

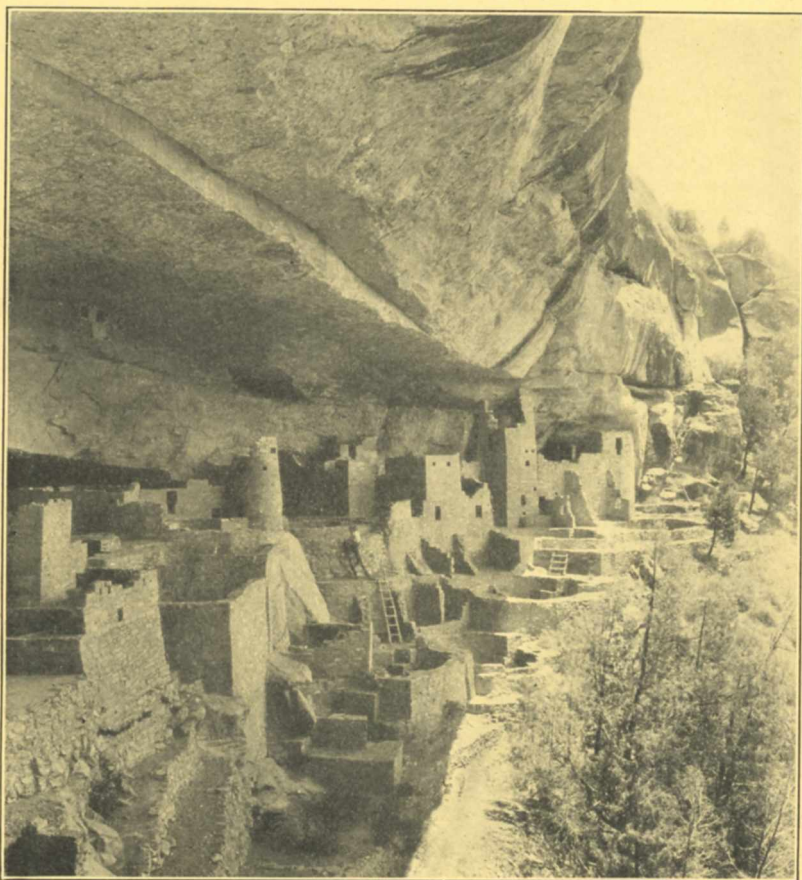
UNITED STATES
DEPARTMENT OF THE INTERIOR
HUBERT WORK, SECRETARY
NATIONAL PARK SERVICE
STEPHEN T. MATHER, DIRECTOR

CIRCULAR OF GENERAL INFORMATION REGARDING

MESA VERDE

NATIONAL PARK

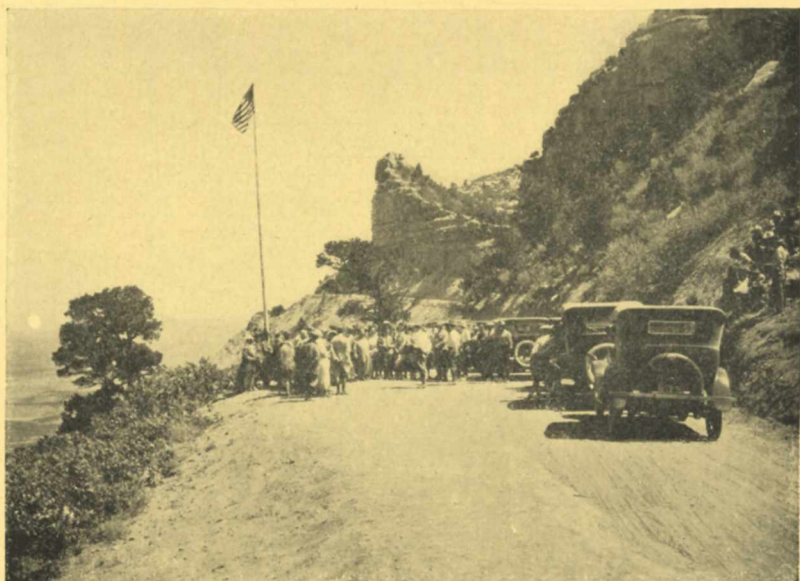
COLORADO



Photograph by George L. Beam

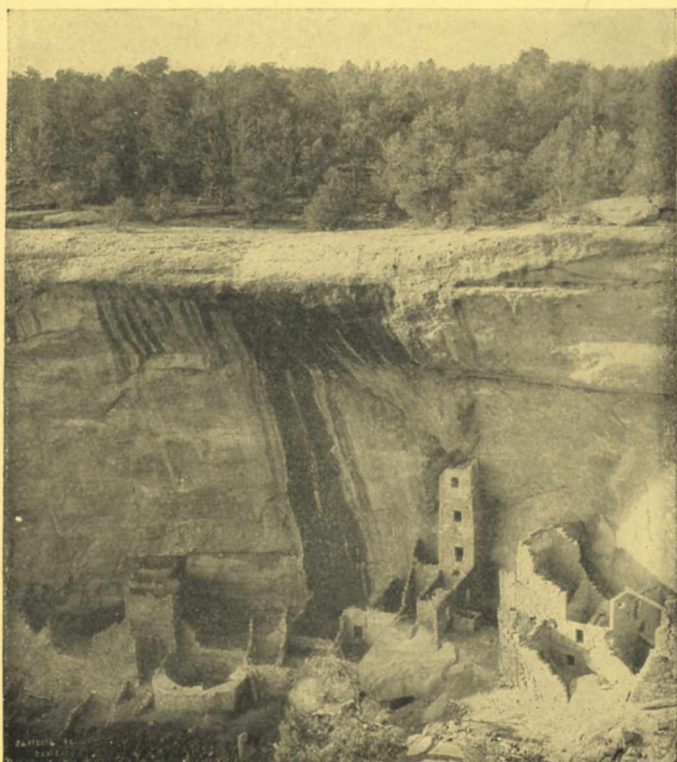
SOUTHERN PORTION OF CLIFF PALACE

SEASON FROM MAY 15 TO NOVEMBER 1



Photograph by Geo. L. Beam.

Dedication of Knife Edge Entrance Road June 28, 1924.



Photograph by Geo. L. Beam.

Square Tower House, excavated and repaired.

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MESA VERDE NATIONAL PARK

ITS PREHISTORIC INHABITANTS

Of all the many ruins of prehistoric cliff dwellings in the southwestern United States those in the side canyons of the Mancos River are for many reasons the most remarkable. Congress has set aside a plateau of 49,126 acres in southwestern Colorado for their preservation, and called it the Mesa Verde National Park.

The ruins in the Mancos Canyon were discovered as early as 1874, when Mr. W. H. Jackson, who led the Government party, found there many small dwellings broken down by the weather. The next year he was followed by Prof. W. H. Holmes, later chief of the Bureau of American Ethnology, who drew attention to the remarkable stone towers also found in this region. Had either of the explorers followed up the side canyons of the Mancos they would have then discovered ruins which, in the words of Baron Gustav Norden-skiöld, the talented Swedish explorer, are "so magnificent that they surpass anything of the kind known in the United States."

The Mesa Verde National Park is one of the few large tracts of land in the United States which have been taken from the public domain to preserve the antiquities it contains. It is the most extensive reservation for this special purpose. Its purpose is educational, and its ruins are object lessons for the student of the prehistory of our country.

We are accustomed to regard the Indians of the United States as a race of wanderers, living in temporary habitations made of skin or bark. The Indians are supposed to live by hunting or fishing and to eke out their food by the cultivation of maize or Indian corn, beans, and a few vegetables. While this is true of some Indians, it does not hold for all, for there were many different kinds of Indians inhabiting what is now the United States when Columbus landed at San Salvador. There were highly civilized members of this race in Central America and Mexico—the Mayas and Aztecs. The lofty Cordilleras of South America were the homes of other civilized peoples, as the Incas. The culture of these Indians was characteristic, its origin autochthonous. The American Continent is supposed to have been originally peopled from the Old World, largely across Bering Strait.

In the southwestern part of the United States there are Indians who live in houses made of stone or sun-dried bricks. The antiquity of this mode of life in that region can not be questioned; it dates back to pre-Columbian times. These houses are not isolated from each other, but crowded together so that their walls adjoin and are often several stories high, the approach to the several stories being by ladders.

Such a community house is called a pueblo, and the Indians who dwell in these habitations are called Pueblo Indians, the name being derived from the Spanish term, meaning village. Many pueblos still survive in the States of New Mexico and Arizona, the least modified of which are the seven villages of the Hopi, situated not far from the Grand Canyon National Park.

From the car windows of the Santa Fe Railroad the traveler can see several of these pueblos, including Santo Domingo, San Felipe, Sandia, Isleta, and Laguna. As pueblo houses are made of stone or of sun-dried bricks, their walls are durable; ruins of them remain for a long time, and one who journeys along the river valleys away from the railroad may see throughout the southwestern part of the United States numbers of deserted pueblos in ruins, some of which are simply piles of stone; others have well-made walls projecting above the ground.

Stone ruins of pueblos are also found on the tops of isolated plateaus called mesas in the Southwest, from their Spanish name meaning tables. The depressions have been worn down by the rains of centuries which have eroded deep gorges called canyons, often extending for many miles, showing on their sides alternating layers of rock of different colors and degrees of hardness. When softer layers of rock occur below the harder in the sides of these mesas, there are worn caverns often 50 feet high and several hundred feet long.

The Mesa Verde, or Green Mesa, is so called from the juniper and piñon trees which, growing upon it, impart to it a verdant tone. This mesa is 15 miles long by 8 miles wide. Rising abruptly from the valley on the north side, its top slopes gradually southward to the high cliff bordering the valley of the Mancos on the south. Into this valley open a number of small, high-walled canyons through which occasionally, in times of heavy rain, raging torrents of water flow into the Mancos. In the shelter of the sides of these small canyons are some of the best-preserved cliff dwellings in America.

In prehistoric times a large human population sought a home in these cliff dwellings, for protection of themselves and their property. They obtained their livelihood by agriculture on the forbidding tops of the mesa, cultivating scanty farms, which yielded them a small crop of corn.

Life must have been hard in this arid country when the Mesa Verde communities flourished in the sides of these sandstone cliffs. Game was scarce and hunting arduous. The Mancos yielded a few fish. The earth contributed berries and nuts. At that time as at present water was found only in sequestered places near the heads of canyons; but notwithstanding these difficulties the inhabitants cultivated and harvested corn, which they ground on flat stones called metates, and baked their bread on a stone griddle. They boiled their meat in well-made pattern vessels, some of which were artistically decorated. Their life was hard, but so confidently did they believe that they were dependent upon the gods to make the rain fall and the corn grow that they worshipped the sun as the father of all and the earth as the mother who brought them all their material blessings.

They possessed no written language and could record their thoughts only by a few symbols which they painted on their earthenware jars or scratched in the form of picture-writings on the sides of the cliffs adjacent to their habitations.

As their sense of beauty was keen, their art, though primitive, was true; rarely realistic, generally symbolic. Their decoration of cotton fabrics and ceramic work might be called beautiful, even when judged by our own standards. They fashioned axes, spear-points, and rude tools of stone; they wove sandals and made attractive basketry.

They were not content with rude buildings, and had long outgrown caves and earth lodges that satisfied as dwellings the less advanced Indians farther north and south of them. For their habitations they shaped stones into regular forms, ornamenting them with designs, and laid them one on another. Their masonry has resisted the destructive forces of the elements for centuries.

When the ancestors of the Mesa Verde cliff dwellers first sought natural caves in these precipitous cliffs for their shelter, they were not in such a high sociological condition as when they left them. They availed themselves of these places not only for shelter from the winter storms and the summer sun, but also from wild animals and human enemies. Sallying forth from them, they made warfare upon all their enemies. In order to render their aerie homes accessible, they cut foot and hand holes in the rocky walls and constructed trails along the top of the talus at the foot of the cliffs. Hand in hand with the growth of their architectural skill they developed other crafts and arts.

The earliest culture so far identified on the Mesa Verde is the so-called "Post basket maker culture," first found in Step House Cave on the west side of the park. These early inhabitants constructed roughly circular, semisubterranean cysts or rooms in the sandy débris on the floor of the caves. They excelled in the art of basketry, and were the first to invent pottery, tempering the clay with cedar bark.

Much later, the "Pre-pueblo culture" dominated the Mesa Verde. Their homes were built on the open mesa lands, and were of the "pit-dwelling" or "earth-lodge" type, not very unlike the Navajo hogan or Pawnee Earth Lodge. The excavated dwelling called Earth Lodge A is an excellent example of this type. The floors were sunken slightly below the surface, and the low walls plastered with mud or reinforced with rough balls of clay laid up as masonry. A vaulted roof of logs, plastered with mud, with a vent in the roof for the egress of smoke from the fire pit below undoubtedly completed the structure. Hundreds of pre-pueblo sites are found just south of the Square Tower—Sun Point Road. The remarkable "Cliff House" culture followed these earlier cultures.

The arrangement of houses in a cliff dwelling of the size of Cliff Palace is characteristic, and is intimately associated with the distribution of the social divisions of its former inhabitants.

The population was composed of a number of units, possibly clans, each of which had its more or less distinct social organization, as indicated in the arrangement of the rooms. The rooms occupied by a clan were not necessarily connected, although generally neighboring rooms were distinguished from one another by their uses. Thus, each clan had its men's room, which is ceremonially called the "kiva." Here the men of the clan practically lived, engaged in their occupations. Each clan had also one or more rooms, which may be styled the living rooms, and other inclosures for granaries. The corn was ground into meal in another room containing the metate set in a stone bin or trough. Sometimes the rooms had fireplaces, although these were generally in the plazas or on the housetops. All these different rooms, taken together, constituted the houses that belonged to one clan.

The conviction that each kiva denotes a distinct social unit, as a clan or a family, is supported by a general similarity in the ma-

sonry of the kiva walls and that of adjacent houses ascribed to the same clan. From the number of these rooms it would appear that there were at least 23 social units or clans in Cliff Palace. The kivas were the rooms where the men spent most of the time devoted to ceremonies, councils, and other gatherings. In the social conditions prevalent at Cliff Palace the religious fraternity was limited to the men of the clan.

Apparently there is no uniformity in the distribution of the kivas. As it was prescribed that these rooms should be subterranean, the greatest number were placed in front of the rectangular buildings, where it was easiest to construct them. But when necessary these structures were built far back in the cave and inclosed by a double wall, the intervals between whose sections were filled with earth or rubble to raise it to the level of the kiva roof. In that way they were artificially made subterranean, as their beliefs required.

PHYSICAL FEATURES OF THE MESA VERDE

Antiquities are not the only attractions in the Mesa Verde National Park. Its natural beauties should not be overlooked. In winter it is wholly inaccessible on account of the deep snows; in some months it is dry and parched, but in July and August, when rains come, vegetation is in full bloom, the plants flower, the grass grows high in the glades, the trees put on their bright new garments of green. The Mesa Verde is attractive in all seasons of the year and filled with interest for those who love the grandeur and picturesque-ness of mountain scenery.

"The Mesa Verde region," writes Arthur Chapman, "has many attractions besides its ruins. It is a land of weird beauty. The canyons which seam the mesa, all of which lead toward the distant Mancos River, are, in many cases, replicas of the Grand Canyon of the Colorado. While the summer days are warm, the nights are cool, and the visitor should bring plenty of wraps besides the clothing and shoes necessary for the work of climbing around among the trails. Horses are available for those who care to ride.

"It is a country for active foot work, just as it was in the days of the cliff dwellers themselves. But when one has spent a few days among the cedars and jack pines of the Mesa Verde, well named 'Green Table' by the Spaniards of early days, he becomes an enthusiast and will be found among those who return again and again to this most unique of national parks to study its mysteries and its beauties from all angles."

The highest part of the Mesa Verde National Park is Park Point, 8,575 feet above sea level, while Point Lookout, the most prominent point on the Mesa Verde, has an elevation of 8,428 feet above sea level. The northern edge of the mesa terminates in a precipitous bluff, averaging 2,000 feet above the Montezuma Valley. The general slope of the surface is to the south, and as the main road to the ruins meanders back and forth in heading each smaller canyon, many times skirting the very brink of the great northern fault line, tremendous expanses of diversified terrain are brought into view, first in Colorado and Utah, then in Arizona and New Mexico.

To the north and west, the great Montezuma Valley, dotted with artificial lakes and fertile fields, appears as from an airplane flying from

2,000 to 2,500 feet above, with the Rico Mountains and Lone Cone of Colorado, and the La Sals, the Blues, and Bears Ears of Utah dominating the distant horizon, in some directions over 115 miles distant.

Southward, numerous deep canyons in which the more important cliff dwellings are found subdivide the Mesa Verde into many long, narrow tongue-like mesas. The dark purplish canyon of the Mancos River is visible in the middle foreground, and beyond, above the jagged outline of the mesa to the south, the Navajo Reservation, surrounded by the deep-blue Carrizos of Arizona and the Luka Chukas and Tunichas of New Mexico. In the midst of this great mountain-inclosed, sandy plain, which seen from the mesa resembles a great inland sea surrounded by dark forbidding mountains, rises Ship Rock (45 miles distant), a great jagged shaft of igneous rock, 1,860 feet high, which appears for all the world like a great "wind-jammer" under full sail. Toward evening the illusion is perfect.

The new double-travel-width entrance road, called the Point Lookout Road, ascends the north and west slopes of Point Lookout in attaining the crest of the mesa. The maximum grade is less than 10 per cent. Emergency phone box No. 5 is located at park boundary and emergency phone box No. 4 in the head of Morefield Canyon just over the crest of the grade. The narrow Switchbacks Road ascending the mesa from the south and east and joining the main road just north of phone box No. 4 has now been abandoned.

From phone box No. 4 the Knife Edge Entrance Road is followed around the base of Lone Cone to the north face of the mesa, which it traverses for a mile and a half at an elevation of 1,500 to 1,800 feet above the Montezuma Valley before ascending the west side of Prater Canyon to the crest at phone box No. 3. *Drive slowly. The signs are for your guidance and instruction.*

Emergency phone box No. 2 is located on Park Point, highest point on the park highway, elevation 8,400 feet, and emergency phone box No. 1 at the head of Chapin Mesa, 6 miles north of headquarters.

Although there are hundreds of cliff dwellings within the Mesa Verde National Park, the more important are located in Rock, Long, Wickiup, Navajo, Spruce, Soda, Moccasin, and tributary canyons. Surface ruins of a different type are widely distributed over the narrow mesas separating the numerous canyons. A vast area surrounding the park contains more or less important ruins of these early inhabitants, most important and easiest of access from the park being the Aztec Ruin and Chaco Canyon National Monuments, New Mexico, the Yucca House National Monument, Colorado, and the Hovenweep National Monument, Colorado-Utah.

ADMINISTRATION

Mesa Verde National Park is under the exclusive control of the National Park Service of the Department of the Interior, which is authorized to prescribe such rules and regulations and to establish such service as it may deem necessary for the care and management of the park and for the preservation from injury or spoliation of the ruins and other relics of primitive man within the limits of the reservation.

The National Park Service is represented in the actual administration of the park by a superintendent, who is assisted in the protection of its natural and historic features by a number of park

rangers and guides. Jesse L. Nusbaum is superintendent of Mesa Verde National Park. His post-office address is Mesa Verde National Park, Colo. Mr. Nusbaum is also archeologist for the Department of the Interior.

During the season visitors will be provided with competent, authorized rangers or guides, without cost, to accompany them from Spruce Tree Lodge to the various ruins, and visitors will not be permitted to visit the ruins unless so accompanied.

The park season is May 15 to November 1.

HOW TO REACH THE PARK

BY AUTOMOBILE

Mesa Verde National Park may be reached by automobile from Denver, Colorado Springs (a most beautiful residential city at the foot of Pikes Peak), Pueblo, and other Colorado points. Through Pueblo, Colorado's interesting industrial city, with 50 miles of paved streets and beautiful homes, one road leads to the park by way of Canon City, from where one may look down into the Royal Gorge, the deepest canyon in the world, penetrated by a railroad and river. This road passes through Salida, a city in a valley of irrigated farms and stock ranches and completely surrounded by mountains, goes over Monarch Pass, and on through Gunnison and Montrose, and thence south through Ouray, Silverton, and Durango. This route passes through some of Colorado's most magnificent mountain scenery. Another road leads south from Pueblo through Walsenburg, across La Veta Pass, on through Alamosa, Del Norte, and Durango, crossing Wolf Creek Pass en route. From Durango the road leads to Mancos and on into the park. Motorists coming from Utah and western Colorado will find a road leading through Grand Junction, near the Colorado National Monument, and on through Delta to Montrose, thence south to the park.

