickness of the weak stratum the broader the shelf. The plateaus that border the canyon are themselves simply great terraces developed on a resistant forma-

<sup>2</sup> The term "formation" is generally applied to a group of rock beds that are of about the same age, as shown by the fossils they contain, or that are considered together for convenience in mapping or description. A formation is named from the place where it was first studied or from some place or region where it is well exposed. The Kaibab limestone, for example, is so named because it is well exposed on the Kaibab Plateau.

tion, the Kaibab limestone, from which overlying softer beds have been washed away. As erosion goes on, parts of the canyon wall or plateau becomes separated by the widening and cutting headward of

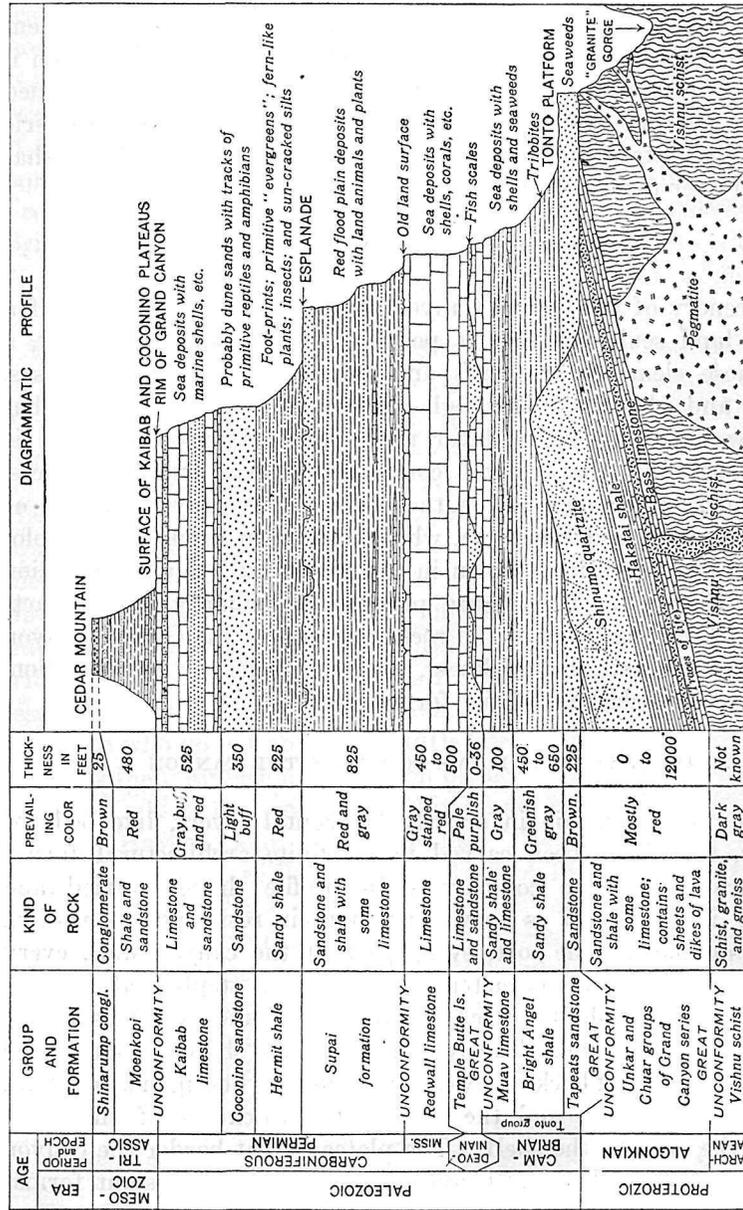


FIGURE 1.—Generalized columnar section, showing position and structural relations of the rocks of the Grand Canyon National Park, and the age, character, and thickness of the groups and formations into which they are divided

branch canyons or ravines and stand as solitary outliers capped by remnants of a hard bed of rock. These remnants are the buttes and temples. The great height of the plateau gives rapid fall to the

streams that enter the canyon and enables them to cut powerfully and deeply and thus to carve the rocks into forms that are fashioned on a gigantic scale. The erosion accomplished by these streams, though spasmodic, because the streams are mainly fed by spasmodic rainstorms in an arid climate, is none the less effective. The slopes here are partly bare of vegetation because the desert plants grow far apart, and the concentrated energy of a single torrential shower may therefore wreak more havoc than would be caused by a season's rainfall on plant-covered slopes in a humid region. It is this prevailing aridity that, by retarding the growth of vegetation and the formation of soil, keeps sharp and fresh profiles that in a moister region would soon be dulled or obscured.

SECTIONS ACROSS THE CANYON

The three sections across the Grand Canyon shown in Figure 2 (A, B, C) illustrate the intimate relation between the profile of the wall and the character of the rocks. In A, where the rocks along the river are the weak shales of the Algonkian Grand Canyon series, the bottom of the canyon is a broad valley having gently sloping sides. In B these weak stratified rocks are replaced by the hard Archean crystalline rocks, and the river occupies a narrow gorge—the Granite Gorge. As these hard crystalline rocks are not arranged in beds and are all about equally resistant to erosion the walls of the Granite Gorge have a steep, continuous slope, which presents a striking contrast to the steplike profile of the wall in the overlying bedded Paleozoic rocks. In C the river occupies a narrow box-shaped vertical-walled canyon in the hard Tapeats sandstone, the basal formation of the horizontal Paleozoic beds.

In C the weak Hermit shale, in the upper wall of the canyon, is thick and consequently wastes far back from the summit of the underlying hard Supai sandstone, leaving a wide platform known as the Esplanade. This platform, because of its great width and its conspicuous red color, is the dominant feature of the canyon landscape in all the western part of the national park. But the Hermit shale steadily gets thinner eastward in the canyon, as may be seen in sections B and A, whereas the overlying cliff-making Coconino sandstone, which defends the retreat of the wall above the Esplanade, gets steadily thicker in the same direction. The Esplanade thus becomes a narrow bench in B and fades to an inconspicuous ledge in A.

In B the weak Bright Angel shale has determined a similar platform in the bottom of the canyon. This platform, known as the Tonto platform, or the "lower plateau," is widest in the region about and east of Bright Angel and Hermit Trails, where it is a familiar

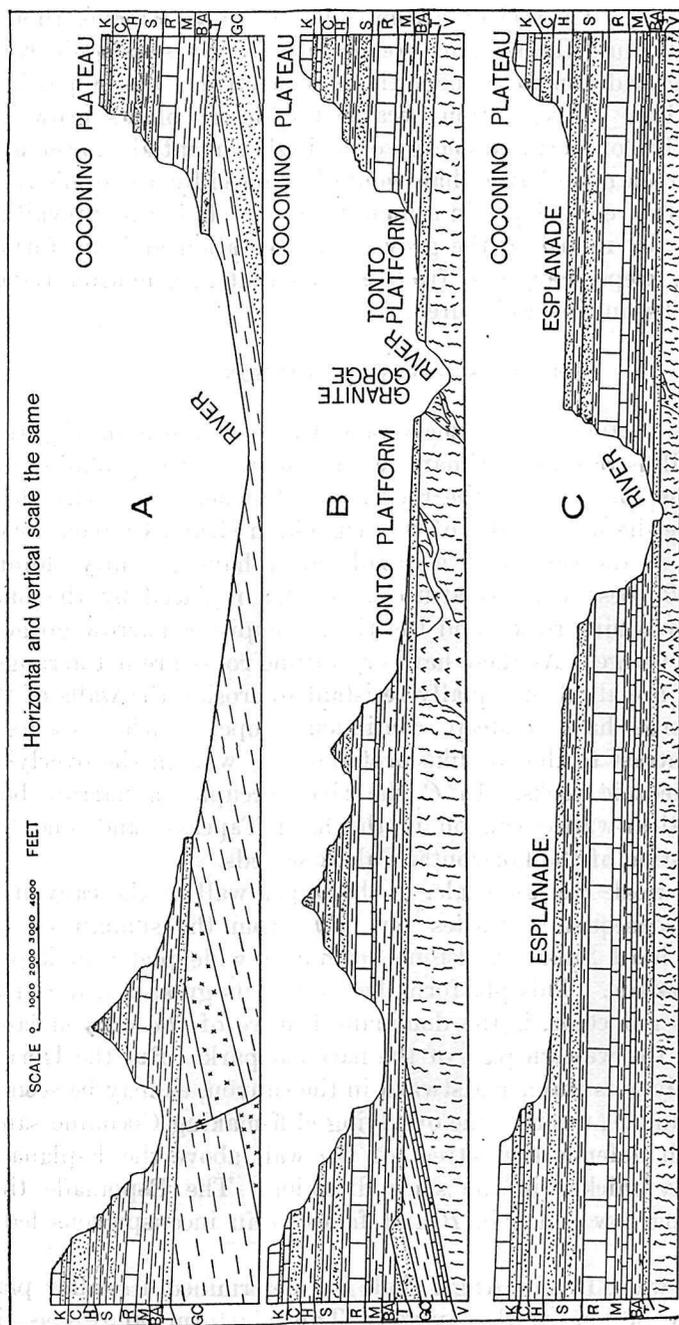


FIGURE 2.—Generalized sections across Grand Canyon, looking up Colorado River. A, in Eastern Kaibab division, east of Desert View Camp; B, in Central Kaibab division, near Hermit trail; C, in western Kaibab division, west of Bass Camp. K, Kaibab limestone; C, Coconino sandstone; H, Hermit shale; S, Supai formation; R, Redwall limestone; M, Temple Butte and Muav limestones; BA, Bright Angel shale; T, Tapeats sandstone; GC, Grand Canyon series; V, Vishnu schist. The different profiles exhibited by the canyon in these sections are due to changes in the character and thickness of the rocks, as explained in the text.

feature to tourists. It gets narrower westward as the overlying Muav and Redwall formations grow thicker and become firmer in texture.

This marvelous adjustment of external form to the inequalities of rock structure and character affords to the geologist the strongest evidence that the canyon is the work of erosion.

#### A UNIQUE REVELATION OF GEOLOGIC HISTORY

A large part of ancient geologic history is revealed more clearly in the walls of the Grand Canyon than in any other place in the world. Most of the beds of rock seen in the canyon were laid down in water as layers of sand, mud, and limy ooze. Some, however, consist of dune sand drifted in a desert landscape. In time all were hardened into rock by the great weight of the layers above them, the lime and silica that they contained cementing their particles together. Rocks of this kind are called sedimentary rocks by geologists, and as they were laid down in beds one above another they are said to be stratified, and the beds are called strata.

The horizontal strata seen in the walls of the canyon were formed during the Paleozoic era (the era of "old life"); they represent the oldest series of rocks that have yielded clearly identifiable traces of life. Many of the strata contain the remains of marine animals and were therefore evidently laid down on the bottom of the sea, although the region now stands high above the present sea level. Others, notably certain beds of red shale and sandstone in the Supai and Hermit formations (see fig. 1), appear to have been spread out as mud and sand on semiarid, low-lying land or on delta plains by shifting streams; and one formation, the Coconino sandstone, is supposed by many geologists to be sand dunes. Nearly all the Paleozoic formations contain some traces of life—in the Kaibab and the Redwall limestones there are corals and many kinds of marine shells; in the formations of the Tonto group, the remains of primitive shellfish, worm trails, and immense numbers of the molds of seaweeds; in the Temple Butte limestone, the remains of an ancient type of fish; and in the Hermit shale, impressions of long-extinct plants. Fossil tracks of small animals, probably early forms of amphibia, occur in the Hermit and Coconino sandstone along the Hermit Trail. The aggregate thickness of the Paleozoic rocks varies from place to place, but in the part of the Grand Canyon that is included within the national park it averages 4,000 feet.

## ROCKS OLDER THAN IN THE PALEOZOIC

Ancient as are the formations of the Paleozoic era, two great systems of rocks—the Algonkian and the Archean—are buried beneath their base and appear only in the depths of the canyon. The rocks of the older system, the Archean, form the walls of the "Granite Gorge," which would more appropriately be called the Vishnu Gorge, for it is not a gorge in granite. They are the foundation rocks of the region, and they are totally unlike the Paleozoic rocks, for they are entirely crystalline, are not stratified, and show a crumpled banding, due to the arrangement of their constituent minerals in parallel layers, an arrangement produced by heat, pressure, and recrystallization. The Archean rocks are mainly of the type known as gneiss and schist, but they include granite in large masses and dikes that have been intruded while molten into the gneiss and schist. These Archean rocks have been named the Vishnu schist. They are probably over a thousand—perhaps over fifteen hundred—millions of years in age. They contain no traces of life.

The rocks of the younger of these two systems, the Algonkian or Proterozoic are intermediate in age between the Archean and the Paleozoic rocks and occur here and there in the depths of the canyon in wedge-shaped masses that lie between the Archean and the Paleozoic. They can be easily distinguished by the casual observer in the region between Grand View and the mouth of the Little Colorado, where at least 12,000 feet of them remain. Small masses are exposed near the mouth of Bright Angel Creek opposite El Tovar, on Crystal Creek, on Shinumo Creek, and along Colorado River west of Powell Plateau. These rocks, like the Paleozoic, are stratified and do not differ greatly in character and appearance from some of the Paleozoic strata, notably the red Supai and Hermit formations, but, unlike the Paleozoic strata, they have been tilted from the horizontal position in which they were originally deposited, so that they are inclined at various angles. These Algonkian rocks have been named the Grand Canyon series. No animal fossils have been found in the Algonkian rocks, but reefs of limestone built up by algae are seen in the Unkar, at the base of the series.

## GREAT UNCONFORMITIES

Each of these two great rock systems—the Archean and the Algonkian—is separated from the one that overlies it by a nearly even surface that cuts across or truncates all underlying beds or masses. This truncation marks what is known to geologists as an unconformity. Each unconformity means that the rocks below it were

worn down by streams or waves to a nearly level surface before the material that formed the overlying rocks was deposited.

The top of the Paleozoic series is also marked as an unconformity, for although the Paleozoic beds are the highest that appear in the wall of the Grand Canyon they actually once lay beneath a later thick series of horizontal deposits. The traveler who comes to the Grand Canyon from the north descends step by step in southern Utah a great series of cliffs and terraces carved in horizontal beds, much like the Paleozoic. The most noted scenic features of southern Utah—Zion Canyon, Bryce Canyon, and the Vermilion, White, and Pink cliffs—are carved in these beds, which overlie the Paleozoic and represent deposits of later systems, the Triassic, Jurassic, and Cretaceous, which are of Mesozoic age, and part of a still later system, the Tertiary. These later beds once extended across the entire region in which the Grand Canyon lies, covering it to a thickness at least twice as great as the canyon is deep, but nearly all of them have been worn away by erosion. A few small masses of them still remain as buttes on the Coconino Plateau south of the Grand Canyon. One of these, Red Butte, lies 18 miles south of El Tovar. Another, Cedar Mountain, lies 2 miles east of the rim of the Grand Canyon near Desert View. Cedar Mountain is interesting because the formation that caps it, the Shinarump conglomerate, contains logs of petrified wood. The petrified forests of Arizona (Petrified Forest National Monument), which lie southeast of the Grand Canyon region, occur in a formation that immediately overlies the Shinarump conglomerate and that is exposed over wide areas, but has been removed from Cedar Mountain and Red Butte by erosion.

The rock record just described is laid bare in the Grand Canyon and in the cliffs of southern Utah with the clearness of a diagram, so that the sequence of geologic events in the region can be read from it with ease and certainty. The nature and composition of these walls of the inner gorge show that they are types formed at great depths—say 4 or 5 miles. We may conclude, therefore, that the Vishnu schists were folded and uplifted to form mountains probably as much as 20,000 feet high, and that these mountains were worn down in the course of time to a low plain before the strata lying in the schists were deposited.

When the land had been worn down to a plain it sank and was buried under at least 12,000 feet of mud and sand that now form the Grand Canyon series of Algonkian age. After these beds had thus accumulated they were uplifted, tilted, and broken into huge blocks that must have formed high ranges of mountains. Then followed a long period of erosion, during which the mountains were worn down nearly to a plain. This plain is represented by the

unconformity that separates the eroded Archean and Algonkian rocks from the overlying horizontal Paleozoic strata. Exposed as it is for the entire length of the "Granite Gorge" and for many miles upstream from the "Granite Gorge," and visible everywhere from the rim of the canyon, this unconformity is the most spectacular known illustration of such a feature. It was not so even a surface as the older unconformity, for some of the hard sandstones of the tilted Algonkian blocks long resisted erosion and stood as low hills on the plain. A section of one of these hills is visible in the canyon wall from El Tovar. It lies under Cheops Pyramid, just west of the mouth of Bright Angel Creek, and it rises well above the base of the Paleozoic beds, which were deposited around it.

#### SUBMERGENCE, DEPOSITION, UPLIFT, AND EROSION

At the end of Algonkian time the land was again submerged, and the horizontal Paleozoic, Mesozoic, and early Tertiary strata were slowly deposited. Measured by the rate of atomic decomposition of the radioactive minerals—probably our most accurate method—the time covered by these strata, whose aggregate thickness exceeds 15,000 feet, was around 600 millions of years, a long time even in the geologic sense of the word. It spans the long ages during which life was evolved from the primitive marine shellfish to the apelike predecessor of man. Yet, as noted above, it was short in comparison with the time consumed by the succession of events recorded before the Paleozoic strata were laid down.

In Tertiary time the region was again uplifted and a period of erosion began. Streams cut channels into the surface of the land and in time formed broad valleys, which thus continued to expand until at last most of the land stood but little above the level of the sea. At the end of this period of erosion, which is sometimes called the great denudation, most of the strata above the Paleozoic had been removed from the Grand Canyon region; their edges had been worn back northward 50 miles to the border of Utah, and the surface of the region had been reduced to a nearly even plain. The present course of the Colorado River must have been determined by a topography different from that of to-day, for in most of the region that lies within the national park, as one may see at El Tovar, the land south of the canyon slopes directly away from its rim, so that the canyon runs across instead of down a slope.

