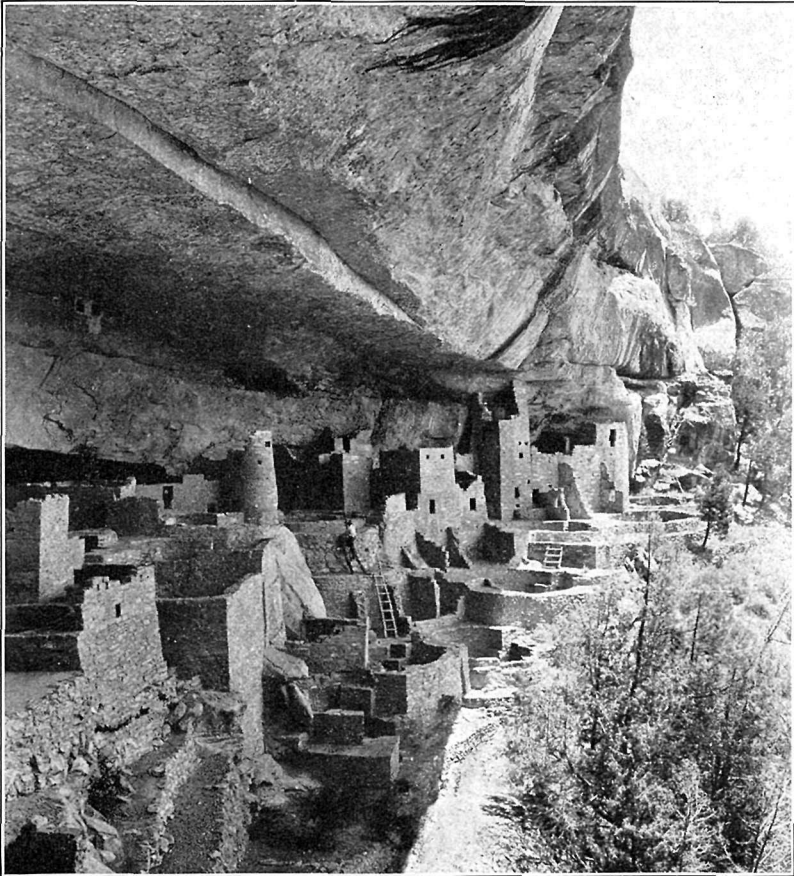


UNITED STATES DEPARTMENT OF THE INTERIOR
RAY LYMAN WILBUR, SECRETARY
NATIONAL PARK SERVICE
HORACE M. ALBRIGHT, DIRECTOR

CIRCULAR OF GENERAL INFORMATION REGARDING

MESA VERDE NATIONAL PARK COLORADO



Photograph by George L. Beam

SOUTHERN PORTION OF CLIFF PALACE



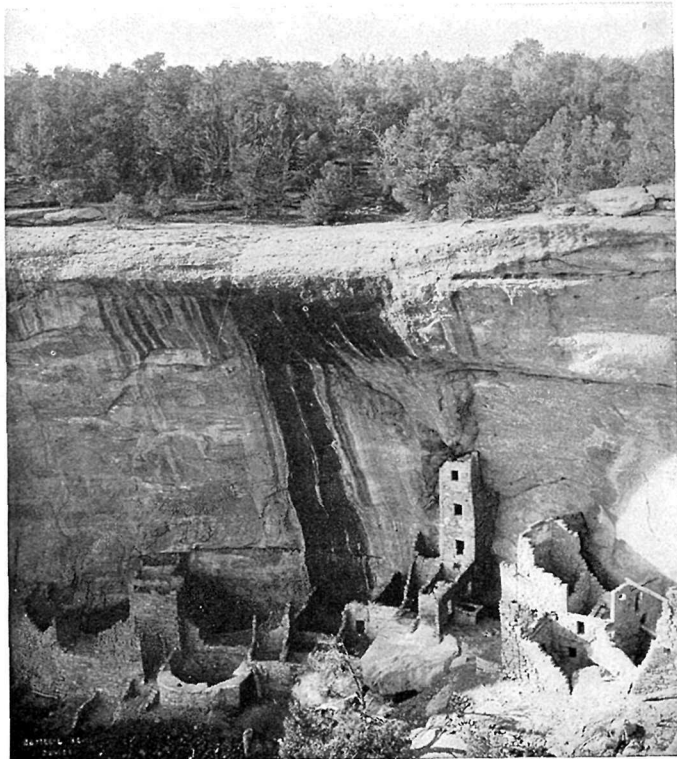
SEASON FROM MAY 15 TO OCTOBER 15

1932



Photograph by Geo. L. Beam

DEDICATION OF KNIFE EDGE ENTRANCE ROAD



Photograph by Geo. L. Beam

SQUARE TOWER HOUSE, EXCAVATED AND REPAIRED

THE NATIONAL PARKS AT A GLANCE

[Number, 22; total area, 12,759.40 square miles]

Name of park	Location	Area in square miles	Distinctive characteristics
Acadia 1919	Maine coast	18.06	The group of granite mountains upon Mount Desert Island and also bold point on opposite mainland across Frenchmans Bay—Formerly called the Lafayette National Park.
Bryce Canyon 1928	Southwestern Utah	55.06	Box canyons filled with countless array of fantastically eroded pinnacles—Best exhibit of vivid coloring of earth's materials.
Carlsbad Caverns 1930	Southeastern New Mexico	1.12	Beautifully decorated limestone caverns, believed to be largest yet discovered.
Crater Lake 1902	Southwestern Oregon	249	Lake of extraordinary blue, in crater of extinct volcano—Sides 1,000 feet high—Interesting lava formations—Fine fishing.
General Grant 1890	Middle eastern California	4	Created to preserve the celebrated General Grant Tree and grove of Big Trees.
Glacier 1910	Northwestern Montana	1,533.87	Rugged mountain region of unsurpassed alpine character—250 glacier-fed lakes of romantic beauty—60 small glaciers—Precipices thousands of feet deep—Almost sensational scenery of marked individuality—Fine trout fishing.
Grand Canyon 1919	North central Arizona	1,009	The greatest example of erosion and the most sublime spectacle in the world.
Grand Teton 1929	Northwestern Wyoming	150	Includes most spectacular portion of Teton Mountains, an uplift of unusual grandeur.
Great Smoky Mountains 1930	North Carolina and Tennessee	465.18	This area is not to be developed as a national park until at least 427,000 acres have been donated to the United States, as specified in the organic act. Meanwhile the park area of 297,719.7 acres already in Federal ownership is being protected by the National Park Service.
Hawaii 1916	Hawaii	245	Interesting volcanic areas—Kilaueta and Mauna Loa, active volcanoes on the island of Hawaii; Haleakala, a huge extinct volcano on the island of Maui.
Hot Springs 1921	Middle Arkansas	1.50	47 hot springs said to possess healing properties—Many hotels and boarding houses—19 bathhouses under Government supervision. Reserved by Congress in 1832 as the Hot Springs Reservation, to prevent exploitation of hot waters.
Lassen Volcanic 1916	Northern California	163.32	Only active volcano in United States proper—Lassen Peak, 10,453 feet—Cinder Cone, 6,913 feet—Hot springs—Mud geysers.
Mesa Verde 1906	Southwestern Colorado	80.11	Most notable and best preserved prehistoric cliff dwellings in United States, if not in the world.
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.
Mount Rainier 1899	West central Washington	377.78	Largest accessible single peak glacier system; 28 glaciers, some of large size; 48 square miles of glacier, 50 to 500 feet thick—Wonderful subalpine wildflower fields.
Platt 1902	Southern Oklahoma	1.30	Sulphur and other springs said to possess healing properties.
Rocky Mountain 1915	North middle Colorado	400.52	Heart of the Rockies—Snowy range, peaks 11,000 to 14,255 feet altitude—Remarkable records of glacial period.
Sequoia 1890	Middle eastern California	604	The Big Tree National Park—Scores of sequoias 20 to 30 feet in diameter, thousands over 10 feet in diameter. General Sherman Tree, 36.5 feet in diameter and 272.4 feet high—Towering mountain ranges—Startling precipices—Mount Whitney—Kern River Canyon.
Wind Cave 1903	South Dakota	18.89	Cavern having several miles of galleries and numerous chambers containing peculiar formations.
Yellowstone 1872	Northwestern Wyoming, southwestern Montana, and northeastern Idaho	3,426	More geysers than in all rest of world together—Boiling springs—Mud volcanoes—Petriified forests—Grand Canyon of the Yellowstone, remarkable for gorgeous coloring—Large lakes—Many large streams and waterfalls—Vast wilderness, one of the greatest wild bird and animal preserves in the world—Exceptional trout fishing.
Yosemite 1890	Middle eastern California	1,162.43	Valley of world-famed beauty—Lofty cliffs—Romantic vistas—Many waterfalls of extraordinary height—3 groves of Big Trees—High Sierra—Waterwheel Falls—Good trout fishing.
Zion 1919	Southwestern Utah	148.26	Magnificent gorge (Zion Canyon), depth from 1,500 to 2,500 feet, with precipitous walls—Of great beauty and scenic interest.

The National Parks Portfolio

(SIXTH EDITION)

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MESA VERDE NATIONAL PARK

ITS PREHISTORIC INHABITANTS

The Mesa Verde, or green mesa, so called because its juniper and piñon trees give it a verdant tone, 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 cliffs bordering the valley of the Mancos River on the south. Into this valley opens 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 caves that have been eroded in the sides of these small canyons are some of the best-preserved cliff dwellings in America.

The so-called Mesa Verde cliff dwellers were not the first of the prehistoric southwestern cultures, nor were they the first human occupants of the natural caves that abound in the area of the park. Centuries before the cliff dweller civilization, with its complex social organizations, agriculture, and highly developed arts of masonry, textiles, and ceramics, it is thought that small groups of primitive Mongoloid hunters crossed from the northeastern peninsula of Asia to the western coast of Alaska. The Bering Strait, with but 60 miles of water travel, offered the safest and easiest route.

Just when these migrations to the east had their origin and how long they continued can not definitely be said, but it is thought the earliest Mongoloid hunters were in northwestern America about ten or twelve thousand years ago.

To these first immigrants, who had found a new continent in a region almost within the Arctic Circle, the open south, always milder and more productive, lay ahead. Perhaps it drew the newcomers away from the Bering Strait as fast as they crossed it. In any event, when Columbus "discovered" America, the continent was inhabited from Alaska to the Strait of Magellan and from the Pacific to the Atlantic coasts.

For perhaps several thousand years following the first migrations little of great significance developed. There undoubtedly was cultural progress, but it was slow, and in the long perspective of time its evidences are hardly discernible. With the knowledge and benefits of agriculture, which was probably developed first in Mexico, hunting gave way to husbandry, nomadism to sedentary life, and there followed a great period of change and advancement. The introduction of corn or Indian maize into what is now the southwestern United States may be called the antecedent condition for all advanced cultures of the area.

Evidence has not yet been established that the first of the maize-growing Indians of the Southwest were permanent occupants of the Mesa Verde. Nevertheless, in the Cliff Palace cave, well below the horizon or floor level of the cliff dwellers, archeologists have found a yucca fiber sandal of a distinctive type which is associated only

with the first of the agricultural people. From this evidence it would be reasonable to assume that the caves of Mesa Verde at least offered temporary shelter, if not permanent homes, to the people of this period.