From Arizona and New Mexico points, Gallup, on the National Old Trails Road, is easily reached. The auto road leads north from Gallup through the Navajo Indian Reservation and is remarkably picturesque, with its many outlooks on broad colorful valleys hemmed by pine-fringed mountains and giant mesas, split with wild canyons. A corner of the Ute Indian Reservation also is traversed. At Shiprock Indian Agency, 100 miles north of Gallup, the San Juan River is crossed. Here parties have lunch and visit the Indian trading posts. The life around these posts is intensely interesting.

The rock from which this agency gets its name is 10 miles southwest, a gigantic shaft of igneous formation rising 1,860 feet above the plain and dominating the horizon for miles and miles. It has been a sacred landmark of the Navajos for centuries. Shortly after leaving Shiprock Indian Agency tourists get their first view of Mesa Verde (green tableland), the summit of which is about 8,000 feet above sea level and 2,000 feet above the surrounding country.

The road continues northward through Indian farms and the orchards and alfalfa fields of the fertile Montezuma Valley. The main highway is left a few miles west of Mancos, Colo., where the park is entered at an altitude of more than 6,000 feet.

The new motor road to the summit of the mesa affords unusual views of valley and snowy mountains, as if from an airplane. From the summit one enjoys the novelty of standing in one State, Colorado, and looking into three others—New Mexico, Arizona, and Utah. This is the only place in the United States where four States join each other at right angles.

BY RAILROAD

The Gallup (N. Mex.) gateway.—Heretofore Mesa Verde National Park has been reached by rail only from the north via the Denver & Rio Grande Western Railroad system. It is now accessible by auto stage from Gallup, N. Mex., a station on the main line of the Santa Fe Railroad to the south. The round trip from Gallup is made in three days, allowing one day in the park. Stop-overs on all tickets are allowed at Gallup to permit passengers to make the side trip to the park.

Schedule of the trip

The auto stage line from Gallup is operated by J. O. Morris, of Farmington, N. Mex., on the following schedule:

First day: Leave Gallup on Mondays and Thursdays, after breakfast. Lunch at Shiprock. Arrive at Spruce Tree Camp, in Mesa Verde, for dinner.

Second day: Same auto provides transportation to the principal points of interest.

Third day: Leave the park on Wednesdays and Saturdays, after breakfast. Lunch at Shiprock. Arrive in Gallup for dinner.

The round trip fare is \$40. Special service will be provided for parties of three or more.

El Navajo, at Gallup, a first-class station hotel operated by Fred Harvey, offers passengers leaving Santa Fe trains excellent accommodations. And again, when parties return to Gallup from Mesa Verde there is a room with bath and first-class meals and service awaiting them. Gallup should become a very popular gateway.

The Mancos (Colo.) gateway.—During the summer season round-trip excursion tickets via the Denver & Rio Grande Western Railroad system are sold at reduced rates at points in Colorado, Utah, and New Mexico, and also at practically all stations in the States east and south of Colorado and west of Utah to Mancos, Colo., a station on the Denver & Rio Grande Western Railroad system, and to Mesa Verde National Park as a destination via Mancos and the automobile service operating between Mancos and the park. Passengers traveling through Denver, Colorado Springs, or Pueblo en route to the park have choice of varying fares via different routes for going and return journeys.

Passengers wishing to visit the park as a side trip in connection with journeys to other destinations will find stop-over privileges available on round-trip excursions tickets and may make side trips to the park from Denver, Colorado Springs, Pueblo, Grand Junction, or Montrose, in accordance with the following routes and schedules:

ROUTES AND SCHEDULES

SCHEDULE No. 1¹

From Denver and Colorado Springs, going via Salida, Gunnison, Montrose, and Telluride, returning via Durango, Alamosa, and Walsenburg

Lv. Denver.....	1st day.	8.15 a. m.
Lv. Colorado Springs.....	1st day.	11.00 a. m.
Lv. Pueblo.....	1st day.	12.20 p. m.
(Royal Gorge by daylight.)		
Ar. Salida.....	1st day.	4.20 p. m.

Or

Lv. Denver.....	1st day.	7.20 p. m.
Lv. Colorado Springs.....	1st day.	9.50 p. m.
Lv. Pueblo.....	1st day.	11.50 p. m.
Ar. Salida.....	2d day.	3.45 a. m.
(Occupy sleeping car until 6 a. m.)		
Lv. Salida.....	2d day.	6.30 a. m.
(Marshall Pass, Black Canyon of the Gunnison.)		
Ar. Montrose.....	2d day.	2.35 p. m.
Lv. Montrose.....	2d day.	3.05 p. m.
Ar. Telluride.....	2d day.	7.25 p. m.
Lv. Telluride.....	3d day.	7.00 a. m.
(Ophir Loop, Cathedral Spires, Trout Lake, Lizard Head Peak.)		
Ar. Mancos.....	3d day.	1.14 p. m.
Lv. Mancos (auto).....	3d day.	2.40 p. m.
Ar. Spruce Tree Camp.....	3d day.	5.30 p. m.
(Mesa Verde National Park.)		

Trips to various ruins as desired. Suggested arrangement: Visit Spruce Tree House, a short distance from camp, after dinner. Next morning visit Square Tower House, Sun Temple, and Oak Tree House. Return to camp for lunch. Visit Balcony House and Cliff Palace in afternoon. Visit Far View House on leaving camp next morning. This arrangement permits of visiting the ruins on the evening of arrival, the whole of the following day, and the early morning of the day of departure. A shorter visit is unsatisfactory. The ruins named are the principal ones and the most accessible. There are very many others to be visited if longer time is spent in the park.

Lv. Spruce Tree Camp.....	5th day.	8.30 a. m.
(Via automobile; visit Far View House en route.)		
Ar. Mancos.....	5th day.	11.00 a. m.
Lv. Mancos.....	5th day.	1.14 p. m.
Ar. Durango.....	5th day.	3.55 p. m.
Lv. Durango.....	6th day.	9.00 a. m.
(Cumbres Pass, Toltec Gorge.)		
Ar. Alamosa.....	6th day.	7.30 p. m.
Lv. Alamosa.....	6th day.	8.45 p. m.
(Sleeping car Alamosa to Denver.)		
Ar. Pueblo.....	7th day.	2.30 a. m.
Ar. Colorado Springs.....	7th day.	4.30 a. m.
Ar. Denver.....	7th day.	7.15 a. m.

SCHEDULE No. 2¹

From Denver and Colorado Springs, going via Walsenburg, Alamosa, and Durango, returning via Telluride, Montrose, Gunnison, and Salida

Lv. Denver.....	1st day.	7.20 p. m.
(Sleeping car Denver to Alamosa.)		
Lv. Colorado Springs.....	1st day.	9.50 p. m.
Lv. Pueblo.....	1st day.	11.50 p. m.
Ar. Alamosa.....	2d day.	6.00 a. m.
Lv. Alamosa.....	2d day.	7.15 a. m.
(Toltec Gorge—Cumbres Pass.)		
Ar. Durango.....	2d day.	5.35 p. m.
Lv. Durango.....	3d day.	9.05 a. m.
Ar. Mancos.....	3d day.	11.49 a. m.
Lv. Mancos (auto).....	3d day.	2.40 p. m.
Ar. Spruce Tree Camp.....	3d day.	5.30 p. m.
(Mesa Verde National Park.)		

Trips to various ruins as desired. See arrangement suggested in Schedule No. 1.

Lv. Spruce Tree Camp.....	5th day.	8.30 a. m.
(Via automobile; visit Far View House en route.)		
Ar. Mancos.....	5th day.	11.00 a. m.
Lv. Mancos.....	5th day.	11.49 a. m.
(Lizard Head Peak, Trout Lake, Cathedral Spires, Ophir Loop.)		
Ar. Telluride.....	5th day.	6.00 p. m.
Lv. Telluride.....	6th day.	8.25 a. m.
Ar. Montrose.....	6th day.	12.40 p. m.
Lv. Montrose.....	6th day.	1.20 p. m.
(Black Canyon of the Gunnison—Marshall Pass.)		
Ar. Salida.....	6th day.	9.40 p. m.
Lv. Salida.....	6th day.	11.15 p. m.
(Sleeping car Salida to Denver.)		
Ar. Pueblo.....	7th day.	2.50 a. m.
Ar. Colorado Springs.....	7th day.	4.30 a. m.
Ar. Denver.....	7th day.	7.15 a. m.

SCHEDULE No. 3¹

From Denver and Colorado Springs, going via Salida, Glenwood Springs, Grand Junction, and Telluride, returning via Durango, Alamosa, and Walsenburg

Lv. Denver.....	1st day.	8.15 a. m.
Lv. Colorado Springs.....	1st day.	11.00 a. m.
Lv. Pueblo.....	1st day.	12.20 p. m.
(Royal Gorge.)		
Lv. Salida.....	1st day.	4.15 p. m.
(Tennessee Pass—Eagle River Canyon—Colorado River Canyon.)		

Ar. Glenwood Springs.....	1st day.	10.10 p. m.
Ar. Grand Junction.....	2d day.	1.01 a. m.
Lv. Grand Junction.....	2d day.	9.50 a. m.
Ar. Montrose.....	2d day.	12.45 p. m.
Lv. Montrose.....	2d day.	3.05 p. m.
(Follow Schedule No. 1.)		

SCHEDULE No. 4¹

From Denver and Colorado Springs, going via Walsenburg, Alamosa, and Durango, returning via Telluride, Grand Junction, Glenwood Springs, and Salida

Lv. Denver.....	1st day.	7.20 p. m.
Lv. Colorado Springs.....	1st day.	9.50 p. m.
Lv. Pueblo.....	1st day.	11.50 p. m.
(Follow Schedule No. 2 to Mesa Verde National Park and to Montrose.)		
Lv. Montrose.....	6th day.	3.00 p. m.
Ar. Grand Junction.....	6th day.	6.00 p. m.
Lv. Grand Junction.....	6th day.	6.51 p. m.
(Sleeping car Grand Junction to Denver.)		

Lv. Glenwood Springs.....	6th day.	10.10 p. m.
Lv. Salida.....	7th day.	5.00 a. m.
(Royal Gorge.)		
Ar. Pueblo.....	7th day.	8.35 a. m.
Ar. Colorado Springs.....	7th day.	10.05 a. m.
Ar. Denver.....	7th day.	12.45 p. m.

¹Schedules subject to change without notice.

SCHEDULE No. 5²

From Denver and Colorado Springs, going via Salida, Gunnison, Montrose, and Telluride, returning via Durango, Alamosa, and Salida

Lv. Denver.....	1st day.	7.20 p. m.	Lv. Alamosa ³	7th day.	7.15 a. m.
Lv. Colorado Springs.....	1st day.	9.50 p. m.	Ar. Salida ³	7th day.	11.30 a. m.
Lv. Pueblo.....	1st day.	11.50 p. m.	Lv. Salida.....	7th day.	11.55 a. m.
Ar. Salida.....	2d day.	3.45 a. m.	(Royal Gorge.)		
(Occupy sleeping car until 6 a. m.)			Ar. Pueblo.....	7th day.	3.30 p. m.
Lv. Salida.....	2d day.	6.30 a. m.	Ar. Colorado Springs.....	7th day.	5.00 p. m.
(Follow Schedule No. 1 to Mesa Verde National Park and to Alamosa.)			Ar. Denver.....	7th day.	7.40 p. m.

SCHEDULE No. 6²

From Grand Junction or Montrose, via Telluride in each direction

Lv. Grand Junction.....	1st day.	9.50 a. m.	Lv. Mancos.....	4th day.	11.49 a. m.
Ar. Montrose.....	1st day.	12.45 p. m.	(Lizard Head Peak, Trout Lake, Cathedral Spires, Ophir Loop.)		
Lv. Montrose.....	1st day.	3.05 p. m.	Ar. Telluride.....	4th day.	6.00 p. m.
(Follow Schedule No. 1 to Mesa Verde National Park.)			Lv. Telluride.....	5th day.	8.25 a. m.
Lv. Spruce Tree Camp.....	4th day.	8.30 a. m.	Ar. Montrose.....	5th day.	12.40 p. m.
(Automobile.)			Lv. Montrose.....	5th day.	3.00 p. m.
Ar. Mancos.....	4th day.	11.00 a. m.	Ar. Grand Junction.....	5th day.	6.00 p. m.

SCHEDULE No. 7²

From Grand Junction or Montrose, going via Telluride, returning via Durango, Silverton, and Ouray (stage trip between Silverton and Ouray included)

Lv. Grand Junction.....	1st day.	9.50 a. m.	Lv. Durango.....	5th day.	8.55 a. m.
Ar. Montrose.....	1st day.	12.45 p. m.	(Canyon of the Rio de las Animas.)		
Lv. Montrose.....	1st day.	3.05 p. m.	Ar. Silverton.....	5th day.	12.35 p. m.
(Follow Schedule No. 1 to Mesa Verde National Park.)			Lv. Silverton.....	5th day.	1.00 p. m.
Lv. Spruce Tree Camp.....	4th day.	8.30 a. m.	(Via Circle Route stage line.)		
(Automobile.)			Ar. Ouray.....	5th day.	3.00 p. m.
Ar. Mancos.....	4th day.	11.00 a. m.	Lv. Ouray.....	7th day.	10.35 a. m.
Lv. Mancos.....	4th day.	1.14 p. m.	Ar. Montrose.....	7th day.	12.40 p. m.
Ar. Durango.....	4th day.	3.55 p. m.	Lv. Montrose.....	7th day.	3.00 p. m.
			Ar. Grand Junction.....	7th day.	6.00 p. m.

SCHEDULE No. 8²

From Grand Junction or Montrose, going via Ouray, Silverton (stage trip between Ouray and Silverton included), and Durango, returning via Telluride

Lv. Grand Junction.....	1st day.	9.50 a. m.	Ar. Durango.....	2d day.	5.15 p. m.
Ar. Montrose.....	1st day.	12.45 p. m.	Lv. Durango.....	3d day.	9.05 a. m.
Lv. Montrose.....	1st day.	3.05 p. m.	(Follow Schedule No. 2 to Mesa Verde National Park and to Montrose.)		
Ar. Ouray.....	1st day.	5.10 p. m.	Lv. Montrose.....	6th day.	3.00 p. m.
Lv. Ouray.....	2d day.	10.30 a. m.	Ar. Grand Junction.....	6th day.	6.00 p. m.
(Via Circle Route stage line.)					
Ar. Silverton.....	2d day.	12.30 p. m.			
Lv. Silverton.....	2d day.	1.35 p. m.			
(Canyon of the Rio de las Animas.)					

COLORADO'S SCENIC APPROACHES TO MESA VERDE

The lines of the Denver & Rio Grande Western Railroad traverse some of the most magnificent scenery of the Rocky Mountain region, and this fact gives the journey to Mesa Verde National Park a double value for the tourist. The railroad offers several routes and combinations of routes, which enable the passenger to vary his journey—going one way and returning another, taking advantage of side trips, stops at points of interest en route, etc. By means of this choice of routes he may ride through two great gorges with walls nearly 3,000 feet in height and along the rim of another gorge nearly 3,000 feet deep, and he may cross three passes the altitudes of which exceed 10,000 feet. The gorges are the Royal Gorge in the Grand Canyon of the Arkansas, where the width of the chasm at the base is but 30 feet, and the railroad engineers found it necessary to swing a steel bridge parallel with the stream in order to secure a foothold for the track; the Black Canyon of the Gunnison, with its wonderful Cure-

¹ Schedules subject to change without notice.

² Daily except Sunday.

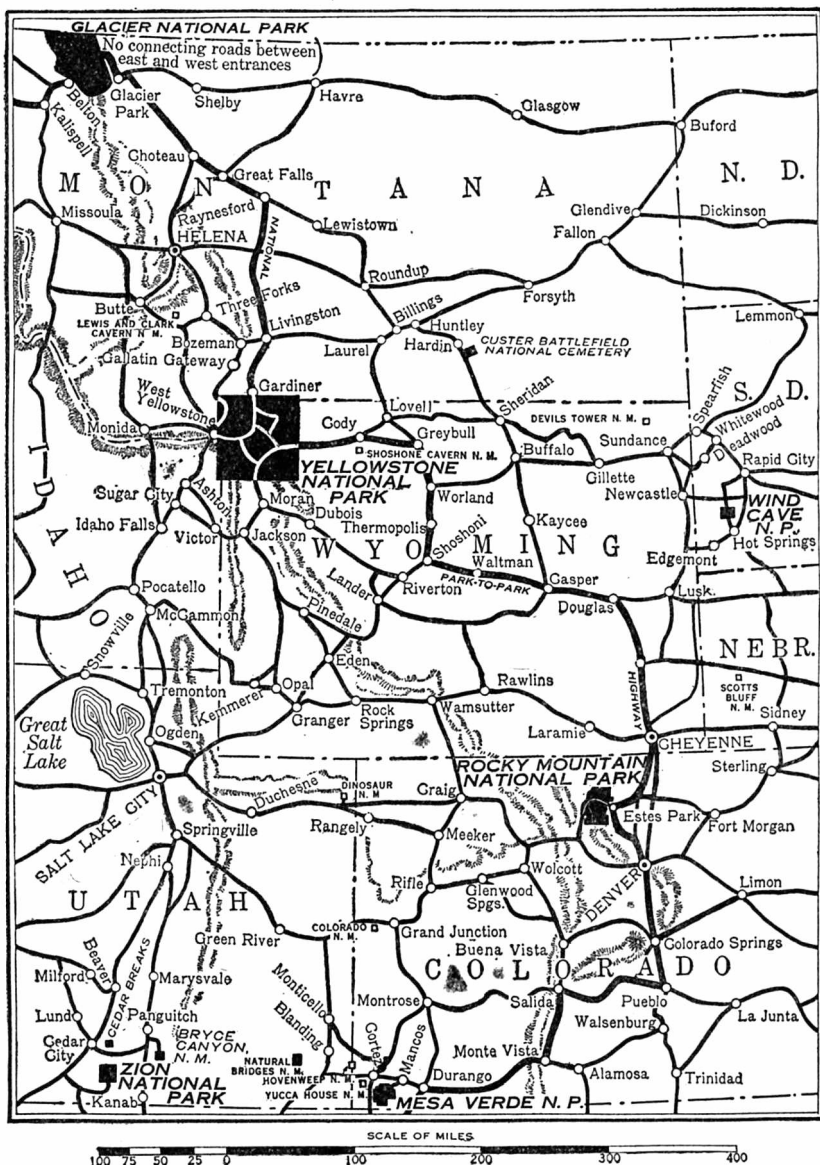
canti Needle and beautiful Chipeta Falls; and Toltec Gorge of Los Pinos River, where may be seen the monument to President Garfield erected in 1881. The three passes are Marshall Pass, the Great Continental Divide (altitude 10,856 feet); Lizard Head Pass (altitude



Map showing railroad routes to Mesa Verde, Rocky Mountain, Yellowstone, Glacier, and Zion National Parks

10,250 feet), with the peak of the same name in the background; and Cumbres Pass (altitude 10,015 feet), one of the approaches to which is Toltec Gorge. However, the deep canyons and high passes to be seen and enjoyed on the railroad trip to the Mesa Verde are only a few of

the journey's attractive features. There is, in fact, but little of the landscape presented that is not replete with interest. If when passing through the fertile valleys a commonplace foreground should mo-



Automobile roads between Mesa Verde, Rocky Mountain, Yellowstone, Glacier, and Zion National Parks

mentarily appear, there are always present the towering mountains, either near or distant, to lend grandeur to the picture.

