

# WIND CAVE

**NATIONAL PARK - SOUTH DAKOTA**



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### SCHEDULE OF CAVE TRIPS

*Trips require from 1 to 2 hours.*

*From June 1 to September 1—Trips every hour of the day, starting at 7 a. m. and ending at 7 p. m.*

*September, October, April, and May—8:30 a. m.; 10 a. m.; 1:30 p. m.; 3 p. m.*

*November, December, January, February, and March—Any time between 8 a. m. and 3 p. m. During these months large parties, such as schools or organizations, should notify the superintendent a few days in advance of intended visits.*



**UNITED STATES  
DEPARTMENT OF THE INTERIOR**

**Harold L. Ickes, Secretary**

**NATIONAL PARK SERVICE**

**Newton B. Drury, Director**



# WIND CAVE

## NATIONAL PARK

### SOUTH DAKOTA

**OPEN ALL YEAR**

ENTRANCE TO THE PARK FROM THE WEST

**T**HE BLACK HILLS of South Dakota, on the southeast flank of which Wind Cave National Park is situated, present many features of unusual interest. Rising like an island from the treeless plains, they culminate in Harney Peak, the highest point in the United States east of the Rockies. The variety of their minerals and rocks is exceptional. Devils Tower, in the national monument of that name located west of Wind Cave, is of volcanic origin, and the strata of the badlands on the east, originally deposited in broad lowlands, yield the bones of the sabre-toothed tiger, three-toed horse, and rhinoceros.

Of a number of caves which are found near the margin of the Hills, Wind Cave is most widely known. Its discovery in 1881 is credited to Tom Bingham, a Black Hills pioneer, who, while deer hunting, was attracted by a strange whistling sound which came from a clump of brush. Search disclosed a small opening in the rock about 10 inches in diameter from

which issued a strong draft of air. This is the only natural opening to the cave ever discovered. It is located a few steps back of the present entrance which is artificial.

The strong currents of wind that blow alternately in and out of the mouth of the cave suggested its name. This strange phenomenon is believed to be caused by changes in the atmospheric pressure outside. When the barometer is falling, the wind usually blows outward; when it rises, the wind blows in. Many visitors enjoy stopping at the cave entrance to post themselves on weather indications.

The present cavern opening was made by digging down about 6 feet to a long, winding fissure, leading into corridors and galleries decorated with a variety of crystal deposits. The principal cave passages are straight and rather narrow, and are interrupted by a number of large rooms. The lowest known passages descend some 240 feet below the entrance. The length of trails shown on the map in this book-

let is about one mile, but the cave is considerably more extensive, and there are doubtless passages as yet undiscovered.

Wind Cave National Park was created by act of Congress, dated January 9, 1903. Its boundaries were subsequently extended, and it now includes an area of 12,639.71 acres. Like all other national parks it is a wildlife sanctuary. Buffalo, elk, antelope, and deer range the area and are frequently seen from the main highway.

### COLORFUL HISTORY

In addition to its natural beauty and scientific interest, the southwestern section of South Dakota has a colorful and picturesque history. Possibly a French explorer made his way into it as early as 1683, and the Verendrye brothers are said to have visited it in 1743.

The Sioux Indians, a tribe conspicuous even among Indians for strength and bravery, long occupied the region and only submitted to white settlement after a bitter and tragic struggle. This tribe is believed to have originated east of the Alleghenies, but as early as 1632 the French found them in Wisconsin and Minnesota. Some of their descendants are today living on the Pine Ridge and Rosebud Indian Reservations, a short drive from Wind Cave Park.