The earliest culture so far definitely identified as having permanent habitation on the Mesa Verde is the Basket-Maker III or Second Agricultural Basket-Maker first found in Step House cave on the west side of the park below the debris of the later cliff-house occupation. These early inhabitants constructed roughly circular, subterranean rooms in the sandy floor of the caves and in the shallow red soil along the watershed divide of the flat mesa lands intervening between the numerous canyons. Late Basket-Maker House A, formerly known as Earth Lodge A, is an excellent example of this early type of structure in that the floors were sunken slightly below the surface and the low walls plastered with clay or reinforced with thin slabs of stone set on end. Sometimes balls of clay were placed one above the other and laid up as masonry.

A vaulted roof of logs, further supported by upright posts set in the floor, carried the thatching and heavy covering of clay and earth that insulated the structure from the elements. A small vent in this roof cared for the egress of smoke from the fire pit within. Entrance was normally by a small doorway in one side. There are hundreds of such sites in the area just south of the Square Tower House-Sun Point road. Up to this time excavations have failed to uncover a single house structure of this type not destroyed by fire.

These early inhabitants made basketry, excelled in the art of weaving, and were the first to invent fired pottery. The course of this invention can be traced from the crude sun-dried vessels tempered with shredded cedar bark to the properly tempered and durable fired vessel.

Then followed a long development in house structure, differing materially from this earlier type. Horizontal masonry replaced the cruder attempts of house-wall construction; rectangular or squarish forms replaced the somewhat circular and earlier type; and gradually the single-room structure was grouped in ever-enlarging units which assumed varying forms of arrangement as the development progressed. The art of pottery making improved concurrently with the more complex house structure. This later period represents the intermediate era of development from the crude Late Basket Maker dwellings to the remarkable structures of the "Cliff House Culture."

The cliff dwellers were not content with the crude buildings and earth lodges that satisfied as homes during earlier periods of occupancy. For their habitations they shaped stones into regular forms, sometimes ornamenting them with designs, and laid them in mud mortar, one on another. Their masonry has resisted the destructive forces of the elements for centuries.

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 fire-places, although these were generally in the plazas or on the house-tops. 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 masonry 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.

The cliff-dweller colonists found that the change from the isolated caves of Mesa Verde to the open country of northern New Mexico greatly modified their every-day life. The opportunity for social intercourse with other groups presented itself, and it would naturally follow that intermarriage and tribal alliances resulted. Perhaps in this manner the pure Mesa Verde culture was lost.

It is thought that certain of the present-day Pueblo Indians are descendants, in part at least, of the cliff dwellers. Many of these Indian towns or pueblos still survive in the States of New Mexico and Arizona, the least modified of which are the 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.

In addition to their ability as architects and masons the cliff dwellers excelled in the art of pottery-making and as agriculturists. Their decorated pottery—a black design on pearly-white background—will compare favorably with pottery of the other cultures of the prehistoric Southwest.

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.

The staple product of the cliff dwellers was corn; they also planted beans and gourds. This limited selection was perhaps augmented by piñon nuts and yucca fruit—indigenous products found in abundance. Nevertheless, successful agriculture on the semiarid plateau of the Mesa Verde must have been dependent upon hard work and diligent efforts. Without running streams irrigation was impossible and success or failure rested upon the ability of the farmer to save the crop through the dry period of June and early July.

Rain at the right time was the all-important problem, and so confidently did they believe that they were dependent upon the gods to make the rain fall and the corn grow that they worshiped the sun as the father of all life and the earth as the mother who brought them all their material blessings.

From Dr. A. E. Douglass's tree-ring chronology the earliest date so far established for the Mesa Verde cliff dwellings is 1073 A. D. and the latest date 1262 A. D. While it should not be imagined that these are the all-inclusive dates representing the total time of the cliff-dweller culture, it is interesting to note that this same tree-ring story tells us that a great drought commenced in 1276 and extended for a 23-year period to 1299. The effect of a 23-year period of drought on the agricultural inhabitants of this great plateau can be readily imagined. It may logically be presumed that the prehistoric population was gradually forced to withdraw from the area as the drought continued and to establish itself near more favorable sources of water supply.

The so-called Aztec ruin, which is situated on the banks of the Animas River in northwestern New Mexico, substantiates this hypothesis of the voluntary desertion of the cliff dwellings. In this ruin is found unmistakable evidence of a secondary occupation which has been definitely identified as a Mesa Verde settlement.

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 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.

A new scenic road approximately 1 mile in length branches from the main highway at a point 8 miles beyond the entrance checking station and ascends to the crest of Park Point, the highest part of the Mesa Verde National Park, which attains an elevation of 8,575 feet above sea level.

From this majestic prominence the great Montezuma Valley, dotted with artificial lakes and fertile fields, appears as from an airplane, while to the north are seen the Rico Mountains and Lone Cone of Colorado, to the east the La Plata Mountains, and on the distant horizon the Sangre de Cristos, also of Colorado. To the west the La Sals, the Blues, and Bears Ears, of Utah, dominate the horizon. Some of these landmarks are more than 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-enclosed, 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 "windjammer" under full sail. Toward evening the illusion is perfect.

Automobile permits are issued and visitors registered by the ranger stationed at the park entrance. Additional information may be secured at this point. Emergency phone box No. 5 is located here.

The distance from the park entrance to Spruce Tree Camp, park headquarters, over the spectacular entrance highway is approximately 18 miles. The entire road is gravel surfaced, full double width, and cars may pass at any point thereon. Completion of important road contracts on the new Point Lookout and Prater Grade sections of this highway has eliminated all grades in excess of 7 per cent on the park highways. **Drive slowly. The signs are for your guidance and instruction.**

The Point Lookout section of the highway ascends from the park entrance to the head of Morefield Canyon, where emergency phone box No. 4 is located. From this point, 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.

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 mesa 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 Ruins 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. C. Marshall Finnan is superintendent of Mesa Verde National Park. His post-office address is Mesa Verde National Park, Colo.

During the season visitors will be provided with competent park ranger guides without cost, to accompany them from Spruce Tree Lodge to the various ruins. Visitors will not be permitted to inspect the ruins unless so accompanied.

The park season is from May 15 to October 15, complete lodging and meal accommodations and automobile stage service being available from June 15 to September 15, with informal lodging and meal accommodations available during the remainder of the park season.

Exclusive jurisdiction over the park was ceded to the United States by act of the Colorado Legislature approved May 2, 1927, and accepted by Congress by act approved April 25, 1928 (Public, No. 317). There is a United States commissioner at park headquarters.

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, Pagosa Springs, and Durango, crossing Wolf Creek Pass en route. From Durango the road leads to Mancos and on into the park. Motorists coming from Utah turn southward from Green River or Thompsons, crossing the Colorado River at Moab, proceeding southward to Monticello, thence eastward to Cortez, Colo., and 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, 98 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 about 7,000 feet.

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

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 6½ miles from Mancos and 10 miles from Cortez.

After leaving the dry-land farms and gentle piñon and juniper covered slopes that border the road to the north park entrance, where automobile permits are secured, the 3-mile ascent of Point Lookout begins. Meandering back and forth up the abrupt north slope, the

first extended view of the Montezuma Valley is had from Windy Point. Swinging eastward, there is suddenly unfolded from the lower altitudes a most enchanting vista of the fertile Mancos Valley nestling at the foot of the sharp, rugged, snow-clad La Platas, the beauty and extent of which seems to increase proportionately with increase of altitude. Suddenly again, a great deep cut shuts off the world below; one is crossing the head of Morefield Canyon, with Lone Cone on the right, to traverse the great abrupt north slope of the Mesa Verde by the Knife Edge section of the entrance highway, from which equally unobstructed and magnificent views may be had of the great Montezuma Valley, Sleeping Ute Mountain, the distant Blues, the La Sals, Lone Cone, and the great north escarpment of the Mesa Verde.

The new Prater Grade then ascends for over 2 miles to a second abrupt north cut and thence upward again to the final crest on Park Point, from which descending grades gradually lead through the forested areas to Spruce Tree Camp, park headquarters.

Motorists en route to the park should fill gas tanks and radiators, examine oil level, and test brakes when passing through the near-by towns of Mancos, Cortez, or Dolores. Gas and oil may be secured at Spruce Tree Lodge in the park. Extra water is desirable for cars that boil on long grades. On these long grades, select suitable gear for holding car and brake against compression. Grades do not exceed 8 per cent at any point. The roads are safe; the driver should be careful and heed all warnings.

BY RAILROAD

Mesa Verde National Park is approached by rail both from the north and from the south: From the north via the Denver & Rio Grande Western Railroad system through Grand Junction and Durango, and from the south via the main transcontinental line of the Santa Fe Railroad through Gallup, N. Mex.

ROUTES AND SCHEDULES

The Grand Junction or Durango (Colo.) gateways.—During the summer season round-trip excursion tickets via the Denver & Rio Grande Western Railroad are sold at reduced rates from practically all points in the United States and Canada to Mesa Verde National Park. Automobile service is operated daily from June 15 to September 15 between Grand Junction, Delta, Montrose, Ouray, Silverton, Durango, Mancos, and the park on the following schedules:

Leave Grand Junction 6.45 a. m., arriving Ouray 11.10 a. m. Stop for luncheon. Leave Ouray 11.50 a. m., arriving Spruce Tree Lodge 7 p. m.

Leave Spruce Tree Lodge 7.30 a. m., arriving Silverton 12.35 p. m. Stop for luncheon. Leave Silverton 1.05 p. m., arriving Grand Junction 6.35 p. m.

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 trips in accordance with the following routes and schedules:

The Gallup (N. Mex.) gateway.—Entrance to Mesa Verde from the south is growing constantly in convenience and popularity. Here the best approach by railroad is over the transcontinental main line of the Santa Fe, with Gallup, N. Mex., as a logical and strategic point at which to detrain. Not only do principal Santa Fe trains reach Gallup at convenient hours, but it is also on the National Old Trails transcontinental highway, and readily accessible by motor road from other points in New Mexico and Arizona. In addition it offers excellent hotel accommodations in El Navajo, operated by Fred Harvey. Other principal points of departure from the south are Santa Fe, N. Mex., and Winslow, Ariz., the latter also on the Santa Fe main line. Both cities have exceptionally fine hotel accommodations in La Fonda and La Posada, operated by Fred Harvey, and while farther from the park by motor than Gallup, the approach may be made by varied routes of absorbing interest.

A regular tri-weekly motor tour service from Gallup to Mesa Verde, known as the Mesa Verde Detour, affords convenient connections with principal Santa Fe main-line trains. This recently inaugurated service is under the management of Hunter Clarkson, Inc., operators of the well-known Indian-detours and Couriercar Motor Cruises from Santa Fe, N. Mex., and Winslow, Ariz.: and the Death Valley Detours, Death Valley, Calif.

For this 2-day Mesa Verde Detour, comfortable 7-passenger closed Cadillac cars leave El Navajo Hotel, Gallup, at 8 a. m. on Mondays, Wednesdays, and Fridays, for one or more passengers, returning to point of departure at 6 p. m. on Tuesdays, Thursdays, and Saturdays. The all-inclusive rates of \$46.50 per adult fare, and \$23.25 half-fare (children under 12) cover round-trip motor transportation from Gallup to Mesa Verde and return, four meals, and one night's accommodation at Spruce Tree Lodge, Mesa Verde. Details of the Mesa Verde Detour, including 1-way rates, and other details, will be found on pages 64 and 65.