In one of these valleys the United States Reclamation Service's Uncompahgre project for irrigation may be seen. Farther southward the railroad passes through the valleys of the Uncompahgre,

San Miguel, and Dolores Rivers. For many miles after leaving Montrose there are visible on the left the great, jagged Sawtooth Mountains, while beyond Ridgway, the magnificent Sneffels Range, dominated by the majestic Mount Sneffels, near the center of the group, presents such a series of snowy heights, unbroken by vegetation, as is found nowhere else in the Colorado-Utah Rockies. There is scenery everywhere along the line, and the train schedules for this part of the journey are so arranged that during the summer season everything may be seen by daylight. En route via Telluride, passengers remain overnight in that picturesque mining town, and, leaving early next morning, the beautiful Cathedral Spires and Ophir Loop are traversed. En route via Durango, the metropolis of southwestern Colorado, a night is spent in that city. If desired, at Ridgway a side trip may be made to the mountain town of Ouray and over the scenic Ouray Stage Line; and at Durango a side trip may be made up the beautiful Canyon of the Animas to Silverton.

DETAILED INFORMATION ABOUT TRAVEL

For further information regarding railroad fares, services, etc., apply to railroad ticket agents, or address H. I. Scofield, general passenger agent, Denver & Rio Grande Western Railroad, Denver, Colo., or W. J. Black, passenger traffic manager, Atchison, Topeka & Santa Fe System, Chicago, Ill.

TRANSPORTATION AND CAMPS IN THE PARK

The road to the Mesa Verde National Park is open during the season to both horse-drawn vehicles and automobiles, and may be reached from points on the Mancos-Cortez Highway about $6\frac{1}{2}$ miles from Mancos and 11 miles from Cortez.

From the Mancos-Cortez Highway to phone box No. 4 the Point Lookout Entrance Road, after leaving the dry-land farms and gentle piñon and juniper covered slopes, suddenly unfolds most enchanting vistas of the fertile Mancos Valley nestling at the foot of the sharp, rugged snow-clad La Platas, and, as elevation is gained, magnificent views of the great Montezuma Valley, Sleeping Ute Mountain, and the far distant Blues, Lone Cone, and other peaks.

From phone box No. 4 the Knife Edge Road leads to the right, around the base of Lone Cone to the north face of the mesa, heading Prater Canyon before ascending to phone box No. 3. In emergency, water for radiators may be obtained $2\frac{1}{2}$ miles south of phone box No. 4 on the old Morefield Road, or 1 mile south from the head of Prater Canyon, there being windmills and tanks at both places.

Parties entering the park by automobile should see that their gas tanks and radiators are filled (extra water desirable), and that they have sufficient oil in crank case, or in reserve, when they pass through the near-by towns of Mancos, Cortez, or Dolores. See that your brakes are in good shape. On long grades select gear suitable for holding car, brake against compression, and save your brake linings. Grades average 8 per cent. The roads are perfectly safe and sane; the driver who does not care for his car and heed warnings is not.

Provisions for campers are obtainable at reasonable prices in any of the near-by towns. Gas and oil can be had at Spruce Tree Lodge. Telegrams sent prepaid to Mancos will be phoned to addressee at the camp. The post-office address for parties within the park during the park season is Mesa Verde National Park, Colorado.

RANGER AND GUIDE SERVICE TO RUINS

Every day during the season private motorists line up in their cars on right side of main road opposite ranger station at 8 a. m. and 1.30 p. m. for the trips by car to the various ruins. Rangers and guides are assigned for the purpose of conducting you to and through the ruins, explaining the salient features thereof, answering your reasonable questions, and assisting you on the trails. This service is gratis, and tipping rangers or guides is prohibited. Parties arriving late will be assigned rangers and guides at 10 a. m. and 3 p. m. No deviation can be made from this schedule.

TRAIL TRIPS

Visitors who view the Mesa Verde from the automobile roads gain but an inkling of the weird beauty and surprises which this area holds for the more adventurous. Trail or hiking trips along the rim rock bordering the deep canyons lead to spectacular ruins not seen from any of the roads.

The large Wetherill Mesa and Rock Springs groups of ruins can be reached only by trail. Likewise, the ruins of the Mancos Canyon, perched on presumably inaccessible cliffs, hundreds of feet above the bed of the river, or the Holmes Tower, Sandal House, and Double Walled Tower on the floor of the valley, are reached only by trail.

Each turn and twist of the trail reveals entrancing vistas of rugged canyons, sheer cliffs, great caves, hidden ruins, distant mountains, tree-covered mesas, or open glades.

FREE PUBLIC CAMP GROUNDS

The public camp grounds are located under the piñons and juniper cedars on the rim of Spruce Canyon, one of the most beautiful canyons of the park, and but a few hundred feet from Spruce Tree Lodge and park headquarters. Individual party camp sites have been cleared on both sides of the loop road serving it, insuring a certain amount of privacy. Fine cool water from the old cliff-dweller spring at the head of Spruce Tree Canyon is piped to several convenient locations on the grounds, toilet facilities have been installed, and firewood is provided without cost to campers. A ranger is detailed for duty on the camp grounds. *Leave your camp site clean when you leave the park.*

PARK MUSEUM AND REFERENCE LIBRARY

The park museum building, the equipment, reference library, funds for the purpose of excavation to gain more material, as well as certain specimens and collections removed from this area before it was made a national park, have all been gifts of friends of the park. A museum assistant is in charge of the building, exhibits, and library. The museum is worthy of intensive study.

CAMP FIRE TALKS

The evening camp fire talks at the Camp Fire Circle at park headquarters are informal affairs. The superintendent and the rangers give talks on the history, geology, archeology, topography, and flora and fauna of the park. Visiting scientists, writers, lecturers, and noted travelers usually contribute toward the evening's entertainment. During the past year at the conclusion of the "talks," six of the best singers and dancers among the Navajo Indians employed at camp could usually be persuaded, by modest voluntary contributions on the part of the visitors, to give four parts of the Sacred Yebechai Ceremony. They will not dance and sing otherwise away from the reservation to the south.

PUBLIC UTILITIES

SPRUCE TREE LODGE

Oddie L. Jeep, manager, address, Mancos, Colo., conducts the only lodge accommodations in the park. Comfortable floored tents and cottages are situated among the piñons and juniper cedars, overlooking Spruce, Spruce Tree, and Navajo Canyons. Meals are served in the main building, where curios, photographs, and soft drinks may be procured. The lodge is but a few minutes' walk from Spruce Tree Ruin and park headquarters.

MESA VERDE TRANSPORTATION CO.

C. R. Beers, manager, address, Mancos, Colo., conducts an automobile service from Mancos to the park and the ruins. Seven-passenger automobiles are used exclusively. Cars meet all trains at Mancos, Colo. Ticket, to include auto service to park and ruins, can be purchased with rail ticket if requested.

Time consumed in each direction, Mancos to Spruce Tree Lodge, two hours.

Baggage should only be checked to Mancos, Colo. The auto stage company will carry not to exceed 25 pounds free allowance. Persons having baggage in excess of 25 pounds can make special arrangements at Mancos, Colo., for its transportation to Mesa Verde National Park and return.

Storage charges on baggage at Mancos station will be waived while passengers are making tour of the park.

MESA VERDE AUTO STAGE CO.

J. O. Morris, proprietor, Farmington, N. Mex., conducts an automobile stage line from the main lines of the Santa Fe Railway at Gallup, N. Mex., to the park and return, a round trip of nearly 400 miles, largely through the most primitive, picturesque, and least known part of the Southwest. Gallup headquarters are at the White Garage, across the street from El Navajo Hotel.

MESA VERDE PACK & SADDLE CO.

James G. English, manager, address, Mesa Verde National Park, Colo., conducts a general pack and saddle service to little-known

ruins and parts of the park far from the roads. Saddle animals are available for one-day trips to Mancos River, Spring House, Casa Colorado, Inaccessible House, and Poole Canyon. New equipment



Map of portion of Chapin Mesa showing administration area

and sturdy sure-footed western horses raised in the mountains and accustomed to trail work are used in this service.

Rates for public utilities will be found on page 59.

DISCOVERY OF RUINS

The largest cliff ruin, known as Cliff Palace, was discovered by Richard and Alfred Wetherill while hunting lost cattle one December

day in 1888. Coming to the edge of a small canyon they first caught sight of a village under the overhanging cliff on the opposite side, placed like a picture in its rocky frame. In their enthusiasm they thought it was a city. With the same enthusiasm the expectant visitors of to-day involuntarily express their pleasure and surprise as the spectacle breaks on their astonished vision.

Later these two men explored this ruin and gave it the name Cliff Palace, an unfortunate designation, for it is in no respect a palace, but a community house, containing over 200 dwelling rooms, former abodes of families, and 23 sacred rooms or kivas. They also discovered other community dwellings, one of which was called Spruce Tree House, from a large spruce tree, since cut down, growing in front of it. This had 8 sacred rooms and probably housed 300 inhabitants.

The finding of these two ruins did not complete the discoveries of ancient buildings in the Mesa Verde; many other ruins were found by the Wetherills and others which need not now be mentioned. They mark the oldest and most congested region of the park, but the whole number of ancient habitations reaches into the hundreds.

Only a few of the different types of ruins that have already been excavated and repaired and are now accessible to the visitor are considered herein. Many others await the spade of the archeologist and the road maker, being now only accessible on foot or horseback by means of difficult trails. The following archeological descriptions of various ruins are by Dr. J. Walter Fewkes, Chief of the Bureau of American Ethnology, under whose direction the excavation and repair of these notable ruins has been accomplished, with the exception of Balcony House, which was done by Jesse L. Nusbaum.

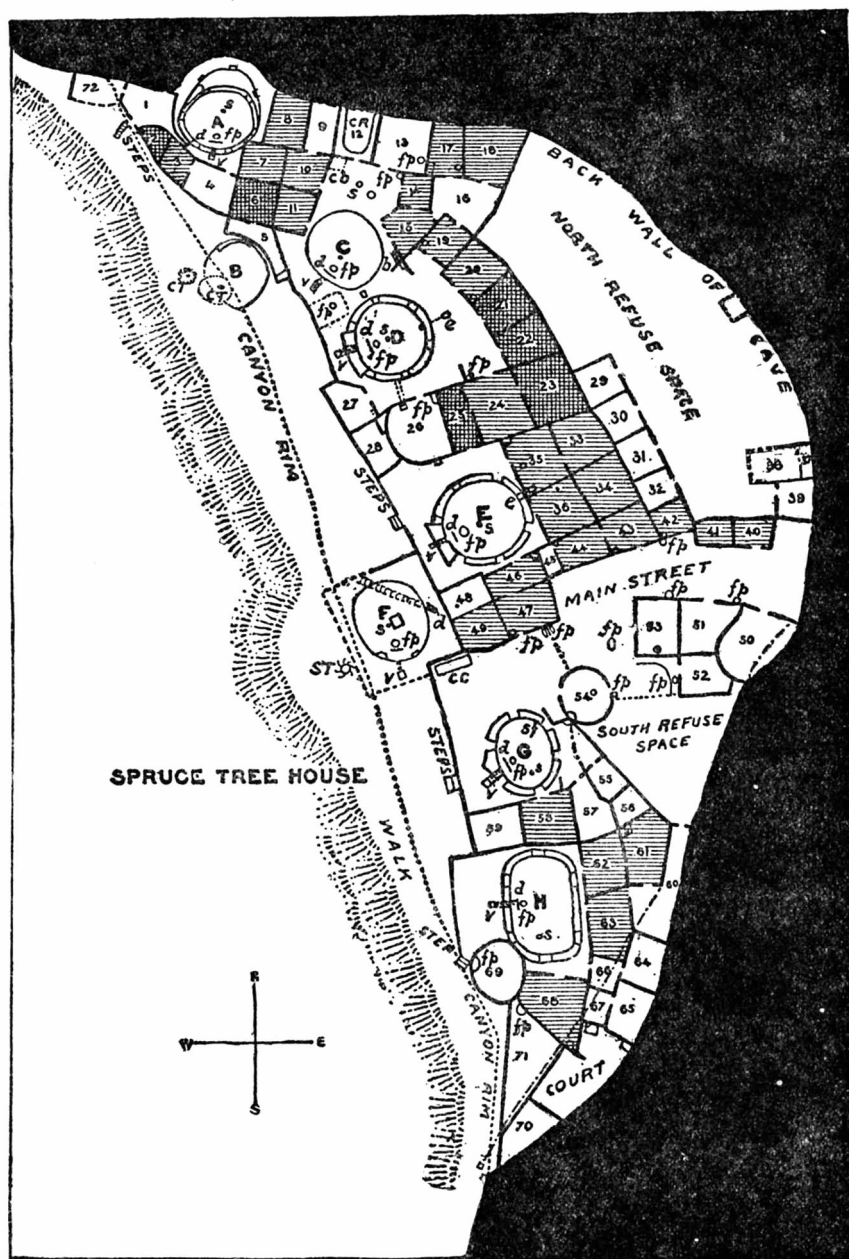
SPRUCE TREE HOUSE

GENERAL DESCRIPTION

The total length of Spruce Tree House is 216 feet, its width at the widest part 89 feet. There were counted in the Spruce Tree House 114 rooms, the majority of which were secular, and 8 ceremonial chambers or kivas. Spruce Tree House was in places three stories high; the third-story rooms had no artificial roof, but the wall of the cave served that purpose. Several rooms, the walls of which are now two stories high, formerly had a third story⁴ above the second, but their walls have now fallen, leaving as the only indication of their former union with the cave lines destitute of smoke on the top of the cavern. Of the 114 rooms, at least 14 were uninhabited, being used as storage and mortuary chambers. If we eliminate these from the total number of rooms we have 100 inclosures which might have been dwellings. Allowing 4 inhabitants for each of these 100 rooms would give about 400 persons as an aboriginal population of Spruce Tree House. But it is probable that this estimate should be reduced, as not all the 100 rooms were inhabited

⁴ On the plan of Spruce Tree House, from a survey by Mr. S. G. Morley, the third story is indicated by crosshatching, the second by parallel lines, and the first has no markings.

at the same time, there being evidence that several of them had occupants long after others were deserted. Approximately, Spruce



Plan of Spruce Tree House.

Tree House had a population not far from 350 people, or about 100 more than that of Walpi, one of the best-known Hopi pueblos.

CLASSIFICATION OF ROOMS

SECULAR ROOMS

The rooms of Spruce Tree House are topographically divided into two groups by a court or street, running east and west, situated about midway between the north and south ends of the village. This street is entered from the plaza in which kiva G is situated and has many fireplaces. In the northern division of the ruin there are five kivas⁵ and in the southern section three. The majority of the secular rooms, comprising the oldest, are situated in the northern division. The row of rooms bordering the street on the south end of the northern division contains some of the best walls in Spruce Tree House. The roofs and floors are well preserved, and the walls show the best masonry in the whole ruin. The varied coloring of the plaster indicates that it was done at different times. It may well have been that this was the most aristocratic part of the village; certainly the houses here were constructed by the most clever masons and are now the best preserved. Their roofs and floors are in as fine condition to-day as when the place was inhabited. They have lateral doorways and well-made windows opening into the street. Entrances through upper or second-floor doorways appear in some cases to have been accomplished by means of foot holes in the side of the wall, which are now visible. Notched logs were placed along the street to be used by visitors. The rooms are dark and were probably sleeping chambers, the fireplaces in the courts indicating that much of the cooking was done in the adjacent plaza and court.

The rooms of Spruce Tree House are well furnished with doorways, both lateral and vertical, the latter being very few in number. Some of the lateral openings are rectangular in form, slightly narrowed above; others are T-shaped. Many examples of the latter have the lower part filled in with masonry, reducing them to rectangular openings, and a few are entirely walled in, shutting off all entrances, a circumstance that would indicate that these rooms were abandoned, while yet others were inhabited.

The sills of these doors which have a solid stone threshold are often much worn, showing frequent use. The lintels are commonly slabs of stone, but they may likewise be made of split sticks set in mortar. Similar sticks are likewise sometimes let into the side of the doorways. The tops of many of the openings were partially arched over with mud, making a semicircular jamb that holds in place the flat stone which closed the opening. To secure in place the stone slab which closed the entrance the inhabitant used a stick that was held in place by eyelets made of osiers, one on each side. One of these doors was restored in its original form.

The second tier of rooms of plaza D, shown by the projecting ends of rafters, had a balcony, a small section of which can still be seen at the north end. Long poles formerly extended above these projecting beams, which they connected, and these poles supported wattlings and cedar bark covered with adobe. Along this platform the dwellers in rooms in the second story passed from doorway to doorway, and by it they were enabled to enter their own rooms.

⁵ There is a numerical relationship between the population and the number of kivas which has not yet been satisfactorily worked out.

The evidences are that there were two balconies, one above another, at this point, but all traces of the floor of the highest of these except a few ends of rafters have disappeared. In a wall under this balcony, as was not uncommon in some cliff dwellings, there is found a stone projecting from its face, which served as a step to reach the lowest doorway.

In one corner of a room back of plaza H there is a stone box or closet, the sides of which are formed of slabs set upright, on the upper edges of which is luted in place a cover having a square hole cut in one corner. This stone is not level, but inclines slightly outward from the wall. The use of this closet is unknown. A somewhat similar stone bin occurs in the northeast corner of plaza C, but, unlike it, has no covering slab, and is situated in the corner of a plaza instead of a room. It seems natural to regard it as a corn bin. The meaning of the stone inclosure in one corner of plaza G is unknown.

CIRCULAR ROOM

The most interesting room in the south division is circular and stands at the right of the visitor as he follows the street from kiva G to the rear of the cave. It would at first sight seem from the shape of this room and the number and arrangement of holes in its wall that it was a bastion for defense. But these orifices admit of an explanation quite different from portholes. They may be the openings through which the sun priest watched the setting sun to determine the times for ceremonies. This room is somewhat isolated from the others and is furnished with rectangular openings like windows in front and rear; but, as these openings are small and not easily passable, the probability is that the entrance was from above.

The ground outline of another circular room, which may possibly have been a tower, the existence of which escaped all previous observers, was traced at the south end of the ruin just beyond kiva H. From its position this room was believed to be a bastion for defense, so placed as to command the entrance to the village from its south end. The broken wall and fireplace of this room were repaired.

WARRIORS' ROOM

One of the problematical rooms of Spruce Tree House lies in the northern division, back of plaza C, in the row east of its kiva. This small room has a lateral doorway, the sill—as are others—somewhat raised above the level of the plaza. The remarkable feature of this room is a banquette extending around its three sides, the remaining side, or that opposite the door, being the cliff or rear of the cave. This room resembles in certain particulars one in Cliff Palace, described by Nordenskiöld, but differs from his description in certain important details of structure. Its construction is so exceptional that one could hardly call it a living room, and it is too elaborately made for a storage chamber. There is a shallow vertical passageway in the south corner, near where the banquette joins the side of the cliff, which has some unknown meaning. Nordenskiöld, in discussing a similar room in the Cliff Palace, appears "to regard it as marking the transition to the rectangular *estufa* of the Moki Indians." As he points out, it differs "from the *estufas* in the absence of the charac-

teristic passage and also of the six niches. Furthermore, they often contain several stories, and in every respect but the form resemble the rectangular rooms." It rarely happens that secular rooms are built above kivas; in fact, such a condition would be ceremonially an impossibility. The meeting places of warriors are exceptional in this regard, and from this and other reasons this chamber is considered to be a room of the warriors or an assembly place for councils. This room adjoins that in which three child "mummies" are said to have been found and from which the author exhumed the skeleton of an adult.

DETAILS OF CONSTRUCTION

In the middle of plaza C there is a rude ware vase set in the floor with opening level with the surface. This is probably the cavity where offerings were ceremonially deposited and corresponds in a general way with shrines in the middle of the Hopi plazas, one of the best known of which is the so-called *sipapâ* used in the Walpi snake dance. The rooms at the south end of the ruin follow a ledge slightly elevated above the general level. Here are also small inclosures or bins, constructed of stone, that remind one of storage cysts. Below these on the horizontal surface of the cliffs there are broad depressions worn in the rock by rubbing stone weapons, like axes, and narrow grooves showing the impression of pointed implements. Here are also several good fireplaces, from the smoke of which the top of the cave has been considerably blackened. It was necessary to repair one of the storage cysts, which had been almost completely destroyed.

It was customary for the inhabitants of the cliff houses to lay an irregular wall, without mortar, on the top of other walls. One of the high walls at the south end of the ruin has a collection of these stones, the use of which has led to considerable speculation. These rude walls serve as wind or snow breaks.

