

The Grand Canyon Trip, Field Museum's September Natural History Tour, will be a geological field trip for energetic people. Involving as it does sleeping under the stars, all-day rough hikes up and down the canyons and a week of exciting river travel, the Grand Canyon Trip demands vigorous members. Dr. Matthew H. Nitecki, Assistant Curator of Fossil Invertebrates, leads the trip. This trip has been planned to provide the maximum possible comfort. Hotel accommodations are of the best (as are the horses and mules) and the boat one of the safest. But read Dr. Nitecki's day-by-day account of the trip for the complete story. Pre-trip seminars will be conducted on the natural history of the area.

This trip, like others in Field Museum's series of Natural History Tours, includes a tax-deductible donation (\$200) in the total cost of \$1,025, covering plane fare, hotels and all other costs for the 17 days. (Single rooms are additional.) The tour is limited to 28 persons, so make your reservation as soon as possible. The deposit, to be enclosed with the reservation, is \$200.

The River That Flows Through Time

By Matthew H. Nitecki, Assistant Curator, Fossil Invertebrates

This month's cover shows two aspects of exploring the Grand Canyon—an exciting ride on the Colorado rapids and the peaceful view from a riverside campsite as night falls. Below: Author and son hike along the Bright Angel Trail. (Photos by Dr. Nitecki, Igor DeLissovoy and William D. Turnbull)

THE traveler arriving in Grand Canyon may be given enough time to stand on the South Rim and to gaze in wonder into the depth and silence of the chasm before being hurried away in his chartered bus to somewhere else. If he is lucky and has more leisure he may be allowed to hike part of the way down to the River along a trail as busy as Fifth Avenue on Easter Day.

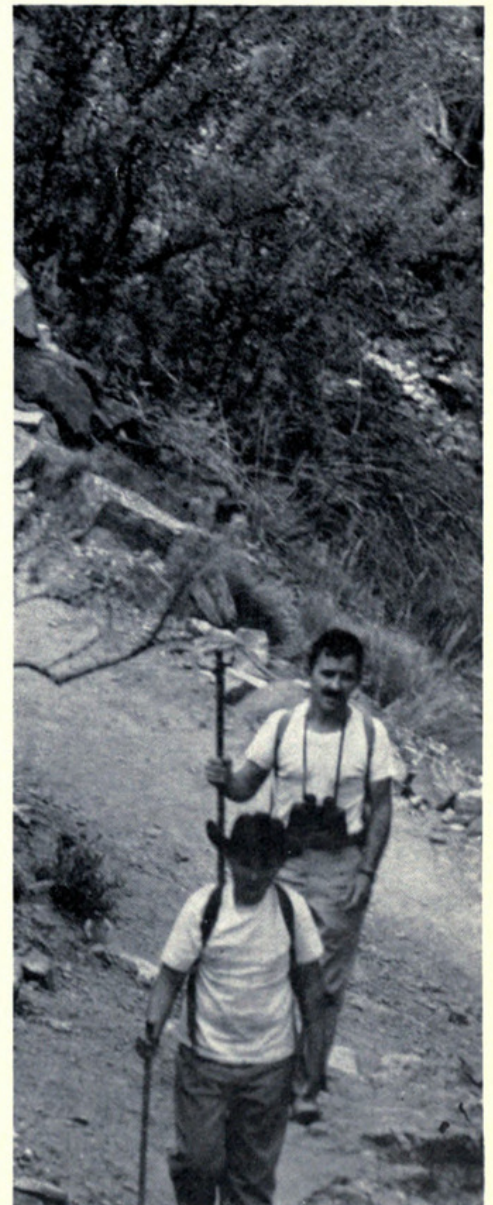
But there is another Grand Canyon that no man in a hurry sees: The Grand Canyon of exquisite loveliness, grandeur and solitude.