Gallup headquarters of the new tour will be at El Navajo, a first-class station hotel, operated by Fred Harvey, and providing excellent accommodations for passengers leaving Santa Fe trains at that point.

SCHEDULE No. 1¹

From Denver, Colorado Springs, or Pueblo, going via Walsenburg, Alamosa, and Durango, returning via Chief Ouray Highway,² Ouray,² Montrose, Gunnison, and Salida

Lv. Denver.....	1st day.	7.45 p. m.	are very many others to be visited if longer time is spent in the park.
Lv. Colorado Springs.....	1st day.	10.10 p. m.	
Lv. Pueblo.....	1st day.	11.50 p. m.	
Ar. Alamosa.....	2d day.	5.45 a. m.	
Lv. Alamosa.....	2d day.	7.10 a. m.	
(Toltec Gorge, Cumbres Pass.)			
Ar. Durango.....	2d day.	4.35 p. m.	
Lv. Durango ²	2d day.	4.45 p. m.	
Ar. Spruce Tree Lodge ²	2d day.	7.00 p. m.	
(Mesa Verde National Park.)			
Trips to various ruins as desired. Suggested arrangement: Forenoon, visit Spruce Tree House, Square Tower House, Sun Temple, and Oak Tree House. Afternoon, visit Balcony House, Cliff Palace, and Far View House. The ruins named are major ones and the most accessible. There			
Ar. Spruce Tree Lodge ²	4th day.	7.30 a. m.	Lv. Spruce Tree Lodge ²
Lv. Durango ²	4th day.	9.45 a. m.	Lv. Durango ²
(Via Silverton, Chief Ouray Highway, Box Canyon, and Ouray.)			
Ar. Montrose ²	4th day.	4.05 p. m.	Ar. Montrose ²
Lv. Montrose ³	4th day.	2.45 p. m.	Lv. Montrose ³
(Black Canyon of the Gunnison—Marshall Pass.)			
Ar. Salida.....	4th day.	10.10 p. m.	Ar. Salida.....
(Sleeper may be occupied on arrival.)			
Lv. Salida.....	5th day.	12.01 a. m.	Lv. Salida.....
Ar. Pueblo.....	5th day.	3.45 a. m.	Ar. Pueblo.....
Ar. Colorado Springs.....	5th day.	5.10 a. m.	Ar. Colorado Springs.....
Ar. Denver.....	5th day.	7.50 a. m.	Ar. Denver.....

¹ Schedule subject to change without notice.

² Motor service.

³ Will hold for bus connection for 5 or more park passengers.

SCHEDULE No. 2¹

From Denver, Colorado Springs, or Pueblo, going via Glenwood Springs, Grand Junction, and Chief Ouray Highway,² returning via Durango, Alamosa, and Walsenburg

Lv. Denver.....	1st day.	8.15 a. m.	Lv. Spruce Tree Lodge ²	4th day.	7.30 a. m.
Lv. Colorado Springs.....	1st day.	10.30 a. m.	Ar. Durango ²	4th day.	9.45 a. m.
Lv. Pueblo.....	1st day.	11.50 a. m.	Lv. Durango.....	4th day.	9.50 a. m.
(Royal Gorge and Suspension Bridge.)					
(Tennessee Pass—Eagle River Canyon—Colorado River Canyon.)					
Lv. Glenwood Springs.....	1st day.	8.15 p. m.	Ar. Alamosa.....	4th day.	7.15 p. m.
Ar. Grand Junction.....	1st day.	10.45 p. m.	Lv. Alamosa.....	4th day.	9.30 p. m.
Lv. Grand Junction ²	2d day.	6.45 a. m.	(Sleeping car, Alamosa to Denver.)		
Ar. Ouray ²	2d day.	11.10 a. m.	Ar. Pueblo.....	5th day.	3.15 a. m.
Lv. Ouray ²	2d day.	11.50 a. m.	Ar. Colorado Springs.....	5th day.	5.10 a. m.
Ar. Durango ²	2d day.	4.15 p. m.	Ar. Denver.....	5th day.	7.50 a. m.
Lv. Durango ²	2d day.	4.45 p. m.			
Ar. Spruce Tree Lodge.....	2d day.	7.00 p. m.			
(Mesa Verde National Park.)					

Trips to various ruins, see arrangement suggested in Schedule 1.

SCHEDULE No. 3¹

From Denver, Colorado Springs, or Pueblo, going via Walsenburg, Alamosa, and Durango, returning via Chief Ouray Highway, Grand Junction, and Glenwood (reverse of Schedule No. 2)

Follow Schedule 1 to Spruce Tree Lodge (Mesa Verde National Park).	Lv. Grand Junction.....	5th day.	12.20 a. m.
Trips to various ruins, see arrangement suggested in Schedule 1.	(Sleeping-car occupancy, 9.30 p. m., Grand Junction to Denver.)		
Lv. Spruce Tree Lodge ²	Ar. Pueblo.....	5th day.	11.00 a. m.
Ar. Grand Junction ²	Ar. Colorado Springs.....	5th day.	12.15 a. m.
	Ar. Denver.....	5th day.	2.30 p. m.

SCHEDULE No. 4¹

From Denver, Colorado Springs, or Pueblo, going via Salida, Gunnison, Montrose, and Ouray,² returning via Durango, Alamosa, and Walsenburg (reverse of Schedule 1)

Lv. Denver.....	1st day.	8.15 a. m.	Lv. Durango ²	3d day.	4.45 p. m.
Lv. Colorado Springs.....	1st day.	10.30 a. m.	Ar. Spruce Tree Lodge ²	3d day.	7.00 p. m.
Lv. Pueblo.....	1st day.	11.50 a. m.	(Mesa Verde National Park.)		
(Royal Gorge and Suspension Bridge.)					
Ar. Salida.....	1st day.	3.00 p. m.	Trips to various ruins, see arrangement suggested in Schedule 1.		
Or					
Lv. Denver.....	1st day.	7.45 p. m.	Lv. Spruce Tree Lodge ²	5th day.	7.30 a. m.
Lv. Colorado Springs.....	1st day.	10.10 p. m.	Ar. Durango ²	5th day.	9.45 a. m.
Lv. Pueblo.....	1st day.	11.50 p. m.	Lv. Durango via Denver & Rio Grande Western R.R. ² 5th day. 9.50 a. m.		
Ar. Salida.....	2d day.	3.25 a. m.	(Cumbres Pass—Toltec Gorge.)		
(Occupy sleeping car until 6.30 a. m.)					
Lv. Salida.....	2d day.	8.15 a. m.	Ar. Alamosa.....	5th day.	7.15 p. m.
(Marshall Pass—Black Canyon of the Gunnison.)					
Ar. Montrose.....	2d day.	3.40 p. m.	Lv. Alamosa.....	5th day.	9.30 p. m.
Lv. Montrose ²	3d day.	9.30 a. m.	(Through sleepers to Pueblo and Denver.)		
(Via Ouray and Chief Ouray Highway.)					
Ar. Durango ²	3d day.	4.15 p. m.	Ar. Pueblo.....	6th day.	3.15 a. m.
			(Sleeper may be occupied until 7.30 a. m.)		
			Ar. Colorado Springs.....	6th day.	5.10 a. m.
			Ar. Denver.....	6th day.	7.50 a. m.

SCHEDULE No. 5¹

Motor service from Durango to Spruce Tree Lodge (Mesa Verde National Park) and return

Lv. Durango ²	4.45 p. m.	Ar. Durango.....	9.45 a. m.
Ar. Spruce Tree Lodge.....	7.00 p. m.	(Service daily during park season.)	
Lv. Spruce Tree Lodge.....	7.30 a. m.		

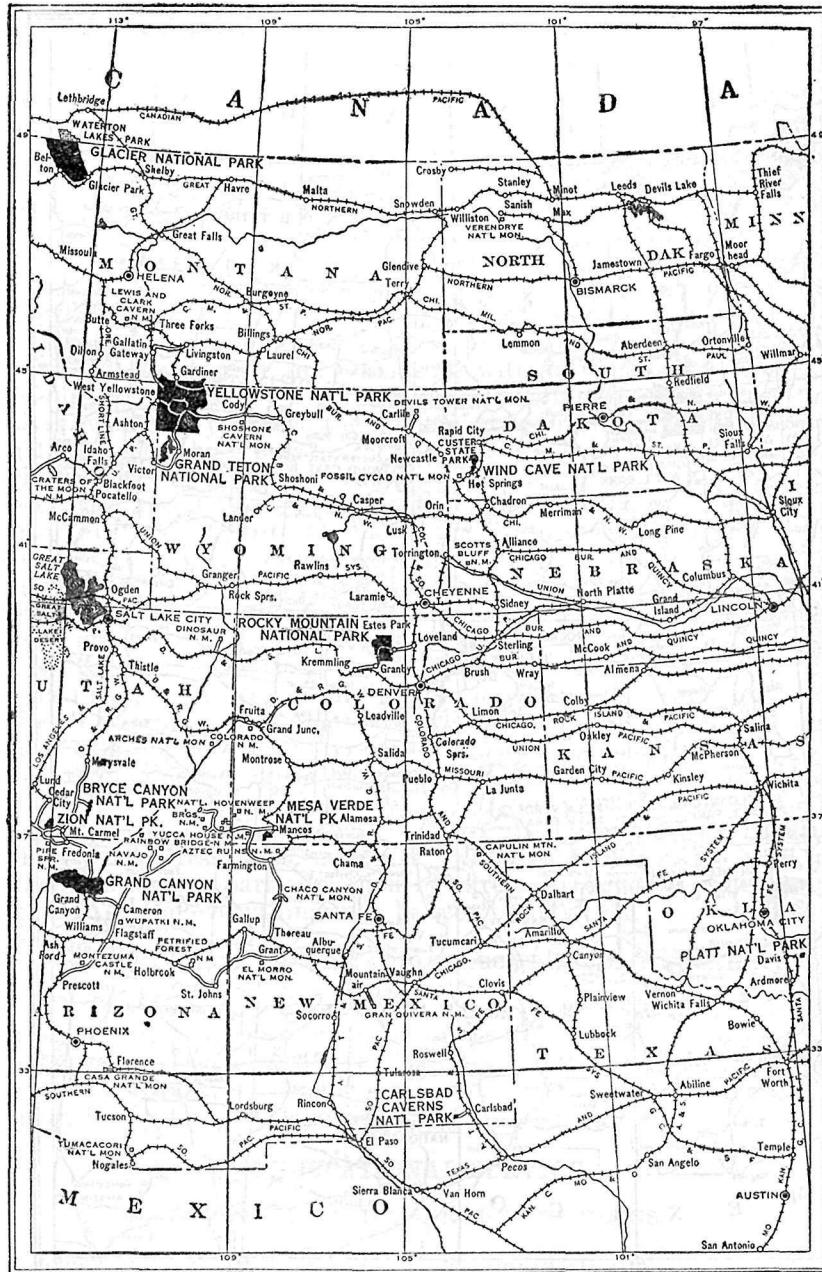
SCHEDULE No. 6¹

Motor service from Grand Junction or Montrose, via Chief Ouray Highway, both directions

Lv. Grand Junction ²	6.45 a. m.	Returning—	
Lv. Montrose ²	9.30 a. m.	Lv. Spruce Tree Lodge ²	7.30 a. m.
(Via Ouray, Chief Ouray Highway, and Durango.)			
Ar. Spruce Tree Lodge ²	7.00 p. m.	Ar. Montrose ²	4.05 p. m.
		Ar. Grand Junction ²	6.35 p. m.