CEREMONIAL ROOMS OR KIVAS

Spruce Tree House has eight kivas. These kivas are circular in form, subterranean in position, and in structure essentially alike. Their structure is characteristic of those elsewhere on the Mesa Verde, in the McElmo, San Juan, and Chaco Canyons. All Spruce Tree House kivas lie in front of dwelling, except one (A), which fills an interval between the back wall of the cliff and buildings before it. On this and other accounts this kiva is believed to be one of the oldest in the village. As this kiva has double walls, evidently those first built did not please the builders. The present and latest constructed kiva is circular and lies inside an older one, which has an oval shape. Both of these structures were excavated and put in thorough repair.

CONSTRUCTION OF A KIVA

Each kiva has two sections, a lower and an upper. The lower part has walls about 3 feet high, ending in a bank, on which at intervals there are six square buttresses which separate corresponding recesses and support the beams of the roof. Between these buttresses are left recesses, formed by the outside wall, which rise to the height

of the roof. This lower wall, like all others, was plastered and shows marks of fire or smoke but not of a general conflagration. In the lower wall were found niches or small cubby-holes a few inches square, which were receptacles for paint, meal, or small objects. Each buttress has a peg on its top projecting into the kiva just under the roof; and in the surface of the banquette in kiva C there is set a small, roughly made bowl, the rim of which is on the level of the bank.

The floor of the kiva is generally plastered, but in kiva E the solid surface of the rock was cut down on the west side several inches as a part of the floor. In the floor is a circular pit, F, filled with wood ashes, which served as the fireplace. About halfway from this depression to the opposite wall of the room there is in the floor of every kiva a small hole, G, lined with a neck of a roughly made bowl. This opening, which is barely large enough to insert the hand, represents symbolically the ceremonial entrance to the underworld and is the same as that which the Hopi called the *sipapû*. Around this hole, marking the place on the floor where altars were erected in ancient ceremonies, were performed archaic rites, and through it the priests addressed the gods of the underworld, even believing that they could communicate with the dead. The nature of ceremonies about the symbolic entrance to the underworld will be found by consulting the descriptions of the Hopi kiva rites elsewhere published by the author. All *sipapûs* and other features of structure of the kiva floors were put in good condition.

Between the kiva fireplace and the adjacent side of the room there is set in the floor an upright slab of stone, *e*, about 2 feet high, which is often replaced by a rectangular wall. The side of the kiva facing this screen has a rectangular opening that communicates with a horizontal passageway and opens into a vertical flue, the external orifice of which is in the plaza or outside the outer wall of the kiva. The upright stone or wall served as a deflector, which distributed the fresh air supplied to the kiva from outside the room by the flue above mentioned. This air entered the kiva through the vertical and horizontal passageway and was deflected by the upright stone around the room on the level of the floor. The smoke rose from the fireplace and passed out the kiva through the hatch in the middle of the roof, fresh air being supplied to take the place of the heated air and smoke by the ventilator.

There are other openings in the circular wall of the kiva at the level of the floor, some of which are large enough to admit the body, and communicate with tunnels ample in size for passage. In the floor of one of these there are steps, and by means of these passageways one could pass under the plaza from the kiva to an adjacent room. A good illustration of these passageways, as shown in the accompanying plan, is found in *e*, kiva E. A person can enter a vertical passage in the corner of room 35 and descend by use of steps to a short tunnel that takes him through the opening into the kiva. There is a similar passageway which opens externally in the middle of plaza C. It can not be that the openings and passages above described were the main entrances, but rather private doorways for priests on ceremonial or other occasions; the chief entrance was probably by means of a ladder through a hatchway in the middle of the room.

The structure of the kiva A is most remarkable, differing from the other seven ceremonial rooms of the Spruce Tree House. When first seen it had the appearance of one kiva within another, the first or larger being of oblong shape with remnants of a banquettes showing two pedestals on the north side; the second or inner kiva, being almost circular, was apparently the last occupied. In constructing the circular wall of that last mentioned the builders apparently utilized the southwest part of the larger room and those pedestals or buttresses that were situated in this section. Kiva A, as previously stated, is the only one built close under the overhanging rim rock, and is the only one with buildings in front of it. The roof of this kiva apparently formed a kind of plaza surrounded on three sides by houses, the wall of the cave forming the fourth.

There were never, apparently, any rooms above this kiva, but on one side a room of the second story is supported by a column, an exceptional feature in pueblo construction. The foundations of this wall are two logs curved to conform with the wall, and under the middle of these is the stone pillar.

CLIFF PALACE.

GENERAL DESCRIPTION

Cliff Palace lies in an eastern spur of Cliff Canyon, under the roof of an enormous cave which arches 50 or 100 feet above it. The floor of this cavern is elevated several hundred feet above the bottom of the canyon. The entrance faces the west, looking across the canyon to the opposite side, in full view of a great promontory, on top of which stands Sun Temple. The floor of the recess in which Cliff Palace is built is practically covered with buildings, some of which, especially those at each end, extend beyond the shelter of the cave roof. The total length of the Cliff Palace is approximately 300 feet.

The underside of the roof of rock arching over Cliff Palace is comparatively smooth, exhibiting horizontal cleavage and plane surfaces. A break in this cleavage extends approximately north and south, forming a ledge a few feet in breadth. On its edge the ancients constructed a long wall, thus making a passageway between it and the solid cliff. Although now inaccessible from the ruin below, in ancient times this passageway could have been entered from the roof of one of the houses (66) through a doorway which is still visible. Similar ledge rooms are common features in Mesa Verde ruins.

The floor of the cave in which Cliff Palace was built had practically one level, determined no doubt by a layer of comparatively hard rock, which resisted erosion more successfully than the softer strata above it. This floor was strewn with great angular boulders that in the process of formation of the cave had fallen from the roof. These were too large to be moved by primitive man and must have presented to the ancient builders uninviting foundations upon which to erect their structures. The spaces between these rocks were better suited for their purposes. These were filled with smaller stones that could be removed, leaving cavities which could be utilized for the construction of subterranean rooms. The upper surfaces of the large rocks, even those which are angular, served as foundations for houses above ground and determined the levels of the plazas.

From the bases of these rocks, which formed the outer edge of the level cave floor, a talus extended down the canyon side to the bottom. The rooms forming the front of the ancient village were constructed in this talus, and as their site was sloping they were necessarily situated at lower levels on terraces bounded by retaining walls which are marked features in this part of Cliff Palace. At least three different terraces indicating as many levels are recognized. These levels are indicated by the rows of kivas, or ceremonial rooms, which skirt the southern and middle sections of the ancient village. At the southern end, where the talus is less precipitous and where, on account of the absence of a cave roof, the fallen rocks are smaller, the terrace with its subterranean rooms is on the level of the floor of the cave, having the same height as the foundations built thereon. At the western extremity the buildings were erected on the tops of huge rocks fallen from the roof of the cave. Here the talus is narrow or wanting, and no rooms were constructed in front of these rocks. Thus the terrace rooms on the lowest level are found along the middle section of the cave, where the floor is highest and where the great fallen rocks still remain in sheltered places.

Fortunately, the configuration of the cliffs above the ruins makes it possible to get a fine bird's-eye view of Cliff Palace from the rim of the mesa. Views obtained from the heads of the two trails are most striking and should be enjoyed before closer examination and detailed study of the rooms in Cliff Palace. To obtain the best general view of the whole ruin from the front, one may cross the canyon and climb a promontory whence Cliff Palace appears to be set among trees in a rocky frame, the lower side being the precipice beneath and the upper the roof above.

ENTRANCE

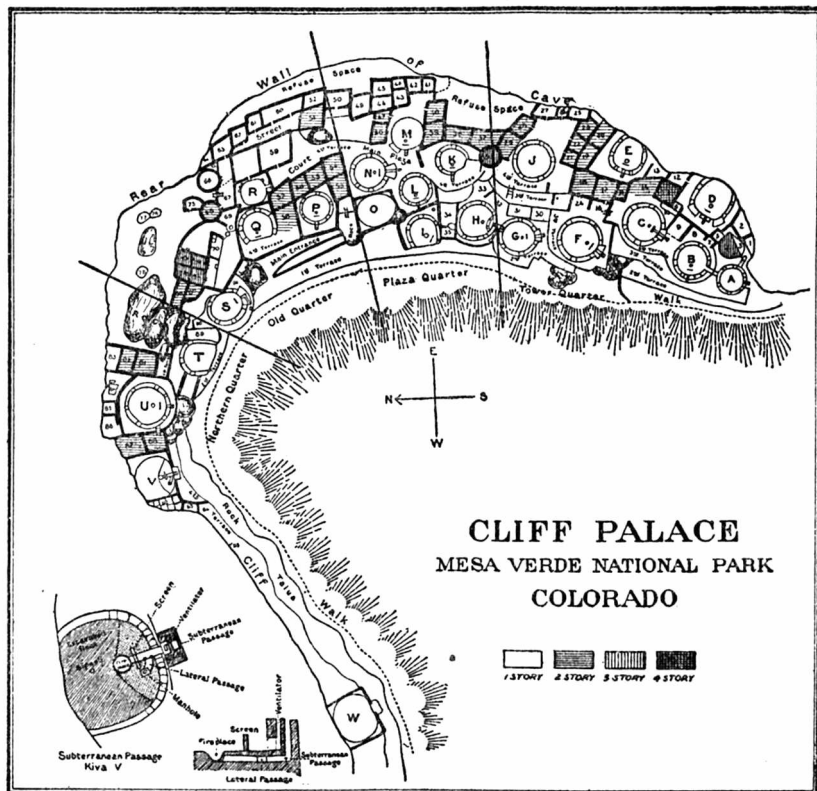
Deep under the débris which covered the lower terrace of Cliff Palace there was brought to light by excavation an ancient way, hitherto unknown, which leads by a gradual slope to the center of the village. This pathway extends parallel with the high front wall of kiva O, and, passing to a large rock in which foot rests were cut, enters Cliff Palace through a narrow court between high walls. From this court ascent to the level of the cave floor was accomplished by means of a ladder, which could be drawn in when danger necessitated. The floor of the main entrance was hardened adobe, the outer edge of which was held by a roughly laid retaining wall resting at the lower end on logs still well preserved. This main entrance may have led formerly to the village spring in the canyon below, now dry, and along it no doubt in ancient times toiled the weary women with jars of water on their heads.

A similar recess in the front wall is found in the pueblo Far View House, in the cliff dwelling Square Tower House, and in the specialized religious building, Sun Temple.

GROUND PLAN OF CLIFF PALACE

An examination of the correct ground plan of Cliff Palace shows that the houses were arranged in a crescent, the northern extension of rooms corresponding roughly to one point. The curve of the village

follows, generally speaking, that of the rear of the cave in which it was constructed. There is little regularity in the arrangement of the rooms, which, as a rule, are not crowded together; most of the subterranean chambers are situated on terraces in front of the secular rooms. There is one passageway that may be designated a street; this is bordered by high walls over which a passer-by could not look. No open space of considerable size is destitute of a ceremonial chamber, and the largest court contains five of these rooms. It is not possible to count the exact number of rooms that Cliff Palace formerly



had, as many upper stories have fallen and a considerable number of terraced rooms along the front are indicated only by fragments of walls. Roughly speaking, 200 is a fair estimate.

It is instructive to note that although Cliff Palace is about three times as large as Spruce Tree House, judging from ceremonial chambers, it has no more than double the number of secular chambers.⁶

QUARTERS OF CLIFF PALACE

In order to facilitate the description of Cliff Palace it is here arbitrarily divided into certain quarters or sections. The front entrance,

⁶ This is explained on the theory that Cliff Palace is more ancient than Spruce Tree House, the kivas being the older rooms and probably more strictly limited to the use of clans, while at Spruce Tree House they are more in the nature of fraternity rooms, the membership of the priesthood occupying them being drawn from several clans.

being situated about midway of the length of the village, is naturally a point of division of the ruin into halves.

Four different regions may be distinguished in the ruin, two north of a line drawn from the front entrance to the rear of the cave and two south of that line. While structurally there appear to be no essential differences in these quarters, they present certain characteristic archeological features which are worthy of consideration.

The part of Cliff Palace extending northward from the main entrance to the point where the ruin turns westward lies in the deepest part of the cave and may be called the "Old Quarter." Its northern end is formed by a castellated building three stories high, constructed of the finest masonry and perched on a huge fallen rock. This building contains several rooms, story above story, the uppermost reaching to the roof of the cave. It may be called the "Speaker Chief's House," from a banquette on one side overlooking the whole southern end of the ruin.

The extension of Cliff Palace westward from the Speaker Chief's House to the end of the ruin may be designated the "Northern Quarter." About 50 feet beyond the extreme western end stands above ground a solitary building, or ceremonial room, of singular construction. The part of the ruin from the main entrance to the Round Tower contains five ceremonial rooms huddled together. Their roofs and the intervening spaces formerly constituted the most extensive plaza in the village, and it seems appropriate to call this the "Plaza Quarter."

The part of the ruin from the Round Tower to the extreme southern end is divided into halves by the Square Tower, a four-storied room with painted walls.

To recapitulate, there are here recognized in Cliff Palace the following quarters:

1. Northern Quarter, from Speaker Chief's House to west end.
2. Old Quarter, from Speaker Chief's House to entrance to ruin.
3. Plaza Quarter, from village entrance to Round Tower.
4. Tower Quarter, from Round Tower to southern end.

NORTHERN QUARTER

This quarter contains four ceremonial rooms and accompanying secular inclosures. On the western end it has a room fitted up with four corn-grinding bins (*metatakis*), a second room with one *metate* and two cooking rooms.

This quarter is built on two levels, the lower, adjoining the Old Quarter, having fine masonry, composed of well-dressed building stones. The higher level has two kivas, the more western of which shows in its floor the most extensive example of excavation in solid rock known in Cliff Palace. For more than two-thirds of its area the floor is here cut down on one side about 2 feet. The whole western section was considerably mutilated and was covered with small building stones and debris when the excavation and repair work began. This is obscurely indicated on previously published ground plans in which its rooms are not accurately represented.

OLD QUARTER

The region northward from the main entrance of the Cliff Palace, including the lofty castellated building called "Speaker Chief's House," may be known as the Old Quarter. This contains many secular rooms, some of which are round and others rectangular, and three fine ceremonial rooms, one of which is of a type rare in cliff dwellings. The Old Quarter falls naturally into two regions, the Speaker Chief's House and the section adjoining the main entrance. A street extending north and south divides this quarter into a front and a rear section.

It seems probable that the Old Quarter was inhabited by the oldest and most influential clans of the pueblo. The masonry of the Speaker Chief's building is not only the finest in Cliff Palace but compares well with that laid by white masons. The walls throughout were built of hewn stones, ground plane, carefully laid, and smoothly plastered. The main building was erected on the inclined face of a very high, angular rock, unfortunately cracked, by which the foundations are raised above neighboring buildings and terraces. The castellated part extends to the roof of the cave and is three stories high. On the north side the wall of this part is curved, but on the south side there is a banquette or platform to which one mounts by a single step. The whole central and southern parts of Cliff Palace lie in full sight of this platform, and we may suppose that a speaker chief stood upon it every morning when he announced the events of the day.

In addition to the three-storied castellated building there are included in the Old Quarter four fine ceremonial rooms and two circular rooms that lie deep in the cave.

The southern part of the Old Quarter, that adjoining the entrance to the village, has one ceremonial room and several secular inclosures. The "street" lies almost wholly in this section.

PLAZA QUARTER

Almost the whole of this quarter is occupied by a large open space containing five kivas. These subterranean rooms are so close to one another and are so arranged that their roofs must have formed an almost level plaza, which was the central and largest open place of Cliff Palace. Two kivas, I and H, on the lower terraces likewise belong to this quarter. In addition to the subterranean rooms on the upper level there extends from it into the Old Quarter a court into which opens the "street." It may well be supposed that the Plaza Quarter was one of the most frequented breathing places in this cliff dwelling when inhabited. Here we find a broad, open place fitted for ceremonial dances, into which opened the only large court and street of the village. The main entrance to Cliff Palace was situated at its northwest corner. It was well protected in all seasons of the year by the overhanging roof of the cave and the massive walls surrounding it on three sides. The outlook from its western side across Cliff Canyon is one of the finest. Situated midway between the two ends of the village, near the center of population, the Plaza Quarter must have been a much frequented place when Cliff Palace was inhabited, and may well be called the chief quarter.

TOWER QUARTER

The Round Tower section includes the ceremonial rooms E to G and the secular buildings 13 to 33. Of the former F and G lie at lower levels in front of the foundations of the Round Tower. Kiva J is situated on a high level, and E is built near the cliff in the rear of the village.

The most striking architectural feature of this quarter is, of course, the picturesque Round Tower, a symmetrical structure perched on top of a huge rock. The use of this tower is unknown, but we can hardly suppose so important a building was built in this commanding position for purely secular purposes.

The southern end of Cliff Palace, including rooms 1 and 10 and the subterranean chambers A to D, is somewhat exposed to the weather and therefore much worn. Kivas A to C lie in the open in front of the rooms and outside the rim of the roof. The walls of kiva D, among the finest known in cliff dwellings, are painted yellow and have the superficial plastering well preserved. The Square Tower (11) is four stories high and has fine mural decorations in white and red on the inner walls of the third story. The whole northwest angle of this tower had to be rebuilt to support the walls of this story.

CEREMONIAL ROOMS

The majority of the ceremonial rooms in Cliff Palace are accompanied by rectangular chambers, but one of the former, situated about 50 feet from the western end, has no rooms near it. The ceremonial rooms naturally fall into two types: (1) Subterranean kivas having banquettes around their sides, separated by roof supports called pedestals; (2) kivas destitute of banquettes or pedestals, probably roofless, their roofs being replaced by high surrounding walls. Twenty ceremonial rooms have been referred to the first type; two or three to the second. The isolated kiva resembles in many particulars the other examples of the second type. The shape of the kivas varies from circular to square, with rounded corners. Their architecture varies somewhat, and their depth is not uniform. The walls are well constructed and generally show signs of plastering often blackened with smoke. One of the kivas is painted yellow; the lower part of another is red, with triangular decorations on the upper border.

Similar decorations occur likewise on kiva A of Spruce Tree House and on the inner walls of the third story of the Square Tower. They are found also on the walls of Fire Temple, and Painted Kiva House.

KIVAS OF THE FIRST TYPE

The Cliff Palace kivas, provided with pedestals or roof supports, furnish examples of some of the finest masonry in prehistoric buildings of our Southwest. Owing to their subterranean position it was often necessary for the builders to excavate the floors in solid rock, and the curves of the sides were obtained in many instances by removing projecting ends of huge rocks. The number of pedestals varies in different kivas. In the majority there are six of these roof

supports; the kiva in the Speaker Chief's section has eight, others four, and one has but two. The number of banquettes necessarily varies with the number of pedestals; one called the altar banquette is commonly larger than the remainder. This large shelf may be the place where ceremonial paraphernalia were placed. In most cases it is situated in the same side as the air shaft or ventilator. Every kiva of the first type has a ventilator, fire hole, and deflector.

Although these structures are represented in every kiva, the configuration of the walls of many kivas made it difficult to introduce the ventilator on the same side or in the same form. In one case the passage turns at right angles before it joins the vertical so-called ventilator. In another instance this vertical passage is situated like a chimney at one angle of the outside wall, and in still another it opens through a roof support.

Deflectors in Cliff Palace kivas have four modifications: (1) A slab of stone placed upright; (2) a low stone wall; (3) a curved wall joining the wall of the kiva on each side of the lateral entrance into the ventilator; (4) a row of upright sticks having twigs woven between them, the whole being covered and hidden with clay mortar. Thus, all varieties of deflectors discovered in Mesa Verde ruins are represented at Cliff Palace.

Every kiva of the first type has a fireplace near the center of the room, which is generally found to be packed solid with wood ashes. In some cases the sides are rimmed with flat stones, one stone smaller than the rest, sometimes projecting slightly above the level of the floor. The symbolic opening (*sipapú*) in the floor is not found in all Cliff Palace kivas. It is rarely absent; usually it is situated slightly to one side of the middle of the floor. In one kiva the opening is double and in another room this hole lies near the wall. Even when necessary to drill into solid rock the ancients did not hesitate to make this ceremonial opening, which, in some instances, was lined with a burnt-clay tube. For the reception of small objects diminutive niches were constructed in the walls of almost every kiva, and jars are now found inserted in the banquettes of a few of these chambers.