#### FOLDING AND FAULTING

The uplifts of the region that raised the Paleozoic and Mesozoic strata in Tertiary time were very different from those recorded be-

neath the unconformities in the canyon walls. The rocks were not compressed and folded, like the Archean, nor were they broken into tilted masses, like the Algonkian; instead, the whole region was lifted bodily, the strata still preserving essentially the horizontal attitude in which they were laid down. Yet the uplift was not equal over all parts of the region. If, for example, we should cross the Kaibab Plateau from east to west, say from House Rock Valley to Ryan, we should find the limestone strata at its western margin ending suddenly in a cliff and appearing again 1,500 feet below, on the surface of the plateau on the west—the Kanab Plateau. Such a break, along which the strata on one side have slipped past those on the other, is known as a fault. At the eastern margin of the plateau we should find the strata bending suddenly downward in a great curve, returning again as sharply to a horizontal attitude, and continuing eastward as the surface of the Marble Platform. This type of dislocation is known as a flexure, or fold.

The uplifted Grand Canyon region is divided into great horizontal plateau blocks like the Kaibab Plateau by dislocations of the type just described, either folds or faults, that trend north and south; and the Grand Canyon crosses these plateaus from east to west. The name of each plateau has been given to the section of the canyon that crosses it. Thus the section of the canyon that transects the Kaibab Plateau is known as the Kaibab division. The Grand Canyon National Park includes all the Kaibab and part of the next western division—the Kanab.

In addition to the great dislocations that separate the plateaus there are numerous small faults and folds in the region, some of them in the Grand Canyon. Many visitors who have noticed the faults ask whether the canyon does not owe its origin or at least its course to a fault, but although geologists have studied the canyon at many places they have found no evidence of the existence of such a fracture. If it existed it could not have escaped notice, so perfect are the exposures of the beds in the rocky walls along the numerous turns of the river. Nor do any considerable parts of the canyon coincide with faults. On the other hand, it may be said that faults have guided the course of many tributary gorges in the Grand Canyon, and even some parts of the course of the river, though not in the way popularly supposed. Erosion, not dislocation, has been the chief agent that determined the course of each gorge. Movement along some of the faults, by crushing the adjacent rock, has formed zones of weakness, which, under the searching action of erosion, have become ravines or gorges. An example is the gorge of Garden Creek, which is followed by the Bright Angel Trail in front of El Tovar. The course of this gorge has been determined by a small fault, which

has shattered the great cliffs of the Coconino sandstone and Redwall limestone and has made possible the construction of the trail. The strata have been displaced about 100 feet by the faults, those on the west side having been relatively elevated. Another illustration is seen in Roaring Spring Gulch, where faulting and crushing have made possible the way of the Kaibab Trail across the Redwall limestone.

#### THE WORK OF MAKING THE CANYON

During the last great uplift of the region, which may still be in progress and which has raised the plateau to its present height, the land rose so gradually that the river remained in its original channel and kept cutting deeper and deeper. The canyon is thus deep because the land is high and because in this arid region the river, fed by the rains and snows of the Rocky Mountains and armed with great quantities of mud and sand and gravel, washed into it by its tributaries, has lowered its bed faster than its tributaries could lower the adjacent plateau. But, although the Colorado River has thus dug the canyon, the various forms of rock sculpture seen in the walls of the canyon have been determined by variations in the behavior of the beds under the attack of the agents of erosion. And this erosion is still going on. The observer of to-day who stands in awe on the brink of the canyon or who finds his way precariously down the trails that lead to its depths should realize that the work of making this mighty chasm is not yet finished. The various agents that have modeled the canyon—the rushing torrent below and the small streams that descend to join it, the intermittent rain and snow and frost, and those subtle yet effective chemical activities that aid in the decay of the rocks, and, above all, the ever dominant pull of gravity on all loose particles—all are still at work on this wonderful piece of earth sculpture. In the Grand Canyon of to-day we see the accumulated results of the action of powers that apparently leave from year to year but slight traces of their action but that, persisting in their work through uncomputed ages, have produced results of marvelous immensity.

#### HISTORY OF THE CANYON<sup>3</sup>

Don Lopez de Cardenas, of Coronado's expedition, discovered the Grand Canyon in 1540, as a result of stories told by the Hopi (Moquis) Indians to Don Pedro de Tovar. The old records describe a chasm which seemed to be more than 3 or 4 leagues across in an air line—" *que avia mas de tres o quatro leguas por el ayre.*"

<sup>3</sup> Furnished by courtesy of Frederick S. Dellenbaugh.

For a long period thereafter the Grand Canyon region and the Colorado River remained practically unknown. It is next recorded as having been seen by two Spanish priests in 1776; Padre Garces crossing eastward from the lower Colorado to the Hopi towns, who halted, he says, "at the sight of the most profound cañones which ever onward continue, and within these flows the Colorado," and Padre Escalante, who, in searching for a place to cross from the north after his failure to proceed westward from Santa Fe to Monterey, finally found the old Ute ford, used by Indians for centuries, near the foot of Glen Canyon (in latitude 37°), and by means of it was able to reach Zuni. The ford then became known as *El Vado de los Padres*—the Crossing of the Fathers—for long the only known crossing of the Colorado in a distance of several hundred miles.

The first American to visit the region was James O. Pattie, accompanied by his father. They trapped beaver on the lower Colorado in 1825 and 1826. In 1826, returning eastward, they traveled for 13 days, following, apparently, the Grand Canyon as well as they could, but unable to reach the river at any point, till at last they arrived at a place where the river "emerges from these horrid mountains." This was the first extended trip on record of any human being along the brink of the Grand Canyon.

The same year that the Patties went to the lower Colorado, 1825, General Ashley, in pursuit of his fur-trading enterprise, attempted to descend Green River from near the present crossing of the Union Pacific Railway. They were forced after great hardship to give up the effort in the Uinta Valley.

The famous American trapper and pioneer, Jedediah Smith, crossed the river going west in the Mohave country in 1826 and again in 1827. In this latter year the Patties returned to the lower Colorado and trapped down the river from the mouth of the Gila in dugouts, the first navigators of this portion since Alarcon, of the Coronado expedition, came up in 1540. Quite unexpectedly they made the acquaintance of the great bore at the mouth of the river, where they were in waters that Lieutenant Hardy, of the British Navy, had entered the year before.

Other trappers after beaver then followed into the region, and the Government began sending out exploring parties. One of these under Sitgreaves crossed the Colorado in 1851 about 150 miles above Yuma, and three years later another under Whipple, surveying for a railway along the thirty-fifth parallel, crossed a few miles above the mouth of Bill Williams Fork.

When the California gold rush developed one trail of the Forty-niners led down the Gila and across the Colorado at its mouth, and now various activities on the lower river began. The first steamboat

was brought to the mouth of the Colorado and up it in 1852. It was named the *Uncle Sam*.

Edward F. Beale, surveying a Government wagon road, crossed and recrossed in 1857 and 1858, near the mouth of Bill Williams Fork, and in 1858, January, the Government exploring expedition under Lieutenant Ives proceeded from the mouth up the river in a small stern-wheel iron steamer, the *Explorer*, as far as the foot of Black Canyon, whence the ascent was continued in a small boat to the mouth of the Vegas Wash. This was not the first steamer up, however, as Captain Johnson, of a commercial navigation company, had steamed up and passed with his steamboat clear through Black Canyon to its head some days before, mainly to "get ahead" of Ives, who had earlier displeased Johnson. Ives then proceeded overland to the mouth of Diamond Creek and to the Hopi towns via Havasu Canyon.

"It seems intended by nature," says Lieutenant Ives, after vainly trying to reach the rim, "that the Colorado River, along the greater part of its lonely and majestic way, shall be forever unvisited and undisturbed."

This same year of 1858 saw the first recorded crossing of the Colorado from the north, by white men, since Escalante. This was accomplished by Jacob Hamblin, a well-known Mormon, a missionary and Indian agent, from Utah to the Hopi towns. An Indian guided him to the Ute ford (Crossing of the Fathers) and he used it thereafter almost yearly. These Mormons for long years were the only persons besides Navajos and Utes to cross the river anywhere. The ford, known to few, was difficult and dangerous at all times and impossible except at low water.

In 1862 Hamblin went around the Grand Canyon by the west end to the Hopi towns and returned by the Crossing of the Fathers at the east end, practically, as Marble Canyon begins a few miles below. The next year he again went around by the west end to the Hopis, visiting the "hermit" tribe, the Havasupais, in their deep canyon home, on the way, the first white man on record to do so after Lieutenant Ives. The party returned to St. George around the west end of the Grand Canyon. Nobody, as yet, went to the rim and there was no known crossing of the Grand Canyon itself anywhere by white men.

Another attempt to descend Green River from the California Trail (near the present Union Pacific Railway) was made in 1849, by William Manly and party. They expected to find a shorter and easier road to the California gold fields. After a hard time they emerged into Uinta Valley, where they met the noted Ute chief,

Wakar ("Walker"), who was good to them and urged them not to try to go farther down the river.

In 1867 a man named James White was picked up from a raft near Callville, below the mouth of the Virgin, in an exhausted condition, and those who aided him immediately but erroneously assumed that he had come down through the Grand Canyon, the result of an ignorance as great on their part as on that of White. He knew nothing about the interior of the great canyon and mentioned that he had run one big rapid, whereas he should have mentioned big rapids by the dozen.

So nothing became definitely known about the mysterious interior of the Grand Canyon or of the canyons of the Colorado River above as far as the Uinta Valley on Green River until Maj. John Wesley Powell, one-armed veteran of the Civil War, made his famous passage of all the canyons. He started with nine men and four boats from Green River City, Wyo. (on the Union Pacific Railway, then the only railway across the continent), on May 24, 1869. One of the men (Goodman) was disheartened and left the party in the Uinta Valley.

The terrifying waterfalls and underground passages described by trappers and Indians were not found, but the declivity was often extremely great and continuous (as in Cataract Canyon, where it is continuous for about 20 miles), producing violent cataracts, with huge waves and a water velocity of over 20 miles an hour, frequently studded with giant rocks.

The trip was one of incredible hardship and danger, led by the one-armed major, his right arm having been lost at the Battle of Shiloh. The plunging rapids in the whole length of the journey numbered several hundred to overcome the 6,000 feet difference in altitude between Green River City and the sea. The boats were often upset and the passage of many of the rapids was perilous to a degree. Frequently the party would be forced to embark on long foaming declivities without being able to discover what other, perhaps greater, falls might lie around the precipitously walled bends in front of them.

One of the boats, some of the scientific instruments, and a considerable amount of the food supply were lost in the Canyon of Lodore; and some that was rescued had to be left, as the remaining boats were overloaded. For weeks the clothing of the adventurers was never dry; and when they finally entered the mighty depths of the Grand Canyon itself, in August, there was little food remaining.

The sharpest rapids occur in the granite, and the first Granite Gorge, running past the Powell Monument, contains the worst por-

tion of the whole river. When, therefore, another "Granite Gorge" developed below Diamond Creek, the men, stalwart and full of nerve though they were, having become somewhat demoralized by lack of food and tremendous strain, were disheartened. Three of them consequently announced that they would go no further.

This was desertion, but they preferred it to risking the difficulties they saw ahead. They believed they could climb out and reach the well-known Mormon settlements on the north, and they believed a river party would be lost or starve.

"At one time," says Powell in his report, "I almost concluded to leave the river. But for years I have been contemplating this trip. To leave the exploration unfinished, to say that there is a part of the canyon which I can not explore, having already almost accomplished it, is more than I am willing to acknowledge, and I determine to go on. \* \* \* For the last time they entreat us not to go on, and tell us that it is madness to set out in this place." The same appeal that Dunn made to Hawkins, the cook of the party, as Hawkins himself tells it.

William R. Hawkins, writing of this in after years, says the three men had "made up their minds to go, and Dunn said he hated to leave Hall and myself, as we had been together a long time, and that we would perish in the river. [Note the fear of the river which had developed in the minds of at least three.] While we were talking, the major came up to me and laid his left arm [he had no right] across my neck, tears running down his cheeks. By that time the rest of the boys were present, and the major said to me: 'Bill, do you really mean what you say?' [that he would stick to the major on the river]. I told him that I did, and he said that if he had one man that would stay with him he would not abandon the river. I just simply said that he did not know his party."

He certainly had reason, with three men about to desert, to believe that others might. The other five were true, however, and it is only just to say that one of the deserters would have stood true, also, had it not been for his brother, who was determined to leave. They all then drank coffee together. The boat party went on, the deserters climbed out on the north, each party thinking the other party doomed. The deserters would have fared well enough and would have arrived at the Mormon settlements had it not been that the Shewits Indians on the plateau believed, or said later that they believed, that these were miners who had committed depredations on a tribe to the south. The men were therefore killed not far from Mount Dellenbaugh, and their clothing, rifles, etc., appropriated.

The place on the river where they left the major is now known as Separation Rapid. The day after they departed Powell and "the

faithful five" reached the end of the great chasm without serious mishap. The names of the three deserters have justly been omitted from the roll of honor inscribed on the Powell Monument.

Powell's journal of this famous voyage is one of the most fascinating tales of adventure in literature. A large part of his meager notes having been lost, Powell repeated the trip on a more extensive basis in 1871 and 1872, obtaining then the data on which his report was based.<sup>4</sup> There is no account of this second vital expedition except in *A Canyon Voyage*, by Frederick S. Dellenbaugh, a member of that party. Afterwards Powell became director of the United States Geological Survey and of the Bureau of Ethnology, which he established.

#### ACCESSIBILITY OF THE CANYON

The Grand Canyon is very much more than a wonder place or a scientific museum on a titanic scale. It is a scenic spectacle of the first order. It may be visited any day in the year. The railroad to the south rim is always running and the hotel there always open.

During the winter snow falls in the pine forest along the rim; but though the upper portions may be snow-covered, the trails into the canyon are open and safe, for more moderate weather prevails there.

The weather in July and August is warm, but not hot on the rim; the altitude takes care of that. There are cool mornings, evenings, and nights, no matter how warm it may be at midday.

Arizona is a land of sunshine; the air is dry and the winds are light. While spring and fall are more attractive than midsummer or midwinter, each season has its special charm. From December to March snow is more or less abundant on the rim and a few hundred feet down the trail. Camping-out parties must then confine themselves to the inner canyon, which is more comfortable than the rim areas.

It should be borne in mind that on account of heavy snows the north rim is closed to visitors from about October 15 to May 15.

#### THE NORTH RIM OF THE CANYON

There is a remarkable difference between the north and south rims. The north rim, a thousand feet higher, is a colder country, clothed with thick lusty forests of spruce, pine, fir, and quaking aspen, with no suggestions of the desert. Springs are found here; and deer are more plentiful than in any other area in the United States, as many as 1,000 having been counted along the auto road in one evening. It is a region soon to be used by hundreds of campers.

<sup>4</sup> Some idea of the conditions encountered by Major Powell on these trips may be gained from the illustrated lecture given daily at Kolb Bros.' studio (see p. 39).

The views from the north rim are markedly different. One there sees close at hand the vast temples which form the background of the south-rim view. One looks down upon them, and beyond them at the distant canyon floor and its gaping gorge which hides the river; and beyond these the south rim rises like a great streaked flat wall, and beyond that again, miles away, the dim blue San Francisco Peaks. It is certainly a spectacle full of sublimity and charm. There are those who, having seen both, consider it the greater. One of these was Dutton, whose description of the view from Point Sublime has become a classic. But there are many strenuous advocates of the superiority of the south-rim view, which displays close at hand the detail of the mighty chasm of the Colorado, and views the monster temples at parade, far enough away to see them in full perspective.

Constant improvement in north-rim road conditions is making that section of the park more readily accessible by autobus and motor car from Cedar City, Zion, and Bryce Canyon National Parks and other southern Utah points. The auto route to the Grand Canyon from the north takes the visitor through the famous Kaibab Forest, a splendid stand of virgin timber, the home of great herds of mule deer and the Kaibab whitetail squirrel, making a never-to-be-forgotten trip of indescribable charm and a fitting prelude to the silent symphony of the Grand Canyon itself.

With the recent completion of the Lees Ferry Bridge over the Colorado River autoists may make the trip between the north and south rims in a distance of about 230 miles via House Rock Valley, Lees Ferry Bridge, and a portion of the Painted Desert country. Further information concerning this route is given on page 36.

The trail trip to the north rim is now perfectly feasible by the Kaibab Suspension Bridge over the Colorado River and the Kaibab Trail up Bright Angel Canyon. It is about 22 miles from the head of the Kaibab Trail on the south rim to the Grand Canyon Lodge on Bright Angel Point. About 7 miles are made the first day, stopping overnight at Phantom Ranch; the remaining 15 miles are covered the second day.

Auto transportation and rates for reaching this side of the park from the north are given on page 64 and rates covering the trans-canyon trip by trail will be found on page 62.

## TABLES OF DISTANCES AND ALTITUDES

## ROADS

## HERMIT RIM ROAD, GRAND CANYON TO HEAD OF HERMIT TRAIL AND HERMIT REST—7.9 MILES

Place	Distance from—		Altitude	Remarks
	Grand Canyon	Hermit Trail		
Grand Canyon.....	Miles 0	Miles 7.9	Feet 6,886	Administrative headquarters of Grand Canyon National Park.
Road to Havasupai.....	.5	7.4	6,820	To Havasupai Indian Reservation, 47 miles distant.
Trail to Hermit Rest.....	1.4	6.5	6,960	By foot or horseback to Hermit Rest or Hermit Trail, 5 miles.
Powell Memorial.....	2.0	5.9	7,050	Memorial to Maj. John Wesley Powell, Sentinel Point.
Hopi Point.....	2.2	5.7	7,071	Fine view of sunset.
Mohave Point.....	3.0	4.9	7,000	View of canyon and river.
The Abyss.....	4.0	3.9	6,850	Looking down from the Great Mohave Wall.
Cut-off to Hermit Rest.....	4.7	3.2	6,800	Old road to Hermit Rest.
Piñon Cove.....	5.7	2.0	6,750	Grove of piñon pines.
Pima Point.....	6.7	1.2	6,750	Fine view of canyon and river, with Hermit Creek Cabins visible beneath.
Cut-off to Grand Canyon.....	7.5	.4	6,700	Old road to Grand Canyon, 5 miles.
Hermit Rest.....	7.7	.2	6,690	Interesting Harvey rest house. Light refreshments.
Trail to Natural Bridges.....	7.6	.3	6,680	Natural Bridges in limestone, ½ mile.
Head of Hermit Trail.....	7.9	0	6,665	7.5 miles to Hermit Creek Cabins.