¹ Schedules subject to change without notice.

² Motor service.



Scale of Miles
0 25 50 100 150 200 250 300
RAILROAD ROUTES

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 in connection with its motor service offers various 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, now spanned by an all-steel suspension bridge, 1,053 feet above the railroad tracks; the Black Canyon of the Gunnison, with its wonderful Curecanti 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); Red Mountain Pass (altitude 11,025 feet), with beautiful Red Mountain 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.

Near Montrose, Colo., the United States Reclamation Service's Uncompahgre project for irrigation may be seen. For many miles after leaving Montrose there are visible on the left the great jagged Sawtooth Mountains, while to the southwest 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 interesting scenery everywhere along the line, and the schedules for this part of the journey are so arranged that during the summer season everything may be seen by daylight.

DETAILED INFORMATION ABOUT RAIL 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.

EDUCATIONAL SERVICE

RANGER-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. Ranger guides are assigned for the purpose of conducting visitors to and through the ruins, explaining the salient features thereof, answering reasonable

questions, and rendering assistance on the trails. This service is gratis, and tipping ranger guides is prohibited. Parties arriving late will be assigned ranger 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.

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. The park naturalist and a museum assistant are 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, the park naturalist, 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. At the conclusion of the "talks," six of the best singers and dancers among the Navajo Indians employed at camp can usually be persuaded, by modest voluntary contributions on the part of the visitors, to give three parts of the sacred Yebechai ceremony. They will not dance and sing otherwise away from the reservation to the south.

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 in-

stalled, 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 have finished with it.*

Provisions for campers are obtainable at reasonable prices in any of the near-by towns. Groceries, gas, and oil can be purchased 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, Colo.

PUBLIC UTILITIES

SPRUCE TREE LODGE

The Mesa Verde Park Co., address, Equitable Building, Denver, Colo., in the winter, and Mesa Verde National Park, Colo., during the summer season, provides 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 Indian curios, postal cards, photographs, and general supplies, including groceries and gasoline, may be procured. The lodge is but a few minutes' walk from Spruce Tree Ruin and park headquarters.

Complete lodging and meal accommodations are available from June 15 to September 15 with informal accommodations available during the periods from May 15 to June 14 and September 16 to October 15.

TRANSPORTATION

The Rio Grande Motor Way (Inc.) conducts an automobile service from Grand Junction, Delta, Montrose, Ouray, Silverton, Durango, and Mancos to and in the park. Cars meet trains at Grand Junction and Durango, Colo. Ticket to include auto service to park and ruins can be purchased with rail ticket if desired. This automobile stage service is available only during the period from June 15 to September 15.

Baggage should only be checked via railroad to junction point with motor line. The motor company will carry free of charge luggage not exceeding 40 pounds. Persons having baggage in excess of 40 pounds can make special arrangements for its transportation to Mesa Verde National Park and return. Storage charges on baggage at railroad junctions will be waived while passengers are making tour of the park.

HUNTER CLARKSON (INC.)

Hunter Clarkson (Inc.), with headquarters at Santa Fe, N. Mex., operates a regularly scheduled Mesa Verde Detour by motor from the main line of the Santa Fe Railway at Gallup, N. Mex., to the park and return, a round trip of 360 miles through some of the most primitive, picturesque, and least known parts of the Southwest.

Complete information on this recently inaugurated service from Gallup, as well as on other regular and special motor service to the

park from Santa Fe, N. Mex., and Winslow, Ariz., will be given upon inquiry addressed to Hunter Clarkson (Inc.), Santa Fe, N. Mex. (Also see page 64.)

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 1-day trips to Mancos River, Spring House, Casa Colorado, Inaccessible House, and Poole Canyon. New equipment 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 66.

HOSPITAL AND MEDICAL SERVICE

There is an excellent hospital at park headquarters, where medical and surgical service is provided to care for all emergency cases. Prices are regulated by the Secretary of the Interior.

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 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 findings 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.

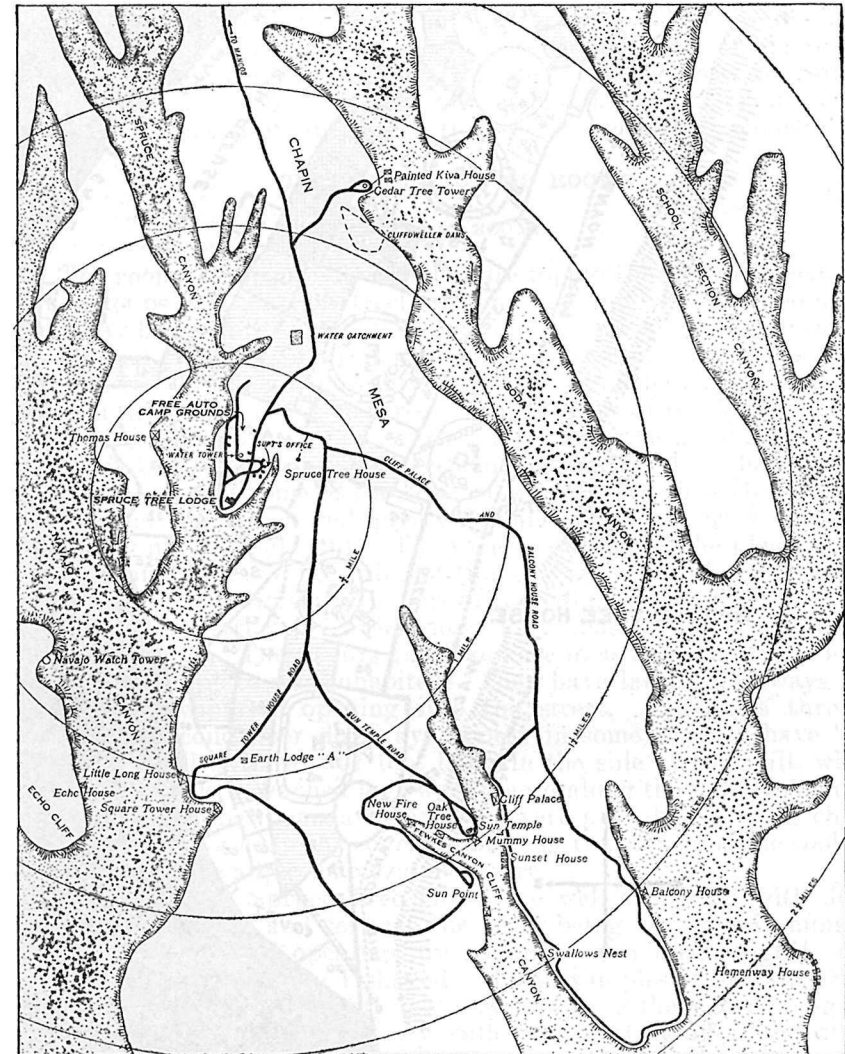
Only a few of the different types of ruins that have already been excavated and repaired and are now accessible to the visitor are considered herein. Many others await the spade of the archeologist and the road maker, being now only accessible on foot or horseback by means of trails. The following archeological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

with the exception of Balcony House, which was done by Jesse L. Nusbaum.

SPRUCE TREE HOUSE

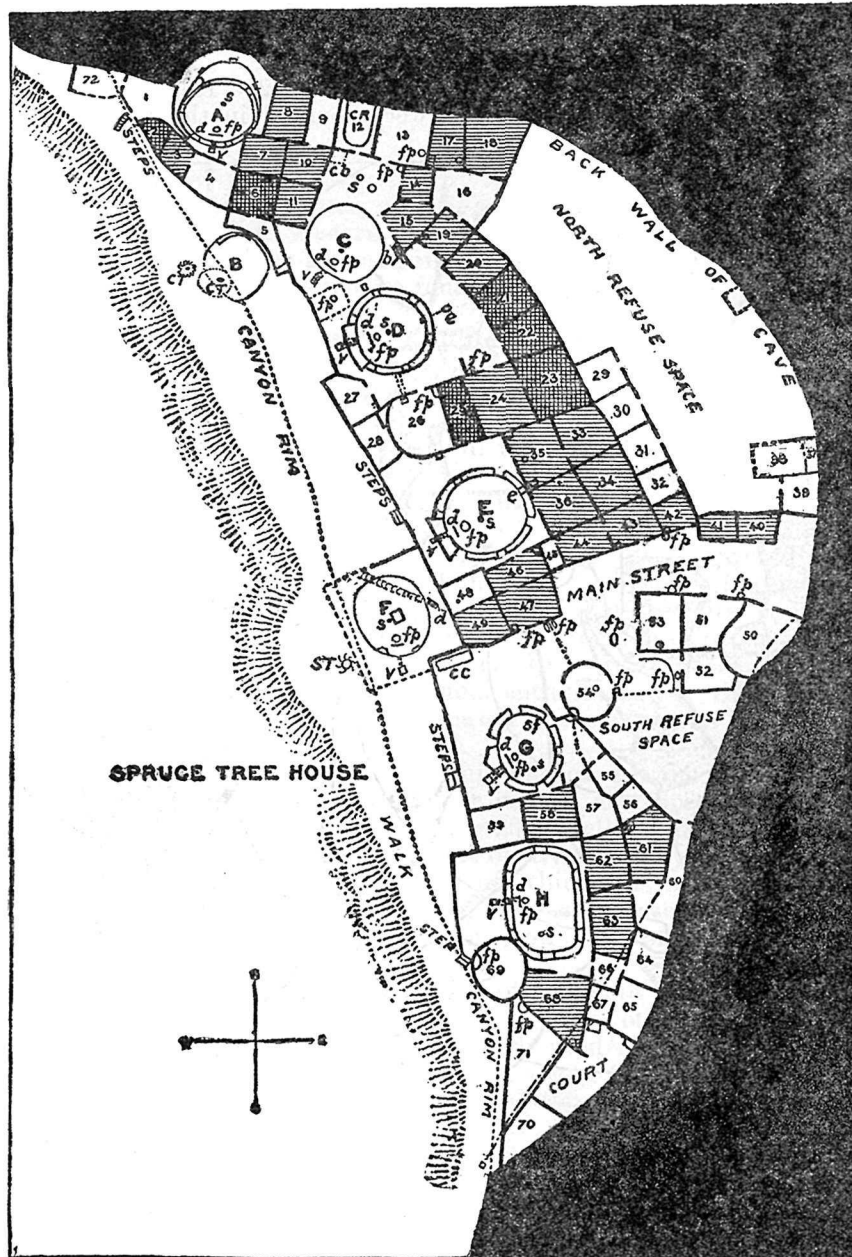
GENERAL DESCRIPTION

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



Map of portion of Chapin Mesa showing administration area.

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



Plan of Spruce Tree House

which are now two stories high, formerly had a third story¹ 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 at the same time, there being evidence that several of them had occupants long after others were deserted. Approximately, Spruce 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 kivas² 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.

¹ On the plan of Spruce Tree House, from a survey by S. G. Morley, the third story is indicated by crosshatching, the second by parallel lines, and the first has no markings.

² There is a numerical relationship between the population and the number of kivas which has not yet been satisfactorily worked out.

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. 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 characteristic 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 was also 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 *sipapû* 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, usually lined with a neck of a pottery 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 published by Doctor Fewkes. 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 (aforementioned). This air entered the kiva through the vertical and horizontal passageways 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 kiva.

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 banquette 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 trail are most striking and should be enjoyed as a preliminary to closer examination and detailed study of the rooms in Cliff Palace.