Each area of the Earth has its peculiar beauty. In Grand Canyon this appears in its sculpture and in its paintings. The variegated horizontal rock layers are deposited upon the preceding flaming layers, and new layers are stacked one upon the other, pushing their way upward in steep slopes and sheer walls. The figure of buttes, the character of cliffs, the uniqueness of shapes, the intense colors are all drastically changed from one giant step to another.

Each area of the Earth has also its own majesty. Grand Canyon is so immense that to all appearances time is stopped, sound is frozen and motion is nonexistent. Only clouds move silently against the stationary heaven. It is in the presence of such majesty that man hears how his heart counts the seconds, and how life flows by. It is here that the questions of Beauty and Earth are as profound and eternal as the Canyon below is deep and endless.

And each part of the Earth has its loneliness. The stillness of the Canyon is so absolute that at times the falling of the desert petals can be heard. The loneliness of the Canyon is so profound that in its presence man often whispers in order not to disturb it, in fear of being overheard and out of respect to the gifts of Nature.

Such is the Grand Canyon and the River that we will walk through, float on, and experience. There were lonely men who for weeks walked along the precipitous walls with the heat of the day their only companion. Others floated down the River in small wooden boats, fought the currents of the rapids and spent hours in treacherous portages. Now, yearly crowds come by the thousands, stay a few hours, litter the rim and depart noisily with souvenirs and polaroid pictures. We will do neither. We will hike on the safe and well-maintained trails, we will float on large and respected rafts and we will arrive after the crowds depart when only the faithful few quietly watch the birds hover over the desert.



Friday, September 12, 1968

The trip will begin in the afternoon with the flight to Phoenix, Arizona. From there we will travel by bus from the desert of central Arizona through the grass and forests of northern Arizona to the pine woods of the South Rim. We will pass the 12,000-foot-high San Francisco Mountains south of the Grand Canyon. The South Rim is on the Coconino Plateau about 7,000 feet high. It is a flat area, a part of the great Colorado Plateau. The weather at the rim requires a sweater at night and often during the day. A raincoat might be occasionally needed. In September the nights will frost, the mornings will be crisp but the days should be pleasant, warm but seldom over 80° F. For dinner and the night we will be in the Lodge in Grand Canyon. Evening will be spent in a campfire program with the naturalist's talk.

Saturday, September 13

The first short half-day hike down along the upper part of the Hermit Trail will be one-and-a-half miles long and will descend less than one thousand feet. It will serve as an introduction to wilderness hiking and to the geology of the area. The rocks exposed in this trip are all of Permian age and are about 250 million years old. The walk will be on a path maintained by the Park but closed to the public, except for guided tours.

The Canyon hike is a reverse of a mountain hike; the uphill work comes at the tired end. Plenty of time and water, a hat, long sleeves and sun tan lotion are required.

The afternoon will be spent in a relaxed enjoyable nature trip along the rim. The one-mile-long trip will concentrate on scenery and vegetation and will end at the Yavapai Museum featuring geologic exhibits.

Dinner and the night's rest will be in the Lodge and in the evening there will be song singing at the campfire.