According to an Indian legend, the four winds were major deities of the Plains tribes, and wind was associated in their belief with the breath of life and the vital principle. Hence the Cave of the Winds was a sacred spot

to them. Many of the Plains tribes had myths in which the story was told of how the buffalo first came out of a cave (this was an objectification of the fact that all flesh is made of earth), and Chief Joseph White Bull (Pte San Hunka), Sitting Bull's living nephew, has been quoted as saying that the Sioux believed that the Wind Cave in the Black Hills was the cave from which Wakan Tanka, the Great Mystery, sent them out into the Sioux hunting grounds. This was one reason why the Sioux fought so hard for the Black Hills when they were invaded by the whites. The Chief also has said that some of his people still hoped that when they had regained favor of their gods the buffalo would once more issue from that cave and fill the plains.<sup>1</sup>

The war clouds that ended in the conflict of 1861-65 and Indian uprisings under the leadership of Red Cloud, Sitting Bull, Spotted Tail, and other great warriors hampered the development of this region, but in 1874 an expedition through the Black Hills led by Gen. George A. Custer resulted in the discovery of gold on French Creek and settlement followed rapidly. From 1879 to 1886 were boom days that made legendary figures of such pioneer characters as Wild Bill Hickok, Deadwood Dick, Calamity Jane, and Preacher Smith. All four are buried in Deadwood.

Long before the Black Hills were well known for the scenic beauty that resulted in the establishment of Custer State Park in the heart of this rugged region and construction was begun on

<sup>1</sup> "Warpeth," by Stanley Vestal.



RANGER AND PARTY OF VISITORS AT ENTRANCE TO WIND CAVE

the Rushmore Memorial, the region was famous throughout the world for its mineral wealth, especially gold. The Homestake Mine at Lead is the largest gold mine in the United States. In 1933, almost one-fourth of the gold production of the United States came from the Black Hills. Since production began in 1875, gold totaling approximately \$300,000,000 in value has been mined in this region. Other metals of economic value found in the Black Hills are silver, lead, copper, tin, and tungsten. Important minerals are

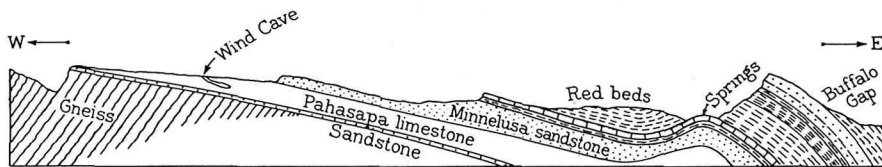
feldspar, tantalite, mica, beryl, spodumene, and rose quartz. Adjacent to the Hills are found commercial deposits of coal, petroleum, and bentonite.

### GEOLOGICAL HISTORY OF WIND CAVE

The Black Hills are in reality a great dome-shaped uplift of the earth's crust from which the younger strata have been removed by erosion exposing the very ancient sediments and granites of the core and leaving the

truncated edges of the younger beds encircling the core in concentric ridges and valleys.

The old granites may be 1,000,000,000 years old. The ancient sediments, into which the granites intruded as molten rock, are even older. Thus there are exposed between Harney Peak and the Badlands rocks which represent more than half the entire age of the earth.



SECTION ACROSS THE EAST SLOPE OF THE BLACK HILLS UPLIFT, THROUGH WIND CAVE LOOKING NORTH.

Wind Cave is a limestone cavern, dissolved out through long periods of time by ground waters containing carbonic acid. The great limestone bed in which it occurs, the outcrop of which encircles the Black Hills, is known as the Pahasapa. Near Wind Cave the limestone is 300 feet thick. It is a deposit formed in an ancient ocean which covered this region some 300,000,000 years ago. Sea shells, proof of its origin, are still to be seen embedded in it. All the caves of the Black Hills and the Rockies are developed in this limestone or its equivalent, and even the Mammoth Cave of Kentucky is in a bed of about the same age.

The major passages of Wind Cave lie in two directions, one of which is parallel to the Rockies. They were obviously formed by solution along fractures in the limestone, and these

fractures were probably formed by the same earth pressures which folded the mountains.