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 rooms.³

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

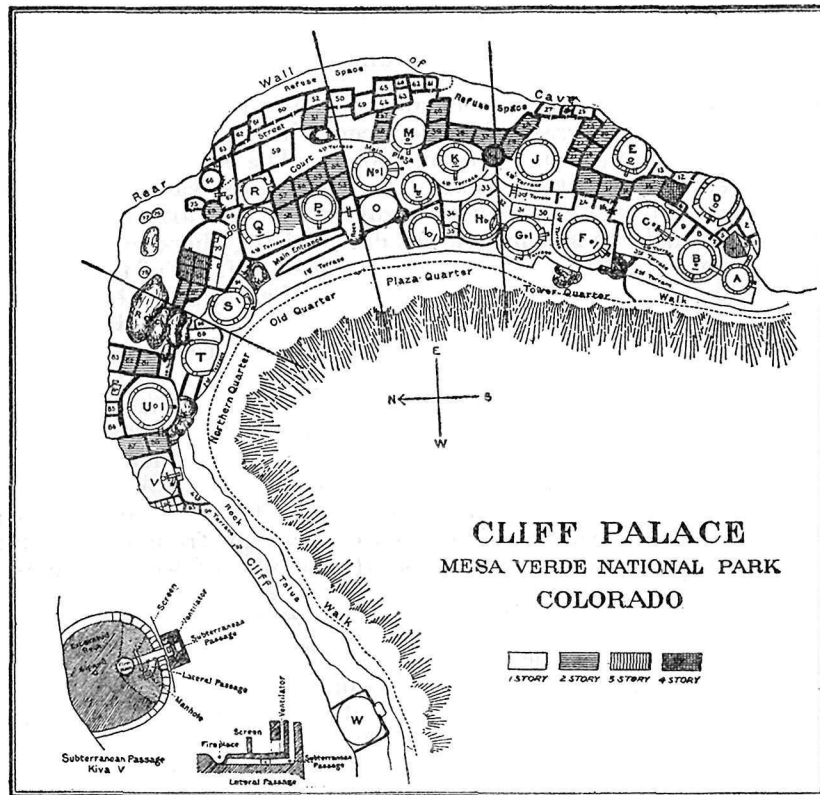
Four different regions may be distinguished in the ruin, two north of a line drawn from the front entrance to the rear of the cave and two south of that line. While structurally there appear to be no essential differences in these quarters, they present certain characteristic archeological features which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

³This 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.

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 4-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," is now 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 3-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 assembly 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 (*sipapu*) 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, 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 were 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 inaccessibility. 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, an organization founded and directed by Mrs. Gilbert McClurg of Colorado Springs, Colorado, for the original purpose of stimulating interest in legislation for the preservation and protection of the prehistoric remains of the Mesa Verde, which led to the creation of this national park in 1906.

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 for 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 in 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

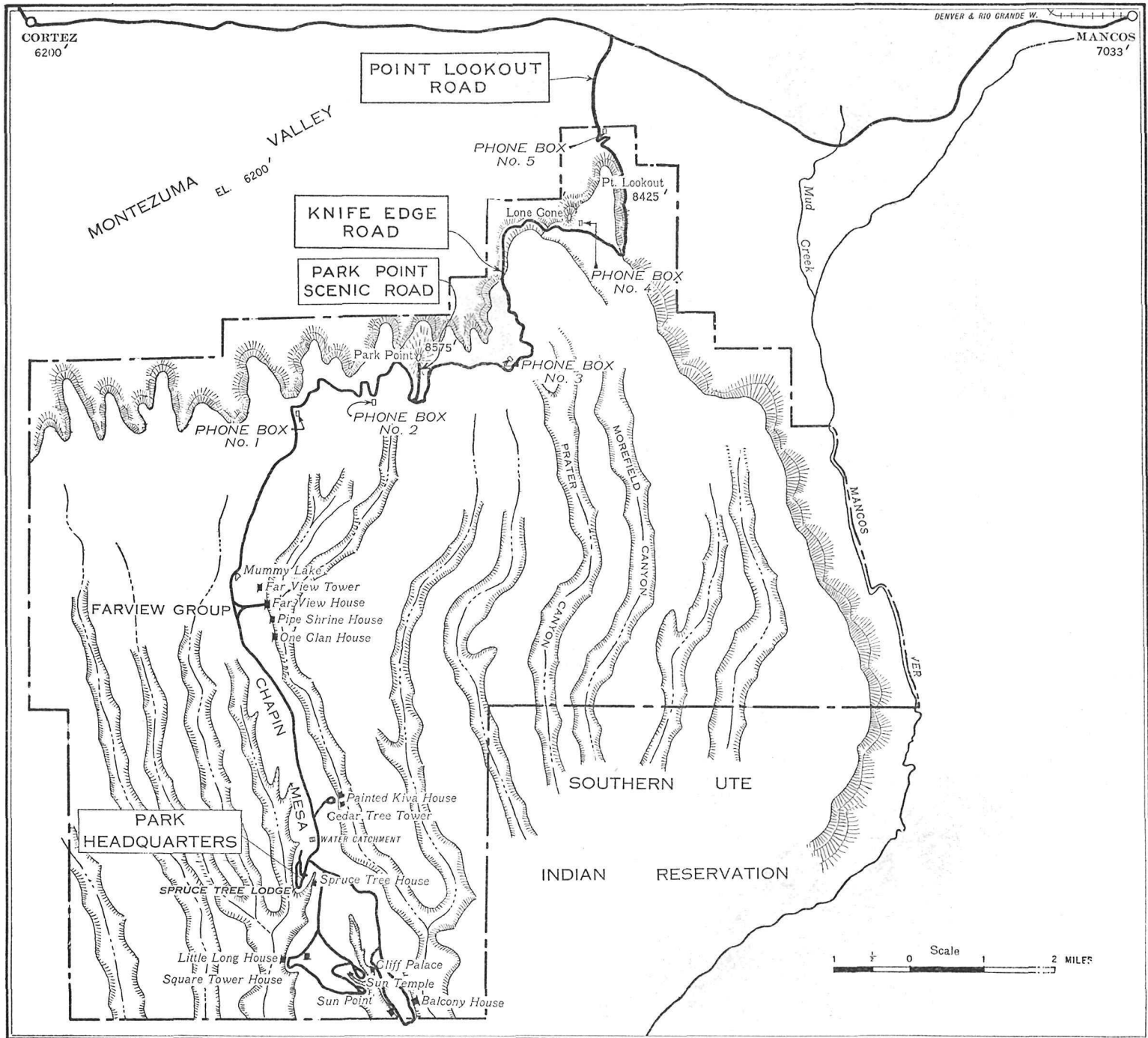
The perpendicular cliff back of Square Tower House has several different forms of incised pictographs. From the fact that these naturally occur on the cliff above the kiva roofs, they may be regarded as connected in some way with a religious symbolism. A few pictographs are also found on stones set in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

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.

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 vicinity.

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 were 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.

AGE⁴

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.

Because of the absence of timbers or roof beams 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 may never have been 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 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 excavation work was begun. 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 the tree was killed. It was then cut off about a foot above the ground, but the stump remains. 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 350 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 1200 A. D.

From absence of data for Sun Temple the relative age of this ruin and of Cliff Palace is equally obscure, but Dr. Fewkes believed that Sun Temple 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.

⁴For the latest data on this subject see "Tree Ring Chronology Established," on p. 49. This material was not available when Doctor Fewkes prepared his statement.

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 indicate; there are no evidences of fireplaces, no smoked walls, no ashes or charcoal, no metates for grinding corn, no piles of debris, 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 be 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 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 kiva. 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.

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 buildings 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.

LATE BASKET MAKER SITE A ⁵

Scattered along the rolling ridges that divide the watershed of the more level mesa lands in the southern half of the park, there are hundreds of small areas where surface examination shows quantities of fire-reddened sandstone in small pieces, partially chipped and rejected flints, predominantly plain and undecorated potsherds, with now and then one or more ends of vertically set sandstone slabs protruding above the surface. Such are the surface indications of the majority of the home sites of the latest or third phase of basket-maker culture which preceded that of the cliff dweller by many centuries.

Late basket-maker sites are likewise found in caves that at times have been occupied by the later cliff-dweller culture. In such cases, where both have occupied the same space, the cliff dweller débris is largely superimposed on that of the earlier inhabitants as in Step House Cave ⁶ on the west side of the park.

Further examination and completion of excavation of the site formerly known as Earth Lodge A, about 50 yards to the east of Square Tower House Road on Chapin Mesa, by Earl Morris, of the Carnegie Institution and Jesse L. Nusbaum, director of the Laboratory of Anthropology at Santa Fe, N. Mex., and formerly park superintendent, have conclusively proved this site to be of typical late basket-maker construction.

⁵ Last period of basket-maker culture, properly designated as Basket Maker III.

⁶ See description thereof included under discoveries.

Originally the early builders had excavated a circular area averaging 18 feet 6 inches in diameter, to a depth of approximately 2 feet. At an average height of 17 inches above the floor, a bench was formed by extending the area of excavation outward an approximate width of 16 inches. A large fire pit was constructed in the circular portion of the south half of the inclosure with a barrier of slabs, set on end, between it and the entrance to the south. Irregular bins formed a conjunction with the room wall by the use of large thin slabs of sandstone embedded on end in the floor, and were found parallel with and to the right and left of the principal deflector, thus leading to the earlier conclusion that the ground plan of such a structure was D-shaped. A third storage bin, similarly constructed was formed against the wall in the northeast quarter. The floor, side walls, bench, and bin areas were originally heavily plastered with clay applied directly to the earth's surface.

In the earlier excavations of this site, a large number of charred beams, 4 to 6 inches in diameter, were found lying radially in contact with the floor. At the same time, but one fire-hardened cast of the butt end of one of the roof logs remained. This impression indicated that roof logs were rested on end in the earth surrounding the bench and slanted upward and inward toward a common center.

In the examinations of last fall, four holes averaging 5 to 6 inches in diameter and to 16 inches in depth were found in a quadrilateral position in the floor, each being spaced approximately 2 feet out from the nearest wall. These holes, casts of the butts of the vertical supporting logs that carried the central roof load, were filled with ashes or the charred butts of these supporting members, so common to structures of this period. Potsherds found in this further excavation were typical of the late basket-maker culture, and ample evidence was obtained in a few shallow test pits adjacent to this structure to indicate that it is but one of a group of such structures.

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 in 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 inhabitants 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 the same way as those dwelling 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 tongue-like 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 resemblances 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,⁷ 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 1874 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

⁷ For latest data on this subject see "Tree Ring Chronology Established," on p. 48.

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.

MAGALITHIC 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.

TREE-RING CHRONOLOGY ESTABLISHED FOR DATING SOUTHWESTERN RUINS⁸

Dr. A. E. Douglass, Director of Steward Observatory, University of Arizona, as an astronomer was primarily interested in the study

⁸The Secret of the Southwest Solved by Talkative Tree Rings, by A. E. Douglass: National Geographic Magazine, December, 1929.

of sun spots. As an aid in this astronomical investigation, he studied trees, since solar changes affect our weather, and weather in turn the trees of the arid Southwest, as elsewhere. Trees add a new layer of wood over their entire living surface of trunk and branches each year. The dependence of the Arizona pines on rainfall, and especially on winter precipitation, reflected in outstanding manner the variation in growth during wet and dry years. By tree-ring examination, evidence of the regularly reoccurring 11-year sun-spot cycle had been recorded for 500 years in the Arizona pine except for the interval from 1650 to 1725. During this interval, old astronomical records bear out this absence of sun spots. No evidence of the expected periodical change in weather was recorded in this period. Thus was confirmed the relation between growth of tree, and solar changes.