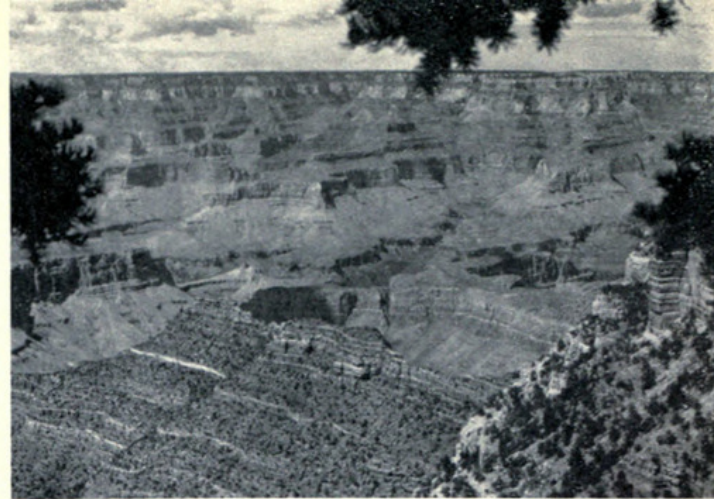
Sunday, September 14

To see Grand Canyon from the Rim is an enduring experience. But descending into it is unforgettable. The perspective and dimensions of the Canyon are entirely new and hiking all the way is most rewarding. Thus, our first long hike will be to the River down the Kaibab Trail. The hike is about 7 miles long and one mile down. Hiking boots, water canteen, a shoulder bag for packed lunch and physical stamina are required. To avoid blisters, particularly common on steep down-slopes, the boots must be comfortable and well broken in. Woolen socks are also recommended.

We will walk slowly; in fact, a good part of the day will be spent on the descent, during which we will carefully study the geologic sequences of the rocks and interpret the scenery. In the evening we will swim and relax by the pool at Phantom Ranch. We will dine and sleep soundly at the Ranch.

Monday, September 15

In Grand Canyon, because of its great range of elevation, temperature and moisture, several major life zones occur. Thus, at the River the climate is that of the Sonoran province of Mexico. Plants and animals are scarce and



Above: View from the South Rim of the Grand Canyon. Right: Barrel cactus, typical canyon bottom vegetation. (Photos by William D. Turnbull and Igor DeLissovoy)



of the desert. Cacti, agave, yucca and lizards are common. We will hike about 3 miles to the Indian Gardens. We will travel upon a flat River trail for about one mile. Two miles will be steep, rising 1,300 feet up, with pauses to study the "hard-rock geology" of the Inner Gorge and observe the change in vegetation with the increased altitude. The rest of the way (3,200 feet) up to the South Rim we will travel on mules. We will enter the next life zone, the Upper Sonoran, recognized by its juniper and pinyon trees. On the top of the Rim the already familiar ponderosa pine is common.

Dinner and night will be back in the Lodge. For those who still have enough energy there will be another campfire program.

Tuesday, September 16

Tuesday morning will be devoted to an introduction to the ancient Indians of the Grand Canyon area. Leaving the Park, we will stop at the South Rim's Tusayan Museum to examine the partially excavated Tusayan ruins built by the Pueblo people around 1200 A.D. The Rim itself has never been densely populated; however, the adjoining area between the San Francisco Mountains and the Little Colorado River had at times as many as 8,000 inhabitants. This population concentration was caused by the increased fertility of the land, enriched by the action of otherwise destructive volcanos near Flagstaff. The best preserved ruins are at Wupatki Ruins National Monument, which we will visit.

Our afternoon stop will be in the Sunset Crater National Monument. The Monument features a cinder



Cultivated fields are visible in this aerial view of the dramatic setting of the Havasu Indian reservation in the Grand Canyon country.
(Photo by S. Silverstein)

cone 1,000 feet high that was built about 1065 A.D. It was the eruption of this volcano that transformed a desert into the fertile farmland that was occupied by the Wupatki Indians. However, the agricultural prosperity was short-lived and by 1300 A.D. the soil was destroyed by wind and drought and the Indians moved out. We will climb the volcano that so much controlled the life of the Indians and study the many aspects of volcanic activities, the lavas, cones and fissures. Our night will be spent in Flagstaff where we'll visit the Museum of Northern Arizona. The Museum is situated at the base of the 12,000-foot volcanic San Francisco Mountains and is surrounded by rich forests and cool grasslands. It is a delightful regional Museum of Science, Art and Anthropology that "displays ideas and not things." We have arranged for an evening tour.