## GRAND CANYON, GRAND VIEW, DESERT VIEW ROAD—GRAND CANYON TO DESERT VIEW—24.8 MILES

Place	Distance from—		Altitude	Remarks
	Grand Canyon	Desert View		
Grand Canyon.....	Miles 0	Miles 24.8	Feet 6,886	Administrative headquarters of Grand Canyon National Park.
Road to Yavapai Point.....	.77	24.0	6,940	View of canyon and river. Kaibab Suspension Bridge visible beneath.
Road to Yaki Point.....	2.9	21.9	6,925	Trail through forest. Sometimes called Cremation Point.
To Grand View Point.....	11.0	13.8	7,406	Magnificent view of canyon, Painted Desert, Navajo Mountain, river, etc.
Moran Point.....	17.2	7.6	7,157	Canyon View. Named for artist with Major Powell's expedition.
Zuni Point.....	18.0	6.8	7,284	View of canyon and river.
Lipan Point.....	22.5	2.3	7,359	Locally called Lincoln Point.
Desert View.....	24.8	0	7,450	Navajo Point. Fine view of Marble Canyon, Painted Desert, Navajo Mountain, etc.

## GRAND CANYON, ROWES RANCH, TUBA CITY, MOENKOPI, FLAGSTAFF

Place	Distance from—		Remarks
	Grand Canyon	Tuba City	
Grand Canyon.....	Miles 0	Miles 81.8	
Forks-Desert View-Navahopi Road.....	21.6	60.2	
Rowes Ranch.....	27.7	54.1	One of the first settlers in Grand Canyon.
Top Waterloo Hill.....	34.5	47.3	The first view of the Painted Desert.
Cameron.....	57.5	24.3	Trading post, and suspension bridge over Little Colorado.
Dinosaur Tracks.....	74.8	7.0	
Tuba City.....	81.8	-----	Headquarters, Western Navajo Agency.
Moenkopi, via Tuba City.....	84.3	-----	Hopi Village.
Flagstaff via Cameron.....	113.2	80.0	

## SUPAI ROAD, GRAND CANYON TO HILL TOP, HEAD OF HAVASU TRAIL VIA COCONINO BASIN—38.5 MILES

Place	Distance from—		Altitude	Remarks
	Grand Canyon	Hill Top		
Grand Canyon.....	Miles 0	Miles 38.5	Feet 6,886	Administrative headquarters, Grand Canyon National Park.
Rowe Well Store.....	3.3	35.2	6,650	Privately owned camp ground and store.
Bass Homestead.....	5.4	33.1	6,417	Old homestead of W. W. Bass.
Sheep Tank.....	16.5	22.0	6,235	Watering place for stock.
Forks of Bass Camp Road.....	24.5	14.0	6,125	To Bass Camp, Havasupai Point, and Pasture Wash ranger station.
Hill Top.....	38.5	0	5,415	Head of trail to Supai Indian Reservation.

## APPROACH ROAD, GRAND CANYON TO NATIONAL OLD TRAILS HIGHWAY AND SANTA FE RAILROAD AT WILLIAMS

Place	Distance from—		Remarks
	Grand Canyon	Williams	
Grand Canyon.....	Miles 0	Miles 58.0	Administrative headquarters of Grand Canyon National Park. Hotels, information, etc.
Park entrance checking station.....	4.92	53.08	South entrance to Grand Canyon National Park. Ranger station. All cars stop and register.
Fork of road.....	12.5	45.5	Right-hand fork for Williams.
Howard Lake.....	38.0	20.0	Small lake and junction of old and new Williams roads.
Williams.....	58.0	0	Nearest shopping point to Grand Canyon.

## NORTH RIM GRAND CANYON NATIONAL PARK TO ZION NATIONAL PARK—145.0 MILES VIA PIPE SPRING

Place	Distance from—		Altitude	Remarks
	North rim	Zion Park		
Grand Canyon Lodge.....	Miles 0	Miles 145	Feet 8,250	Excellent hotel accommodations.
Administrative headquarters, north rim.....	1	144	8,350	National Park Service headquarters for north rim.
Head of Kaibab Trail.....	1.5	143.5	8,200	
Park boundary.....	9.5	135.5	9,100	North entrance to Grand Canyon National Park. Information. Stop and register.
De Motte Park.....	17	128	8,900	V. T. Ranch hotel. Meals and lodging.
Pleasant Valley.....	21.6	123.4	8,500	
Crane Lake.....	26.5	118.5		
Jacobs Lake ranger station.....	43.4	101.6		Forest Service ranger station.
Fredonia.....	74.4	70.6		Old Mormon village. Hotel.
Arizona-Utah line.....	78.3	74.5		
Kanab.....	80.2	78.6		Most southerly town in Utah. Hotel.
Pipe Spring.....	88.9	56.1		National monument. Old Mormon fort.
Zion National Park, via Rockville cut-off.....	145	0		Yosemite done in oils.

## NORTH RIM GRAND CANYON NATIONAL PARK TO BRYCE CANYON NATIONAL PARK

Place	Distance from—		Remarks
	North rim	Bryce	
Grand Canyon Lodge.....	Miles 0	Miles 165	Excellent hotel accommodations, garage, camp grounds, Kaibab Forest post office.
Bright Angel ranger station.....	1	164	Administrative headquarters, National Park Service, north rim.
Head of Kaibab Trail.....	1.5	163.5	Canyon trail to Roaring Springs, Phantom Ranch, and south rim.
Park boundary.....	9.5	155.5	North entrance to Grand Canyon National Park. Stop and register. Information.
DeMotte Park.....	17	148	V. T. Ranch Hotel. Meals and lodging.
Jacobs Lake.....	43.4	121.6	Road to Lees Ferry Bridge. Gas and oil.
Fredonia.....	74.4	90.6	Only town in "Arizona Strip." Hotel, garage.
Arizona-Utah line.....	78.3	86.7	
Kanab.....	80.2	84.8	Most southerly town in Utah. Mormon settlement. Hotels, stores, garages.
Mount Carmel.....	100	65	Mormon village. Junction of new road under construction to Zion National Park.
Orderville.....	103	62	Old Mormon village. Gas and oil.
Glendale.....	107	58	Mormon town. Hotel, garage.
Cedar Junction.....	121	44	Forks of road, 28 miles to Cedar Breaks, 48 miles to Cedar City.
Hatch.....	137	28	Small village. Gas and oil.
Road forks.....	146	19	Right-hand road to Bryce Canyon National Park, via Red Canyon.
Bryce Canyon National Park.....	165	0	Exquisite beauty and grotesque grandeur astonishingly blended by forces of erosion.

## TRAILS

## GRAND CANYON TO NORTH RIM RANGER STATION VIA KAIBAB TRAIL—26.50 MILES

Place	Distance from—		Altitude	Remarks
	Grand Canyon	North rim		
Grand Canyon.....	Miles 0	Miles 25.60	Feet 6,875	Administrative headquarters of Grand Canyon National Park. Hotels, etc.
Head of Kaibab Trail.....	3.50	22.10		
Kaibab Suspension Bridge.....	10.00	15.6	2,500	Built by National Park Service in 1928.
Phantom Ranch.....	10.85	14.75	2,550	Interesting new Harvey Camp, stone cottages. Well located for hiking, climbing, etc.
Phantom Creek.....	11.90	13.7	2,950	A deep canyon coming in from the west.
Head of Box Canyon.....	14.55	11.05	3,350	Near end of granite in Bright Angel Creek.
Ribbon Falls.....	16.25	9.35	3,750	Very beautiful falls where creek drops over Redwall.
Wall Creek.....	16.75	8.85	3,850	Creek coming from the right. Old name is Beaver Creek.
Cottonwood Cabin.....	18.50	7.10	4,150	The Transept on left.
Manzanita Creek.....	18.90	6.70	4,450	Union Pacific hydroelectric plant.
Roaring Springs.....	19.85	5.75	4,750	
Foot Redwall limestone.....	20.50	5.10	5,350	
Head Kaibab Trail.....	24.10	1.50	8,350	
Grand Canyon Lodge.....	25.60	0	8,250	North Rim Hotel.

## GRAND CANYON TO HERMIT CREEK CABINS VIA BRIGHT ANGEL AND TONTO TRAILS—21 MILES

Place	Distance from—		Altitude	Remarks
	Grand Canyon	Hermit Cabins		
	<i>Miles</i>	<i>Miles</i>	<i>Feet</i>	
Grand Canyon.....	0	21.00	6,886	Administrative headquarters of Grand Canyon National Park. Hotels, post office, etc.
Jacob's Ladder.....	2.50	18.50	4,850	Trail through Redwall limestone, 550 feet.
Indian Gardens.....	3.70	17.30	3,876	Grove of cottonwood trees watered by Garden Creek. Former home of Indians.
Tonto Trail.....	4.30	16.70	3,750	Right-hand fork to Colorado River and Phantom Ranch.
Plateau Point.....	4.70	16.30	3,750	Plateau Point, 1 mile.
Battleship.....	5.50	15.50	3,700	Battleship on left.
Horn Creek.....	7.20	13.80	3,550	
Dana Butte.....	9.00	12.00	3,650	View of gorge, river, etc.
The Inferno.....	11.50	9.50	3,400	Locally called Hells Half Acre.
Salt Creek.....	12.30	8.70	3,440	
The Alligator.....	14.00	7.00	3,450	Butte called Alligator on left.
Cedar Spring.....	15.00	6.00	3,400	Good water.
Monument Creek.....	17.50	3.50	3,200	Very scenic.
Hermit Cabins.....	21.00	0	3,050	Fine Fred Harvey camp.
Colorado River, foot Hermit Trail.....	22.50	1.50	2,440	Hermit Rapids.

## GRAND CANYON TO HERMIT CREEK CABINS THROUGH WOODS AND HERMIT TRAIL—12 MILES

Place	Distance from—		Altitude	Remarks
	Grand Canyon	Hermit Cabins		
	<i>Miles</i>	<i>Miles</i>	<i>Feet</i>	
Grand Canyon.....	0	12.00	6,886	Administrative headquarters of Grand Canyon National Park.
Hermit Trail.....	5.00	7.00	6,665	Harvey corral.
Waldron Trail.....	6.00	6.00	5,270	Trail to Rowe Well Road.
Dripping Springs Trail.....	5.50	6.50	5,260	Trail to Dripping Springs and Boucher Trail.
Santa Maria Spring.....	7.00	5.00	5,250	Good water. Rest pavilion.
Four Mile Spring.....	9.00	3.00	4,550	Good water.
Cathedral Stairs.....	10.00	2.00	4,530	
Hermit Cabins.....	12.00	0	3,050	Fine Harvey camp.

## SHORT WALKS NEAR GRAND CANYON

Place	Distance and direction from El Tovar	By—	Altitude	Remarks
	<i>Miles</i>		<i>Feet</i>	
The Lookout Telescope..	0.3 west.....	Grand Canyon Rim Trail.	6,866	Observatory. Curios on sale. Pictures.
Kolb Bros. Studio.....	0.4 west.....	do.....	6,850	Studio. Grand Canyon moving-picture lecture daily of voyage through canyon.
Pictograph Rock, Hole in Wall.	0.6 west.....	Grand Canyon Rim Trail and foot trail.		Interesting foot trail from Bright Angel Trail. Ancient Indian pictographs.
Picnic Rock.....	0.8 west.....	Rim foot trail.....	6,870	Walk through woods. Fine view of San Francisco peaks.
Maricopa Point.....	1.8 west.....	Grand Canyon Rim foot trail.	7,000	Fine view of canyon.
The Battleship.....	2.5 north.....	Bright Angel Trail.	5,867	Rough foot trail from Bright Angel Trail.
Indian Gardens.....	3.7 north.....	do.....	3,876	Fine creek of good water.
Independent Store.....	0.3 east.....	Grand Canyon Rim foot trail.	6,880	Indian handiwork and curios.
Grandeur Point.....	1.3 east.....	do.....	7,050	Fine view. Kaibab Suspension Bridge visible.
Yavapai Point.....	1.5 east.....	do.....		Observation station. Trail-side museum.
Rowe Well.....	3.6 southwest.....	Rowe Well Road..	6,681	Good water.

## HOW LONG TO STAY

While one ought to remain a week or two, a stop-over of three or four days from the transcontinental trip will be quite satisfactory. From the south rim the Hermit Loop overnight trip, down one trail and up another, requires two days and a night, as does also the overnight trip to Phantom Ranch. One day should be devoted to an auto ride along the Hermit Rim Road, and by auto to Grand View and Desert View. Another day go down Bright Angel Trail and back. A fourth day spent in short walks to near-by points or on horseback will enable visitors to get more intimate views.

For the north rim visitor the Kaibab is the only trail available for trips into the canyon. Two days is required for the trip to the Colorado River with an overnight stop at Phantom Ranch. In one day over this trail one may get a fairly good idea of the canyon depths by taking the trip to Roaring Springs. Another day should be spent in taking the auto trip eastward across the Walhalla Plateau. An auto trip to Point Sublime will be available later in the summer when the road is completed, and meanwhile a day or two may be very profitably spent in taking saddle-horse trips and hikes on the rim to a number of very interesting points recently made accessible by the construction of new bridle and foot paths.

The several trips mentioned above are all well worth while, and the high plateau above the rim affords many delightful horseback or hiking trips.

The north rim offers the best opportunity for camping out during the summer months. The high altitude makes the weather uniformly cool, while the magnificent forest through which roam thousands of deer creates a delightful setting. There are a number of springs, and the water supply is not such a serious problem.

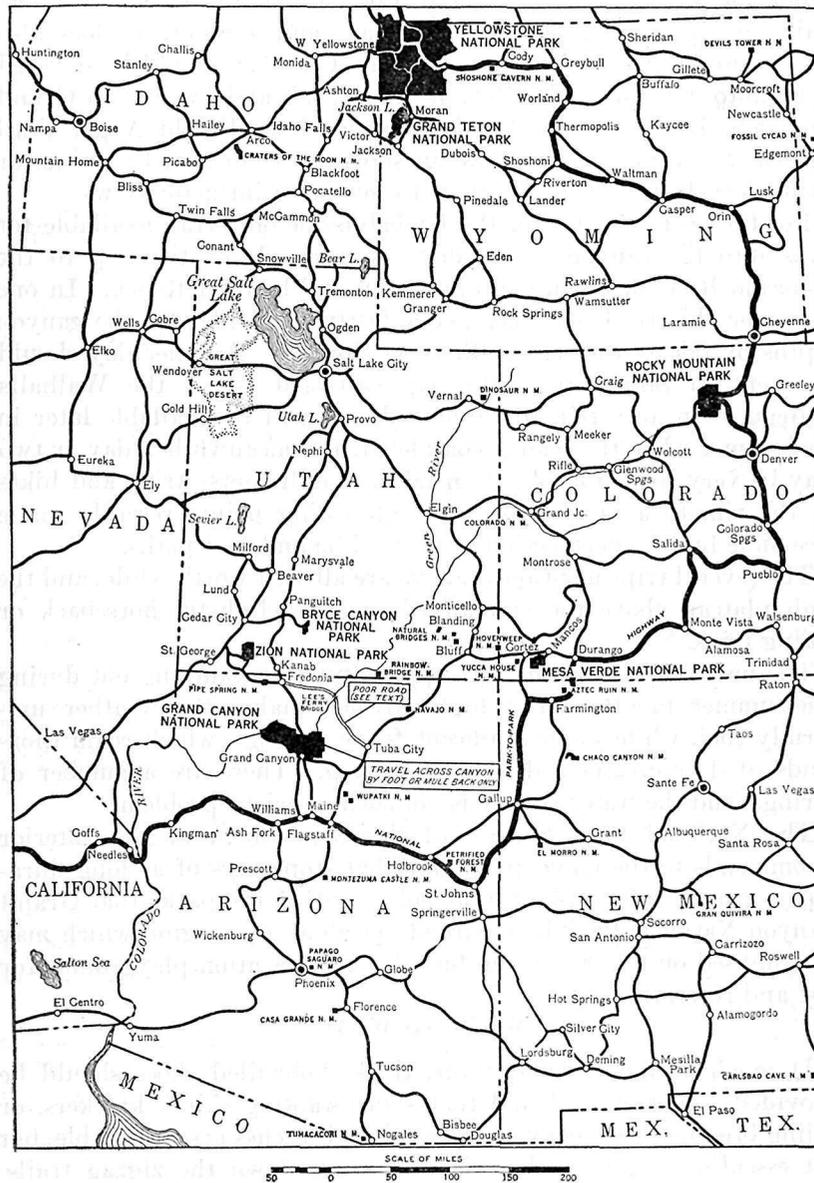
The National Park Service of the Department of the Interior recommends to the traveling public that stop-overs of as long duration as practicable be planned at points within the park; that Grand Canyon National Park be regarded not alone as a region which may be glimpsed on a hurried trip but also as a vacation playground for rest and recreation.

## WHAT TO WEAR

If much hiking is done, stout, thick, hobnailed shoes should be provided. Women will find that short walking skirts, knickers, or riding breeches are a convenience; riding breeches are preferable, but not essential, for the horseback journey down the zigzag trails. Traveling caps and (in summer) broad-brimmed straw hats are useful adjuncts. Otherwise ordinary clothing will suffice. Riding breeches, divided skirts, and straw hats may be rented at El Tovar Hotel or Grand Canyon Lodge.

## ADMINISTRATION

Grand Canyon National Park is under the jurisdiction of the Director, National Park Service, Department of the Interior, Wash-



Map showing principal automobile routes

ington, D. C. The park superintendent, Miner R. Tillotson, is located at Grand Canyon, Ariz., and information, maps, and pamphlets may be obtained at the park office, where visitors are cor-

dially welcomed. The office of the superintendent is 100 yards east of the Grand Canyon Railway station.

The park, El Tovar Hotel, the Bright Angel cottages, and the cabins at Hermit Creek and Phantom Ranch at the mouth of Bright Angel Creek are always open. Accommodations may be had at Grand Canyon Lodge on the north rim during the summer months only.

## HOW TO REACH THE PARK

## BY RAIL

The Grand Canyon National Park is directly reached by a branch line of the Atchison, Topeka & Santa Fe Railway extending 64 miles northward from Williams, Ariz. On certain trains through standard Pullman cars are operated to and from Grand Canyon station. Passengers using other trains and stopping over at Williams will find excellent accommodations at the Fray Marcos, station hotel. A Fred Harvey bus service is also operated between Williams and Grand Canyon for the benefit of passengers on main line trains which do not connect with the train to Grand Canyon. This bus leaves Williams at 7.05 p. m. and arrives at Grand Canyon at 9.35 p. m. On the return trip it leaves Grand Canyon at 8.10 a. m., arriving at Williams at 10.40 a. m. The fare is \$4.56 each way, exactly the same as railroad fare, and those holding through tickets to Grand Canyon by rail may, upon application to the Santa Fe agent at Williams, exchange their railroad coupon for a bus ticket at no additional cost.