Living trees could carry the record back but a few centuries at most. It was found that the tree-ring chronology could be immeasurably extended by arranging beams in their proper sequence, so that the inner diary entries of each one dovetailed and matched the outer entries of its predecessor. Continued examination of the pine timbers used in construction of the older Hopi pueblos resulted in establishing an unbroken extension of the tree-ring chronology to A. D. 1260.

Ancient beams of fir and pine, chopped with stone axes, were available for study in the major ruin areas of Colorado, Utah, New Mexico, and Arizona. Archeologists had already determined the relative sequence of construction in this area. Interlocking sequences of beam chronology from these areas was next erected, resulting in an unbroken record of 586 years. Unfortunately, the latest entries of the prehistoric series failed to overlap and match the earliest entries of the historic series.

Cooperating archeologists, knowing the sequence of pottery development, designated areas and ruins from which fragmentary or charred beam sections might be gained to connect the two established chronologies. The Showlow ruin at Showlow, Ariz., promised the brightest prospects, and eventually at this site there was excavated a charred beam end whose inner entries exactly matched the upper series of the prehistoric and whose outer dovetailed perfectly the earliest entries of the historic, thus bridging the gap and establishing an unbroken chronological sequence of beam ends to the year A. D. 700. Major ruins throughout the Southwest from which beam sections could be obtained were thus accurately dated. From available pine and fir sections, Doctor Douglass established dates for the major ruins of the pueblo period of the Southwest, including many ruins in Mesa Verde National Park.

Doctor Douglass, as leader of the National Geographic Society tree-ring expeditions, extending over a 6-year period, has had the whole-hearted support and cooperation of the scientific agencies and archeologists engaged in advancing an understanding and knowledge of archeological problems of the Southwest.

ESTABLISHED DATES FOR MESA VERDE RUINS

The National Geographic Society tree-ring expedition took, in all, 49 beams sections from cliff dwellings within Mesa Verde National

Park. Presuming that the year of the cutting was the year of actual use in construction, the following dates were established from selected beams in these major cliff dwellings:

Cliff Place.....	A. D. 1073.
Oak Tree House.....	A. D. 1112.
Spring House.....	A. D. 1115.
Balcony House.....	A. D. 1190-1206.
Square Tower House.....	A. D. 1204.
Spruce Tree House.....	A. D. 1216-1262.

Until a thorough study is made it would be impossible to ascertain the inclusive dates for the construction of a particular ruin and the time involved in its construction. From present evidence, Cliff Palace, by far the largest and most complex ruin within the area, is the oldest cliff house of the pueblo period. Spruce Tree House has long been held as one of the latest structures.

From Doctor Douglass's record of tree-ring chronology, it is known that a great drought commenced in 1276 and extended for a 23-year period to 1299. With no flowing water on the park at the present time and average conditions but slightly changed over the extended period covered by the tree-ring record, the effect of a 23-year period of drought on the inhabitants of this great isolated plateau can be readily imagined. Undoubtedly the great series of prehistoric dams found within the park area indicate the desperate effort made to meet the abnormal conditions prevailing at that time. It may logically be presumed that the prehistoric population was gradually forced to withdraw from the area, as the period of drought continued, and establish themselves near more favorable sources of water supply.

RECENT DISCOVERIES IN THE PARK

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 in 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 the 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 moderately continued drought. Undoubtedly this reservoir system was frantically and desperately extended following commencement in A. D. 1276 of the 23-year period of drought, but enlargement and extension were largely futile in this continued period of drastically subnormal precipitation.

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 18.

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 excavations, 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 Jesse L. 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 debris, 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 ruins of this type had not been reported from this area.

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.

During 1927 camp was established for a 22-day period in March on the rim of Moccasin Mesa on the east side of Soda Canyon just south and east of Balcony House. From this base work for the first few days was centered in a small cliff dwelling one-fourth mile distant, subsequently named Bone Awl House because of the excellent series of bone awls found in one of the three unique square kivas at this site, two of which had been cleared of much previously disturbed debris during a 5-day period in January of 1926. In addition to miscellaneous materials, one fine large coiled and indented cooking or storage jar with one cover and one large decorated water jar or olla were found. The balance of previously excavated debris was troweled over again with less success than normally. This site was mapped and photographed.

The balance of the period was devoted to a very thorough examination of a small cliff ruin near the head of a most beautiful, but

unnamed, canyon about two-thirds of a mile to the south and east of camp. This ruin consisted of three small rooms, one kiva, the remaining half of a 2-story detached tower, nine corn-grinding bins in a continuous line near the rear, and a protective or defensive wall along the front of the west half of the cave. Early pothunters had pitted over much of the debris therein, which was very deep in the central portion of the ruin.

The ruin is reached from the south rim of the canyon by a spectacular series of 104 hewn-out footholds in the face of the nearly perpendicular canyon wall. The upper or late cliff-dweller debris was dry, and in it was found many other objects of large coiled and indented storage jars, one of which was filled with shelled corn; many varieties of cliff-dweller sandals; six stone axes; and a well-preserved mummy or desiccated body of a new-born child with wrappings complete. In the lower depths at the 4-foot level, in damp debris, an adult burial was found, accompanied by a very fine black-on-white decorated bowl of the early pueblo period, in which had been placed three fine so-called fleshing tools of bone and one bone awl, while inverted over the head was a finely decorated bowl of a little later period.

In the circular depression just to the east of the standing half tower in which the other half had fallen, deeper excavation revealed a series of slabs on edge forming (with short intervening sections of crudely laid horizontal masonry, approximately one-half of a circular inclosure of about 12 feet original diameter similar in many respects to the post basket maker home site. Reluctantly work was stopped at this time by the necessity of reaching park headquarters to start spring work, but not until a 3-foot square pit had been sunk in the center of the inclosure to a depth of 4 feet below the base of the slabs forming the side walls. At the 2-foot depth a fine large slate ax was found, and at the 4-foot depth the first evidence of the undisturbed shale of the original cave floor. Potsherds of the very early and comparatively late period were both found in this pit. From the scientific standpoint the collection of potsherds from this ruin is most important because of the very extended period of occupation of this site. The site was completely mapped and photographed as the work progressed.

During March of 1928 seven men were employed for a period of approximately three weeks in further examination and study of the ruins Nos. 11 to 19, inclusive, on the west side of the Wetherill Mesa. This group ranks second only to the regularly visited ruins of Chapin Mesa in size and importance, but unfortunately, because of the wealth of recoverable artifacts therein, these ruins were subjected to the severest exploitation by the early pothunters from 1889 to the creation of this park. With the exception of the badly disturbed front terrace section of Long House, next in size to Cliff Palace, this group has been most diligently excavated and searched for artifacts.

Camp was established in the snow just above Long House and the whole series studied from this base. Collections were made of representative potsherds from each site, the abundance of which from ruin No. 16 permitted a retroweling of all debris in this ruin to regain all potsherds therein, as well as those on the partially snow covered talus below the ruin. The same process was followed in certain more

favorable kivas in other of the ruins. One partially excavated kiva in Jug House (No. 11) and one in ruin No. 12 constituted the sole new excavation. In ruin No. 11 a rather remarkable bird pendant of hematite with eyes of small bits of rock crystal set in drilled sockets with piñon gum was found in one of the upper level rooms. On return to headquarters the many pack loads of potsherds were washed, stored, and classified and from those regained, on completion of the process of matching, mending, and preparation, it was possible to add 42 bowls and jars to the museum display from ruins not hitherto represented. Among those now on display are some of the finest in shape, design, and workmanship so far recovered in this area. Mapping, sketching, and photographing completed the daily record of the winter's expedition.

All excavation, restoration, and repair 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.

Again in 1929, toward the latter part of March, camp was established for a period of two weeks just above Long House for the purpose of further investigating a small cave site just south and below ruin No. 12. Two kivas alone were unexcavated by the early pot-hunters. Both were of normal size, shape, and arrangement; both had been abandoned and unroofed in the time of the cliff dwellers. As the excavated area of the north kiva filled with debris, burials were made from time to time. Five in all were found, four being of young children, at various levels above the floor, and all without accompaniments of kind or description. Because of dampness, all burials were in poor condition.

On conclusion of this work, several days were again devoted in extending the search for missing potsherds in the previously frozen talus below ruin 16 from which so many fine specimens had been assembled by matching, mending, and restoration of recovered sherds. One undisturbed and marvelously preserved adult skeleton was found but left in situ at that time for later removal under more favorable circumstances for exhibit in the park museum. Early pot-hunters had undoubtedly removed accompaniments of this burial.

For several weeks during the summer travel season of 1929, Harold Gladwin, Mrs. Winifred MacCurdy, and associates of Gila Pueblo, Globe, Ariz., assisted by Deric Nusbaum of the park, conducted an archeological survey of small-house ruins on Chapin Mesa and in the more gently sloping valley heads adjacent to the North Rim on the east. This reconnaissance covered 250 sites. The location, general surroundings, and surface features of each ruin or site were described. From each site and ruin, 100 broken fragments or sherds of pottery were collected, one-half of which were in the park museum for permanent reference and study purposes. Sites examined in this survey included sherd areas, subsurface foundations, small houses of from 1 up to 10 rooms, unit-type houses as well as the larger pueblos of 50 to 75 rooms, and in range, from late basket-maker to the classical cliff-house or pueblo period. No attention whatever was directed to the major cliff dweller ruins in this survey. There was published a full report on this reconnaissance entitled, "A Survey of the Early Culture of Mesa Verde." (Gila Pueblo, Globe, Ariz.)

RULES AND REGULATIONS

(Approved January 29, 1932, 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 the act approved August 25, 1916 (39 Stat. 535), as amended June 2, 1920 (41 Stat. 732), and March 7, 1928 (45 Stat. 200-235), and shall supersede all previous rules and regulations for this park heretofore promulgated, which are hereby rescinded.

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

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.

2. *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 visitors touring the park and no camping is permitted outside the specially designated sites. These camps have been used during the past seasons; they will be used daily this year and for many years to come. The following regulations, therefore, will be strictly enforced for the protection of the health and comfort of visitors who may come in the park:

(a) **Keep the camp grounds clean.** Combustible rubbish shall be burned on camp fires and all other garbage and refuse of all kinds shall be placed in garbage cans or pits provided for the purpose. At new or unfrequented camps, garbage shall be burned or buried.

(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. Tourists out on hiking parties must not contaminate watersheds of water supplies.

(c) Campers and others shall not wash clothing or cooking utensils in the springs or reservoirs in the park nor pollute in any way the waters of the park. Bathing in the reservoir is prohibited.

(d) Stock shall not be tied so as to permit their entering or polluting any of the springs or reservoirs in 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 will be furnished users of the public camp ground free of charge. This wood will be found stacked at convenient places and plainly designated by signs as "Firewood." The cutting of standing or live trees or the peeling of bark from juniper trees is prohibited.

(f) Blankets, clothing, hammocks, or any other article likely to frighten teams shall not be hung near a road.

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

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

Permission to burn on any clean-up operation within the park must be first secured from the superintendent's office, and in such cases as is deemed advisable such burning will be under Government supervision. All costs of suppression and damage caused by reason of loss of control of such burning operations shall be paid by the person or persons to whom such permit has been granted.