The beautiful "boxwork," one of the striking features of the cave, appears to be due to the deposit of delicate veins of calcite in intersecting crevices. These veins, as the more soluble limestone between was dissolved away, have been left projecting from the surface. Crossing each other,

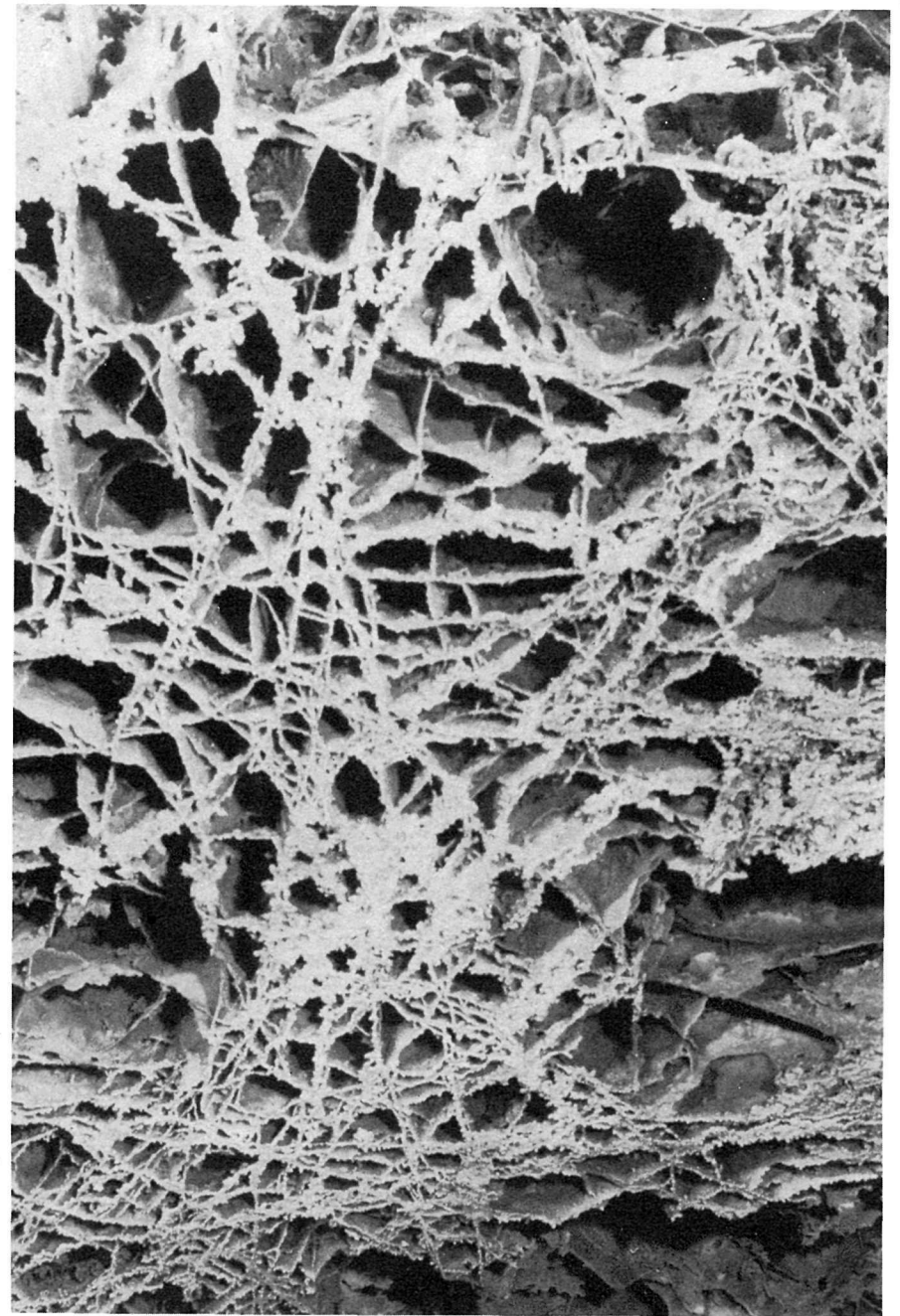
they form small compartments of "boxwork" and in their delicate beauty resemble the tracery of lace.

"Flow rock" and the delicate crystals of aragonite forming the "frostwork" have been deposited through the evaporation of waters carrying lime which seep into the cave.