Stop-overs, not to exceed 10 days, are granted at Williams on all classes of railroad tickets for a visit to the canyon. Limits of through railroad tickets will be extended if necessary by agent at Grand Canyon. Through tickets may include side-trip coupons, Williams to Grand Canyon and return, at an additional charge of \$9.12.

Round-trip excursion tickets at reduced fares are on sale daily at practically all stations in the United States and Canada to Grand Canyon as a destination.

Baggage may be checked through to Grand Canyon station, if required. Passengers making brief side trips to Grand Canyon may check baggage to Williams only or through to destination. Certain regulations for free storage of baggage for Grand Canyon passengers are in effect.

For further information regarding railroad fares, service, etc., apply to railroad ticket agents, or address:

W. J. Black, passenger traffic manager, Atchison, Topeka & Santa Fe Railway system, Chicago, Ill.

J. B. Duffy, general passenger agent, Atchison, Topeka & Santa Fe Railway system, Coast Lines, Los Angeles, Calif.

The Union Pacific delivers tourists for the north rim at Cedar City, Utah, and the Denver & Rio Grande Western, at Marysvale. The former is approximately 176 miles from the Grand Canyon, and the latter approximately 204 miles. Regular stage service is maintained from both these points to the Grand Canyon National Park.

Complete information concerning these trips can be had from:

W. S. Basinger, passenger traffic manager, Union Pacific system, Omaha, Nebr.

H. I. Scofield, general passenger agent, Denver & Rio Grande Western, Denver, Colo.

Parties visiting the canyon from either of these Utah points can make an interesting trip covering Bryce Canyon National Park, Cedar Breaks, and Zion National Park.

If parties desire, they can make the trip from the north, taking in all these features, cross the canyon, and continue their journey on the Santa Fe Railroad. This can also be reversed, entering the park via the Santa Fe, crossing the canyon to the north rim, thence by motor bus to either of the two railways mentioned above, where the trip may be continued. Arrangements for such a trip should be made at the time tickets are purchased.

#### BY AUTOMOBILE

Automobile tourists for the south rim may leave the National Old Trails Highway, which is the main east and west highway through Arizona, at Maine or Williams. The latter road is the better and is being maintained by the Government. A new approach road to the park is under construction by the National Park Service. This leaves the National Old Trails Highway at a point about  $2\frac{1}{2}$  miles east of Williams and parallels, approximately, the old Williams road. As sections of the new road are completed they will be placed in service for travel to the park. The roads from Maine and Williams join at a point some 10 miles south of headquarters. This road is paved from the park boundary to headquarters, a distance of 5 miles.

*Flagstaff.*—It is 92 miles from Flagstaff to Grand Canyon via Williams and 86 miles via Maine. At times in early spring, during summer rains, or late fall it is advisable to inquire at Flagstaff or

Williams as to road conditions. The town of Flagstaff is located in the heart of the San Francisco uplift and has good stores and garage facilities. In this vicinity are prehistoric cliff dwellings, extinct craters, volcanic cones, lava beds, and ice caves. The summit of Humphreys Peak, one of the peaks forming the San Francisco Mountains, is 12,794 feet above sea level.

*Williams.*—Williams, 58 miles from Grand Canyon, is 36 miles west of Flagstaff and 16 miles west of Maine, on the main east and west highway through Arizona. It is the nearest shopping center, and its stores and garages carry a good stock of everything necessary to the automobile tourist. Williams is a center for a number of interesting side trips.

The route from Williams passes near Bill Williams Mountain (elevation 9,264 feet, which has seven distinct crests), Red Lake, Howard Lake, and Anita, running along the line of the Grand Canyon Railway. No supplies can be purchased between Williams or Maine and Grand Canyon, except at a point 10 miles south of Grand Canyon.

*Navahopi Road.*—An interesting trip between Grand Canyon and the National Old Trails Highway may be made via the Navahopi Road to Cameron, an Indian trading post on the Painted Desert, thence south via Sunset Peak to reach the highway at a point some 6 miles east of Flagstaff. At Cameron is a suspension bridge over the Little Colorado River on the road to Tuba City and the Lees Ferry Bridge. Here too, may be had hotel accommodations as well as gasoline, oil, and general supplies. Cameron is 55 miles from Flagstaff and 57 miles from Grand Canyon. The road between Flagstaff and Cameron is in good condition and passable the year around. Between Cameron and Grand Canyon the road is open during the summer travel season only. Although it is a fairly good desert road, it has some rather steep grades and should not be attempted by cars in poor condition.

Auto roads to the north rim are uniformly good during the summer season, but they should not be attempted before about June 1 nor later than November 1. From Cedar City there is a splendid road as far as Zion National Park. From Zion via the Rockville cut-off and Pipe Spring National Monument there is a desert road classed as from fair to poor. This desert road ends at Fredonia, Ariz., from which point the road to the north rim is uniformly good. A good road leads from Cedar City over Cedar Mountain, via Cedar Breaks, to Cedar Junction from which point the road forks, the branch to the north leading to Bryce Canyon National Park (41 miles distant) and the south branch to the north rim (123 miles), via Kanab, Utah, and Fredonia, Ariz. Supplies and hotel and garage facilities are obtainable at Cedar City, Kanab, and Fredonia,

as well as at a number of small southern Utah towns between Kanab and Bryce Canyon. Gas and oil may be had at Jacobs Lake, 44 miles north of Grand Canyon Lodge.

The trip by auto between the south and north rims may be made by either of two roads. One of these is via Williams and Kingman, Ariz., Needles, Calif., Las Vegas, Nev., St. George, Utah, and Fredonia, Ariz. Good roads are had practically the entire route and the distance is approximately 700 miles. The shorter route is via the Navahopi road, Cameron, the new Lees Ferry Bridge, House Rock Valley, and Jacobs Lake. This road is approximately 230 miles in length. Much of it is only a fair desert road, but it is entirely passable during the travel season for those experienced in driving desert routes. Inquiry should be made before starting this trip and it is recommended that reserve supplies of gasoline, oil, and food be carried, although these are obtainable at a number of points en route, such as Cameron, The Gap, Cedar Ridge, Lees Ferry Bridge, and Jacobs Lake. Meals and lodging are also obtainable at Cameron, The Gap, and Lees Ferry Bridge. This trip has much of interest to offer the tourist. Much of this route lies on the Painted Desert, which has a charm and fascination all its own. This is also within the Western Navajo Indian Reservation and the Indians to be seen either following their flocks along the road or gathered at the several trading posts en route are always objects of much interest. For those interested in the engineering features the trip is worth while to see the new Lees Ferry Bridge alone. This is a structural steel-deck arch of the 3-hinged type, built by the State of Arizona in cooperation with the Federal Government and completed in the fall of 1928. The total length of the bridge is 833 feet and the main span is 618 feet from center to center of end pins. The distance from the roadway to mean low water is some 467 feet, making this, it is said, by far the highest highway bridge in the world.

#### ROAD-SIGN INFORMATION

As fast as the funds are available for that purpose the National Park Service is having standard signs placed along the roads and trails of this park for the information and guidance of the motorists and other visitors that use the park roads and trails.

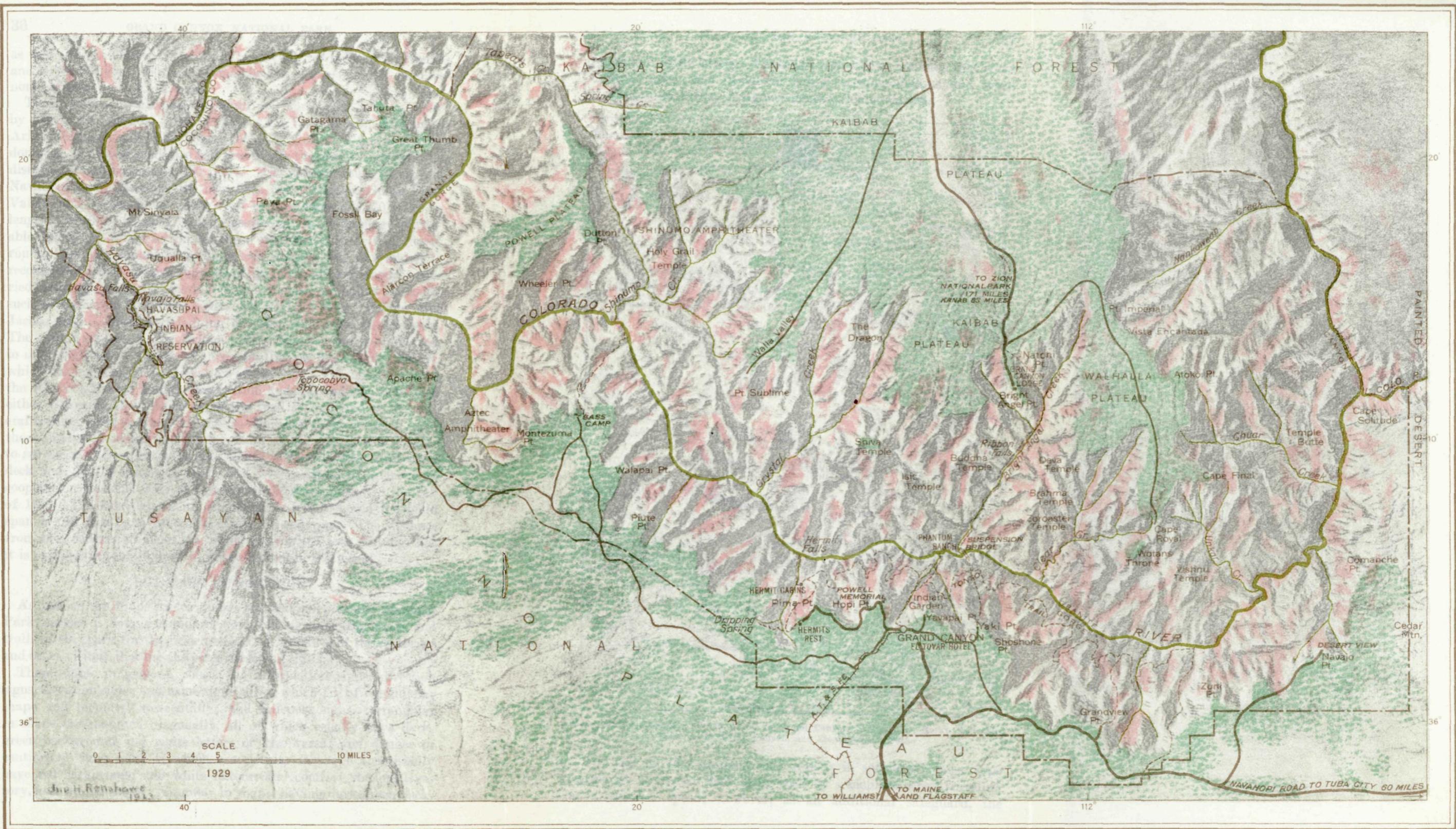
These signs, in general, consist of information signs, direction signs, elevation signs, and name signs, all of which are of rectangular shape and mounted horizontally; and milepost signs, rectangular in shape but mounted diagonally, all of which usually have dark-green background and white letters or vice versa; and danger or cautionary signs, most of which are circular in shape and usually have red background and white letters; and comfort station, lavatory, and similar signs, triangular in shape, having dark-green back-

ground and white letters. These last signs are so mounted that when pointing down they designate ladies' accommodations and when pointing upward they designate men's accommodations.



Map showing principal railroad routes to Grand Canyon, Yellowstone, Rocky Mountain, Mesa Verde, Bryce Canyon, and Zion National Parks

The text on the standard road sign is in sufficiently large type ordinarily to permit their being read by a motorist when traveling at a suitable speed; however, as an additional safeguard, the



MAP OF GRAND CANYON NATIONAL PARK

John H. Renshaw  
1929

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motorist must always immediately slow down or stop or otherwise fully comply with the injunctions shown on the circular red cautionary signs.

Because of lack of funds, it has not been possible to place cautionary signs at all hazardous places in the roads; therefore, the motorist must always have his car under full control, keep to the right, and sound horn when on curves that are blind, and not exceed the speed limit, which is 25 miles per hour on straight, fairly level road and 12 miles per hour on curves, narrow, or steep descending sections of road.

#### PUBLIC UTILITIES AND CONVENIENCES, SOUTH RIM

##### AUTOMOBILE SUPPLIES

At Grand Canyon village is an excellent garage under the management of Fred Harvey. Storage or repair service, as well as gasoline and oil, may be procured here.

##### GROCERIES

The Babbitt Bros. Trading Co.'s general store at Grand Canyon carries a full line of groceries, meats, fresh fruits and vegetables, hardware, dry goods, boots and shoes, and women's and men's furnishings, including outing apparel and supplies.

##### WATER

A supply of water for drinking purposes and for radiation, sufficient to last to Grand Canyon, should be brought from Williams or Flagstaff. Campers may obtain water on the camp ground at Grand Canyon free of charge.

##### POST OFFICE

The post office (second class), which does all kinds of postal business, is situated near the Hermit Rim Road, about 400 yards west of the railroad depot. It is open from 8 a. m. to 6 p. m. Mail trains arrive at 7.15 a. m. and 6.30 p. m. and leave at 11.15 a. m. and 8 p. m.

##### TELEGRAPH

The Western Union offices at the railroad depot are open from 7.30 a. m. to 8 p. m. and at El Tovar Hotel from 8 a. m. to 12 m. and from 4 p. m. to 8 p. m.

##### TELEPHONE

There is telephone connection between El Tovar Hotel, National Park Service office, ranger stations, Hermit Creek Cabins, Phantom Ranch, Havasupai Indian Agency, Desert View, and the north rim. There is also commercial long distance telephone connection to all points.

#### LECTURE

Every evening at 8 o'clock a lecture, illustrated with moving pictures and slides, is given on Grand Canyon National Park and the surrounding country. Admission to this lecture, which is given in the music room at El Tovar Hotel, is free, and all visitors to the park are invited to attend. This should not be confused with the illustrated lecture given daily by Kolb Bros. covering their trips down the Colorado River.

#### KOLB BROS.' STUDIO AND CANYON LECTURE

Kolb Bros.' studio is at the head of Bright Angel Trail. The Kolb Bros. give, each day, in a spacious and well ventilated new auditorium an interesting lecture, illustrated with motion pictures and slides, describing their boat trips through the canyons of the Green and Colorado Rivers. Two such trips were made, the first in 1911 and the second with the United States Geological Survey party in 1923. Pictures of both trips are shown. Admission, 50 cents.

The exhibition above referred to illustrates Major Powell's original exploration of the entire series of canyons on these rivers and should not be confused with other excellent travel talks on the Grand Canyon, which latter describe and illustrate what can be seen by the visitor in a stay of a week or so at the canyon.

Here, too, visitors may view the canyon through a telescope and obtain reliable information. Photographic views and other pictures representing their many years' exploration of the Grand Canyon are for sale.

#### NATURE GUIDE AND LECTURE SERVICE

Each evening at 8.30 during the summer travel season, in the north end of the public camp ground, the park naturalist gives a free camp-fire lecture on the geology, history, origin, etc., of the Grand Canyon. Similar lectures are given in the afternoon at the Yavapai Point Observation Station, further described on page 4. On a short nature-guide walk conducted each afternoon by the park naturalist various interesting features of the geology of the canyon are pointed out together with those pertaining to the flora and fauna of the region. These facilities are offered by the National Park Service without charge and visitors are urged to make the fullest possible use of them.

#### VERKAMP'S SOUVENIR SHOP

Verkamp's is on the rim of the canyon, just east of the Hopi House. In this shop may be seen one of the largest and best paintings of the Grand Canyon, as well as other works of the late Louis Akin.

This store carries a complete line of canyon souvenirs and Indian handicraft. It makes a specialty of Navajo rugs and silverware, Chimayo blankets and Indian baskets, and carries post cards, folders, and photographs of the canyon.

#### FREE PUBLIC AUTO CAMP

A free public camp ground is maintained by the National Park Service. This is described in detail on page 5.

#### MEDICAL SERVICE

There is a doctor of long experience in the park and a trained nurse at El Tovar Hotel. The nearest hospital is at Williams, Ariz. There is also a hospital at Flagstaff, Ariz.

#### KODAK FINISHING

The services of a first-class photographer are available for developing and finishing of kodak films and prints. Exposed film left at the Lookout or at El Tovar news stand before 12.30 p. m. will be developed promptly and the finished prints will be ready for delivery by 6 p. m.

#### THE LOOKOUT

The Lookout is a quaint observatory and rest house, built on the edge of the rim near the head of Bright Angel Trail. It is equipped with a large binocular telescope in the tower, for observing the most distant reaches of the canyon. Canyon photos are for sale. The reception room has spacious windows, a fireplace, Navajo rugs, and easy chairs; it is electric lighted and steam heated.

#### HERMIT REST

Where the Hermit Rim Road ends and Hermit Trail begins is a unique rest house, built into the hill, with a roofed-in porch and a parapet wall. As the name implies, it is intended to provide rest and shelter for parties who take the Rim Road drive or the Hermit Trail trip. Guests may sit at the tables outside or sheltered by the glass front inside according to weather, and enjoy refreshments in unusual surroundings. Admission is free to those who arrive in Harvey transportation busses. The charge to others is 25 cents each. Open 9.30 a. m. to 12 noon; 1 p. m. to 5 p. m.

#### HOPi HOUSE

Opposite El Tovar is a reproduction of the dwellings of the Hopi Indians and several Navajo hogans.

In Hopi House are installed collections of Indian handiwork. Canyon souvenirs, Navajo rugs, and jewelry, basketry, and other examples of Indian handicraft may be purchased. Here also live

a small band of Hopis, who are among the more primitive of our Indians. Each evening at 5.30 these Hopis give, at the Hopi House, a series of Indian dances to which no admission is charged.<sup>5</sup>

The homes of the Hopis are on the edge of the Painted Desert, perched on the crests of lofty mesas where they live as did their forbears and cling to their high dwelling place. They are industrious, thrifty, orderly, and mirthful. A round of ceremonies, each terminating in the pageants called "dances," marks the different seasons of the year. Subsisting almost wholly by agriculture in an arid region of uncertain crops, they find time between their labors for light-hearted dance and song, and for elaborate ceremonials, which are grotesque in the Katchina or masked dances, ideally poetic in the flute dance, and intensely dramatic in the snake dance. In the three and a half centuries of contact with the white race their manner of life has not materially changed. The Indian tribes that roamed over mountain and plain have become wards of the Government, but the Pueblo Indian has absolutely maintained his individuality.