Each kiva possesses special characters notwithstanding that all the kivas have a general similarity.

KIVAS OF THE SECOND TYPE

There are two, possibly three, ceremonial rooms that show no signs of roof supports or pedestals, no evidences of fireplaces, deflectors or ventilators. It would appear that these rooms were used for the same purpose as kivas of the first type. They have banquettes on the side wall, quite wide at each end, and generally a lateral passage-way at the floor level.

The existence of two types of ceremonial rooms in Cliff Palace may indicate a division of the ritual into two distinct parts performed by the summer and the winter people, respectively, a specialization still perpetuated among some modern pueblos. The best example of the second type is kiva R, situated in the Old Quarter of the ruin in the neighborhood of the Speaker Chief's House. No signs of pedestals are to be found, but broad banquettes occupy the northern and southern ends, connected on the other sides by a narrow shelf. In the side walls below the banquettes are several recesses or cubby-holes, and

there is a lateral entrance on the floor level in the southern side which sends off side branches under the banquette, but no indication was discovered of a vertically placed ventilator.

The walls above this kiva were built high, as if to prevent observation by outsiders. There was probably no roof.

SECULAR ROOMS

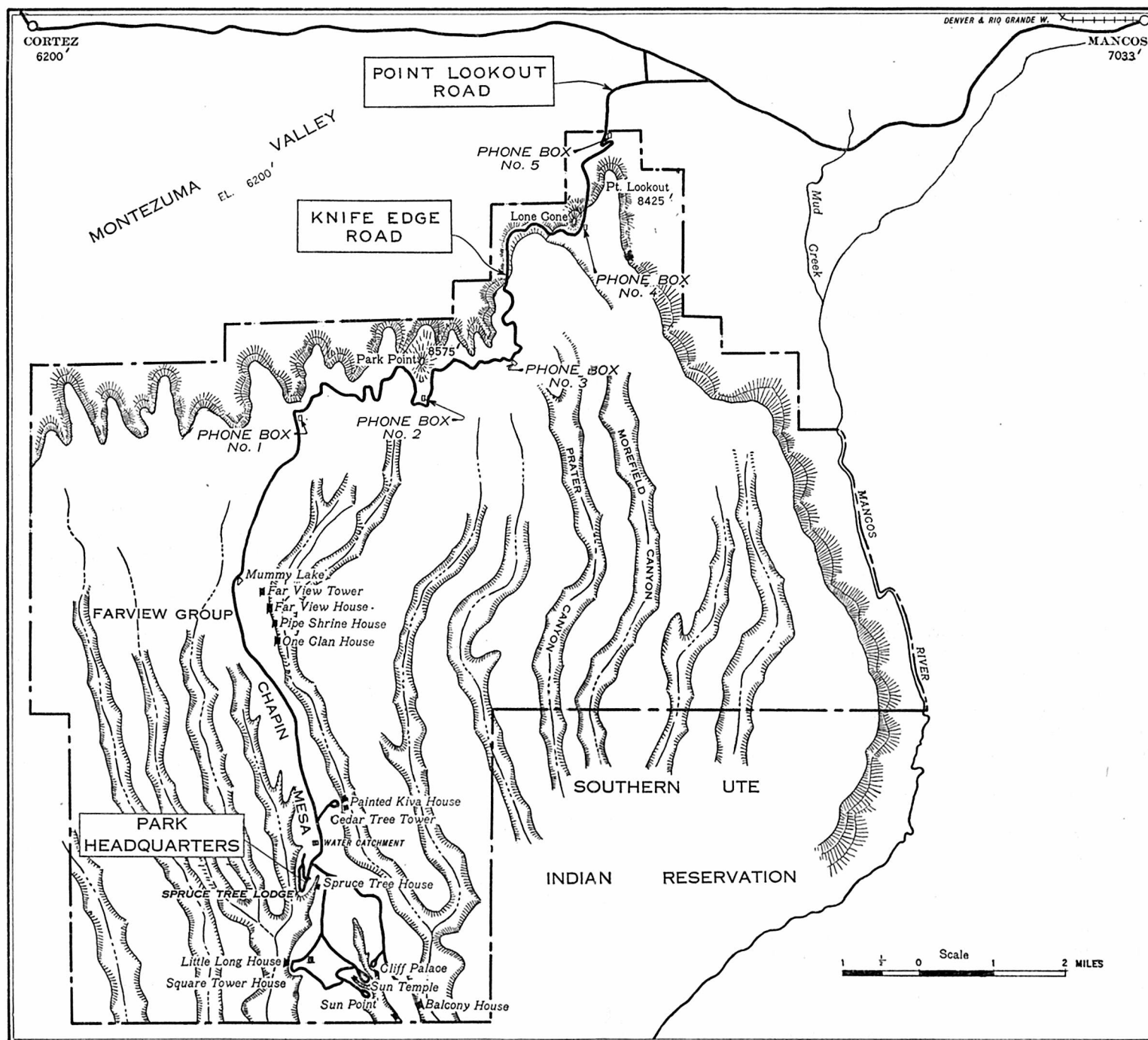
Secular rooms in Cliff Palace may be classified as follows: (1) Living rooms; (2) storage rooms; (3) mill rooms; (4) granaries; (5) dark rooms of unknown use; (6) towers, round and square; (7) round rooms not towers. The highest rooms have four stories. There are several of three stories, many of two, but the majority have only one. Walls projecting at right angles to the foundations in front of the ruin on a level below the cave floor indicate that in this part Cliff Palace was terraced, consisting of several-storied houses and terraces at different levels. There is little uniformity in size, shape, or character of the walls of secular rooms. In rare instances they extend to the roof of the cave, a feature sometimes shown by markings or fragments of masonry on the rock surface.

LIVING ROOMS

Several rooms show such marked evidences that they were inhabited and used as sleeping places that they are called living rooms. One or two of these have each a banquette extending across one side and several have fireplaces in the floor in one corner. The inner walls of these rooms are generally smoothly plastered, sometimes painted. They contain small niches, and in one case pegs on the walls on which blankets or kilts could be hung. These chambers are supposed to have been the sleeping rooms for women and children, and, although not living rooms in one sense, they are the nearest approach to them in Cliff Palace. Much of the daily work—pottery making, cooking, etc.—was done on housetops or in open places adjoining the living rooms.

MILL ROOMS

Several special rooms set apart for mills in which corn was ground were discovered in different quarters of Cliff Palace. These differed from some other rooms only in being smaller. Almost the whole space was occupied by rude stone mills of characteristic forms. These consist of boxes made of slabs of rock set upright, in each of which was placed an inclined stone, the mealstone (*metate*). In front of this, at the bottom of the mill, is a receptacle into which the meal fell after it had been ground by hand by means of a slab of stone called the *mano*. The women or girls who ground the corn knelt on the side of the mill at the top of the *metate* and rubbed the *mano* over the *metate* (mealstone) until the corn between was ground. In one of these mill rooms there were two and in another four of these mills set in a row side by side. The surfaces of the *metates* in this series are graded in roughness, so as to grind the meal finer and finer as it is passed from one to another. The mills were so well preserved that even the fragments of pottery in the angles of the receptacles in which the meal collected after grinding were still in place.



MAP OF MESA VERDA NATIONAL PARK, SHOWING IMPORTANT RUINS ON CHAPIN MESA ONLY

and the upright stones on which the girls braced their feet had not been moved. The brushes with which the meal was brushed into baskets after grinding, had been left in the mills and were still in good condition.

STORAGE ROOMS

The smaller rooms and the back chambers, many of them darkened by their position in the rear of other rooms, were probably used for storage of corn. These diminutive rooms, many having the form of cysts, are carefully built; many are erected on flat rocks, but have doorways. Every crevice and hole in the corners of these granaries was carefully stopped with clay, no doubt to prevent rats or squirrels from entering. The impression prevalent in some places that the inhabitants of Cliff Palace and of other cliff dwellings were of diminutive size is supported by the erroneous belief that these rooms were used as dwellings. If we had visited Cliff Palace when inhabited, we should probably have found in these storage rooms corn on the cob stacked in piles, from which the daily consumption was drawn. The living rooms were often small, but they were unencumbered with furniture or even with food in great quantities and were ample for people of small stature. The cliff dwellers were not pygmies.

ROUND TOWER AND ROUND ROOMS

The most prominent and picturesque building in Cliff Palace is the Round Tower, situated about midway in its length on a high angular rock, which raises it in full view above all the terraces. This tower is not the only round room in the ruin, for there are foundations and walls of two other circular rooms not far from the Speaker Chief's House at the north end of the "street." These are inconspicuous because hidden far back in the cave behind more lofty walls.

The Round Tower, formerly two stories high, was entered from the north side. It was little damaged during the centuries elapsing since Cliff Palace was abandoned and needed little repair. The walls show most beautiful examples of aboriginal masonry, perhaps the finest north of Mexico. Almost perfectly symmetrical in form, the stones that compose the walls are skillfully dressed, fitted to one another, and carefully laid. This tower was evidently ceremonial in function, or it may have served as an observatory, for which purpose it is well situated. The presence of small peepholes through which one can look far down the canyon supports the theory that the tower was a lookout, to which theory its resemblance to other towers in the Mesa Verde region likewise contributes.

SQUARE TOWER

This building also is one of the picturesque and prominent structures at the southern end of Cliff Palace. It is four stories high, the walls reaching from the floor to the roof of the cave. The walls of the third story are painted white and red with decorative symbols, as triangles, zigzag lines, and parallel lines, perhaps representing feathers. When work began on this tower the whole northwestern

angle had fallen and the wall of the "painted room" was tottering and in great danger of falling. The repair of this section was dangerous as well as difficult, one whole corner having to be rebuilt from the bottom of an adjacent kiva.

LEDGE ROOMS

A projecting ledge in the cave roof, about 20 feet above the top of the highest wall, served as the foundation of a marginal wall and accompanying rooms. This wall is pierced by doorways, windows, and peepholes. One of the doorways, probably an entrance situated near the northern end, was apparently on the former level of the roof of one of the round rooms of the Old Quarter of the pueblo. The outer surface of the marginal wall is decorated with a white terraced figure, suggesting the white figure overlooking plaza C in Spruce Tree House. The ledge rooms, which occur in several Mesa Verde ruins, were probably used for storage or for protection.

BALCONY HOUSE

Balcony House lies in Soda Canyon about $2\frac{1}{2}$ miles southeast of Spruce Tree Camp, and is reached by a continuation of Cliff Palace Road. It is one of the most picturesque of the accessible ruins in the park and occupies a better position for defense than most of the other ruins on the mesa. A few defenders could have repelled a numerous attacking force. Additional precautions have been taken at the south end of the ruin for the strengthening of its defenses, where the only means of reaching it is through a very narrow cleft. The south part of the ledge was walled up to a height of about 15 feet, the lower part of the wall closing the cleft being pierced by a narrow tunnel. Through this tunnel a man may creep on hands and knees from the cliff dwelling to the south part of the ledge, which affords a footing, with a precipice to the left and the cliff to the right, for about 100 paces. The ledge here terminates in the perpendicular wall of the canyon. The ruined walls of a strong tower, built to cut off approach on this side, may still be traced. At the north end of the ruin the foundation gave the builders considerable trouble, but the difficulties were skillfully overcome. A supporting wall was erected on a lower ledge, to form a stable foundation for the outer wall of the upper rooms, where the higher ledge was too narrow or too rough for building purposes.

South of the rooms fronted by this wall is a small open court, bounded at the back by a few very regular and well-preserved walls, which rise to the roof of the cave. A low thick wall built on the edge of the precipice incloses the outer side of the court. The second story has a balcony along the wall just mentioned. The joists between the two stories project about 2 feet. Long poles lie across the projecting joists parallel with the walls, covered with cedar bast on which is laid dried clay. This balcony was used as a means of communication between the rooms of the upper story and served as a terrace.

Judging from the excellent masonry of Balcony House it is presumed that this ruin is one of the more recent, probably belonging to the same period as Spruce Tree House. Its special features are the remarkable defensive site and the extra works built to increase its in-

accessibility. The well-preserved balcony has given a name to the ruin, but other cliff houses show the same structure. The fund for the excavation and repair of Balcony House was largely furnished by the Colorado Cliff-Dwellers Society.

SUN TEMPLE

GENERAL DESCRIPTION

The cliff houses considered in the preceding pages are habitations. There are also specialized buildings on the Mesa Verde which were never inhabited but were used for other purposes. Two of these are supposed to have been devoted to religious purposes and are known as Sun Temple and Fire Temple.

Sun Temple is situated west of Cliff Palace, across Cliff Canyon on a high cliff at the entrance to Fewkes Canyon. Up to the year 1915 the site of Sun Temple was a mound of earth and stones all showing artificial working or the pecking of primitive stone hammers. This mound had a circular depression in the middle and its surface was covered with trees and bushes. No high walls projected above the ground nor was there any intimation of the size or character of the buried building. It was believed to be a pueblo or communal habitation. Excavation of this mound brought into view one of the most instructive buildings in the park.

Sun Temple is a type of ruin hitherto unknown in the park, and, as was well expressed by a visitor, the building excavated shows the best masonry and is the most mysterious form yet discovered in a region rich in so many prehistoric remains. Although at first there was some doubt as to the use of this building, it was early recognized that it was not constructed for habitation, and it is now believed that it was intended for the performance of rites and ceremonies; the first of its type devoted to religious purposes yet recognized in the Southwest.

"The ruin was purposely constructed in a commanding situation in the neighborhood of large inhabited cliff houses. It sets somewhat back from the edge of the canyon, but near enough to present a marked object from all sides, especially the neighboring mesas. It must have presented an imposing appearance rising on top of a point high above inaccessible, perpendicular cliffs. No better place could have been chosen for a religious building in which the inhabitants of many cliff dwellings could gather and together perform their great ceremonial dramas."

The ground plan of the ruin has the form of the letter D. The building is in two sections, the larger of which, taken separately, is also D-shaped. This is considered the original building. The addition enlarging it is regarded as an annex. The south wall, which is straight and includes both the original building and the annex, is 131.7 feet long. The ruin is 64 feet wide.

There are about 1,000 feet of walls in the whole building. These walls average 4 feet in thickness, and are double, inclosing a central core of rubble and adobe. They are uniformly well made.

The fine masonry, the decorated stones that occur in it, and the unity of plan stamp Sun Temple as the highest example of Mesa Verde architecture.

The walls were constructed of the sandstone of the neighborhood. Many stone hammers and pecking stones were found in the neighborhood.

THE SUN SYMBOL

On the upper surface of a large rock protruding from the base of the southwest corner of the building a peculiar impression was found, inclosed by low wing walls on the north and south sides. Although originally identified from a poor photograph as a fossil palm leaf of the Cretaceous period, the late Dr. Willis T. Lee, of the United States Geological Survey, after careful examination, stated that it was the remains of a Cretaceous period spring. The water bubbled up through the unconsolidated sands and in escaping formed the ridges radiating from the bowl. The ancient cliff dwellers were sun worshippers, and a natural object resembling the sun would powerfully affect their primitive minds. Probably for this reason the impression was inclosed as a shrine.

ARCHITECTURAL FEATURES

There are three circular rooms in Sun Temple which prove their form may be identified as ceremonial in function, technically called kivas. Two of these, free from other rooms, lie in the plaza that occupies the central part of the main building and one is embedded in rooms of the so-called annex. Adjoining the last mentioned, also surrounded by rooms, is a fourth circular chamber which is not a kiva. This room was found to be almost completely filled with spalls or broken stones. Possibly this was the place where the stones were hewn into shape before they were laid in the walls.

East of Sun Temple, where formerly there was only a mound of stone and earth, there was found the remains of a circular tower. The kiva that is situated in the west section of Sun Temple has a flue attached to the south side, recalling the typical ventilator of a Mesa Verde cliff kiva, and there are indications of the same structure in the two circular chambers in the court. These kivas, however, have no banquettes or pilasters to support a vaulted roof, as no fragments of roof beams were found in the excavations made at Cliff Palace, which may be due to the unfinished character of the building.

Most of the peripheral rooms of Sun Temple open into adjoining rooms, a few into the central court, but none has external openings. Some of the rooms are without lateral entrances, as if it was intended to enter them through a hatch in the roof.

Not only pits indicative of the stone tools by which the stones forming the masonry of Sun Temple were dressed appear on all the rocks used in its construction, but likewise many bear incised symbols. Several of these still remain in the walls of the building; others have been set in cement near the outer wall of the eastern kiva. It is interesting to record that some of the stones of which the walls were constructed were probably quarried on the mesa top not far from the building, but as the surface of the plateau is now forested the quarries themselves are hidden in accumulated soil and are difficult to discover.

AGE.

Sun Temple is believed to be among the latest constructed of all the aboriginal buildings in the park, probably contemporary with Balcony House, Spruce Tree House, and Cliff Palace.

It is impossible to tell when Sun Temple was begun or how long it took for its construction or when it was deserted. There are indications that its walls were never completed, and from the amount of fallen stones there can hardly be a doubt that when it was abandoned they had been carried up in some places at least 6 feet above their present level. The top of the wall had been worn down at any rate 6 feet in the interval between the time it was abandoned and the date of my excavation of the mound. No one can tell the length of this interval in years.

We have, however, knowledge of the lapse of time, because the mound had accumulated enough soil on its surface to support growth of large trees. Near the summit of the highest wall in the annex there grew a juniper or red cedar of great antiquity, alive and vigorous when I began work. This tree undoubtedly sprouted after the desertion of the building and grew after a mound had developed from fallen walls. Its roots penetrated into the adjacent rooms and derived nourishment from the soil filling them.

Necessarily when these roots were cut off, thereby killing the tree, I was obliged to fell it, but the stump remains, cut off about a foot above the ground. A section of this tree at that point was found by Mr. Gordon Parker, supervisor of Montezuma National Forest, to have 360 annual rings; its heart is decayed, but its size suggests other rings, and that a few more years can be added to its age. It is not improbable that this tree began to grow on the top of the Sun Temple mound shortly after the year 1540, when Coronado first entered New Mexico, but how great an interval elapsed during which the walls fell to form the mound in which it grew, and how much earlier the foundations of the ruined walls were laid no one can tell. A conservative guess of 250 years is allowable for the interval between construction and the time the cedar began to sprout, thus carrying the antiquity of Sun Temple back to about 1300 A. D.

From absence of data, the relative age of Sun Temple and Cliff Palace is equally obscure, but it is my firm conviction that the former was later, mainly because it showed unmistakable evidences of a higher sociological condition of the builders; but here again we enter a realm of speculation which, while it adds to the mystery of the building, is beyond our knowledge.

THE MYSTERY OF ITS PURPOSE

Many theories have been advanced to explain the purpose of this structure, but most of these can be eliminated without difficulty. The theory that it was a prison, a Spanish mission, a theater, may be dismissed without serious consideration.

The position of the ruin has led several visitors to suggest that the building was constructed for a fortification or defense against hostile invaders. This theory is not a fanciful one, but, while it might have been constructed in part for this purpose, protection from foes was only a secondary consideration. The care given to its construction, its shape and size, absence of portholes, and height of walls are not such as we would expect in a fort.

There is no good evidence supporting the theory that it was erected to serve as a habitation. The rooms have not a form adapted for any such utilitarian purpose. They are destitute of windows, and it was not intended to plaster their walls, as the incised stones clearly indi-

cate; there are no evidences of fireplaces, no smoked walls, no ashes or charcoal, no metates for grinding corn, no piles of *débris*, such as are usually formed about a habitation. Few household implements, such as bowls and baskets, were found. There were no burials, no animal bones, remnants of former feasts.

While it is not impossible that it might have been intended to later add an upper story for dwellings, attention may be called to the fact that, although some of the rooms have walls about 12 feet high, they show no evidence of floor beams or holes for their insertion. The lower rooms were too high for dwellings, for a dwelling room over 6 feet from the floor to ceiling is anomalous in cliff houses or pueblos.