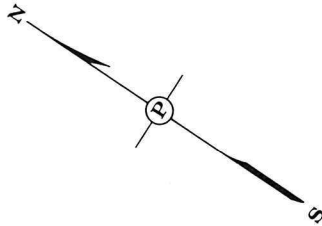
### WILDLIFE

Another novel attraction at Wind Cave National Park is a display of wildlife representative of the species that roamed the Dakota hills in the early days. Protected here from the hunter, the traveler will find a large herd of buffalo and bands of antelope, elk, and deer.

Visitors usually can get close, unobstructed views of the buffalo herd from the main highway which winds through the rolling hills of the park. The whole park area is surrounded by a fence



BOXWORK FORMATION, TIPPED WITH WHITE ARAGONITE CRYSTALS, ON CEILING IN ELKS ROOM.



**LEGEND**

**CAVE TRAILS**

- Upper level. Approximate limits of elevation, 4080 to 3930 feet.
- - - Intermediate level. Approximate limits of elevation, 3930 to 3880 feet.
- ..... Lower level. Approximate limits of elevation, 3880 to 3840 feet.
- Stairway.

PEARLY GATES

FAIRGROUNDS

CROSSROADS

BLUE GROTTO

THREE-WAY STAIR

Elev. 3963  
Elev. 3885

Elev. 3853

Elev. 3870

Elev. 3870

MONTE CRISTO PALACE

ELKS ROOM

Elev. 3911

MODEL ROOM

Elev. 3892

CROSSROADS

Elev. 3884

LOOKOUT

ELEVATOR BUILDING

Elev. 4055

GARDEN OF EDEN

Elev. 3945  
Elev. 3904

POST OFFICE

Elev. 3960

To Custer State Park

CAVE ENTRANCE

Elev. 4080

ADMINISTRATION BUILDING

Elev. 4095

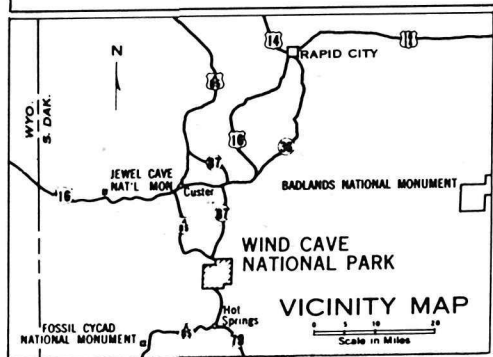
SURFACE TRAIL

SURFACE TRAIL

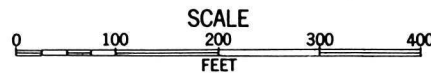
Service Road to Nat'l Park Utility area

POWER HOUSE

To Hot Springs



**UNDERGROUND TRAILS  
WIND CAVE  
NATIONAL PARK**



which keeps the animals from straying to private lands. It should be remembered that the bison are wild and cannot be treated like domestic animals. *It is not wise, therefore, to get out of your car or to go near any of them.*

In this park all the wildlife is shown in its natural habitat, giving the onlooker the thrill of seeing wild animals in the open rather than from behind fences or bars.

Small groups of antelope may often be seen by the careful watcher. The elk frequent the open parts of the park during the night, late afternoon, and early morning. During the day they return to the timbered sections. The deer usually remain in the woods, but may sometimes be seen crossing the grasslands.

### ADMINISTRATION

Wind Cave National Park is administered by the National Park Service of the United States Department of the Interior, and the representative of this bureau in charge of the park is the superintendent. His address is Hot Springs, S. Dak.