The Navajo women weave fine blankets and many of the men are expert silversmiths, who fashion bracelets, rings, and other articles from Mexican coin silver. The Navajo Indian Reservation—one of the largest in the United States—borders Marble Canyon on the east. They are a pastoral people, intelligent, and, like the Hopis, self-supporting. They own large numbers of sheep, cattle, and horses. The Navajos are tall, rather slender, and agile. They have been rightly called the Bedouins of the Desert. Nowhere are they gathered into permanent villages. Although "civilized," they still cling to old customs and old religious forms. The medicine man, or Shaman, has a large following, if not a large per cent of cures. Their dance ceremonies are weird in the extreme. The fire dance is a spectacular 9-day ceremony, seldom witnessed by white men.

Supai Indians from Havasu Canyon frequently visit Grand Canyon village, and Navajo and Hopi Indians may be seen occasionally.

#### PUBLIC UTILITIES AND CONVENIENCES, NORTH RIM

##### POST OFFICE

A post office (fourth class) is maintained from June 1 to October 1. Mail is brought by auto truck daily from Cedar City, Utah. The post-office address is Kaibab Forest, Ariz.

##### TELEGRAPH

The Western Union office is located at Grand Canyon Lodge and is maintained during the season, June 1 to October 1. The telegraphic address is North Rim, Grand Canyon, Ariz.

<sup>5</sup> The last four above-mentioned facilities are under the management of Fred Harvey.

## MEDICAL SERVICE

The services of an experienced doctor and of a nurse may be had at Grand Canyon Lodge. The nearest hospital is at Cedar City, Utah, although a small emergency hospital is maintained at the lodge.

## NATURE GUIDE AND LECTURE SERVICE

A park naturalist is on duty at the north rim during the summer travel season. Each evening at 8.30 an entertainment is given in the recreation room at Grand Canyon Lodge at which a lecture on the geology, history, or some other feature of the Grand Canyon is given by the naturalist. All park visitors, whether hotel guests or not, are invited to attend this lecture and also to take the nature guide walk along the rim each morning, conducted by the naturalist.

## AUTOMOBILE SUPPLIES

Under the management of the Utah Parks Co., there is maintained a first-class garage at which storage or repair service as well as gasoline, oil, and general automobile supplies may be had.

## GROCERIES AND SUPPLIES

At the store and curio shop in the east wing of Grand Canyon Lodge there may be secured groceries and campers' supplies as well as Navajo rugs and jewelry, Indian baskets and curios, photographs and photo supplies, toilet articles, cigars, cigarettes, confectionery, newspapers, periodicals, souvenir post cards, etc. At the soda fountain in this room may be had hot and cold drinks and light lunches.

## FREE PUBLIC AUTO CAMP

This is maintained by the National Park Service and is described in more detail on page 5.

## NATIONAL PARK SERVICE STATIONS

There are ranger stations or camps at places named below where assistance and shelter may in emergency be obtained. These may be unoccupied, and it is well to inquire at the office of the superintendent.

South entrance checking station, Pasture Wash and Navahopi Junction ranger stations, and Grand Canyon village on the south rim; north entrance checking station and Bright Angel Point ranger station on the north rim.

## RULES AND REGULATIONS

(Approved January 16, 1928, to continue in force and effect until otherwise directed by the Secretary of the Interior)

## GENERAL REGULATIONS

The following rules and regulations for the government of the Grand Canyon National Park are hereby established and made public pursuant to authority conferred by the act of Congress approved August 25, 1916 (39 Stat. 536), as amended June 2, 1920 (41 Stat. 732), and the act of February 26, 1919 (40 Stat. 1175):

1. *Preservation of natural features and curiosities.*—The destruction, injury, defacement, or disturbance in any way of the public buildings, signs, equipment, or other property, or the trees, flowers, vegetation, rocks, mineral, animal, or bird, or other life is prohibited: *Provided*, That flowers may be gathered in small quantities when, in the judgment of the superintendent, their removal will not impair the beauty of the park. Before any flowers are picked, permit must be secured from ranger in charge.

2. *Camping.*—No camp shall be made along roads except at designated localities. Blankets, clothing, hammocks, or any other article likely to frighten teams shall not be hung near the road.

Many successive parties camp on the same sites during the season; therefore camp grounds shall be thoroughly cleaned before they are abandoned. Tin cans, bottles, cast-off clothing, and all other debris shall be placed in garbage cans or pits provided for the purpose. When camps are made in unfrequented localities where pits or cans may not be provided, all refuse shall be burned or hidden where it will not be offensive to the eye.

Campers may use only dead or fallen timber for fuel.

3. *Fires.*—Fires constitute one of the greatest perils to the park; they shall not be kindled near trees, dead wood, moss, dry leaves, forest mold, or other vegetable refuse, but in some open space on rocks or earth. Should camp be made in a locality where no such open space exists or is provided, the dead wood, moss, dry leaves, etc., shall be scraped away to the rock or earth over an area considerably larger than that required for the fire.

Fires shall be lighted only when necessary, and when no longer needed shall be completely extinguished, and all embers and beds smothered with earth or water, so that there remains no possibility of reignition.

Especial care shall be taken that no lighted match, cigar, or cigarette is dropped in any grass, twigs, leaves, or tree mold.

4. *Hunting.*—The park is a sanctuary for wild life of every sort, and hunting, killing, wounding, capturing, or frightening any bird or animal in the park is prohibited.

The outfits, including guns, traps, teams, horses, or means of transportation used by persons engaged in hunting, killing, trapping, ensnaring, or capturing birds or wild animals, or in possession of game killed on the park lands, shall be taken up by the superintendent and held subject to the order of the Director of the National Park Service, except in cases where it is shown by satisfactory evidence that the outfit is not the property of the person or persons violating this regulation and the actual owner was not a party to such violation. Firearms are prohibited in the park except on written permission of the superintendent. Visitors entering or traveling through the park to places beyond, shall, at entrance, report and surrender all firearms, traps, nets, seines, or explosives in their possession to the first park officer and in proper cases may obtain his written leave to carry them through the park sealed. The Government assumes no responsibilities for loss or damage to any firearms, traps, nets, seines, or other property so surrendered to any park officer, nor are park officers authorized to accept the responsibility of custody of any property for the convenience of visitors.

5. *Fishing.*—Fishing with nets, seines, traps, or by the use of drugs or explosives, or in any other way than with hook and line, or for merchandise or profit, is prohibited. Fishing in particular water may be suspended, or the number of fish that may be taken by one person in any one day from the various streams or lakes may be regulated by the superintendent. All fish hooked less than 6 inches long shall be carefully handled with moist hands and returned at once to water if not seriously injured. Fish retained shall be killed. Ten fish shall constitute the limit for a day's catch.

6. *Private operations.*—No person, firm, or corporation shall reside permanently, engage in any business, or erect buildings in the park without permission in writing from the Director of the National Park Service, Washington, D. C. Applications for such permission may be addressed to the director through the superintendent of the park.

7. *Cameras.*—Still and motion picture cameras may be freely used in the park for general scenic purposes. For the filming of motion pictures requiring the use of artificial or special settings, or involving the performance of a professional cast, permission must first be obtained from the superintendent of the park.

8. *Gambling.*—Gambling in any form, or the operation of gambling devices, whether for merchandise or otherwise, is prohibited.

9. *Advertisements.*—Private notices or advertisements shall not be posted or displayed on Government lands within the park, excepting such as the superintendent deems necessary for the convenience and guidance of the public.

10. *Mining.*—The location of mining claims on Government lands in the park is permitted only with the prior approval of the Secretary of the Interior.

11. *Patented lands.*—Owners of patented lands within the park limits are entitled to the full use and enjoyment thereof; the boundaries of such lands, however, shall be determined and marked and defined so that they may be readily distinguished from the park lands. While no limitations or conditions are imposed upon the use of private lands so long as such use does not interfere with or injure the park, private owners shall provide against trespass by their livestock upon the park lands, and all trespasses committed will be punished to the full extent of the law. Stock may be taken over the park lands to patented private lands with the written permission and under the supervision of the superintendent, but such permission and supervision are not required when access to such private lands is had wholly over roads or lands not owned or controlled by the United States.

12. *Grazing.*—The running at large, herding, or grazing of livestock of any kind on the Government lands in the park, as well as the driving of livestock over same, is prohibited, except where authority therefor has been granted by the superintendent. Livestock found improperly on the park lands may be impounded and held until claimed by the owner and the trespass adjusted.

13. *Authorized operators.*—All persons, firms, or corporations holding franchises in the park shall keep the grounds used by them properly policed and shall maintain the premises in a sanitary condition to the satisfaction of the superintendent. No operator shall retain in his employment a person whose presence in the park may be deemed by the superintendent subversive of good order and management of the park.

All operators shall require each of their employees to wear a metal badge, with a number thereon, or other mark of identification, the name and the number corresponding therewith, or the identification mark, being registered in the superintendent's office. These badges must be worn in plain sight on the hat or cap.

14. *Dogs and cats.*—Cats are not permitted on the Government lands in the park and dogs only to those persons passing through the park to the territory beyond, in which instances they shall be kept tied while crossing the park.

15. *Dead animals.*—All domestic and grazed animals that may die in the park at any tourist camp or along any of the public thoroughfares shall be buried immediately by the owner or person having charge of such animals at least 2 feet beneath the ground, and in no case less than one-fourth mile from any camp or thoroughfare.

16. *Travel on trails.*—Pedestrians on trails, when saddle or pack animals are passing them, shall remain quiet until the animals have passed.

Persons traveling on the trails of the park either on foot or on saddle animals shall not make short cuts but shall confine themselves to the main trails.

17. *Travel, general.*—(a) Saddle horses, pack trains, and horse-drawn vehicles have right of way over motor-propelled vehicles at all times.

(b) Load and vehicle weight limitations shall be those prescribed from time to time by the Director of the National Park Service and shall be complied with by the operators of all vehicles using the park roads. Schedules showing weight limitations for different roads in the park may be seen at the office of the superintendent and at the ranger stations at the park entrances.

(c) All vehicles shall be equipped with lights for night travel. At least one light shall be carried on the left front side of horse-drawn vehicles, in a position such as to be visible from both front and rear.

18. *Miscellaneous.*—(a) Campers and others shall not wash clothing or cooking utensils in the waters of the park, or in any way pollute them, or bathe in any of the streams near the regularly traveled thoroughfares in the park without suitable bathing clothes.

(b) Stock shall not be tied so as to permit their entering any of the streams of the park. All animals shall be kept a sufficient distance from camping grounds in order not to litter the ground and make unfit for use the area which may be used later as tent sites.

(c) Campers and all others, save those holding licenses from the Director of the National Park Service, are prohibited from hiring their horses, trappings, or vehicles to tourists or visitors in the park.

(d) All complaints by tourists and others as to service, etc., rendered in the park should be made to the superintendent in writing before the complainant leaves the park. Oral complaints will be heard daily during office hours.

19. *Fines and penalties.*—Persons who render themselves obnoxious by disorderly conduct or bad behavior shall be subjected to the punishment hereinafter prescribed for violation of the foregoing regulations and may be summarily removed from the park by the superintendent and not allowed to return without permission in writing from the Director of the National Park Service or the superintendent of the park.

Any person who violates any of the foregoing regulations shall be deemed guilty of a misdemeanor and shall be subject to a fine of not more than \$500 or imprisonment not exceeding six months, or both, and be adjudged to pay all costs of the proceedings.

20. *Lost and found articles.*—Persons finding lost articles should deposit them at the nearest ranger station, leaving their own names and addresses, so that if not claimed by owners within 60 days articles may be turned over to those who found them.

#### AUTOMOBILE AND MOTOR-CYCLE REGULATIONS

Pursuant to authority conferred by the act of Congress approved August 25, 1916 (39 Stat. 535), as amended June 2, 1920 (41 Stat. 732), and the act of February 26, 1919 (40 Stat. 1175), the following regulations covering the admission of automobiles and motor cycles into the Grand Canyon National Park are hereby established and made public:

1. *Entrances and roads.*—Automobiles and motor cycles may enter and leave the park by, and travel over, any of the roads therein which are open to motor vehicles.

Careful driving is demanded of all persons using the roads. The Government is in no way responsible for any kind of accident.

2. *Automobiles.*—The park is open to automobiles operated for pleasure, but not to those carrying passengers who are paying, either directly or indirectly, for the use of machines (excepting, however, automobiles used by transportation lines operating under Government franchise), and any person operating an automobile in contravention of the provisions of this regulation will be deemed guilty of its violation.

3. *Motor cycles.*—Motor cycles are admitted to the park under the same conditions as automobiles and are subject to the same regulations as far as they are applicable.

4. *Motor trucks.*—Motor trucks may enter the park subject to the weight limitations prescribed by the Director of the National Park Service. Schedules showing prescribed weight limitations for motor trucks may be seen at the office of the superintendent and at the ranger stations at the park entrances.

5. *Permits.*—For entrance to the park on the south rim a permit shall be secured at the ranger station where the motor vehicle enters, and will entitle the permittee to operate the particular vehicle indicated in the permit over any or all of the roads on the south rim; provided, however, that residents of the park operating motor vehicles therein shall not be required to secure such permit. The permit is good for the entire season, expiring on December 31 of the year of issue, but is not transferable for the operation of any other vehicle than that for which originally issued. The permit shall be carefully kept so that it can be exhibited to park rangers on demand.

6. *Fees.*—The fee for automobile or motor cycle permit is \$1, payable in cash only. No charge, however, shall be made for such

permit issued to residents of Coconino County entering the park in the conduct of their usual occupation or business.

7. *Intoxication.*—No person who is under the influence of intoxicating liquor, and no person who is addicted to the use of narcotic drugs, shall operate or drive a motor vehicle of any kind on the park roads.

8. *Distance apart; gears and brakes.*—Automobiles while in motion shall be not less than 50 yards apart, except for purpose of passing, which is permissible only on comparatively level stretches of roads and on slight grades. All automobiles, except while shifting gears, shall retain their gears constantly enmeshed. The driver of each automobile may be required to satisfy park officers that all parts of his machine, particularly the brakes and tires, are in first-class working order and capable of making the trip, and that there is sufficient gasoline in the tank to reach the next place where it may be obtained. The automobile shall carry at least one extra tire. Motor cycles not equipped with brakes in good working order are not permitted to enter the park.

9. *Speeds.*—Automobiles and other vehicles shall be so operated as to be under the safe control of the driver at all times. The speed shall be kept within such limits as may be necessary to avoid accident.

Speed is limited to 12 miles per hour on grades and when rounding sharp curves, and in Grand Canyon village area. On straight, open stretches the speed may be increased to 25 miles per hour.

10. *Horns.*—The horn shall be sounded on approaching curves or stretches of road concealed for any considerable distance by slopes, overhanging trees, or other obstacles, and before meeting or passing other automobiles, motor cycles, riding or driving animals, or pedestrians.

11. *Lights.*—All automobiles shall be equipped with head and tail lights, the headlights to be of sufficient brilliancy to insure safety in driving at night, and all lights shall be kept lighted after sunset when automobile is on the road. Headlights shall be dimmed when meeting other automobiles, motor cycles, riding or driving animals, or pedestrians.

12. *Muffler cut-outs.*—Muffler cut-outs shall be closed while approaching or passing riding horses, horse-drawn vehicles, hotels, camps, or checking stations, and in Grand Canyon village area.

13. *Teams.*—Teams have the right of way, and automobiles shall be backed or otherwise handled as may be necessary so as to enable teams to pass with safety. In no case shall automobiles pass animals on the road at a speed greater than 12 miles an hour.

14. *Overtaking vehicles.*—Any vehicle traveling slowly upon any of the park roads shall, when overtaken by a faster moving motor vehicle and upon suitable signal from such overtaking vehicle, give

way to the right, allowing the overtaking vehicle reasonably free passage, provided the overtaking vehicle does not exceed the speed limits specified for the road in question.

When automobiles going in opposite directions meet on a grade the ascending machine has right of way, and the descending machine shall be backed or otherwise handled as may be necessary to enable the ascending machine to pass with safety.

15. *Accidents, stop-overs.*—If, because of accident or stop for any reason, automobiles are unable to keep going, they shall be immediately parked off the road or, where this is impossible, on the outer edge of the road.

Any driver of a motor-driven vehicle who meets with an accident shall report same at the nearest ranger station or to the superintendent of the park.

16. *Fines and penalties.*—Any person who violates any of the foregoing regulations shall be deemed guilty of a misdemeanor and shall be subject to a fine of not more than \$500 or imprisonment not exceeding six months, or both, and be adjudged to pay all costs of the proceedings, and such violation shall subject the offender to immediate ejection from the park. Persons ejected from the park will not be permitted to return without prior sanction in writing from the Director of the National Park Service or the superintendent of the park.

#### MAPS

The following maps<sup>6</sup> may be obtained from the Director of the United States Geological Survey, Washington, D. C. Remittances should be made by money order or in cash.

SHINUMO, 28½ by 25 inches, scale about 1 mile to 1½ inches, contour interval 50 feet. 20 cents.

BRIGHT ANGEL, 26 by 20½ inches, scale about 1 mile to 1½ inches, contour interval 50 feet. An account of the origin and geologic history of the Grand Canyon, with a description of the rocks, by F. E. Matthes, is printed on the reverse side of map. 20 cents.

VISHNU, 28 by 21 inches, scale about 1 mile to 1½ inches, contour interval 50 feet. 20 cents.

TOPOGRAPHIC MAP, east half of the Grand Canyon National Park, combining on one sheet the Vishnu and Bright Angel quadrangles, 41 by 45½ inches, scale about 1 mile to 1½ inches, contour interval 50 feet. 25 cents.

TOPOGRAPHIC MAP, west half of the Grand Canyon National Park, combining on one sheet the Shinumo and Supai quadrangles, 41 by 45½ inches, scale approximately 1 mile to 1¼ inches, contour interval 50 feet. 25 cents.