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

Smoking or the building of fires on any lands within the park may be prohibited by the superintendent when, in his judgment, the hazard makes such action necessary.

The use of fireworks or firecrackers in the park is prohibited except with the written permission of the superintendent.

4. *Hunting.*—The park is a sanctuary for wild life of every sort, and all hunting, killing, wounding, capturing, or frightening at any time of any wild bird or animal, except dangerous animals when it is necessary to prevent them from destroying human lives or inflicting personal injury, is prohibited within the limits of the park.

The outfits, including guns, traps, teams, horses, or means of transportation of every nature or description used by any person or persons engaged in hunting, killing, ensnaring, or capturing birds or wild animals within the limits of the park shall be taken up by the superintendent and held subject to the order of the Director of the National Park Service. Possession within said park of the dead bodies or any part thereof of any wild bird or animal shall be prima facie evidence that the person or persons having the same are guilty of violating this regulation.

During the hunting season, arrangements may be made at entrance stations to identify and transport through the park, carcasses of birds or animals killed outside of the park.

Firearms are prohibited within the park except upon written permission of the superintendent. Visitors entering or traveling through

the park to places beyond shall, at entrance report and surrender all firearms, traps, seines, nets, or explosives in their possession to the first park officer, and in proper cases may obtain his written permission to carry them through the park sealed. The Government assumes no responsibility for the loss or damage to any firearms, traps, nets, or other property so surrendered to any park officer, nor are park officers authorized to accept the responsibility of custody of any property for the convenience of visitors.

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

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

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

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

9. *Mining claims.*—The location of mining claims is prohibited on Government lands in the park.

10. *Private lands.*—Owners of private 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 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 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 number corresponding therewith, or the identification mark, being registered in the superintendent's office. These badges must be worn in plain sight.

13. *Dogs and cats.*—Dogs and cats are prohibited on the Government lands in the park except that upon written permission of the superintendent, secured at entrance, they may be transported over through roads by persons passing directly through the park provided they are kept under leash, crated, or otherwise under restrictive control of the owner at all times while in the park: *Provided, however,* That employees and others may be authorized by the superintendent to keep dogs in the park administrative area, or areas, on condition that they are kept within the confines of these areas, and subject to such further conditions in the interest of good park administration as may be determined by the superintendent.

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, 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.

Any and all roads and trails in the park may be closed to public use by order of the superintendent when, in his judgment, such action is necessary to protect the park.

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

(b) On sidehill grades throughout the park motor-driven vehicles shall take the outer edge 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 weight limitations shall be those prescribed from time to time by the superintendent of the park and shall be complied with by the operators of all vehicles using the park roads. Schedules showing weight limitations for different roads in the park may be seen at the office of the superintendent and at ranger stations at the park entrances.

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

17. *Miscellaneous.*—No pack train or saddle horse party shall be allowed in the park unless in charge of a guide. Guides may be required to pass an examination prescribed by and in a manner satis-

factory to the superintendent. At the discretion of the superintendent, guides will be permitted to carry unsealed firearms.

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, and/or they may be summarily removed from the park by the superintendent.

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."

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

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

AUTOMOBILE AND MOTOR-CYCLE REGULATIONS

1. *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 shall be deemed guilty of its violation.

2. *Motor trucks and busses.*—Motor trucks and busses are admitted to the park under the same conditions as automobiles, except the superintendent will establish limits of size and tonnage capacity which may vary according to the different roads and bridges.

Commercial truck trailers engaged in hauling freight will be required to secure permission from the superintendent before using the park roads.

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

4. *Permits.*—No motor vehicle may be operated in the park without a Mesa Verde National Park permit.

The owner or driver of each motor-driven vehicle entering the park shall secure this permit at the entrance station.

This permit authorizes the operation of the vehicle therein described over the public roads in the park throughout the current calendar year. The permit is issued to the vehicle described therein and not to the owner or driver. This permit should be carried in the car and exhibited to park rangers on request.

5. *Fees.*—The fee for an automobile or motor cycle permit is \$1.

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

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

Travel over any park road may be restricted or prohibited when, in the judgment of the superintendent, road conditions are unsuitable for travel.

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

Speed is limited to 20 miles per hour in ascending or descending the mesa but reduction to 12 miles per hour is mandatory 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.

8. *Distance apart.*—Automobiles while in motion shall be not less than 50 yards apart, except for the purpose of passing, which is permissible only on comparatively level stretches of road or on slight grades.

9. *Teams.*—When teams, saddle horses, or pack trains approach, automobiles shall be so manipulated as to allow safe passage for the other party. In no case shall automobiles pass animals on the road at a speed greater than 10 miles per hour.

10. *Overtaking vehicles.*—Any vehicles 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 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 the right of way, and the descending machine shall be backed or otherwise handled as may be necessary to enable the ascending machine to pass in safety.

11. *Muffler cut-outs.*—Muffler cut-outs shall be closed at all times within the limits of the park.

12. *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.

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

13. *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 automobiles are on the road. Headlights shall be dimmed when meeting other automobiles, motor cycles, riding or driving animals, or pedestrians.

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

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

16. *Fines and penalties.*—Any person who violates any of the foregoing regulations shall be deemed guilty of a misdemeanor and shall be subject to a fine of not more than \$500 or imprisonment not exceeding six months, or both, and be adjudged to pay all costs of the proceedings, and/or may be punished by revocation of the automobile permit and by immediate ejection from the park. 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.

TOPOGRAPHIC 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.⁹

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 and certain other park and monument circulars may be obtained as indicated herein. Separate communications should be addressed to the officers mentioned.

⁹ May be purchased also by personal application to the park museum at Spruce Tree Camp, but the park museum can not fill mail orders.

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. 66 pages, including numerous illustrations.

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

Glimpses of Our National Monuments. 74 pages, including 34 illustrations.

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

Other park circulars of general information as follows:

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

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. Sixth Edition. 274 pages, including 312 illustrations. Bound securely in cloth, \$1.⁹

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.)

—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. 381-408, illustrated.) Cloth, \$1.80.

REFERENCES

ALBRIGHT, HORACE M., and TAYLOR, FRANK J. "Oh, Ranger!" A book about the national parks. Stanford University Press, Stanford, Calif. 1928. Illustrated.

⁹ May be purchased also by personal application to the park museum at Spruce Tree Camp, but the park museum can not fill mail orders.

CHAPIN, F. H. The Land of the Cliff Dwellers. 1892. 187 pages.

DOUGLASS, DR. ANDREW ELLICOTT. The Secret of the Southwest Solved by the Talkative Tree Rings, in National Geographic Magazine, December, 1929.

Gila Pueblo, Globe, Arizona. A Survey of Early Culture of Mesa Verde. 1930. (Report on archeological reconnaissance of small-house ruins in 1929, not previously reported.)

FARIS, JOHN T. Roaming the Rockies. Farrar & Rinehart, Inc., New York. 1930. Illustrated. 333 pages. Mesa Verde on pp. 193-203.

GOWER, JEAN MILNE. Echoes of the Cliff Dwellings. Versicles of the Mesa Verde. 40 pages.

INGERSOLL, ERNEST. Reprint, first article. Mancos River Ruins, New York Tribune, Nov. 3, 1874; in Indian Notes, vol. 5, No. 2, April, 1928, pp. 183-206, Museum of American Indian, Heye Foundation, New York.

JACKSON, W. H. The Pioneer Photographer. World Book Co., 1929.

JEFFERS, LE ROY. The Call of the Mountains. 282 pages, illustrated. Dodd, Mead & Co., 1922. Mesa Verde on pp. 96-111.

KANE, J. F. Picturesque America, Its Parks and Playgrounds. 1925. 521 pp., illustrated. Published by Frederick Gumbrecht, Brooklyn, N. Y. Mesa Verde on pp. 173-176.

KIDDER, ALFRED VINCENT. An Introduction to the Study of Southwestern Archaeology. 300 pages, illustrated. Yale University Press, 1924. Mesa Verde on pp. 58-68.

—Beautiful America—Our National Parks. 1924. 160 pages pictorial views. Beautiful America Publishing Corporation, New York City. Mesa Verde views pp. 58-68.

MILLS, ENOS A. Your National Parks. 1917. 532 pages, illustrated. Mesa Verde National Park on pp. 161-174; 488-490.

NORDENSKIÖLD, G. The Cliff Dwellers of the Mesa Verde. 1893. 171 pages, illustrated.

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.

ROLFE, MARY A. Our National Parks. Book One. A supplementary reader on the national parks for the fifth and sixth grade students. Benj. H. Sanborn & Co. 1927. Illustrated. Mesa Verde on pp. 221-234.

SMITH, JOSEPH EMERSON. The Story of Mesa Verde National Park. 1930. 16 pages, illustrated. The Denver & Rio Grande Western R. R., Denver, Colo.

WILBUR, RAY LYMAN and DU PUY, WILLIAM ATHERTON. Conservation in the Department of the Interior. Chapter on national parks, pp. 96-112. Illustrated. Government Printing Office, Washington, D. C. 1931. Price, \$1.

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. 1926. 444 pages, illustrated. Mesa Verde National Park on pp. 284-304.

AUTHORIZED RATES FOR PUBLIC UTILITIES, SEASON OF 1932

All the rates of the authorized public utilities within the park are approved by the Government. Employees of the hotels, camps, and transportation lines are not Government employees.

Any suggestions regarding service furnished by these public utilities should be made to the superintendent.

The National Park Service has no direct supervision over the rates or the service given outside the park; rates are furnished for the information of the public.

AUTOMOBILE TRANSPORTATION

The Rio Grande Motor Way (Inc.), address Grand Junction, Colo., operates a daily motor service for the transportation of visitors from

Grand Junction, Delta, Montrose, Ouray, Silverton, Durango, and Mancos, Colo., to Spruce Tree Lodge in the Mesa Verde National Park, that part of the service within the park being furnished under arrangements with the Mesa Verde Park Company. This automobile stage service is available only during the period from June 15 to September 15.

Authorized rates from Spruce Tree Lodge

	1 way— 1 or more passengers (each)	Round trip		
		Single passenger	2 or 3 passengers on 1 ticket (each)	4 or more passengers on 1 ticket (each)
Grand Junction.....	\$21.75	\$32.50	\$31.50	\$30.50
Delta.....	19.35	30.00	28.50	27.50
Montrose.....	18.25	28.00	26.50	25.50
Ouray.....	16.00	25.00	22.50	21.50
Silverton.....	12.00	20.00	17.50	16.50
Durango.....	9.00	15.00	12.50	11.50
Mancos.....	5.00	8.50	7.00	6.50

Children under 3 years of age not occupying a seat to the exclusion of other passengers, no charge. If seat occupied, half fare.
 Children 3 years of age and under 8 years of age, half fare.
 Children 8 years of age and over, regular adult fare.

AUTOMOBILE SERVICE WITHIN THE PARK

Automobile service from Spruce Tree Lodge to various ruins and return is operated by the Mesa Verde Park Co., at the rate of \$1 each round trip. Also a delightful motor trip is operated to Park Point each evening, affording an unusual view of the gorgeous sunset from the highest point in the park. Round trip fare, \$1.50 per person.