UNITY OF CONSTRUCTION

The argument that appeals most strongly to my mind supporting the theory that Sun Temple was a ceremonial building is the unity shown in its construction. A preconceived plan existed in the mind of the builders before they began work on the main building. Sun Temple was not constructed haphazard nor was its form due to addition of one clan after another, each adding rooms to a preexisting nucleus. There is no indication of patching one building to another, so evident at Cliff Palace and other large cliff dwellings. The construction of the recess in the south wall situated exactly, to an inch, midway in its length shows it was planned from the beginning.

We can hardly believe that one clan could have been numerous enough to construct a house so large and massive. Its walls are too extensive; the work of dressing the stones too great. Those who made it must have belonged to several clans fused together, and if they united for this common work they were in a higher state of sociological development than a loosely connected population of a cliff dwelling.

In primitive society only one purpose could have united the several clans who built such a structure, and this purpose must have been a religious one. This building was constructed for worship, and its size is such that we may practically call it a temple.

On this theory, we can easily interpret one or two facts that otherwise are without significance. The shrine at its southwest corner stone is worthy of notice in this connection. It bears on its floor a symbol resembling the sun, which implies complex ceremonies.

No one doubts that the three massive, circular-walled rooms, two in the main plaza and one in the annex, are religious rooms, and a glance at the ground plan shows they are prominent architectural features. They show from their prominence that whatever theory of the use of Sun Temple we adopt we must not overlook the ceremonial object. The existence of many rooms entered from the roofs and the absence of external doors in all implies secrecy. The mysteries here performed were not open to all—only the initiated could enter.

Comment has already been made on the fact that practically no household implements were found in the rooms, which has been interpreted to mean that the building was never finished. It also signifies that the workmen did not live in or near by during construction; the question is pertinent: Where did they live?

BUILDERS

On the theory that this building was erected by people from several neighboring cliff dwellings for ceremonies held in common, we may suppose that the builders came daily from their dwellings in Cliff Palace and other houses and returned at night after they had finished work to their homes. The trails down the sides of the cliffs which the workmen used are still to be seen. The place was frequented by many people, but there is no evidence that any one clan dwelt near this mysterious building during its construction.

Other questions arise: Was Sun Temple constructed by an intrusive people of different stock from that of Cliff Palace? Is it the work of a migratory band that entered the region from the valleys surrounding Mesa Verde, or was it built by an alien people not closely allied to those of Cliff Palace, but more like Pueblos of New Mexico? The difference between the architecture of Sun Temple and that of the neighboring cliff dwellings and its similarity in form to some of the ruins in the Chaco Canyon, N. Mex., would seem to lend some support to the theory that the builders were aliens, or culturally different from cliff dwellers.

This theory seems to me untenable, for where did these incoming aliens live while building it? How could they work there unmolested?

The argument that cliff dwellers in the neighborhood built Sun Temple and that incoming aliens had nothing to do with its construction seems to me very strong. The architectural differences between it and Cliff Palace are not objections, for the architectural form of Sun Temple may be regarded as a repetition, in the open, of a form of building that developed in a cliff house; the rounded north wall conforms with the rear of a cave and the straight south wall reproduces the front of a cliff dwelling. The recess midway in the south wall of Sun Temple could be likened without forcing the comparison to a similar recess which occurs at the main entrance into Cliff Palace.

Sun Temple was not built by an alien people, but by the cliff dwellers as a specialized building mainly for religious purposes, and, so far as known, is the first of its type recognized in the Mesa Verde area.

NEW FIRE HOUSE GROUP

FIRE TEMPLE

Fire Temple is one of the most remarkable cliff houses in the park, if not in the whole Southwest. It is situated in a shallow cave in the north wall of Fewkes Canyon near the head of the same and can readily be seen from the road along the southwest rim of the canyon. This ruin was formerly called Painted House, but when it was excavated in May, 1920, evidence was obtained that it was a specialized building and not a habitation. The facts brought to light point to the theory that it was consecrated to the fire cult, one of the most ancient forms of worship.

The ruin is rectangular in form, almost completely filling the whole of its shallow cave, and the walls of the rooms extend to the roof. A ground plan shows a central court 50 feet long and about 25 feet broad flanked at each end with massive walled buildings two stories

high. The walls of these rooms are well constructed, plastered red and white within and on the side turned to the court. The white plaster is adorned with symbolic figures. No beams were used in the construction of the floors, the lower story having been filled in with fragments of rocks on which was plastered a good adobe floor.

The court or plaza was bounded by a low wall on the south side, the buildings inclosing the east and west ends, where there was a banquette, apparently for spectators. The north side of the court was formed by the solid rocks of the cliff, but on the lower part a narrow masonry wall had been laid up about head high, projecting from the cliff a foot and less on the top. The wall was formerly plastered red below and white above, triangular figures and zigzag marking recalling symbols of lightning on the line of junction of the red and white surfaces.

About the center of the court on a well-hardened adobe floor there is a circular walled fire pit containing an abundance of ashes, and on either side of it are foundations of rectangular rooms.

In the central fire pit fire was kept burning during the elaborate fire dances of the natives, and possibly also a perpetual fire was conserved in this pit from one act of kindling the new fire to another. The function of the rectangular inclosures lying one on each side of the circular inclosures is unknown. The new fire was kindled in the middle of the three rooms of the lowest tier west of the main court. This is a painted room, and on its walls there still remain in fair preservation a row of five symbols of fire, numerous pictures of mountain sheep and other animals.

NEW FIRE HOUSE

Just west of Fire Temple there is a group of rooms which were evidently habitations, since household utensils were found in them. One of these rooms has in the floor a vertical shaft which opens outside the house walls like a ventilator. The former use of this structure is unknown. Although the Fire Temple was not inhabited, there were undoubtedly dwellings near by.

A hundred feet east of the Fire Temple there are two low caves, one above the other, in which may have lived those who once made use of this sanctuary. The ruin is the New Fire House proper, or the habitation of the fire priests and their families. The rooms in the lower cave were fitted for habitation, consisting of two, possibly three, circular ceremonial rooms and a few secular rooms; but the upper cave is destitute of the former. The large rooms of the upper house look like granaries for the storage of provisions, although possibly they also were inhabited. In the rear of the large rooms identified as granaries was found a small room with a well-preserved human skeleton accompanied with mortuary pottery. One of these mortuary offerings is a fine mug made of black and white ware beautifully decorated; a specimen worthy of exhibition with the best in any museum. In the rear of the cave were three well-constructed grinding bins, their metates still in place.

The upper house is now approached from the lower by foot holes in the cliff and a ladder. Evidences of a secondary occupation of one of the kivas in the lower house appear in a wall of crude masonry without mortar, part of a rectangular room built diagonally across

the room. The plastering on the rear walls of the lower house is particularly well preserved. One of the kivas has, in place of a deflector and ventilator shaft, a small rectangular walled inclosure surrounded by a wall, recalling structures on the floor of the kivas of Sun Temple. The meaning of this departure from the prescribed form of ventilator is not apparent.

OAK TREE HOUSE

The ruin formerly called Willow House, but now known as Oak Tree House, lies on the north side of Fewkes Canyon about midway between Fire Temple and the mouth of that canyon.

This ruin lies in a symmetrical cave and has an upper and a lower part, the former now being inaccessible. The two noteworthy features of Oak Tree House are the kivas and the remnant of the wall of a circular room made of sticks plastered with adobe but destitute of stone masonry.

Oak Tree House has seven kivas and may be called a large cliff dwelling. One of the kivas has a semicircular ground plan with a rectangular room on the straight side. There are no pilasters or banquettes in this kiva. The floor of another kiva was almost wholly occupied by a series of grinding bins, indicating a secondary use. The repair work on Oak Tree House has not yet been completed, but a small collection of specimens at one end of the ruin shows the nature of the objects thus far found.

SUN SET HOUSE

Looking across Cliff Canyon from Sun Point one can see the fine ruin called Sun Set House, formerly known as Community House. This ruin, like many other cliff dwellings, has an upper and a lower house, the former being relatively larger than is usually the case. Although Sun Set House is accessible, it has never been excavated.

CEDAR TREE TOWER

Hidden in the timber about one-half mile east of the park road, and a mile north of Spruce Tree Camp, is a tower and kiva of especial interest. The associating of the two, without dwellings accompanying them, is unique and leads to many conjectures as to their use and purpose.

Granting that the growth of timber was not as high at the time the tower was built, its value as a lookout would be, even then, small; and it does not seem reasonable to suppose that the vast amount of effort required to build it would warrant its restriction to such a limited use. While it may have been used in part for that purpose, this was probably not its prime function. There are other features, such as the hole in the floor, which indicate additional uses, which will be spoken of later.

The masonry is excellent and the massive character of the walls and the beautiful workmanship indicate some important use, for a large amount of labor was expended in the construction of the build-

ings of this group. Some of the stones are so large that it is difficult for one man to handle them. The components are beautifully dressed, especially those which form the rounded corners of the tower on the inner and outer boundaries. The walls of the tower are uniformly 2 feet in width, and at the highest point they still stand to the height of 15 feet.

Directly in front of the tower is a subterranean kiva, connected with it by an underground passage. Although the native rock might have been used by the builders for the walls of the kiva, they were not satisfied with this and lined the whole interior, up to the banquettes, with a wall of fine small slabs, laid up in regular courses. A coating of adobe was spread over the irregular stone floor, and the fireplace is well plastered. The usual ventilating shaft and deflector are present.

There is no sipapû in the kiva, but in the floor of the tower almost in its center is a small opening, which is 4 inches in diameter and 2 inches in depth, and while these dimensions are not the usual ones for this structure in other kivas, there is a possibility that this was a ceremonial opening. No sipapû has hitherto been discovered in a tower, and its existence here and not in the adjacent kiva, which would furnish a much larger space, is worthy of remark.

West of the kiva is a small rectangular room which may have been used for change of ceremonial paraphernalia; it may also have served as a dressing room for the men taking part in the ceremonies. The underground passage connecting the tower and kiva area leads into this room. It is lined with fairly well-made stone walls and slabs of the same material. Huge stone slabs cover the top of the passageway. This room has two fireplaces.

The fact that only a very few potsherds were found in the group would indicate that it was not used as a dwelling. In the timber near the tower are several small groups of mounds, and these may have been associated with it. On these mounds are large numbers of potsherds and chipped bits of stone, and occasionally a stone implement, which would indicate that they are the remains of dwellings.

There are many towers on Mesa Verde, but too few have been sufficiently explored to determine their use and purpose. In some cases we find walls of rooms which indicate dwellings attached to these. In other cases their location would indicate they were look-outs as is the well-known Navajo Tower.

There are many towers in the Mancos Valley and west of Mesa Verde in the walls of the McElmo Canyon and its tributaries that have circular depressions on one side. These depressions probably indicate kivas, showing that they belong to the same type as Cedar Tree Tower.

SQUARE TOWER HOUSE

GENERAL DESCRIPTION

Square Tower House is situated on an eastern spur of Navajo Canyon nearly opposite a great bluff called Echo Cliff. An ancient approach to the ruin was from the canyon rim. It was used by the natives, but is almost impassable for white visitors. Foot holes or ascent and descent had been cut by the Indians in the cliff at a

point south of the ruin which enabled them to reach the level on which the ruin is situated. Along the top of the talus there runs to the ruins a pathway which bifurcates into an upper and a lower branch. The former, hugging the cliff, passes through the "Eye of the Needle"; the latter is lower down on the cliff.

The Square Tower House cave is shallow, its rear perpendicular, with roof slightly overhanging. At the extreme eastern end of the ruin the vertical face of the cliff suddenly turns at right angles, forming an angle in which, high above the main ruin, there still remain walls of rooms. To these rooms, which are tucked away just under the canyon rim, with only their front walls visible, the name Crow's Nest is given. One end of a log, extending from a wall of one of these rooms, rests in a hole cut in the side of the cliff, a well-known method of cliff-house construction.

Some of the rooms in Square Tower were devoted to secular; others to ceremonial purposes. The former have angular corners; the latter are circular. The rectangular rooms were constructed above ground; the circular were subterranean. These walls do not differ radically from those of Spruce Tree House and other cliff dwellings. They have similar windows, door openings, and supports of balconies. There is little difference in the size of the stones used in the masonry at different heights. The absence of a cave recess in the rear of the building is significant, as it allowed the cliff to be used as the back wall of the rooms.

Square Tower House measures about 138 feet from its eastern to its western end. There are no streets or passageways as at Spruce Tree House and Cliff Palace, and no open spaces except in the kiva roofs. The rooms were continuous and compactly constructed. Excepting the spaces above the kivas, their walls are united from one end of the cave to the other.

SECULAR ROOMS

The foundations of the secular rooms are constructed on two levels, an upper and a lower. These rooms occupy the intervals between the kivas, never in front of them. The wall of the rear rooms is the perpendicular face of the cliff. Balconies indicated by projecting logs are common, and are especially to be seen above the kivas, and in some instances the outside faces of the walls below them show remains of red or white plastering.

THE TOWER

The tower is, of course, the most conspicuous as well as the most interesting architectural feature of the ruin, being visible for a long distance as one approaches Square Tower House. Its foundation rests on a large boulder situated in the eastern section of the cave floor. This tower has three walls constructed of masonry; the fourth being the perpendicular rear wall of the cave. The masonry of the tower stands about 35 feet above the foundation, but the foundation boulder on which it stands increases its height over 5 feet. On a projecting rock on the west side above it is the wall of a small, inaccessible room which may have been used as a lookout or as an eagle house.

The lowest story of the tower is entered from plaza B, and on the east side there are three openings, situated one over another, indicating the first, second, and third stories, but on the south side of the tower there are only two doorways. The roof of the lowest room is practically intact, showing good workmanship, but about half of its floor is destroyed. The upper walls of the second story room have the original plaster, reddish dado below and white above. Although the third and fourth stories are destitute of floors, they are plastered.

CROW'S NEST

Walls of four rooms are to be seen high up in the angle of the cliffs above kiva A. Their front walls, although broken down, were made of well-constructed masonry. The foundation was supported by a beam spanning the angle of the cliff. The room above has a doorway and five small openings through which beams formerly projected. At least three openings, windows or peepholes, were visible. The walls of Crow's Nest are fairly well made, composed of regular, horizontal masonry, exhibiting the skill and daring of the ancient builders. While the use of these rooms is doubtful, they certainly afford a fine view of the Navajo Canyon, on the spur of which Square Tower House is situated. Possibly these rooms had the same functions as lodge houses or the structure in the cliff above the top of the tower.

KIVAS

The majority of the kivas of Square Tower House belong to the pure type, distinguished by mural pilasters supporting a vaulted roof. Kiva A, one of the best preserved ceremonial rooms on the Mesa Verde Park, is particularly instructive on account of the good preservation of its roof. Its greatest diameter is 13 feet 6 inches; or, measuring inside the banquettes, 11 feet 1 inch. The interior is well plastered with many layers of alternate black and brown plaster. The pilasters are six in number, one of which is double.

Two depressions are visible in the smooth floor, in addition to a fireplace and a sipapû. These suggest ends of a ladder, but no remains of a ladder were found in the room.

Kiva B, the largest ceremonial chamber in Square Tower House, measures 16 feet 9 inches in diameter over all. This kiva is not only one of the best preserved, but also one of the most instructive in Square Tower House, since half of the roof, with the original cribbing, is still in place, extending completely around the periphery. It has six pilasters and as many banquettes. Where the plaster had not fallen it was found to have several layers.

PICTOGRAPHS

The perpendicular cliff back of Square Tower House has several different forms of incised pictographs. From the fact that these naturally occur on the cliff above the kiva roofs, they may be regarded as connected in some way with a religious symbolism. A few pictographs are also found on stones set in the walls of the rooms.

EARTH LODGE A

Remains of hundreds of small semisubterranean dwellings are found on top of Chapin Mesa. Earth Lodge A, a type of these dwellings, is situated about 50 yards south of the road leading to Square Tower House. Its ground plan is roughly D-shaped, with the straight wall on the south side, where there are two small additional rooms outside of the line of the main room. The maximum length of the structure, including the additions, is 20 feet 21 inches, with a maximum width of 20 feet 6 inches. The earth was excavated to a depth of 2 feet, showing walls covered with adobe plastering applied directly to the native earth. No stone was used in the construction of the main room, except at the southeast corner, where some thin slabs were found which may have been set upright in the wall. The plastered wall is 17 inches high, forming a shelf about 16 inches wide. The exact method of roofing could not be determined, but a large number of charred beams 4 to 6 inches in diameter were found in the course of the excavation. With few exceptions these never have fallen and lay radially with the burnt ends to the center of the room. At one point a well-preserved beam impression in the adobe plastering seems to indicate that these logs were placed at an angle with their butts in the undisturbed earth outside of the low wall. There are no post holes or other indications of the presence of vertical supports in the floor, and the superstructure was probably conical, like that of a modern Navajo hogan.

The floor was for the most part well preserved and showed smoothness, due to long use. There are two smoothly plastered pits in the floor, one of which was about half full of ashes.

Projecting into the northwest corner of the room there was a square bin, its sides formed by two large sandstone slabs set on edge. The outer end and floor of this bin were made of adobe; the inner side was open. A shallow niche was cut into the north wall at the inner end of the bin. Nothing was found to indicate the use of this structure, but it seems possible that it served as a grinding bin.

South of the main room, whose outer wall forms their inner wall, there are two small structures made of vertically set slabs of stone, one of which seems to have been used for storage, the other suggesting a vestibule.

FAR VIEW HOUSE, A MESA VERDE PUEBLO

Archeological investigations have shown that the later cultures of the Mesa Verde built compact pueblo style structures on the open mesa land separating the deep canyons. Lacking the natural protection of the caves and cliffs of the canyons, a closely knit and compact structure was necessary for defensive purposes. Not having to conform to the irregular contours of the cave as in the cliff house type, the structure assumed a roughly rectangular shape in the open, with the kivas within, protected by the adjacent outside living and storage rooms. The roofed over kivas formed small open courts within the higher outside walls. Structurally, there is but little difference between the cliff house and the pueblo; undoubtedly they are homogeneous. With fields near their homes,

the work of the pueblo farmer was greatly simplified. Adjacent pueblos were added by the various differing clans, forming large villages or groups of great defensive strength.

Four and a half miles north of Spruce Tree Camp the park road passes through 16 major and many minor mounds. This is the so-called Mummy Lake group, a misnomer, since the walled depression at the crest of the slope above the group was never used as a reservoir, although in the spring of the year water is still conducted thereto by the drainage ditches constructed by the early cowmen on the park in their efforts to impound sufficient water for their stock. And, again, mummies are never found where the least dampness occurs.

The first unit of this group to be excavated was named Far View House because of the wonderful panorama of diversified terrain that is visible in Colorado, New Mexico, and Arizona from the walls of the ruin. At the beginning of the work, this mound appeared very much as any of the other adjacent major mounds, no sign of standing wall appearing above the even contour of the ruin. Heavy growths of sagebrush covered the whole area. Three months' time was devoted to the excavation in revealing the rectangular pueblo, 100 by 113 feet in size, now seen. The slow crumbling of the heavy dirt-covered roofs and the walls, together with the annual deposit of wind-blown sand from the San Juan country early each spring, gradually filled the rooms to the level of the standing walls, after which destructive elements and forces can little change the contour of any ruin.

Irrigation as now practiced was unknown to the inhabitants of Mesa Verde. Several hundred masonry dams have been found in the heads of deep draws leading to the main canyons, but these are very much lower than any available farming land. Water would have to be carried in jars from the small reservoirs impounded behind them up steep trails to the farming lands above. The inhabitants of the Mummy Lake group undoubtedly depended on this laborious method of irrigation during long periods of drought. The heavy snows on the north rim provided abundant moisture till well into the spring, and in July and August summer showers were frequent. The springs in the canyons on either side, although difficult of access, provided a constant water supply when other means failed.

The external features of Far View House are apparent as we approach its walls; mounting to the top of the highest wall we can best observe the general plan. This pueblo is rectangular in shape, consisting of concentrated rooms with a court surrounded by a wall annexed to the south side. On its southeast corner, a little less than 100 feet away, lies the cemetery from which have been taken skeletons of the dead with their offerings of food bowls and other objects, such as was the custom of these people to deposit in the graves of their dead.