On the above maps the roads, trails, and names are printed in black, the streams in blue, and the relief is indicated by brown contour lines.

<sup>6</sup> May be purchased also by personal application at the office of the superintendent of the park, but that office can not fill mail orders.

## LITERATURE

## GOVERNMENT PUBLICATIONS

Government publications on Grand Canyon National Park may be obtained as indicated below. Separate communications should be addressed to the officers mentioned.

## DISTRIBUTED FREE BY THE NATIONAL PARK SERVICE

The following publications may be obtained free on written application to the Director of the National Park Service or by personal application to the office of the superintendent of the park:

## Map of the western United States.

Shows location of all of the national parks and monuments administered by the National Park Service, and all railroad routes to these reservations.

## Map of the western United States.

Shows the National Park-to-Park Highway and other roads.

## Glimpses of our national parks. 62 pages, including 23 illustrations.

Contains description of the most important features of the principal national parks.

## Glimpses of our national monuments. 74 pages, including 34 illustrations.

Contains brief description of all the national monuments administered by the Department of the Interior.

## SOLD BY THE SUPERINTENDENT OF DOCUMENTS

The following publications may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the prices indicated. Postage prepaid. Remittances should be made by money order or in cash.

The National Parks Portfolio. By Robert Sterling Yard. Fifth Edition. 270 pages, including 310 illustrations. Bound securely in cloth. \$1.<sup>7</sup>

Contains nine chapters, each descriptive of a national park, and one a larger chapter devoted to other parks and monuments.

Guidebook of the Western United States, Part C, the Santa Fe Route, with a side trip to the Grand Canyon of the Colorado, by N. H. Darton and others. (Bulletin 613, U. S. Geological Survey.) 1915. 194 pages, 25 route maps, 42 plates, 40 text figures. \$1.<sup>7</sup>

This guide describes the country along the Atchison, Topeka & Santa Fe Railway from Kansas City to Los Angeles. Although the description of the rocks and their relations and the scenic features form a large proportion of the matter, nearly every page gives information as to notable historic events, industrial resources, plants, and animals. The story of the Indians, past and present, especially the characteristic Pueblo tribes, is told in some detail. Many of the facts regarding the rocks are here presented for the first time. The book contains numerous views of prominent scenic features and pictures of restoration of some of the very remarkable animals whose bones are found in the clays.

## Exploration of the Colorado River of the West and Its Tributaries, by John Wesley Powell. Explored in 1869, 1870, 1871, and 1872. Pp. 291. Under the direction of the Secretary of the Smithsonian Institution. Illustrated. Government Printing Office, Washington, 1875. (Out of print.)

<sup>7</sup> May be purchased also by personal application at the office of the superintendent of the park, but that office can not fill mail orders.

Pre-Cambrian Igneous Rocks of the Unkar Terrane, Grand Canyon of the Colorado, Ariz., by C. D. Walcott. U. S. Geol. Surv. 14th Ann. Rept., pt. 2, pp. 497-524, pls. 60-65. 1894. \$2.10.

The Grand Canyon. Senate Doc. No. 42, 65th Congress, 1st session, by Thomas Fulton Dawson, Government Printing Office, Washington, D. C., 1917. 67 pp. Price, 10 cents.

An article giving credit of first traversing the Grand Canyon to James White, a Colorado gold prospector.

Tertiary History of the Grand Canyon District, by Clarence E. Dutton. U. S. Geol. Surv. Mon. 2,264 pages, illustrations, and atlas. 1882. \$10.

The Shinumo Quadrangle, Grand Canyon District, Ariz., by L. F. Noble. U. S. Geol. Surv. Bull. 549, 1914. 100 pages, including 30 illustrations and a colored geologic map. Price, 20 cents.

Describes the geology and scenic features of the Grand Canyon in the western part of the national park. Contains a detailed account of the Algonkian strata exposed on Shinumo Creek.

A Reconnaissance of the Archean Complex of the Granite Gorge, Grand Canyon, Ariz., by L. F. Noble and J. Fred Hunter. U. S. Geol. Surv., Prof. Paper 98-I, 1916. 20 pages, 3 illustrations.

Describes the rocks that form the walls of the Granite Gorge in the bottom of the canyon.

A section of the Paleozoic Formations of the Grand Canyon at the Bass Trail, by L. F. Noble. U. S. Geol. Surv. Prof. paper 131-B, 1922. 50 pages, 15 illustrations.

Describes the Paleozoic strata of the Grand Canyon in detail and contains diagrams showing the strata in profile as they appear in the walls.

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Cobb, I. S. "Roughing It De Luxe." By Irvin S. Cobb. Illustrated by John T. McCutcheon. New York. George H. Doran Co. (copyrighted 1914), pp. 219. Paper covers.

Darton, N. H. "A Reconnaissance of Parts of Northwestern New Mexico and Northern Arizona." By N. H. Darton, U. S. Geological Survey Bulletin 435. Washington, Government Printing Office, 1910, pp. 88. Illustrations, charts, maps, bibliography.

— "Story of the Grand Canyon of Arizona." Pp. 81. Published by Fred Harvey, 1917. (A popular illustrated account of its rocks and origin.)

Davis, W. M. "An Excursion to the Grand Canyon of the Colorado." Pp. 107-196. Harvard Univ. Mus. Comp. Zool. Bull. 38, geol. ser., vol. 5, No. 4, 1901.

— "The lessons of the Colorado Canyon." Pp. 345-354. American Geographical Soc. Bull. 6, vol. 41, 1909.

The first paper is a technical, the second a popular account of the erosional history of the Grand Canyon region.

Dellenbaugh, Frederick S. "A Canyon Voyage." Pp. 277. G. P. Putnam's Sons, New York. Fully illustrated. (The narrative of the second Powell expedition down the Green-Colorado River from Wyoming and the explorations on land in the years 1871 and 1872.) Price, \$3.50.

— "Breaking the Wilderness." Pp. 360. G. P. Putnam's Sons, New York, 1905. Fully illustrated. Grand Canyon chapter, pp. 318-327. Price, \$3.50.

- Dellenbaugh, Frederick S. "The Romance of the Colorado River." Pp. 401. G. P. Putnam's Sons, New York. Fully illustrated. (A complete account of the discovery and of the explorations from 1540 to the present time, with particular reference to the two voyages of Powell through the line of the great canyons.) Price, \$3.50.
- Dutton, C. E. "The Physical Geology of the Grand Canyon District." U. S. Geol. Surv. Ann. Rept. 2, pp. 47-166.
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- Freeman, L. R. "The Colorado River: Yesterday, To-day, and To-morrow." New York. Dodd, Mead & Co., 1923, pp. XIX, 451, illustrated.
- Gilmore, Charles W. "Fossil Footprints from the Grand Canyon." Smithsonian Miscellaneous Collections. Volume 77, No. 9. 1926.
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- Jeffers, Le Roy. "The Call of the Mountains." 282 pp., illustrated. Dodd, Mead & Co. 1922. Grand Canyon Park on pp. 193-225.
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### OTHER NATIONAL PARKS

Rules and Regulations similar to this for national parks listed below may be obtained free of charge by writing to the Director of the National Park Service, Washington, D. C.

Acadia National Park.	Mount Rainier National Park.
Crater Lake National Park.	Rocky Mountain National Park.
Glacier National Park.	Sequoia and General Grant National
Grand Teton National Park.	Parks.
Hawaii National Park.	Wind Cave National Park.
Hot Springs National Park.	Yellowstone National Park.
Lassen Volcanic National Park.	Yosemite National Park.
Mesa Verde National Park.	Zion and Bryce Canyon National
Mount McKinley National Park.	Parks.

### AUTHORIZED RATES FOR PUBLIC UTILITIES

#### SEASON OF 1929

All rates of the authorized public utilities are approved by the Government. Therefore complaints regarding overcharges should be made to the superintendent. Employees of the hotels, camps, and transportation lines are not Government employees, but discourteous treatment by public-utility employees should be reported to the park administration.

#### THE SOUTH RIM

##### Hotels and Public Camps

(Hotels, housekeeping camps, and transportation facilities on the south rim are under the management of Fred Harvey)

##### EL TOVAR

El Tovar Hotel is located at the railroad terminus, near the head of Bright Angel Trail, at an elevation of 6,886 feet above sea level,

and open all the year. It is a long, low structure, built of native boulders and pine logs. There are 93 sleeping rooms, accommodating 175 guests. Forty-six of these rooms are connected with private bath.

There is a music room and rendezvous. In the main dining room 165 persons can be seated at one time.

Hot and cold water, steam heat, and electric light are supplied. El Tovar also has a steam laundry.

#### Authorized rates at El Tovar Hotel

American plan:	
One person in room without bath, per day	\$7.00
One person in room with bath, per day	\$8.00-9.00-10.00
Reduction of 50 cents per person for 2 in a room with double bed.	
Meals only:	
Breakfast	1.25
Luncheon	1.50
Dinner	1.75
Children, not transient, under 3 years, charge \$1.50 per day for meals only.	
No charge for rooms.	
Children 3 to 7 years, inclusive, \$3 per day for meals and room without bath;	
\$4 per day for room with bath.	
Children 8 years and over, full rate.	

#### El Tovar barber shop rates

Shave	\$0.25
Haircut:	
Men	.50
Women	.75
Hair singe:	
Men	.50
Women	.75
Shampoo:	
Men, plain	\$0.50
Men, oil	1.00
Women	1.00
Hair tonic	\$0.25 and 0.40
Facial or head massage	\$0.50 and 0.75

#### Bright Angel Cottages

Cozy lodgings in cottages or tents are available at Bright Angel Cottages, adjacent to El Tovar. The accommodations are clean and comfortable. There are two cottages, open the year around, and many tent-cabins for summer only. Both cottages have steam heat and electric light; one cottage also has baths. All tent-cabins have electric light, but no heat or baths. About 350 people can be accommodated here. Meals are furnished à la carte at the café. Kitchen facilities are ample for quick à la carte service.

\* Only five rooms with bath on the basement floor are available at this rate.

*Authorized rates at Bright Angel Cottages*

Lodging only, per day, per person..... \$1. 50, \$1. 75, \$2  
 Children 3 to 7 years, inclusive, half rate.  
 Children 8 years and over, full rate.

**HOUSEKEEPING COTTAGES, CAMP LODGE, AND DELICATESSEN  
 AUTOMOBILE CAMP GROUNDS**

A modern camp unit designed especially for the comfort and convenience of motorists is now available in the public camp grounds. This consists of housekeeping cabins, a delicatessen, and camp lodge. Each cabin is equipped with two double beds with springs and mattresses, a stove, table, sink, etc. The camp lodge has a large room with fireplace and a large covered porch which may be used by all campers free of charge, whether or not they patronize housekeeping cottages. Cooked foods and emergency groceries in small packages may be purchased at the delicatessen at rates approved by the National Park Service. About one-eighth of a mile east, toward the village, is a general store where food supplies, clothing, hardware, etc., may be purchased in any quantity.

*Authorized rates for housekeeping cottages*

Minimum charge for cabin per day for 1, 2, or 3 persons..... \$1. 50  
 Three or more persons in one cabin, per person, per day..... . 50

Above charge includes two double beds with springs and mattresses, stove for cooking and heating, electric light, table and benches, fuel, and water.

Visitors who are traveling light may rent bed clothes and towels at the following additional charges:

Blankets per pair per day..... \$0. 25  
 Sheets, pillows, pillow cases, towels:  
 Per person, first day..... . 50  
 Per person, each additional day..... . 25  
 Above charges on basis of two clean towels per day.

**HERMIT CREEK CABINS**

On Tonto Plateau at the foot of Hermit Trail; consist of a central dining room, lounge cottage, and 11 sleeping cottages; accommodations for 30 persons.

*Authorized rates at Hermit Cabins*

American plan, per day, per person..... \$5. 00

**PHANTOM RANCH**

On the north side of the Colorado River near the mouth of Bright Angel Creek; consists of well-built stone and tent-cottages with mess hall and rendezvous with excellent accommodations for 30 persons.

*Authorized rates at Phantom Ranch*

American plan, per day, per person..... \$6. 00

**SIGHT-SEEING TRIPS BY ROAD****Regular Trips by Automobile**

The following trips are available every day in the year by automobile:

**TRIP No. 1.**

*Hermit Rest.*—Stopping en route at Sentinel, Hopi, Mohave, and Pima Points. First trip starts at 9.30 a. m., returning to El Tovar and Bright Angel about 12 noon. Second trip starts at 1.30 p. m., returning to El Tovar and Bright Angel about 4 p. m. Rate, \$3; children, 6 to 11, half rate; children under 6, no charge. This rate includes use of facilities and light refreshments at Hermit Rest. This drive is 16 miles—round trip—along the rim road.

**Special Short Trip**

From El Tovar to Yavapai and Yaki Points and return, per passenger, \$2.

**Regular Summer Trips by Automobile**

The following trips are available through the summer season (approximately from April 15 to November 15):

**TRIP No. 2.**

*Grand View.*—Through forest of tall pines via Yavapai and Yaki Points, 12 miles each way; time, about 3½ hours. Leave El Tovar and Bright Angel Cottages 1.30 p. m. daily. Rate, \$4. From Grand View may be seen that section of the canyon from Bright Angel Creek to Marble Canyon, including the great bend of the Colorado. On the east wall are Moran, Zuni, Papago, Pinal, Lipan, Navajo (Desert View), and Comanche Points; and the mouth of the Little Colorado River. Still farther beyond is the Painted Desert and Navajo Mountain—the latter plainly seen, though 97 miles away. The old Grand View Trail enters the canyon near Grand View Point.

**TRIP No. 3.**

*Desert View.*—Twenty-five miles each way via Yavapai and Yaki Points, Grand View, Moran and Zuni Points, Tanner Tank, Old Ruins, Lipan Point, and head of Tanner Trail. One round trip a day leaving El Tovar and Bright Angel Cottages at 1.15 p. m., returning about 6 p. m. Rate, \$8.

At this point there is a far outlook not only into the canyon above the Granite Gorge, where the river valley widens, but also across the Painted Desert, toward Hopi Land, and along the Desert Palisades to the mouth of the Little Colorado. At sunset and sunrise it is a glorious sight. For that reason one preferably should arrange to stay overnight—a camping trip elsewhere referred to. One and one-

half miles west of Desert View is Lipan Point, affording an excellent view of this whole region.

**New Summer Trips by Automobile to the Navajo and Hopi Indian Reservations via the Navahopi Road**

*May 1 to October 31*

**TRIP No. 4.—One day.**

Automobiles leave El Tovar and Bright Angel Cottages at 7.30 a. m. daily. Route is via Desert View Road to Trash Dam, thence through the Coconino Basin to a point overlooking the canyon of the Little Colorado where the first stop is made. The road then follows the Little Colorado due east, passing some specimens of petrified trees. Next stop is at the Navajo Indian trading post at Cameron. This is the western outpost of the Navajo Reservation and is 58 miles from the nearest railroad. The Little Colorado River is crossed at this point by way of the steel suspension bridge 660 feet long, and the route follows the main road across the Painted Desert to Tuba City, where the headquarters of the Navajo Indian agent are located. Some 400 Indian children are seen at well-equipped Government schools here. The Hopi village of Moenkopi is next visited, where the visitor has a glimpse of Indian life almost untouched by white civilization. Return to Grand Canyon is over same route, arriving at hotels between 7 and 8 p. m. same day. Train connections are not guaranteed. This trip provides a unique opportunity to visit the well-known but little seen Navajo and Hopi Indian Reservations at a minimum of expense. Round trip, 160 miles. Rate, \$16 per passenger—all expense. Minimum of one or more fares.

**COMBINATION TICKETS**

Tickets combining trips Nos. 1 and 3 may be purchased for \$9, a reduction of \$2.

Tickets combining trips Nos. 1, 3, and 4 may be purchased for \$22, a reduction of \$5.

These two tickets will be sold at the Grand Canyon only from May 15 to October 30 each year. Unless tickets are purchased, the full rates for the three drives mentioned will be charged.

**SPECIAL SUMMER TRIP BY AUTOMOBILE**

This trip depends upon condition of the roads, and may be at times discontinued.

BASS CAMP, 30 miles, and HAVASUPAI POINT, 1 mile beyond. Rate, \$11—all expense. Minimum of four fares.

*Authorized rates for special-car service*

	1, 2, or 3 persons	4 persons	5 or 6 persons
Hermit Rim Drive.....	\$12	\$15	\$18
Regular rate, \$3.			
Grand View Drive.....	16	20	24
Regular rate, \$4.			
Desert View Drive.....	32	40	48
Regular rate, \$8.			

Tuba City and Moenkopi—one day (regular rate, \$16).—Special car requires purchase of a minimum of five seats, irrespective of number of passengers.

Should the demand for regular-trip drives be so heavy as to require use of all autos available, special autos may be discontinued.

**CHARTERED AUTOMOBILE SERVICE**

Six-passenger touring cars may be chartered for service within the park or elsewhere on routes not covered by scheduled transportation service at the rate of 35 cents per car-mile.

**RATES FOR CHILDREN**

On all motor trips there is no charge for children under 6 years of age.

From the ages of 6 to 11, inclusive, the charge is one-half fare.

All children over 11 years of age are charged full fare.

**Garage Service**

There is at Grand Canyon a large stone garage with ample facilities for repairing and supplying automobiles. The rate for storage of automobiles is 75 cents per day.

*Charges*

Garage storage.....	\$0.75
Washing car.....	3.00
Regular mechanical labor, per hour.....	1.75
Welding, mechanic's time (material extra), per hour.....	2.00
Electrical labor, per hour.....	2.00
Lathe work, mechanic's time, per hour.....	2.00
Charging battery.....	1.50
Charging battery overnight.....	1.00
Filling and testing battery.....	.25

**ROADSIDE WORK**

Truck and driving mechanic going to car on road when no towing is done, per mile.....	.40
Round trip plus mechanical labor for time worked on car, per hour.....	1.75

## TOWING CARS

For truck and driver, per mile towed, going included, per mile.....	\$1. 00
When extra mechanic is required, his time starts from the time he leaves the garage and ends with his return, per hour.....	1. 75
A tow-car order stands until canceled by party ordering same.	

## OVERTIME

Time and a half to be charged for mechanical labor after 5 p. m. Rate, per hour.....	2. 50
Overtime for driver of truck on tow job after 5 p. m., per hour.....	. 75

## SUNDAY WORK

An extra rate will be charged for mechanical labor on Sundays and holidays. Rate, per hour.....	2. 50
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## GAS AND OIL

Current prices.