Wednesday, September 17

This is an exciting day that, after the bus ride from Flagstaff to the Hualpai Hill, will include a hike to Havasu Canyon, perhaps one of the most beautiful and interesting canyons in the west, a tributary of Grand Canyon and in the National Park. We will walk down, and the walk will be long and strenuous, somewhat over 10 miles long. The longest part of it will be through the hot desert canyon along the dry stream bed. The unexpected richness of life and the beauty of the Canyon due to Havasu Creek, along which we will walk the last 3 miles, will be a reward to the thirsty and the tired. This unusual stream has its origin but a short distance above the Supai Vil-

lage and because of the ruggedness of the Canyon and its precipitous walls the stream forms spectacular waterfalls cascading down and forming pools of clear and exquisite beauty in which we'll swim and cool ourselves after the long hot journey. We will camp down below the village in the National Park Camp Grounds.

Thursday, September 18

The Havasupai tribe are the only Indians living within the Park. They are peaceful people said never to have killed a white man. Their history is old, their occupation of the Havasu Canyon probably dating from the twelfth century. They supported themselves in the past by agriculture and basket weaving, and are known to have been expert horsemen. Today they appear as a tribe of ancient grace and charm and a kind of sadness. We will spend a day in the company of these people and in examining the geologic processes that are best manifested in their country. After our Wednesday hike we'll rest, swim and take gentle short hikes in and around the village. We'll camp out again in the Park's Camp Ground.

Friday, September 19

On horseback we will ride the trail to the Hualpai Hilltop from where by bus we will proceed to Lees Ferry. Lees Ferry is situated between Glen and Marble Canyon and between Echo and Vermillion Cliffs. It is the only place in a stretch of about 500 miles where the River leaves its steep Canyons and allows for easy approach from the adjoining plateaus. Lees Ferry, a historical crossing, was also the Navajos' trading center. We will spend a night there in a motel.

This is the end of the first part of our Grand Canyon Tour. The geology we learned in this part is from the great sequence of rocks representing about a fourth of the Earth's history. The complete history includes the period of no life, the period of life's beginning that is obscure, and the period of "good" fossil record. We have examined the ancient marine communities consisting of numerous sea shells, sponges, corals, sea lilies and other invertebrate animals. We walked on rocks representing the early terrestrial environments full of footprints of reptiles and impressions of tree-like ferns.

Non-biologic aspects of this history we studied from rocks of the Inner Gorge that were formed miles deep in the earth, or were altered under such high temperature and pressure that it is now impossible to decipher their original nature. The walls of the outer Canyon are made of a great thickness of shales, sandstones and limestones. The shales were deposited in shallow seas by great Rivers of the past. The limestones were precipitated from warm semi-tropical seas by action of innumerable organisms, and the sandstones were formed by consolidation of sand blown by wind into giant dunes surpassing the recent Sahara in their extent.

Saturday, September 20 through Sunday, September 28

Our second part of the Colorado trip will consist of a nine-day river trip in order to understand the River, her power, and the tools she uses to carve this great Canyon,

and, of course, for the sheer joy and excitement of the River adventure. We will find, however, that it is a Natural History trip providing an excellent opportunity to study and understand the natural processes that formed this great and unique region of the country.

The boat trip will be on rubber rafts of the American River Touring Association, a non-profit educational association. Mr. Lou Elliott, the director and leader of the boats, who has experienced many American, Canadian and Mexican rivers says that: "in all the world there is no other trip to compare with a river run through the Grand Canyon. Its unparalleled continuation of grandeur and intimacy, excitement and calm is a unique scenic adventure. The side canyon campsites and comradeship of fellow passengers live long afterwards as unforgettable experiences. The ideal way to see and enjoy the Canyon is from the river that made it. This intimate approach allows us to get close enough to really observe, to photograph and to marvel at the endless variety of beauty and texture of the canyon walls. The rapids are exciting and provide a thrilling experience none can forget."

It is on the River that we will experience, learn and understand the Canyon, the River and the Great Southwest. A day-by-day account of the river trip is difficult to give in advance, because the water level changes and thus controls the selection of campsites.