At its highest point on the north wall the pueblo had three stories, but on the southern side there was but a single story. This building was terraced, one tier of rooms above another. In the corner of the interior of the highest room may still be seen the ancient fireplaces and stones for grinding corn set in their original positions used by the former inhabitants. There are no external windows or passages, except on the south side where midway in length is a recess in which was placed a ladder in order to be hidden from view. The inhab-

itants evidently used the roof of the lowest terrace for many occupations. A bird's-eye view shows that all the rooms, now roofless, fall into two groups.

In the center of this mass of rooms there is a circular chamber 32 feet in diameter, resembling a well, around which the other rooms appear to cluster. Three of these surrounding rooms are circular and much smaller than the central, arranged with two on the left and one on the right side. In structure these rooms are identical with that of the large central room. They have mural banquettes and pilasters that once supported a roof. These circular depressions are ceremonial rooms, to which is applied the word *kiva*, taken from the Hopi language. All four *kivas* of Far View House are identical in construction with the *kivas* of Spruce Tree House and Cliff Palace.

The rooms surrounding these circular ones vary somewhat in form but are as a rule rectangular, the shapes of those near the *kivas* being triangular to fill the necessary spaces. The contents of the rectangular rooms show that they were inhabited. Artifacts were found and indications of various industries as well as marks of smoke from their fireplaces appear on the walls. From the nature of this evidence there is no doubt that Far View House was once inhabited by the people living in the same way as those dwelling contemporaneously in Spruce Tree House.

The court added to the pueblo on its south side is inclosed by a low wall. Here were probably performed, in ancient times, the many religious dances and festivals.

Although the inhabitants of Far View House were ignorant of what we would call letters, or graphic means of recording events or their thoughts, they left engraven in their walls significant signs sometimes called "masons' marks." These simple symbols, whether found in cliff houses or in pueblos, have a close similarity which may be adduced as evidence of relationship in the thought of the people who made them. They are too imperfect to be regarded as primitive forms of writing.

Far View House is but one of the 16 pueblos in the Mummy Lake group, and at the period of maximum development could have housed a large population. To the north and east, where the two branches of Soda Canyon join, another large village or group has been located, and one can almost trace the trail across the west fork of Soda Canyon to the neighboring village and imagine the dusky visitors going from one to the other in prehistoric times. Each narrow tonguelike mesa of the Mesa Verde has its ruins of either isolated pueblo structures, or adjacent groups, denoting the widespread distribution of the mesa pueblo builders.

We do not know whether the language of the two people was identical; our knowledge of their sociology is vague; the only difference between their habitations is that one is built in a cliff under a protecting roof, while the other was constructed under the open sky. So far as the houses are concerned, both in their forms and details of construction, they belong to the same type. They have the same round subterranean rooms, roofed in the same manner. Except that in Far View House they are larger, the square rooms of both show identical masonry, plastered in the same way; identical culinary and other implements occur in both. Perhaps the most detailed re-

semblances come to light when we examine the pottery, its technique, and its symbolic decorations. The inhabitants of both places were clever potters. They manufactured three distinct kinds of pottery. The largest number of specimens which have come to light belong to what is called corrugated ware, on which the decoration is brought about by indentations, either covering the surface of the jar uniformly or arranged in geometric patterns. Another variety of ware, called from its color "black and white" in which the object was first covered with a white slip as a ground on which were painted designs, is also common to both communities. The designs themselves are identical. Scattered among these two forms of pottery occur fragments of a less frequent type, a red ware, the exterior of which is embellished with black figures. The technique and decoration of all ceramic objects thus far brought to light from cliff houses and Far View House belong to these groups and no others; and this resemblance is one of the strongest claims that can be urged for the identity of the culture in habitations apparently widely different. We might add to these evidences of uniformity other objects, like stone implements, and fabrics of various kinds, basketry, and various objects of ceremonial nature, all of which confirm the evidences taught by likeness of buildings that the people were practically in the same culture and inhabited synchronously.

Pottery is the best index as to the chronological sequence of the ruins in the Southwest, and in examining the pottery of some of the mesa type pueblos it is found that some contain pottery antedating that of the cliff-house culture while others contain similar types. Undoubtedly, they were simultaneously inhabited, in part at least, and the transitory period was of long duration; but the period in prehistoric time when they were builded and later deserted has not been determined. We can not say from data now at hand when this took place, but we can bring to our aid a few scanty survivals from the past, notwithstanding documentary history affords no help. The aborigines who lived near these ruins when discovered in 1883 belong to the Utes, a Shoshonean stock who disclaimed all knowledge of the people who constructed these buildings. They avoided them as uncanny and even now can only with difficulty be induced to enter them. They have dim legends of conflicts between the earliest Utes and the cliff-dwellers, and if these can be relied upon the date of the evacuation of the cliff houses might be evident, if we knew when the Utes entered the country. Unfortunately, however, this date is not known.

Much more definite but still obscure are certain legends existing among the pueblos, especially the Hopi, that their ancestors formerly lived in cliff houses and migrated, for some unknown reason, to their present homes. Statements in pueblo legends connecting pueblo and cliff houses are supported by the character of life, and the material culture of the Hopi, as we knew them up to the present generation. Far View House shows that the inhabitants of cliff houses are kin to pueblos. Two lines of research are open to the student to enlarge his information bearing on this relation. It is desirable to extend our knowledge of the horizon of the cliff-dwelling culture, and to trace

step by step the pueblos along the trail of culture migration until it vanishes at the modern pueblo. We can also investigate survivals among modern pueblos which are preserved especially in ceremonies and compare the objects still cherished as heirlooms in the different priesthoods and compare them with similar objects excavated from these ruins. When these two methods of research have led to logical conclusions we will be able to determine that part of the history of the cliff dwellers on which documentary history can shed no light.

OTHER RUINS NEAR FAR VIEW HOUSE

During the season, 1922, excavation and repair work, in the vicinity of Far View House, was carried on simultaneously. Far View House, excavated some years ago, was protected from the elements by a cement capping placed on top of the walls. A brief description of ruins excavated follows:

PIPE SHRINE HOUSE

Pipe Shrine House is so named by reason of the large cache of ceremonial pipes that were found in the altar of the central kiva. The building, rectangular in shape and located directly to the south of Far View House, is composed of a large central kiva surrounded by a double row of small living and storage rooms, with a circular room in the west side, which may at some time have served as a watch tower. Many unique specimens were found during the excavations, a few of which were placed in the park museum.

ONE-CLAN HOUSE

South along the ridge below Pipe Shrine House, about an eighth of a mile, a small ruin has been excavated. It is composed of a small but well-built kiva surrounded by secular rooms, a milling room, storage and sleeping rooms. This undoubtedly represents the home of a single clan, or unit, of the "Mummy Lake Culture" and is hence called the One-Clan House.

FAR VIEW TOWER

Just north of Far View House, a tower surrounded by three kivas, and some late and secondary construction on the west and north, has been excavated. A cemetery was found to the south, but little was found in it because of the previous work of the early pothunters who had ransacked the site.

MEGALITHIC HOUSE

This ruin, just north of Mummy Lake, was not completed, and the occurrence of large stones set on end to form the walls of one of the rooms is responsible for the name. A fair-sized kiva is found within the group.

RECENT DISCOVERIES

Seldom has a year passed but what new and important discoveries have been made within the park area without recourse to excavation.

During the season of 1923 Roy Henderson and A. B. Hardin, while searching for a lost horse, quite accidentally located the largest and finest isolated circular watch tower yet found on the park. It is 25 feet in height, 11 feet in diameter, and partially supported by the cliff against which it is built. Loopholes at various levels command the approach from every exposed quarter. The masonry is comparable to that of the finest of the noted Hovenweep National Monument towers to the west.

Over 200 prehistoric cliff dwellers' dams have been found within a few miles of Spruce Tree Camp. The greater proportion of these are located in the bottom, and in the contributory drainage of the small canyon just south of Cedar Tree Tower. They are of rough masonry construction, varying in size from a height of a few inches to 5 feet and in length from a few feet to nearly 40 feet. The interval between dams varies with the gradient of the slope of the drainage and the height of the dams. These dams impounded and conserved the melting snows of spring and the sudden downpours of summer. Since they were situated for the most part on bare sandstone, absorption was quite rapid, but an impervious shale seam a hundred feet or more below the overlying sandstone cap of the mesa intercepted the water disappearing from above and again made it available at the seeps and springs where the shale seam is exposed in the much deeper canyon adjacent. By this method a great area of sandstone was saturated as a sponge, and weeks later, when the reservoirs above were probably dry, perfectly filtered and nearly ice-cold water was available, even in periods of long-continued drought.

The basic principles of the ancient method of the cliff dwellers has been successfully utilized in gaining water at Spruce Tree Camp where other methods have failed. Modern masonry dams impound snow and flood waters on the rim rock above the head of Spruce Tree Canyon, and a trench along the exposed shale seam in the cave at the head of the canyon, far below, conducts the clear, cold filtered water to storage cisterns, from which it is pumped to storage tanks on the mesa above the camp.

During the winter of 1924 the use of electric flood lighting units for illumination and automatic respirators for protection of the lungs of workers made possible the excavation of the north refuse space of Spruce Tree House, shown on plan on page 17.

The early pothunters on the Mesa Verde failed to excavate this site because of darkness and dust. Funds for the work were provided by an enthusiastic friend of the park.

Two burials, both of children, were found in the course of the excavation, one of which was partially mummified or desiccated. It was wrapped first in coarsely woven cotton cloth, then inclosed in a netting of yucca fiber cord, and finally covered with a large piece of basket weave matting. The other burial, skeleton only, was accompanied by a mug, a ladle, a digging stick, and two ring baskets filled with food.

Several corrugated storage or cooking jars of various sizes were found, together with much miscellaneous material, which are displayed in the museum. The space had been used primarily for the storage of food and as an inclosure for turkeys, compact strata of turkey droppings over a foot in thickness being found in the darkest portions of the cave.

During January and February of 1926, when snow was available as a water supply, excavations were again carried on by park forces under the direction of Superintendent Nusbaum. Nearly a month was spent in excavating the apparently barren section of Step House Cave where Nordenskiöld found many fine burials in 1890, and which, in 1892 and until this area was made a national park, had been the scene of much commercial digging and pothunting.

The whole floor of the cave had been dug over and back-filled, but by careful troweling the previously handled earth and *débris*, quantities of potsherds and many small objects were found. Nearly 4 feet below the old compacted cave floor level floors of three circular subterranean rooms were found, 15 to nearly 17 feet in diameter between the upright sandstone slabs which formed low confining walls. Stiff clay had been pressed down and molded on the tops of the upright slabs to form an even surface, or extended outward to form a narrow ledge about the room. The remains of charred poles protruded from the earth about a foot above the ledge or molding and at an angle that would cause them to intersect at a height of approximately 5 or 6 feet above the floor, indicating the method of roofing. In the two largest rooms four upright poles set in quadrangular fashion within the circular floor show the method of bracing the larger and heavier roofs. One room had a fire pit similar in location, size, and form to that of the cliff dweller kiva.

These three rooms are the first concrete evidence that the "late basket maker culture," probably contemporaneous if not antedating the beginning of the Christian era, inhabited the Mesa Verde. Heretofore their ruins have been found only in the Kayenta and Cañon del Muerto districts of Arizona.

One case in the park museum is devoted to the display of the material of this period. One exhibit shows the evolution of pottery from the earliest crude unfired ware, tempered with cedar bark, through the various stages of development to the crudely decorated ware.

In Fewkes Canyon, just opposite from the New Fire House, a cave roof had fallen, practically blocking off the rear portion of the cave. Cliff dwellings at one time had been built on the fallen slabs, but later were removed. To excavate this cave artificial lighting was necessary. In the very restricted area far back in the cave some excellent "late basket maker" material was uncovered, indicating a wide distribution of this early culture on the mesa. Among the interesting objects found were two large tapered cylinders of crystallized salt. Imprints of the molders' hands are still evident.

In the great cave north of Cliff Palace, called Buried House because it was supposed a great cliff ruin was buried underneath the rock fall, trenching through the barrier proved this supposition to be wrong. A cliff dweller kiva and several attached rooms built in the rear of the cave back of the rock fall were cleared out, and again, in the depths of the cave, potsherds of "late basket maker" origin were found.

Although the even earlier "basket maker culture" has been found in the same general localities in which the "late basket makers" lived, a single sandal found in the park and now in the museum is the only evidence at present that they too may have sought shelter in the caves of the Mesa Verde.

All excavation and restoration work in the ruins of the Mesa Verde National Park is now carried on by the superintendent, under the authority of the Secretary of the Interior.

RULES AND REGULATIONS

(Approved January 19, 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 Mesa Verde National Park are hereby established and made public, pursuant to authority conferred by the acts of Congress approved June 29, 1906 (34 Stat., 616), June 30, 1913 (38 Stat., 82), and August 25, 1916 (39 Stat., 535), as amended June 2, 1920 (41 Stat., 732).

1. *Preservation of park features and curiosities.*—The destruction, injury, or disturbance of any of the mineral deposits, natural curiosities, wonders, ruins, and other works and relics of prehistoric or primitive man on Government lands within the park is prohibited.

The marking of any buildings, ruins, rocks, trees, fences, or other physical features with autographs, dates, initials, drawings, or other pencilings or carvings of any kind whatsoever, is prohibited, and violators of this regulation are subject to the penalties prescribed by law for the violation of these regulations.

2. *Examination of ruins.*—Visitors to the ruins shall in all cases be accompanied by a park ranger or other person duly authorized by the superintendent. The superintendent is authorized, in his discretion, to close any ruin on Government lands within the park to visitors when it shall appear to him that entrance thereto would be dangerous to visitors or might result in injury to walls or other insecure portions thereof, or during repairs.

3. *Camping.*—In order to preserve the natural scenery of the park and to provide pure water and facilities for keeping the park clean, permanent camp sites have been set apart for tourists visiting the park in their own conveyances, and no camping is permitted outside the specially designated sites. These camps have been used during past seasons; they will be used daily this year and for many years to come. It is necessary, therefore, that the following rules be strictly enforced for the protection of the health and comfort of the tourists who visit the park in their own conveyances.

(a) Combustible rubbish shall be burned on camp fires and all other garbage and refuse of all kinds shall be placed in garbage cans, or, if cans are not available, placed in the pits provided at the edge of camp. At new or unfrequented camps garbage shall be burned or carried to a place hidden from sight. *Keep the camp grounds clean.*

(b) There are thousands of visitors each year to each camp site. The water supply at Spruce Tree Camp, although pure and wholesome, is limited in quantity. *Use sparingly and help conserve it.* Waste on your part may keep others from visiting the park. Hikers and trail parties must not contaminate springs or watersheds of water supplies.

(c) Campers and others shall not wash clothing or cooking utensils in any of the springs or reservoirs on the park nor pollute in any way

the waters of the park. Bathing in the reservoirs is strictly prohibited.

(d) Stock shall not be tied so as to permit its entering any of the springs or reservoirs on the park. All animals shall be kept a sufficient distance from camp grounds in order not to litter the ground and make unfit for use the area which may be used later as tent sites.

(e) Wood for fuel only can be taken from dead or fallen trees.

4. *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 bed 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.

5. *Hunting.*—The park is a sanctuary for wild life of every sort, and hunting, killing, wounding, capturing, or frightening any bird or wild animal in the park, except dangerous animals when it is necessary to prevent them from destroying life or inflicting injury, 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 under circumstances other than prescribed above, 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.

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 or to 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 park superintendent deems necessary for the convenience and guidance of the public.

10. *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.

11. *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.

12. *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.

13. *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.

14. *Dead animals.*—All domestic or grazed animals that may die on Government lands 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.

15. *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.

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

(b) On sidehill grades throughout the park motor-driven vehicles shall take the outer side of the road when meeting or passing vehicles

of any kind drawn by animals; likewise, freight, baggage, and heavy camping outfits shall take the outer side of the road on sidehill grades when meeting or passing passenger vehicles drawn by animals.

(c) 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.

(d) 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.

17. *Miscellaneous.*—(a) 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.

(b) All complaints by tourists and others as to service, etc., rendered in the park should be filed, in writing, with the superintendent, whose office is at Spruce Tree Camp. Oral complaints will be heard daily during office hours.

18. *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, or they 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.

The act creating the park provides "that any person or persons who may, without having secured proper permission from the Secretary of the Interior, willfully remove, disturb, destroy, or molest any of the ruins, mounds, buildings, graves, relics, or other evidences of an ancient civilization or other property from said park shall be deemed guilty of a misdemeanor, and upon conviction before any court having jurisdiction of such offenses shall be fined not more than \$1,000 or imprisoned not more than 12 months, or such person or persons may be fined and imprisoned, at the discretion of the judge, and shall be required to restore the property disturbed, if possible."

19. *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 acts of Congress approved June 29, 1906 (34 Stat., 616), and August 25, 1916 (39 Stat., 525), as amended June 2, 1920 (41 Stat., 732), the following regulations covering the admission of automobiles and motor cycles into the Mesa Verde National Park are hereby established and made public:

1. *Entrances.*—Automobiles and motor cycles may enter and leave the park only through the northern entrance, which may be reached from Mancos or Cortez, Colo.

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 may be deemed guilty of its violation.

Careful driving is demanded of all persons using the roads.

The Government is in no way responsible for any kind of accident.

3. *Motor trucks*.—Motor trucks may enter the park subject to the weight limitations and entrance fees prescribed by the Director of the National Park Service.

4. *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. Automobiles and horse-drawn vehicles shall have the right of way over motor cycles.

5. *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.

6. *Roads—Hours*.—The use of automobiles and motor cycles will be permitted on the main entrance road (park boundary to Spruce Tree Camp) from 5 a. m. to 9 p. m. On roads leading from Spruce Tree Camp to the principal ruins from 8 a. m. until 6 p. m. only.

7. *Permits*.—Permits shall be secured at the Government checking station, Spruce Tree Camp, immediately on arrival, and will entitle the permittee to operate the particular automobile indicated in the permit over any or all roads in the park. It is good for the entire season, expiring on December 31 of the year of issue, but is not transferable to any other vehicle than that to which originally issued. Duplicate permits will not be issued in lieu of original permits lost or mislaid.

8. *Fees*.—The fee for an automobile or motor-cycle permit is \$1, payable in cash only.

9. *Distance apart; gears and brakes*.—Automobiles while in motion shall be not less than 50 yards apart, except for purposes of passing, which is permissible only on comparatively level stretches of road or on slight grades. All automobiles, except while shifting gears, shall retain their gears constantly enmeshed.

Before entering the park the driver of each automobile should satisfy himself that both foot and emergency brakes are properly adjusted to stop and hold car on any grade, that the crank case is filled with oil to the proper level, that the radiator is filled with water, and that the gasoline tank contains not less than 6 gallons. Additional water for radiator use is most desirable because of long grades. Automobiles should carry at least one extra tire.

10. *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 in ascending or descending the mesa and when rounding sharp curves. On straight open stretches, when no vehicle is nearer than 100 yards, speed may be increased to 25 miles per hour.

11. *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.

12. *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 roads. Headlights shall be dimmed when meeting other automobiles, motor cycles, riding or driving animals, or pedestrians.

13. *Muffler cut-outs*.—Muffler cut-outs shall be closed while approaching or passing riding horses, horse-drawn vehicles, hotels, camps, or checking stations.

14. *Teams*.—When teams, saddle horses, or pack trains approach, automobiles shall take the outer edge of the roadway, regardless of the direction in which they may be going, taking care that sufficient room is left on the inside for the passage of vehicles and animals. 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 8 miles an hour.

15. *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, in case of motor-driven vehicles, and to the inside or bank side of the road, in case of horse-drawn vehicles, 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.

16. *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.

17. *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, or may be punished by revocation of the automobile permit and by immediate ejection from the park or by any combination of these penalties. Such violation shall be cause for refusal to issue a new automobile permit to the offender without prior sanction in writing from the Director of the National Park Service or the superintendent of the park.

18. *Reduced engine power, gasoline, etc.*—Due to the high altitude of the park roads, ranging as high as 8,000 feet, the power of all automobiles is much reduced. A leaner mixture of gasoline and air is required, but on account of reduced engine power about 40 per cent more gasoline will be used per mile than is required at lower altitudes. Likewise, one gear lower will generally have to be used on grades than would have to be used in other places. A further effect that must be watched is the heating of the engine on long grades, which may become serious unless care is used. Gasoline can be purchased at regular supply stations in near-by towns and at Spruce Tree Camp.