## TRAIL TRIPS

*Bright Angel Trail.*—The trail here is generally open the year round. In midwinter it is liable to be closed for a day or two at the top by snow, but such blockade is not frequent. The trail reaches from the hotel  $6\frac{1}{4}$  miles to the Colorado River, with a branch terminating at the top of the granite wall immediately overlooking the river. At this latter point the stream is 1,272 feet below, while El Tovar Hotel, on the rim, is 3,158 feet above. The trip is made on mule back, accompanied by a guide.

Those wishing to reach the river leave the main trail at Indian Garden and follow the downward course of Garden and Pipe Creeks.

Starting time, 8.30 and 9.15 a. m. for the river trip,  $6\frac{1}{4}$  miles; return to rim about 5 p. m. Rate, \$5 each person. Leave 10 a. m. for trip to plateau, 5 miles; rate, \$4 each. For special trips there is a party charge of \$5 for guide. Lunch extra, except for El Tovar room guests.

*Two-day trip, Hermit Trail, stopping at Hermit Creek Cabins overnight.*—Time, two days and one night. Hermit Road by auto. Down Hermit Trail, stay overnight at Hermit Creek Cabins; go to river at mouth of Hermit Creek; return up Hermit Trail to rim; thence to El Tovar over Hermit Rim Road. Trips leave El Tovar and Bright Angel Cottages at 9.30 a. m. and return next afternoon. Rate, \$18, all expense, each person, including guide, overnight accommodations, and meals en route and at Hermit Creek Cabins. Private guide, \$5 per day extra.

*Hermit-Tonto-Bright Angel Loop.*—This trip takes two days and one night. Hermit Rim Road to head Hermit Trail; down Hermit Trail; stay overnight at Hermit Creek Cabins; on to river at foot of

Hermit Creek; return along Tonto Trail to Indian Garden; thence up Bright Angel Trail.

Start from El Tovar or Bright Angel Cottages at 9.30 a. m. and return next afternoon. Round-trip charge is \$18, all expense, for each person; private guide is \$5 a day extra; rate quoted includes regular guide, overnight accommodations, and meals en route.

*Two-day Phantom Ranch trip.*—Over new Yaki Point section of Kaibab Trail both ways, crossing Kaibab Suspension Bridge. All expense, \$22 per person. Start is made from El Tovar Hotel and Bright Angel Cottages at 1.30 p. m.

*Three-day trip to Roaring Springs via Ribbon Falls.*—Leave 1.30 p. m. Down Yaki Point section of Kaibab Trail, crossing the Colorado River by Kaibab Suspension Bridge, and reaching Phantom Ranch early afternoon. Overnight at Phantom Ranch. Following morning by way of Kaibab Trail in Bright Angel Canyon,  $5\frac{1}{2}$  miles to Ribbon Falls, beautiful clear waterfall in the form of a crystal ribbon shedding its waters on a natural rock altar in the midst of a verdant amphitheater and on to Roaring Springs, a beautiful series of cascades. Box lunch at falls and return to Phantom Ranch for overnight. On third day the return to El Tovar completes a never-to-be-forgotten experience. The all-expense rate for this trip is \$33 per person.

*Four-day Hermit Creek Cabins, Phantom Ranch, Ribbon Falls, Roaring Springs trip, returning via Yaki Point section Kaibab Trail.*—First day, Hermit Rim Road to Hermit Trail by motor; down Hermit Trail by mule back to Hermit Creek Cabins. Second day, Tonto and Kaibab Trails to Phantom Ranch. Third day, Ribbon Falls and Roaring Springs, returning to Phantom Ranch. Fourth day, El Tovar Hotel and Bright Angel Cottages over Yaki Point section Kaibab Trail. All-expense trip, \$40 per person. Leave El Tovar Hotel and Bright Angel Cottages 9.30 a. m.

*Two-day trip across Grand Canyon to Kaibab National Forest on north rim, one way only.*—Overnight stop at Phantom Ranch. All-expense trip, \$30 in either direction. Leaving the south rim at 1.30 p. m. Phantom Ranch is reached at approximately 5 p. m. The night is spent at Phantom Ranch, leaving next morning at 9.30 o'clock. Lunch is had at Ribbon Falls and a stop made at Roaring Springs, arriving at the north rim at approximately 5 p. m. the second day. This \$30 rate does not include accommodations either at El Tovar nor at Grand Canyon Lodge.

On any of the trail trips where an overnight stop is made at Phantom Ranch and the south rim is reached the next day, the all-expense rate includes lunch. Parties coming to the south rim by way of the Bright Angel Trail are furnished with a box lunch before

leaving Phantom Ranch. Those coming direct over the Kaibab Trail reach the rim by noon or shortly after and are given at Phantom Ranch a meal ticket good for luncheon at El Tovar Hotel that day only.

*Dripping Spring.*—This trip is made on horseback all the way, via Hermit Rim Road, to the head of Hermit Trail, down Hermit Trail to Dripping Spring, returning to El Tovar and Bright Angel through the forest; starts at 8.30 a. m. Rate, \$5 each. Private parties of one or more persons, \$5 extra for guide. Lunch extra.

#### EMERGENCY TRAIL SERVICE

Visitors who walk down the canyon trails and desire saddle animals sent to meet them will be charged as follows:

*Bright Angel Trail.*—Indian Gardens and above, \$5 per person and \$5 for guide. Below Indian Gardens, \$6 per person and \$5 for guide.

*Hermit Trail.*—Santa Maria Springs and above, \$7 per person and \$5 for guide. Below Santa Maria Springs, \$10 per person and \$5 for guide.

*Kaibab Trail.*—Mormon Flats and above, \$7 per person and \$5 for guide. Below Mormon Flats, \$10 per person and \$5 for guide.

#### Saddle Horses

Recently many new bridle paths along the rim and through the pines of Tusayan have been opened up, so that horseback riding now is possible for all. The animals are well trained and dependable. Saddle horses cost \$5 a day, or \$3 a half day. English, McClellan, Whitman, or western stock saddles furnished as requested. Side-saddles are not provided. Saddle horses for rim trips may be hired without a guide. Services of a guide may be had if desired at a rate of \$5 per day or \$3 per half day. No extra charge is made for a guide with parties of three or more. Horseback trips over any of the trails into the canyon are only permitted when accompanied by guide. This is necessary to avoid risk in meeting trail parties and pack trains.

Their are several interesting foot trails near Grand Canyon village. Information as to these may be obtained at the superintendent's office.

#### INDEPENDENT CAMPING TRIPS

Independent camping trips with pack and saddle animals are organized, completely equipped, and placed in charge of experienced guides.

For climatic reasons it is well to arrange so that camping trips during the season from October to April are mainly confined to the inner canyon. For the remainder of the year, i. e., April to October,

they may be planned to include both the canyon itself and the rim country.

The following rates are quoted for trips of 10 days or more; special arrangements may be made for trips of less than 10 days:

	Cost per day per person
1 person.....	\$27.00
2 persons.....	20.00
3 persons.....	15.00
4 persons.....	14.00
5 persons.....	13.00
6 persons.....	12.00
7 persons or more.....	11.00

Rates include complete camping equipment, except provisions.

*Havasupai Canyon and Havasupai village.*—This is the most popular camping trip. The best time to make it is from May to October. A journey of about 50 miles; first by auto 38 miles across a timbered plateau, then on horseback down Topocobya Trail along Lee and Havasupai Canyons, to the home of the Havasupai Indians.

The home of this little band of less than 200 Indians is in Havasupai Canyon, a tributary of the Grand Canyon, deep down in the earth two-fifths of a mile. The situation is romantic and the surroundings are beautified by falls of water over precipices several hundred feet high, backed by grottos of stalactites and stalagmites. This water all comes from springs that gush forth in surprising volume near the Havasupai village.

The baskets made by the Havasupai women consist of the burden basket, a shallow tray, and a water bottle of willow. Those made by the older weavers are of fine mesh, with attractive designs, and bring good prices. Havasupai means "people of the blue water." Padre Garces was the first white man to visit their canyon home. In early days the Havasupais undoubtedly were cliff dwellers. They built nearly all the Grand Canyon trails, or rather their rude pathways were the advance guard of the present trails. Their summer homes resemble those of the Apaches. The winter homes afford more protection against the weather.

The round trip from El Tovar is made in five days.

#### RAINBOW BRIDGE

Recently another of the great natural wonders of America has been made available to the Grand Canyon visitor. This is the interesting Rainbow Bridge. Although its existence has been known for 19 years, it is estimated that only about 600 white persons have ever seen this inspiring sight, as a hard two weeks' trip by pack train was

necessary to reach it. Now autos can be driven to a point within 18 miles, and the remaining distance can be made in a 2-day pack trip.

The route of the trip is by auto via the Navahopi Road, Cameron Bridge, Painted Desert, Tuba City, Red Lake, Navajo Canyon, and Rainbow Lodge. By horseback it is over a spectacular trail, traversing hitherto impassable country to Bridge Canyon, where this wonder is found. The trip may be made in four or five days. The all-expense rate for the 4-day trip is \$252 for one person; \$157.50 each for two; \$126 each for three; \$110.25 each for four; \$100.80 each for five; and \$94.50 each for six.

In case private motorists intend to make the trip in their own cars they should inquire at the Government information office before starting.

The road is an average desert road.

The Rainbow Bridge is a national monument administered by the National Park Service.

#### THE NORTH RIM

(Hotel, autobus, and saddle-horse services on the north rim are operated by the Utah Parks Co., a subsidiary of the Union Pacific system. Trips by mule back into or across the Grand Canyon are under the management of Fred Harvey)

#### Auto Stage Transportation from Utah Points

The north rim of the Grand Canyon National Park is reached from Cedar City, Utah, on the Union Pacific system, and from Marysville, Utah, on the Denver & Rio Grande Western Railroad, by automobiles. Regular autobus-stage service is operated from Cedar City by the Utah Parks Co.

Special all-expense tours are offered combining visits to Zion National Park, Pipe Spring National Monument, Cedar Breaks, and Bryce Canyon National Park. These tours leave Cedar City daily from June 1 to October 1.

#### AUTHORIZED RATES

From Cedar City Utah:<sup>o</sup>

Five-day tour of Zion National Park, Pipe Spring National Monument, Grand Canyon National Park (north rim), Kaibab Forest, Kanab, Bryce Canyon National Park, and Cedar Breaks; fare for automobile transportation and 14 meals and 4 nights' lodging---- \$89.50

From Marysville, Utah:

Two-day tour to Bryce Canyon operated for one or more full fares; automobile fare only----- 20.00

For going trip automobile may have to be sent from Bryce Canyon, and reasonable notice must be given to the Utah Parks Co. lodge at Bryce Canyon.

<sup>o</sup> Reservations for these trips must be made in advance with the Utah Parks Co., Cedar City, Utah.

Parties availing themselves of this tour may join other tours which are operated from Bryce Canyon. The fare from Bryce Canyon to Grand Canyon and return will be \$55; from Bryce Canyon to Zion National Park and return via Cedar City will be \$35.

Parties arriving at the south rim of the Grand Canyon National Park via the Santa Fe lines and desiring to cross from the south rim to the north rim and then visit Kaibab Forest, Zion National Park, and leave Cedar City via the Union Pacific system or desiring to make the trip in the opposite direction may arrange to do so. The cross-canyon trip requires two days and is made by mule back. The first night is spent at Phantom Ranch, in the bottom of the canyon, and the Grand Canyon Lodge on Bright Angel Point on the north rim or El Tovar Hotel on the south rim is reached the following afternoon. The all-expense cost of the two days' cross-canyon trip is \$30 per person. This \$30 rate does not include hotel accommodations at either El Tovar or Grand Canyon Lodge.

From Cedar City, Utah:

Two-day tour of Grand Canyon National Park (north rim) via Zion National Park, one-way tour; fare for automobile transportation and 6 meals and 2 nights' lodging----- \$45.75

For motor-bus transportation from Cedar City, half fare will apply for children of 5 years and under 12; children under 5 years will be carried free when accompanied by parent or guardian. Arrangements must be made with the lodges for children's rates for meals and lodgings. For children under 8 years the lodges make a half rate.

Forty pounds of baggage will be carried free on full-fare tickets, and excess baggage will be charged for at the rate of 5 cents per pound.

#### GRAND CANYON LODGE

During the winter of 1927-28 there was constructed at the extreme end of Bright Angel Point on the north rim a modern hotel known as Grand Canyon Lodge. These facilities were built by and are under the management of the Utah Parks Co., a subsidiary corporation of the Union Pacific Railway Co. They were opened to the public at the beginning of the 1928 travel season.

Nearly a million dollars has been expended by this company in the construction of hotel facilities, water and electric developments, etc., to give to the north-rim visitor hotel accommodations second to none. The main building is a large structure built of native stone and logs located on the brink of the canyon and so constructed as admirably to blend in with the landscape features of the upper canyon walls. This building houses the main lobby and lounge rooms, dining room, kitchen, bakery, etc., as well as a large recreation room, store, toilet facilities, etc. The dining room and lounge overlook the Grand Canyon, affording splendid canyon views. Sleeping accommodations are provided by 100 double log cabins of attractive design. In addi-

tion to these there are a limited number of de luxe log cabins, beautifully furnished and equipped with private bath, individual fire-places, and porches.

Grand Canyon Lodge is open to the public from about June 1 to October 1.

Authorized rates are as follows:

De luxe lodges, with porches and private bath:	
One person in a room, per day	\$13.00
Two persons in a room, per person, per day	10.00
Three persons in a room, each, per day	9.25

NOTE.—For patrons holding all-expense tickets, including automobile transportation and de luxe lodge accommodations, a reduction of \$1 per day is made in lodge accommodations.

Children under 8, half of above rates.

Cottages without porch or private bath:	
Board and room, per day, per person	\$7.00
Breakfast	1.25
Luncheon	1.50
Dinner	1.75
Lodging	2.50
Shower baths, per person	.35

NOTE.—For patrons holding all-expense tickets, including automobile transportation and lodge accommodations, Grand Canyon Lodge proportion of such tickets is to be divided on basis of breakfast per person \$1.25, luncheon per person \$1.50, dinner per person \$1.50, lodging per person \$1.75, total \$6.

Children under 8, half of above rates.

Emergency sleeping tent accommodations, fully equipped for two persons, when regular lodging accommodations are filled to capacity, per person, per night, \$1.25.

#### TRANSPORTATION ON THE NORTH RIM BY MOTOR BUS

The following side trips are available for passengers coming to the north rim in the stages of the Utah Parks Co.:

Grand Canyon Lodge to Point Imperial and return, per passenger	\$3.00
Grand Canyon Lodge to Purple River and return, per passenger	4.00
Combination trip from Grand Canyon Lodge, including both the Point Imperial and Purple River trips, per passenger	5.00

#### SADDLE-HORSE TRIPS

There is no more delightful way in which to spend a day or several days on the north rim than by taking the several available horseback trips through the wonderful Kaibab Forest over bridle paths recently constructed by the National Park Service. These paths are so located as to give splendid canyon views and to take the rider through the most beautiful sections of the forest. They extend to Point McKinnon on the west and to Natchi Point and Point Imperial on the east. Longer trips of several days' duration with pack

mule and camp outfit may be arranged to Powell Plateau, the Thunder River country, and other points of great scenic interest. Safe horses, good saddles, and competent guides are available at the following rates:

Saddle horse without guide, 2 hours or less	1.50
Saddle horse without guide, 2 to 4 hours	3.00
Special guides provided, if available, for individuals or parties on basis, per guide, per half day or less	3.00
For special full-day trips of eight hours:	
Saddle horse, per person	5.00
Guide per day, for one or more persons in party	5.00
<b>No full-day horseback trips permitted without guides.</b>	
Personally escorted regular daily trips:	
To Point Imperial or Point McKinnon, per person	5.00
To Natchi Point, per person	3.00
All expense camping trips, two days or more:	
1 person, per day	32.00
2 persons, per day, each	24.00
3 persons, per day, each	19.00
4 persons, per day, each	18.00
5 persons, per day, each	17.00
6 persons, per day, each	16.00
7 persons, per day, each	15.00

(These rates cover necessary guides, horses, pack animals, equipment for meals, and sleeping, and provisions.)

#### EMERGENCY TRAIL SERVICE

Visitors who walk down the Kaibab Trail from the north rim and desire saddle animals sent to meet them will be charged as follows:

From Roaring Springs and above, \$5, and special guide, \$5.
Between Roaring Springs and Ribbon Falls, \$7, and special guide, \$5.
Below Ribbon Falls and to Phantom Ranch, \$10, and special guide, \$10.

#### DERIVATION OF NAMES USED ON GRAND CANYON MAPS

While some of them are purely descriptive, many commemorate scientists, explorers, Indian tribes, leaders of religion, mythologic and romantic personages. Aztec and Indian terms occur and the origin of a few names is unknown.

**Alarcon Terrace.**—Spanish navigator, first to ascend the Colorado River.

**Apache Point.**—Name of a large Indian tribe of Arizona and New Mexico region which was untiring in raiding and depredating Pueblos and whites.

**Apollo Temple.**—The son of Jupiter and brother of Diana, god of the sun in Roman and Greek mythology.

**Awatubi Crest.**—Awatubi, village of the Hopi Indians on the Painted Desert, destroyed in 1770.

**Aztec Amphitheater.**—General name for all Nahua tribes in Mexico at time of Cortez.

**Bass Camp.**—Owned by one of the pioneer settlers.

**Beale Point.**—Army officer who surveyed first road across the Arizona Plateau,

**Brahma Temple.**—In the Hindu triad Brahma was the evolver of the universe, Vishnu the redeemer, Siva or Shiva the destroyer.

**Buddah Temple.**—The title of Siddhartha, founder of Buddhism in fifth century B. C.

**Cardenas Butte.**—Member of Coronado's party and the first white man to see the Grand Canyon.

**Castor Temple.**—Castor and Pollux were inseparable brothers in Greek mythology.

**Centeotl Point.**—Probably an Aztec deity.

**Chemuhuevi Point.**—The southernmost of the Pinto Tribe in Lower California.

**Cheop's Pyramid.**—An Egyptian king of the fourth dynasty, builder of the famous pyramid at Gizeh.

**Chuas Butte and Creek.**—Name of Indian chief.

**Cocopa Point.**—A tribe of Yuma Indians living on the Colorado River.

**Coconino Plateau.**—A name sometimes used for the Havasupai, who originally occupied much of the Arizona Plateau.

**Comanche Point.**—Plains Indians from farther east, whose raids were greatly feared by the Pueblos.

**Confucius Temple.**—The Chinese philosopher who taught practical morality. Lived in fourth century B. C.

**Conquistador Aisle.**—Spanish for "conqueror." The conquistadores were especially the members of Coronado's expedition.