Automobile schedule

Southbound		Northbound	
6.45 a. m.	Lv. Grand Junction..... Ar.	6.35 p. m.	Ar. Spruce Tree Lodge..... Lv.
8.20 a. m.	Lv. Delta..... Lv.	5.05 p. m.	Lv. Silverton..... Lv.
9.20 a. m.	Ar. Montrose..... Lv.	4.15 p. m.	Ar. Durango..... Lv.
9.30 a. m.	Lv. Montrose..... Ar.	4.05 p. m.	Ar. Mancos..... Lv.
11.10 a. m.	Ar. Ouray..... Lv.	2.35 p. m.	Ar. Durango..... Lv.
11.50 a. m.	Lv. Ouray..... Ar.	2.35 p. m.	Ar. Silverton..... Lv.
1.20 p. m.	Lv. Silverton..... Lv.	1.05 p. m.	Ar. Durango..... Lv.
4.15 p. m.	Ar. Durango..... Lv.	9.50 a. m.	Ar. Durango..... Lv.
4.45 p. m.	Lv. Durango..... Ar.	9.45 a. m.	Ar. Mancos..... Lv.
5.35 p. m.	Lv. Mancos..... Lv.	8.55 a. m.	Ar. Spruce Tree Lodge..... Lv.
7.00 p. m.	Ar. Spruce Tree Lodge..... Lv.	7.30 a. m.	Ar. Spruce Tree Lodge..... Lv.

GALLUP, N. MEX., TO MESA VERDE NATIONAL PARK, MESA VERDE DETOUR

Hunter Clarkson (Inc.), from headquarters at El Navajo Hotel, Gallup, N. Mex., operates tri-weekly motor service, from Gallup, a station on the main line of the Santa Fe Railway, to Mesa Verde

National Park. Cars will operate from Gallup to the park on Mondays, Wednesdays, and Fridays, during the park season, for one or more passengers. Service, except for 1-way passage, includes transportation and guidance to the ruins and points of interest within the park area; four meals and one night's accommodation. Minimum round-trip requires two days.

Tri-weekly Schedule

(Begins June 1 and ends with return trip October 15)

Leave Gallup, N. Mex., 8 a. m., Monday, Wednesday, Friday; arrive Spruce Tree Lodge, park headquarters, 2 p. m. Leave Spruce Tree Lodge, 1 p. m., Tuesday, Thursday, Saturday; arrive Gallup, N. Mex., 6 p. m.

TWO-DAY, ALL-EXPENSE ROUND TRIP

First day: From Gallup to Spruce Tree Lodge, Park Headquarters, with transportation and guide service to Balcony House and Cliff Palace. Luncheon en route at Shiprock; dinner and overnight at Spruce Tree Lodge.

Second day: Transportation and guide service on morning trip to Sun Temple, New Fire House, Oak Tree House, Sun Point, Square Tower House, and return to Gallup. Breakfast and luncheon at Spruce Tree Lodge.

All-expense rates	Adult fares	Half-fares (children under 12)
From Gallup to Mesa Verde National Park and return, with service, meals, and accommodations as above, each.....	\$46.50	\$23.25

LONGER STOP-OVERS AT MESA VERDE

Passengers taking the 2-day all-expense Mesa Verde Detour from Gallup may remain over in the park as long as desired, paying for additional accommodations required at Spruce Tree Lodge at official rates. Return transportation to Gallup remains good during the park season.

One-way trips—Transportation only

Rates	Parties, 3 or less	Parties, 4 or more
From Gallup, N. Mex., to Mesa Verde National Park or vice versa..... each	\$20.00	\$17.50
From Shiprock to Mesa Verde National Park or vice versa..... do	10.00	9.00

Children under 12 years, when accompanied by parents, one-half fare for all rates shown above.

Private car service.—Seven-passenger Cadillac sedans are also available for private car service over the 2-day Mesa Verde detour, or for more extended trips to Mesa Verde National Park. Rates on application to Hunter Clarkson (Inc.), Santa Fe, N. Mex.

CAMP ACCOMMODATIONS

Spruce Tree Lodge, American plan, operated by the Mesa Verde Park Co., 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. Complete lodging and meal accommodations are available from June 15 to September 15 with informal accommodations available during the periods from May 15 to June 14 and September 16 to October 15.

Authorized rates

PER DAY, INCLUDING MEALS

One person occupying tent exclusively.....	\$4.75
Two or more persons occupying tent, each.....	4.50
One person occupying a cottage exclusively.....	5.75
Two persons occupying a cottage (two beds), each.....	5.25
Two persons occupying a cottage (one bed), each.....	5.00
Three or more persons occupying a cottage, each.....	5.00

PER WEEK, INCLUDING MEALS

One person occupying tent exclusively.....	\$31.50
Two or more persons occupying tent, each.....	29.75
One person occupying a cottage exclusively.....	36.75
Two or more persons occupying a cottage, each.....	33.25

MEALS

Breakfast.....	\$1.00
Luncheon.....	1.25
Dinner.....	1.50
Baths, in detached bathhouse, each.....	.50
Children under 3 years of age, no charge.	
Children 3 years of age and under 8 years of age, half rates.	
Children 8 years of age and over, full 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 1-DAY TRIPS FROM SPRUCE TREE LODGE

(Arrangements must be made for 1-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 via 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.

Those desiring shorter trips may hire horses at a cost of \$1 for the first hour and 50 cents for each succeeding hour, which cost includes the services of a guide.

NONSCHEDULED 1-DAY TRIPS

There are several much longer 1-day trips to more distant parts of the park area that can be taken by experienced riders only, and for these nonscheduled 1-day trips an additional charge of \$2 per person over and above the rate authorized for the shorter 1-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 in 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 take from a week to 10 days.

A pair of heavy mountain boots, an old broad-brimmed felt hat, and old clothes are 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.

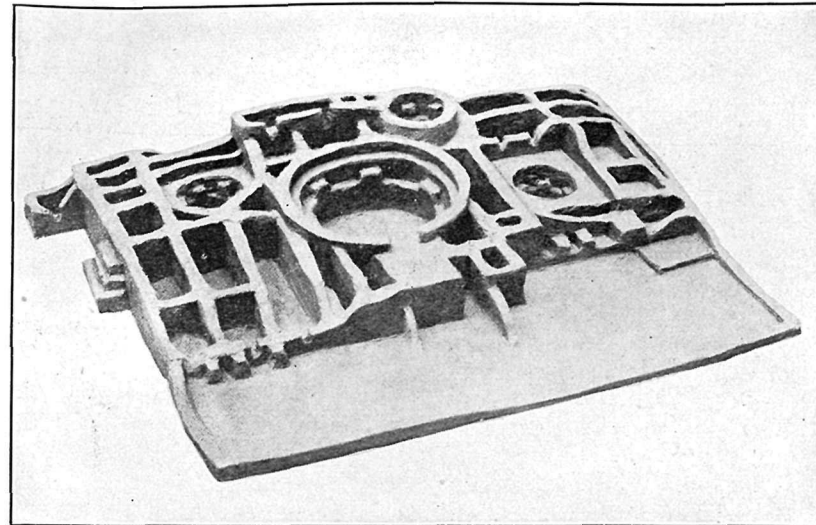
MOTOR TRIPS TO MESA VERDE FROM SANTA FE, N. MEX., AND FROM WINSLOW, ARIZ.

Hunter Clarkson (Inc.), conducts motor cruises to Mesa Verde National Park and return. These trips, known as the Sierra Verde circle 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, to the Aztec Ruins 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 circle cruise is \$150 per person, including motor transportation, all meals and accommodations en route, private courier service, and all entrance fees. The trips are made weekly between June 8 and October 8, inclusive. Special motor cruises to Mesa Verde following the same or different itinerary may also be arranged at any time during the park season.

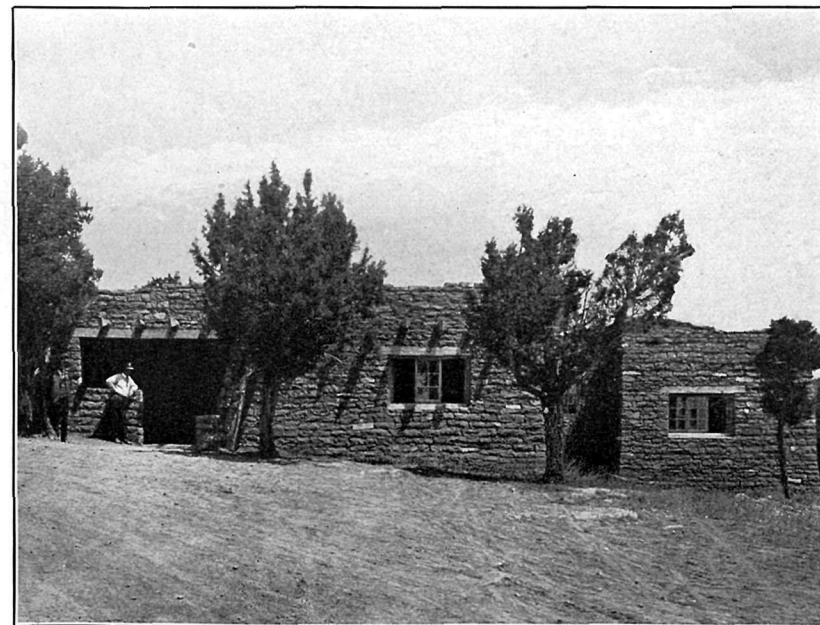
Hunter Clarkson (Inc.), will also arrange motor cruises to Mesa Verde from Winslow, Ariz., at any time during the park season and over any desired and feasible route. This is not a regular service, but itineraries and costs for private parties can be developed at short notice upon application to the transportation office, La Posada, Winslow, Ariz., or direct to Hunter Clarkson (Inc.), Santa Fe, N. Mex.

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MODEL OF FAR VIEW HOUSE

Reprinted from "Explorations and Field Work of the Smithsonian Institution in 1916"

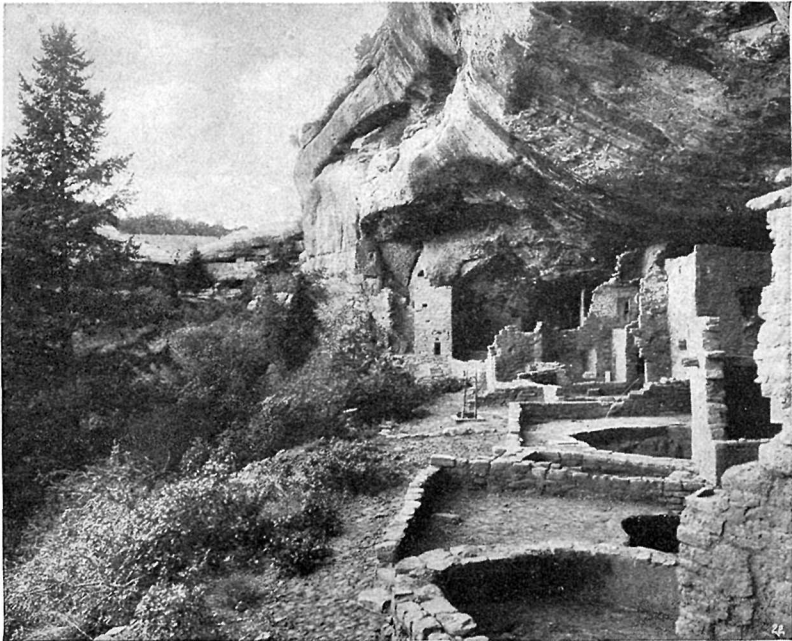


MESA VERDE MUSEUM



Photograph by Geo. L. Beam

POINT LOOKOUT



SPRUCE TREE HOUSE