MAP

The following map 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.

Map of Mesa Verde National Park; 43 by 28 inches; scale, one-half mile to the inch. Price, 20 cents.⁷

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

PANORAMIC VIEW

The view described below may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Panoramic View of Mesa Verde National Park; 22½ by 19 inches; scale, three-fourths mile to the inch. Price, 25 cents.

This view is based on accurate surveys and gives an excellent idea of the configuration of the surface as it would appear to a person flying over it. The meadows and valleys are printed in light green, the streams and lakes in light blue, the cliffs and ridges in brown tints, and the roads in light brown. The lettering is printed in light brown and is easily read on close inspection, but merges into the other colors when the sheet is held at some distance.

LITERATURE

GOVERNMENT PUBLICATIONS

Government publications on Mesa Verde 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, Washington, D. C., or by personal application to the superintendent of the park:

Map of National Parks and National Monuments.

Shows location of all the national parks and monuments administered by the National Park Service.

Glimpses of Our National Parks. 62 pages, including 23 illustrations.

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

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 given. Remittances should be made by money order or in cash.

National Parks Portfolio, by Robert Sterling Yard. 270 pages, including 310 illustrations. Bound securely in cloth, \$1.⁷

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

FEWKES, J. WALTER. Antiquities of the Mesa Verde National Park: Spruce Tree House. (Bureau of American Ethnology Bull. 41, 1909. 57 pages, illustrated.) (Out of print.)

— Antiquities of the Mesa Verde National Park: Cliff Palace. (Bureau of American Ethnology Bull. 51, 1911. 82 pages, illustrated.) (Out of print.)

— Excavation and Repair of Sun Temple, Mesa Verde National Park. (Report of the Secretary of the Smithsonian Institution. 1916. 32 pages, illustrated.) (Out of print.)

⁷ May be purchased also by personal application to the park museum at Spruce Tree Camp, but the park museum can not fill mail orders.

- FEWKES, J. WALTER. A Prehistoric Mesa Verde pueblo and its people. (Report of the Secretary of the Smithsonian Institution.) 1917. 26 pages. (Out of print.)
- Prehistoric Villages, Castles, and Towers of Southwestern Colorado. (Bureau of American Ethnology Bull. 70. 1919. 79 pages text, 33 plates.) (Out of print.)
- HOLMES, WILLIAM H. Report on ancient ruins in southwestern Colorado, examined during summers of 1875 and 1876. (Geological and Geographical Survey of the Territories (Hayden), Tenth Report, 1876, pp. 381 to 408, illustrated.) Cloth, \$1.80.

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- NUSBAUM, DERIC. Deric in Mesa Verde. 1926. Illustrated. G. P. Putnam's Sons, Knickerbocker Press.
- QUINN, VERNON. Beautiful America. 333 pages, illustrated. Frederick A. Stokes Co., New York City. 1923. Mesa Verde National Park on pp. 254-260.
- REIK, LT. COL. H. OTTRIDGE. A Tour of America's National Parks. 1920. 209 pages, illustrated. Mesa Verde National Park on pp. 35-54.
- YARD, ROBERT STERLING. The Top of the Continent. 1917. 244 pages, illustrated. Mesa Verde National Park on pp. 44-62.
- The Book of the National Parks. 1919. 420 pages, illustrated. Mesa Verde National Park on pp. 284-304.

OTHER NATIONAL PARKS

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

Crater Lake National Park.
Glacier National Park.
Grand Canyon National Park.
Hawaii National Park.
Hot Springs National Park.
Lafayette National Park.
Lassen Volcanic National Park.
Mount McKinley National Park.

Mount Rainier National Park.
Rocky Mountain National Park.
Sequoia and General Grant National Parks.
Wind Cave National Park.
Yellowstone National Park.
Yosemite National Park.
Zion National Park.

NATIONAL MONUMENTS

Glimpses of Our National Monuments. 74 pp., including 34 illustrations. Contains brief descriptions of all the national monuments administered by the Department of the Interior.

AUTHORIZED RATES FOR PUBLIC UTILITIES, SEASON OF 1928**AUTOMOBILE TRANSPORTATION**

The Mesa Verde Transportation Co., C. R. Beers, manager, operates a daily automobile stage service for the transportation of visitors from Mancos, Colo., to Spruce Tree Camp in the Mesa Verde National Park, meeting all trains. Seven-passenger cars used exclusively.

Authorized rates

Mancos to Spruce Tree Camp and return, including transportation and guide service for one visit to Spruce Tree House, Cliff Palace, Balcony House, Sun Temple, Square Tower House, New Fire House, Sun Point, Far View House, and Pipe Shrine House. Per passenger, \$10. Children under 8 years, half fare.

Twenty-five pounds of baggage carried free for each passenger. All baggage in excess of this amount will be charged for at the rate of 1½ cents per pound each way.

Automobile schedule

Leave Mancos 1.30 p. m.		Leave Spruce Tree Camp 8.30 a. m.
Arrive Spruce Tree Camp 3.30 p. m.		Arrive Mancos 10.30 a. m.

GALLUP, N. MEX., MESA VERDE NATIONAL PARK, AUTO STAGE SERVICE

J. O. Morris, address El Navajo Hotel, Gallup, N. Mex., operates scheduled stage service from Gallup, N. Mex., a station on the main line of the Santa Fe system, to Spruce Tree Camp in the Mesa Verde National Park. Stages leave Gallup Mondays and Thursdays, returning Wednesdays and Saturdays.

Authorized rates

	ROUND TRIP	Parties 3 or less	Parties 4 or more
From Gallup, N. Mex., to Mesa Verde National Park and return.		\$40. 00	\$30. 00
From Farmington, N. Mex., to Mesa Verde National Park and return.		25. 00	17. 50
From Shiprock, N. Mex., to Mesa Verde National Park and return.		20. 00	15. 00

ONE WAY

Gallup, N. Mex., to Mesa Verde National Park, or vice versa.	20. 00	17. 50
Children under 12 years, one-half fare.		

Schedules

Round trip requires minimum of three days.

First day: From starting point to Spruce Tree Camp, park headquarters.

Second day: Transportation and guide service from Spruce Tree Camp to Spruce Tree House, Cliff Palace, Balcony House, Sun Temple, New Fire House, Oak Tree House, Sun Point, Square Tower House, Far View House, Pipe Shrine House, Far View Tower, and minor ruins and points of interest en route.

Third day: Return to starting point.

Leave Gallup, N. Mex.	Monday, 9.00 a. m.	Thursday, 9.00 a. m.
Arrive Shiprock, N. Mex., for lunch.	11.30 a. m.	11.30 a. m.
Leave Shiprock, N. Mex.	1.00 p. m.	1.00 p. m.
Arrive Spruce Tree Camp.	4.30 p. m.	4.30 p. m.
Leave Spruce Tree Camp.	Wednesday, 8.30 a. m.	Saturday, 8.30 a. m.
Arrive Shiprock, N. Mex., for lunch.	11.30 a. m.	11.30 a. m.
Leave Shiprock, N. Mex.	1.00 p. m.	1.00 p. m.
Arrive Gallup, N. Mex.	4.00 p. m.	4.00 p. m.

Farmington passengers will be transported to Shiprock in time to meet stage there.

Special trips

Parties of three or more, on receipt of one day's previous notice, will be transported to the park in comfortable Cadillac or other large, comfortable cars on other than scheduled days of service at the regular stage fare per person. Three days will likewise be devoted to the round trip.

If passengers require car for longer than three days, \$10 will be charged for car and driver for each additional idle day, and \$35 per day additional when use is made of car and driver.

CAMP ACCOMMODATIONS

Spruce Tree Lodge, American plan, Mrs. Oddie L. Jeep, manager, is situated on the rim of the Chapin Mesa overlooking three deep canyons and is adjacent to the Spruce Tree Ruin. Tent and cottage accommodations are available for visitors. Meals are served in a central dining room.

Authorized rates for Spruce Tree Lodge

Per day, including meals:	
One person occupying tent exclusively	\$4. 00
Two or more persons occupying a tent, each	3. 75
One person occupying a cottage exclusively	5. 00
Two or more persons occupying a cottage, each	4. 25
Per week, including meals:	
One person occupying a tent exclusively	20. 00
Two or more persons occupying a tent, each	17. 50
One person occupying a cottage exclusively	25. 00
Two or more persons occupying a cottage, each	22. 50
Single meals, each	1. 00
Baths in detached bathhouse, each	. 50

Children under 8 years, half of above rates.

SADDLE-HORSE AND PACK-ANIMAL SERVICE

The Mesa Verde Pack & Saddle Co., James G. English, manager, operates a saddle-horse and pack-animal service and will furnish complete camp outfits on the condition that saddle and pack horses and camp equipment will be accompanied by registered guides in the employ of the company. Guides, stock, and equipment can be secured and released only at Spruce Tree Lodge. A waterproof slicker, canteen, and lunch bag are included as equipment with each saddle horse. Gentle western stock, raised in the immediate vicinity and trained for mountain trail work, used on all trips.

Scheduled one-day trips from Spruce Tree Lodge

(Arrangements must be made for one-day trips the evening before departure.)

One-day saddle-horse tours, escorted by guide, Spruce Tree Lodge to—

1. Spring House via Spruce Tree, Navajo, and Wickiup Canyons.
2. Casa Colorado and Inaccessible House Ruins via Navajo Rim Trail.
3. Mouth of Long Canyon via Spruce Tree and Navajo Canyons.
4. Mancos River by Lower Glades and Soda Canyon Tip-off.
5. Main Chapin Mesa Ruins via trail and roads.
6. Upper Navajo Canyon Ruins via Navajo Canyon Trail.

AUTHORIZED RATES

One person, \$6; two persons, \$4 each; three or more, \$3.50 each. Extra guide, including horse, furnished with parties of 10 or more.

Nonscheduled one-day trips

There are several much longer one-day trips to more distant parts of the park area that can be taken by experienced riders only, and for these nonscheduled one-day trips an additional charge of \$2 per person over and above the rate authorized for the shorter one-day scheduled trips is made.

Nonscheduled indefinite service trips from Spruce Tree Camp

(Two days' notice required for nonscheduled indefinite service trips.)

This service includes guide-cook with horse and furnishes each member of party with one saddle horse, one pack animal, bed, tent, canteen, slicker, and subsistence for the period of the trip. For parties of more than four persons an extra guide and helper, including horse, is added for each additional four or part thereof. This service includes everything but personal articles. Minimum time for nonscheduled indefinite service trips is three days.

Authorized rates

One person per day	\$15. 00
Two persons per day, each	12. 00
Three or four persons per day, each	10. 00
Five or more persons per day, each	9. 00
Extra pack animals, as required by members of party, per day, each	2. 00

The Rock Springs and Wetherill Mesa Ruins, which are among the finest on the park, and have not been excavated or repaired, can be visited by this service in a minimum of three days. Other equally interesting trips from a week to 10 days.

A pair of heavy mountain boots, an old broad-brimmed felt hat, and old clothes are alone needed on such a trip. Because of the roughness of the country, ladies should wear short divided skirts, or, better still, strong, serviceable knickers or riding breeches. Divided skirts can be secured, if required, from Mesa Verde Pack & Saddle Co., at a daily rental charge of 50 cents.

MOTOR TRIPS FROM SANTA FE AND ALBUQUERQUE, N. MEX., TO MESA VERDE

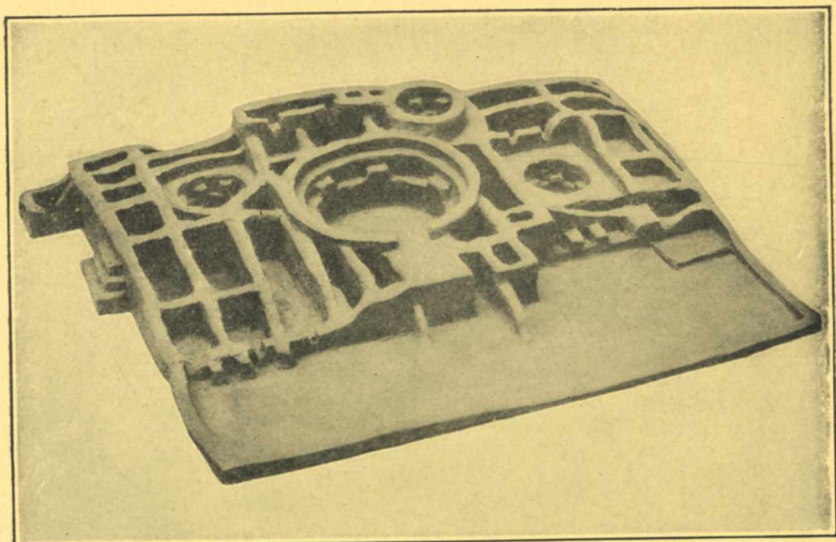
The Santa Fe Transportation Co., under the management of Fred Harvey, conducts motor cruises to Mesa Verde National Park and return. These trips, known as the Sierra Verde motor cruises, require eight days from Santa Fe and seven days from Albuquerque. The first day the trip is made from Santa Fe to Albuquerque. The itinerary then takes the visitor to the Chaco Canyon National Monument, on to the Aztec National Monument, and thence to Mesa Verde National Park. The return trip is made through the magnificent valley of the Conejos River to Don Fernando de Taos, and on to Santa Fe.

The rate for the Sierra Verde motor cruise is \$150 per person, including motor transportation, all meals and accommodations en route, private courier service, and all entrance fees, tips, etc. The trips are made weekly between June 8 and October 8, inclusive.

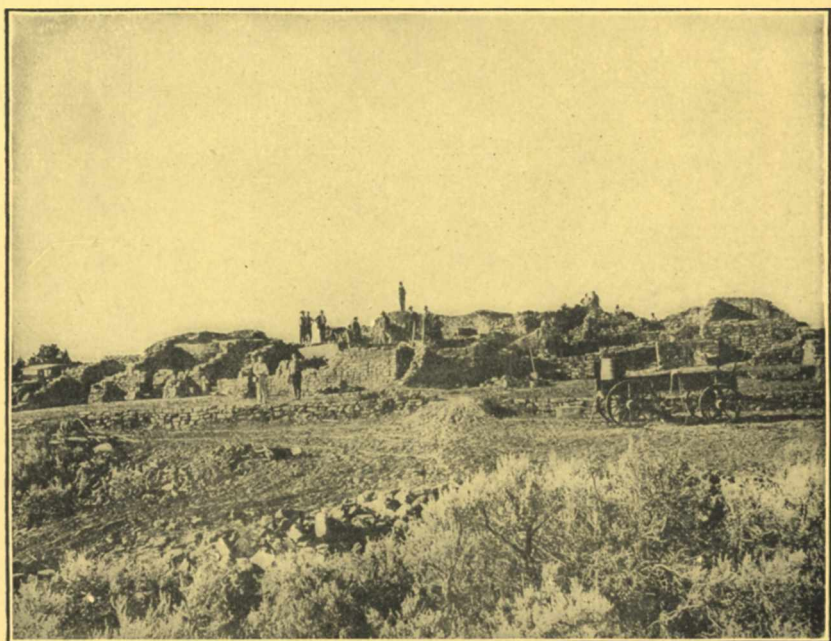
THE NATIONAL PARKS AT A GLANCE

[Number, 19; total area, 11,817 square miles]

National parks in order of creation	Location	Area in square miles	Distinctive characteristics
Hot Springs..... 1832	Middle Arkansas.....	1½	46 hot springs said to possess healing properties—Many hotels and boarding houses—19 bath-houses under Government supervision.
Yellowstone..... 1872	Northwestern Wy- oming.	3,348	More geysers than in all rest of world together—Boiling springs—Mud volcanoes—Petrified for-ests—Grand Canyon of the Yellowstone, re-markable for gorgeous coloring—Large lakes—Many large streams and waterfalls—Vast wil-derness, greatest wild bird and animal preserve in world—Exceptional trout fishing.
Sequoia..... 1890	Middle eastern Cali- fornia.	604	The Big Tree National Park—Scores of sequoia trees 20 to 30 feet in diameter, thousands over 10 feet in diameter—Towering mountain ranges, includ-ing Mount Whitney, highest peak in continental United States—Startling precipices—Deep can-yons.
General Grant..... 1890	Middle eastern Cali- fornia.	4	Created to preserve the celebrated General Grant Tree, 40.3 feet in diameter—31 miles by trail from Sequoia National Park; 85 miles by automobile.
Yosemite..... 1890	Middle eastern Cali- fornia.	1,125	Valley of world-famed beauty—Lofty cliffs—Ro-mantic vistas—Many waterfalls of extraordi-nary height—3 groves of big trees—High Sierra—Waterwheel Falls—Good trout fishing.
Mount Rainier.... 1899	West central Wash- ington.	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 vol-cano—Sides 1,000 feet high—Interesting lava formations—Fine fishing.
Platt..... 1902	Southern Oklahoma...	1½	Many sulphur and other springs possessing medici-nal value.
Wind Cave..... 1903	South Dakota.....	17	Cavern having many miles of galleries and numer-ous chambers containing peculiar formations.
Sullys Hill..... 1904	North Dakota.....	1½	Small park with woods, streams, and a lake; is an important wild-animal preserve.
Mesa Verde..... 1906	Southwestern Colo- rado.	77	Most notable and best preserved prehistoric cliff dwellings in United States, if not in the world.
Glacier..... 1910	Northwestern Mon- tana.	1,534	Rugged mountain region of unsurpassed Alpine character—250 glacier-fed lakes of romantic beauty—60 small glaciers—Precipices thou-sands of feet deep—Almost sensational scenery of marked individuality—Fine trout fishing.
Rocky Mountain.. 1915	North middle Colo- rado.	378	Heart of the Rockies—Snowy range, peaks 11,000 to 14,255 feet altitude—Remarkable records of glacial period.
Hawaii..... 1916	Hawaii.....	242	Three separate areas—Kilauea and Mauna Loa on Hawaii; Haleakala on Maui.
Lassen Volcanic... 1916	Northern California...	124	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.
Lafayette..... 1919	Maine coast.....	12	The group of granite mountains upon Mount Desert Island.
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.



Model of Far View House. Reprinted from "Explorations and Field Work of the Smithsonian Institution in 1916."



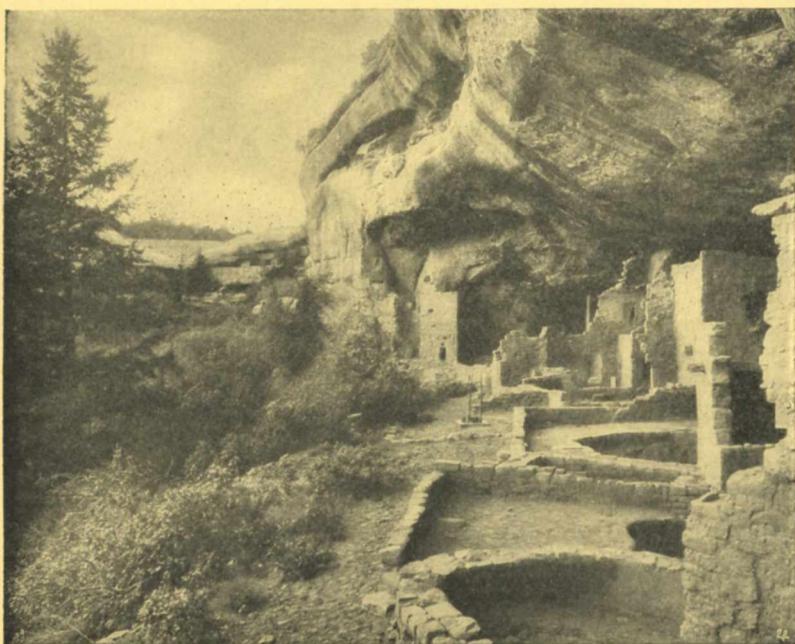
Photograph by G. L. Beam.

Far View House from the south. This mesa pueblo was excavated in 1916. It is one of the Mummy Lake group of ruins.



Photograph by Geo. L. Beam.

Point Lookout.



Spruce Tree House.