**Cope Butte.**—E. D. Cope, 1840-1897. A great American naturalist, specializing in fossil animals.

**Coronado Butte.**—In 1540 Coronado led the great Spanish expedition that penetrated as far as Kansas.

**Dana Butte.**—James D. Dana, 1813-1895. Noted professor of geology at Yale for many years.

**Darwin Plateau.**—C. D. Darwin, famous English naturalist, founder of Darwinian theory of evolution.

**Deva Temple.**—Divine epithet, applied commonly to goddess Durga, wife of Shiva of the Hindu triad.

**De Vaca Terrace.**—Cabeza De Vaca was shipwrecked on the Gulf coast and wandered for eight years among Indians before reaching a Spanish settlement.

**Diana Temple.**—Roman goddess of the moon, sister to Apollo and daughter of Jupiter.

**Drummond Plateau.**—Henry Drummond, 1851-1897. A famous Scottish religious writer.

**Dutton Point.**—Maj. C. E. Dutton, United States Army, who wrote for the Government a monograph on the Grand Canyon.

**Elaine Castle.**—The lily maid of Astolat in Tennyson's poem, "The Idylls of the King."

**Escalante Butte.**—A Spanish missionary who crossed the Arizona Plateau in 1775.

**Excalibur.**—The magical sword of King Arthur of the Round Table.

**Fiske Butte.**—John Fiske, 1842-1901. American philosopher.

**Freya Castle.**—In Scandinavian mythology Freya is the goddess of love and womanly goodness.

**Galahad Castle.**—The purest knight of the Round Table, featured in "The Idylls of the King."

**Garces Terrace.**—A Franciscan who journeyed to the Hopi country in 1776.

**Gawain Abyss.**—Gawain the courteous, one of the principal knights of the Round Table.

**Geikie Peak.**—Sir Archibald Geikie, many years director British Geological Survey.

**Guinevere Castle.**—The wife of King Arthur of the Round Table.

**Gunther Castle.**—The Burgundian king of the Nibelungen epic, husband of Brunnhilde.

**Hance Creek.**—John Hance, a local character and pioneer.

**Havasupai Point.**—This tribe, formerly occupying Arizona Plateau, now live in Havasu Canyon, about 60 miles from El Tovar.

**Holy Grail Temple.**—The cup used at the Last Supper, which the order of the Round Table was instituted to protect.

**Horus, Temple of.**—In Egyptian mythology the son of Osiris and Isis, principal deities.

**Hopi Point.**—The Hopis, sometimes called the Moquis, have maintained villages overlooking the Painted Desert since long before the Spanish invasion of 1540.

**Mount Huethewali.**—Indian word for observation point.

**Huxley Terrace.**—Famous English biologist, 1823-1895.

**Isis Temple.**—Principal female deity of Egypt, wife of Osiris, mother of Horus, and sometimes called "the daughter of Ra."

**Ives Point.**—Lieut. Joseph C. Ives, United States Army, the leader of Colorado River exploration, 1857 and 1858.

**Jicarillo Point.**—An Apache Tribe of northeastern New Mexico, cruel raiders.

**Juno Temple.**—Wife and sister of Jupiter, queen of heaven in Roman mythology.

**Jupiter Temple.**—The supreme deity of the Romans.

**Kaibab Plateau.**—Piute word meaning "mountain lying down."

**King Crest.**—Clarence King was the first director of the United States Geological Survey.

**King Arthur Castle.**—A British chieftain of the sixth century, who with his knights of the Round Table has inspired romances galore.

**Krishna Shrine.**—In Hindu mythology Krishna is the name of the eighth of the ten incarnations of the supreme god Vishnu. The ninth was in the form of Buddha; the tenth is still to come.

**Kwagunt Butte and Creek.**—Probably a Shoshonean name.

**Lancelot Point.**—A knight of the Round Table, featured in Tennyson's poem, "Idylls of the King."

**Leconte Plateau.**—Joseph LeConte was professor of geology in the University of California for over 30 years; died 1901.

**Lipan Point.**—An Apache tribe.

**Lyell Butte.**—Sir Charles Lyell was a famous English geologist.

**Manu Temple.**—A Sanskrit word meaning "man," one of 14 demiurgic beings, each of whom presided over a period of race progression. Manu Vaivasvata, the sun-born, is the manu of the present race of beings.

**Marcos Terrace.**—Fray Marcos de Niza led the first expedition into our country from Mexico in 1539 as far as Zuni. His accounts inspired Coronado's exploration.

**Maricopa Point.**—A tribe of Yuma Indians who moved from Colorado River to join the Pimas.

**Marsh Butte.**—O. C. Marsh, the paleontologist, who made a specialty of extinct animals.

**Mencius Temple.**—The Latin name of the Chinese philosopher, Meng, an early Confucian.

**Merlin Abyss.**—A semilegendary character of the fifth century who figures in Tennyson's "Idylls of the King."

**Mescalero Point.**—An Apache Tribe that roamed principally in New Mexico.

**Mimbreno Point.**—An Apache Tribe taking its name from the Mimbres Mountains in New Mexico.

**Modred Abyss.**—The treacherous nephew of King Arthur, King of the Round Table.

**Mohave Point.**—A Yuma Tribe living in vicinity of Needles, Calif.

**Montezuma Point.**—Montezuma, 1479-1520, ruled the Aztecs at the time of the Spanish conquest. He was regarded by later Indians as a deity.

**Moran Point.**—The artist who was with Major Powell, surveying Colorado River country in 1873.

**Natchi Point.**—A noted Apache warrior.

**Navajo Point.**—Nomadic Indians of the plateau region who maintained a long warfare against Pueblos and whites.

**Newberry Point and Butte.**—J. S. Newberry, geologist with Ives's expedition to the canyon. Long-time professor Columbia College, New York City.

**Newton Butte.**—Sir Isaac Newton, 1642-1727, famous English physicist who discovered law of gravitation.

**O'Neill Butte.**—"Bucky" O'Neill, Arizona pioneer and one of Roosevelt's Rough Riders.

**Osiris.**—Chief Egyptian deity of good, the principle of good closely associated with Ra.

**Papago Point.**—A branch tribe of Pima Indians of southern Arizona region.

**Pima Point.**—Popular name of tribes living in the valleys of Gila and Salt Rivers, Ariz.

**Pinal Point.**—An Apache tribe.

**Piute Point.**—A name applied to many Shoshonean tribes, but perhaps belongs properly only to those living in southwestern Utah.

**Pollux Temple.**—The devoted brother of Castor, in the Greek legends.

**Powell Plateau.**—Maj. J. W. Powell made the first expedition down the Colorado River in 1869. Subsequently director of the United States Geological Survey and the Bureau of Ethnology.

**Quetzal Point.**—An Aztec word signifying a bird of iridescence.

**Ra, Tower of.**—The Egyptian sun god, type of supreme deity, always victorious.

**Rana Shrine.**—Hindu word for prince.

**Sagittarius Ridge.**—A zodiac constellation visible in southern United States in summer. Latin word signifying "Archer."

**Scorpion Ridge.**—One of the constellations of the zodiac.

**Scylla Butte.**—The promontory at the entrance of the strait between Italy and Sicily, around which ancient mariners feared to go.

**Set, Tower of.**—The brother or son of Osiris and his deadly enemy in Hindu mythology.

**Shaler Plateau.**—An American geologist, long-time professor at Harvard University.

**Sheba Temple.**—The ancient capitol of the Sebaeans in Arabia, whose queen visited Solomon.

**Shinumo Creek.**—Name applied by Powell to the Hopi confederacy.

**Shiva Temple.**—The avenging associate of Brahma and Vishnu in ruling the universe, now the most popular Hindu god.

**Sinyella, Mount.**—Judge Sinyella, Indian chief, born 1853, has always resided on the Havasupai Indian Reservation. Living in 1923.

**Solomon Temple.**—Solomon, 1033-975 B. C., son of David and Bathsheba, king of the Jews.

**Spencer Terrace.**—Herbert Spencer, 1820-1903, a distinguished English philosopher.

**Supai Formation.**—The colloquial name of the Havasupai, a small tribe now occupying Havasu Canyon.

**Thompson Point.**—A. H. Thompson, brother-in-law of Major Powell, who accompanied him in his famous boat trip down the canyon.

**Thor Temple.**—Second principal Norse deity, god of thunder, son of Odin, the supreme being, and Jordh, the earth.

**Tiyo Point.**—Indian name.

**Tovar Terrace.**—Pedro de Tovar was sent by Coronado in 1540 to inspect the Hopi villages where he learned of the existence of the Grand Canyon.

**Toltec Point.**—The Toltecs were either an early tribe of the Aztecs or a people that preceded them on the Mexican plateau.

**Tonto Platform.**—Spanish word "fool" applied to Indians of Arizona plateau, especially to the Apache Mohave.

**Topocobya Trail.**—A Havasupai word, "To-po-co-bah," meaning "where the water comes down."

**Tyndall Dome.**—John Tyndall, 1820-1893, a famous British physicist.

**Unkar Creek.**—A Pai Ute word meaning "red creek."

**Venus, Temple of.**—The Roman goddess of beauty and love.

**Vesta, Temple of.**—The Roman goddess of the hearth in whose honor the Vestal Virgins kept the symbolic fire burning.

**Vishnu Temple and Creek.**—In Hindu mythology the associate of Brahma and Shiva who was the redeemer of the universe.

**Walhalla Plateau.**—The great hall of the Scandinavian gods, the warriors' heaven of the Vikings.

**Wallace Butte.**—An English explorer and naturalist and authority on natural selection.

**Wheeler Point.**—Gen. George M. Wheeler, United States Army, in charge of surveys west of one-hundredth meridian in 1872-1879.

**Yaki Point.**—Probably a version of the name of the Yaquis, the unconquerable tribe of northwestern Mexico.

**Yavapai Point.**—These Indians are commonly known as the Apache Mohave, formerly roaming central Arizona.

**Yuma Point.**—Great family of Indians of several tribes in lower Colorado region. Called themselves Kwichana.

**Zoroaster Temple.**—Founder of the ancient religion now represented by the Guebers and Parsees of Persia and India.

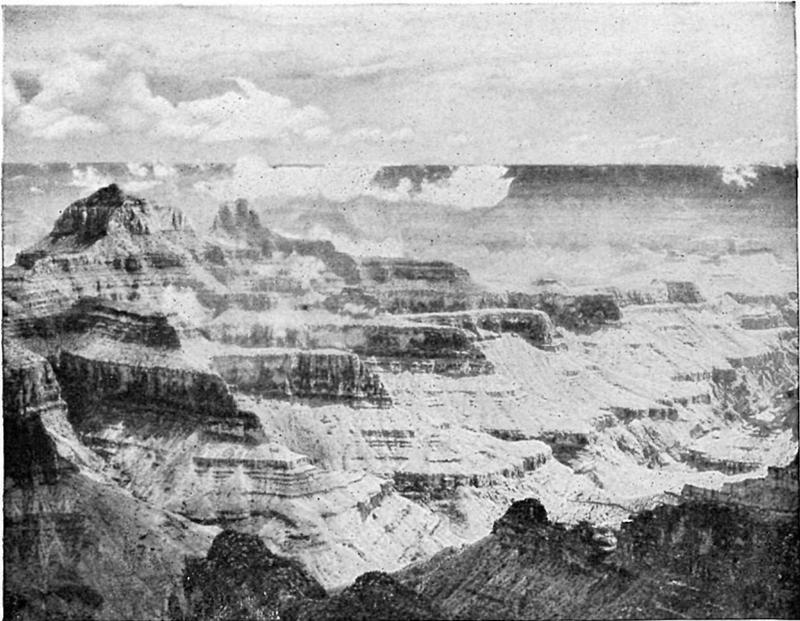
**Zuni Point.**—The Zuni pueblo south of Gallup, N. Mex., is the remnant of the historic Seven Cities of Cibola.

# THE NATIONAL PARKS AT A GLANCE

[Number, 21; total area, 12,113.50 square miles]

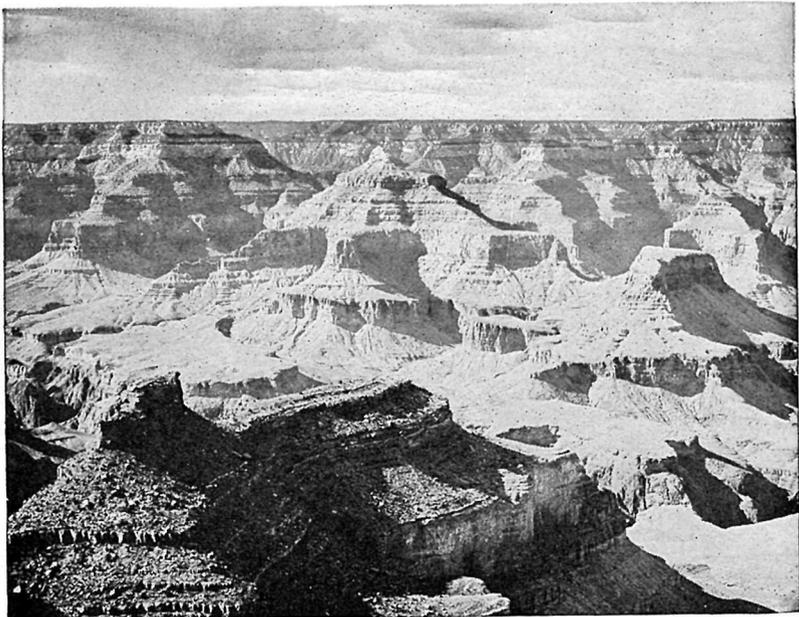
National parks in order of creation	Location	Area in square miles	Distinctive characteristics
Hot Springs 1832	Middle Arkansas	1½	40 hot springs said to possess healing properties—Many hotels and boarding houses—19 bath-houses under Government supervision.
Yellowstone 1872	Northwestern Wyoming	3,426	More geysers than in all rest of world together—Boiling springs—Mud volcanoes—Petrified forests—Grand Canyon of the Yellowstone, remarkable for gorgeous coloring—Large lakes—Many large streams and waterfalls—Vast wilderness, one of the greatest wild bird and animal preserves in world—Exceptional trout fishing.
Sequoia 1890	Middle eastern California	604	The Big Tree National Park—Several hundred sequoia trees over 10 feet in diameter, some 25 to 30 feet in diameter—The General Sherman Tree is 37.3 feet in diameter and 273.9 feet high—Towering mountain ranges—Startling precipices—Mile-long cave of delicate beauty.
Yosemite 1890	Middle eastern California	1,126	Valley of world-famed beauty—Lofty cliffs—Romantic vistas—Many waterfalls of extraordinary height—3 groves of big trees—High Sierra—Waterwheel Falls—Good trout fishing.
General Grant 1890	Middle eastern California	4	Created to preserve the celebrated General Grant Tree, 40.3 feet in diameter—6 miles from Sequoia National Park.
Mount Ranier 1899	West central Washington	325	Largest accessible single peak glacier system—28 glaciers, some of large size—48 square miles of glacier, 50 to 500 feet thick—Wonderful sub-Alpine wild-flower fields.
Crater Lake 1902	Southwestern Oregon	249	Lake of extraordinary blue in crater of extinct volcano—Sides 1,000 feet high—Interesting lava formations—Fine fishing.
Platt 1902	Southern Oklahoma	1½	Sulphur and other springs possessing medicinal value.
Wind Cave 1903	South Dakota	17	Cavern having many miles of galleries and numerous chambers containing peculiar formations.
Sullys Hill 1904	North Dakota	1½	Small park with woods, streams, and a lake—Is a wild-animal preserve.
Mesa Verde 1906	Southwestern Colorado	77	Most notable and best preserved prehistoric cliff dwellings in United States, if not in the world.
Glacier 1910	Northwestern Montana	1,534	Rugged mountain region of unsurpassed Alpine character—250 glacier-fed lakes of romantic beauty—60 small glaciers—Precipices thousands of feet high—Almost sensational scenery of marked individuality—Fine trout fishing.
Rocky Mountain 1915	North middle Colorado	378	Heart of the Rockies—Snowy range, peaks 11,000 to 14,255 feet altitude—Remarkable records of glacial period.
Hawaii 1916	Hawaii	245	Three volcanic areas—Kilauea and Mauna Loa, active volcanoes on the island of Hawaii; Haleakala, a huge extinct volcano on the island of Maui.
Lassen Volcanic 1916	Northern California	163	Only active volcano in United States proper—Lassen Peak 10,460 feet—Cinder Cone 6,907 feet—Hot springs—Mud geysers.
Mount McKinley 1917	South central Alaska	2,645	Highest mountain in North America—Rises higher above surrounding country than any other mountain in the world.
Grand Canyon 1919	North central Arizona	1,009	The greatest example of erosion and the most sublime spectacle in the world.
Acadia 1919	Maine coast	15	A group of granite mountains upon Mount Desert Island and bold point on opposite mainland across Frenchmans Bay. Formerly called Lafayette National Park.
Zion 1919	Southwestern Utah	120	Magnificent gorge (Zion Canyon), depth from 1,500 to 2,500 feet, with precipitous walls—Of great beauty and scenic interest.
Bryce Canyon 1928	do	22	Box Canyon filled with countless array of fantastically eroded pinnacles. Best exhibit of vivid coloring of earth's materials.
Grand Teton 1929	Northwestern Wyoming	150	Includes spectacular Teton Mountains, a granite uplift of unusual grandeur.





Photograph by Fred Harvey

THE SOUTH RIM, ACROSS THE CANYON FROM BRIGHT ANGEL POINT



Photograph by Fred Harvey

THE NORTH RIM, ACROSS THE CANYON FROM NEAR EL TOVAR



Photograph by El Tovar Studio

EL TOVAR HOTEL FROM ROOF OF HOPI HOUSE, SOUTH RIM



Photograph by Union Pacific System

GRAND CANYON LODGE, BRIGHT ANGEL POINT, NORTH RIM