We will "shoot" an unending line of rapids, some of which are but a rattle of no danger to equipment or personnel, while others are difficult rocky cataracts dropping 15 feet, very dangerous to small and to wooden boats, but only exciting to our big 48-foot pontoons. At no time will we need to portage, but we will have to hold fast with both hands, and secure the luggage well. We'll get wet and tired—but happy and pleased.

We will camp out on sandy beaches, without tents or shelter—but since it will not rain, the stars and the walls of the canyon will be our companions at night. We will eat hungrily the food prepared by the crew—and their food is good.

We will travel in two boats and thus rotate passengers to be able to photograph the passage of the rapids. We will swim in the Colorado, close to shores with life jackets on, and without jackets in the tributaries where we will dive, jump in or just soak. We will hike to places of unusual geologic and anthropologic interest, sometimes through the most pleasant and enchanting stream beds and valleys, at times along steep walls and waterfalls.

But above everything else, we'll live nine days of Geology. We will think Earth while we eat, swim, dream, walk and relax. We will see and study more Geology in this one brief period than can be seen anywhere else in comparable time.

The trip will end at Lake Mead from which we'll travel by bus to Las Vegas airport to fly home—sad to leave the Great River and a grand fortnight of our lives, but happy and proud to have experienced it.

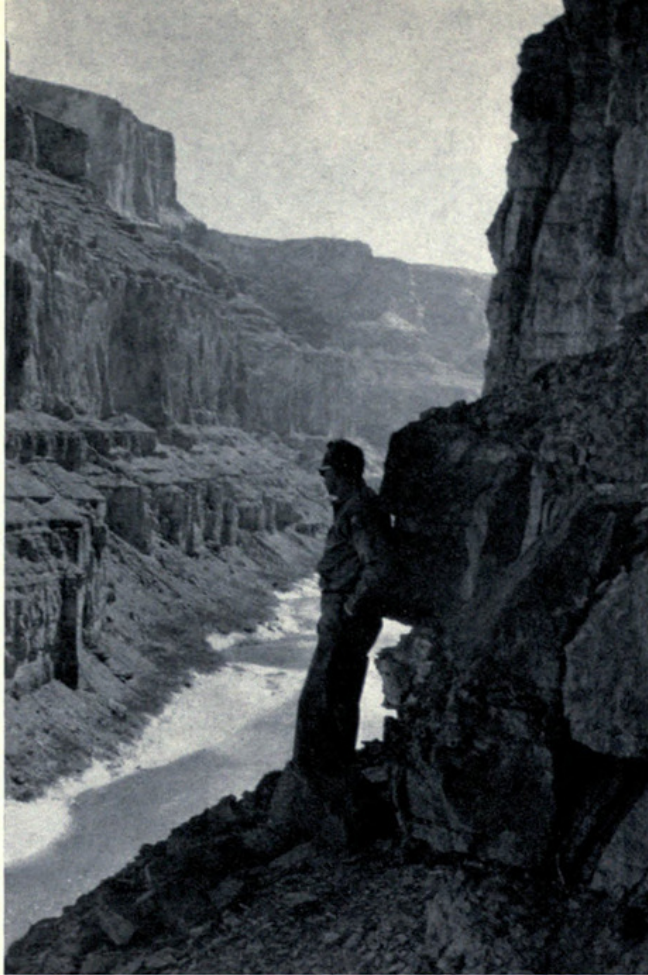


The Grand Canyon Tour will end here, where the Colorado River flows into Lake Mead.



Boat passenger's view of one stretch of the Colorado River.





Left: Traveler rests on a rugged trail en-route to ancient Indian ruins near the entrance to the Park. Below: Lunch break along the Colorado River gives tour members time to relax and talk over their experiences. (Photos on these pages by Igor DeLissovoy)



rapids.

Hikers brave a exposed trail near Deer Creek

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(HOW MANY)
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☐ Please check if single rooms are desired, at extra charge.

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