### GENERAL INFORMATION

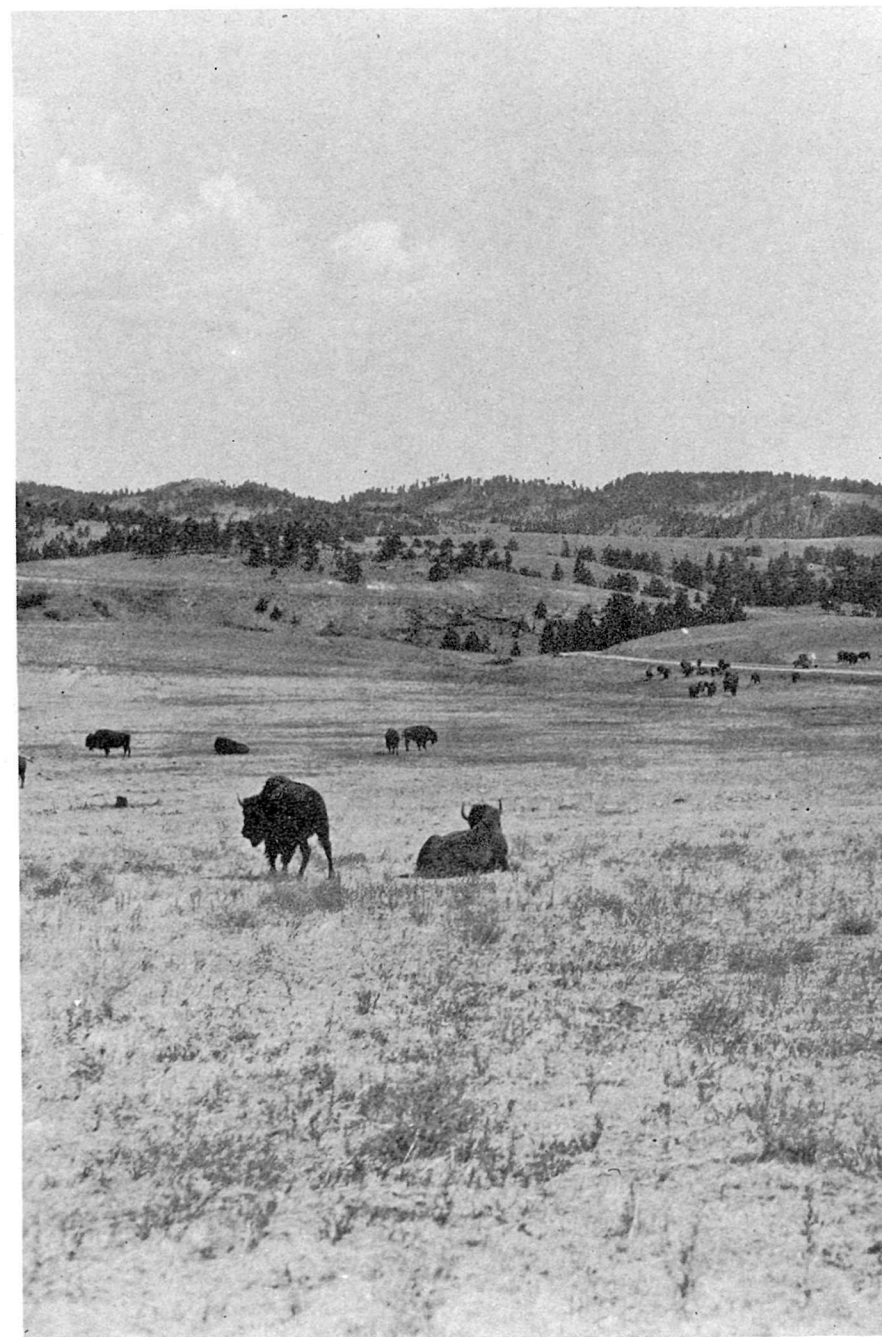
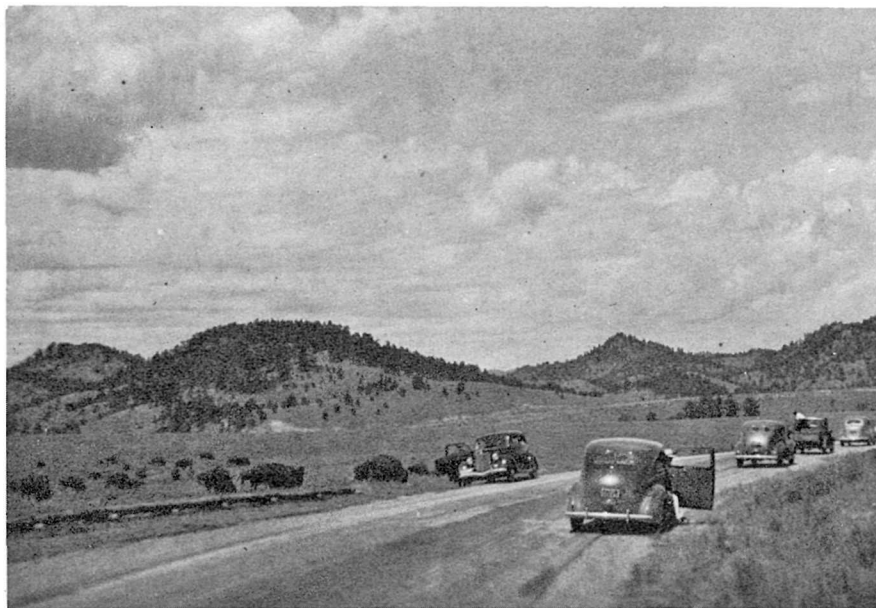
All trips through the cave are under the guidance of competent park rangers. The entrance fees are as follows:

	Cents
Adults .....	75
Children, 12 to 16 years.....	25
Children, 5 to 11 years.....	15
Children under 5 admitted free.	

This fee schedule includes the use of the elevator on the outgoing trip.

The trip through the Cave is not unlike the average hike over a mountain trail. Comfortable walking shoes should

PARK VISITORS VIEWING BUFFALO HERD ALONG HIGHWAY NORTH OF HEADQUARTERS.



BUFFALO ARE OFTEN SEEN FROM THE HIGHWAY.



VISITORS ABOUT TO START ON THE CAVE TRIP.

be worn. The temperature is 47° and does not vary winter or summer. It is advisable to take a light sweater or jacket. The cave is electrically lighted.

**ELEVATOR SERVICE.**—During the year 1935 an elevator was installed in the cave for the convenience of the public. This saves one the necessity of climbing out of the cave.

**SPECIMEN DISPLAYS.**—Specimens of formations from the cave are displayed in the headquarters building for study purposes and general inspection by the public. The handling of formations in the cave or the collection of souvenirs is strictly prohibited.

During the summer a wild-flower display is also maintained. It includes

all the common species of Black Hills flora for the locality. Flower picking in the park without permission of the superintendent is strictly forbidden.

**ACCOMMODATIONS.**—No hotels or tourist cabins are located in the park, but a public campground with free wood and water is maintained near headquarters. Lunchroom facilities and soda-fountain service are provided. Campers' supplies, curios, and miscellaneous articles are obtainable.

Hot Springs is the southern entrance to the Black Hills. It is 10 miles south of Wind Cave National Park on United States Highway No. 85A. It is the post office for the park and has good hotels, camps, and garages. Hot Springs has a national sanatorium and State soldiers' home and is known as the picture city of the Black Hills.

#### HOW TO REACH THE PARK

**BY AUTOMOBILE.**—Wind Cave National Park is on United States Highway No. 85A and can be reached by side trips from either United States Highway No. 16 at Custer or over State Highway No. 87 through the Custer State Park.

**BY RAILROAD.**—The park is accessible from the following railroad stations: Hot Springs, on the Chicago, Burlington & Quincy and the Chicago & North Western Railroads; Pringle and Custer, on the Chicago, Burlington & Quincy Railroad; and Buffalo Gap, on the Chicago & North Western. Passengers wishing to visit Wind Cave National Park as a side trip from Edgemont or Buffalo Gap (28 and 14 miles, respectively, from Hot Springs)

may stop over on excursion tickets. From many eastern points tickets to Yellowstone or Glacier National Parks are good for passage through Edgemont.

**BY BUS.**—Hot Springs is served by the Burlington Transportation Co. from Cheyenne and Scottsbluff via Rapid City, S. Dak. From the east and north Hot Springs may be reached through Rapid City via the Rapid City Lines, Red Ball Lines, and Palace City Bus Lines from Huron, Mitchell, and Sioux Falls, S. Dak. From Bismarck, N. Dak., Central Bus Line provides service to Pierre, S. Dak., connecting with Rapid City Lines for Rapid City and Hot Springs.

**BY AIRPLANE.**—High-speed de luxe airplane service from all points to Cheyenne is available through United Air Lines. Wyoming Air Service, operating from Pueblo, Colo., to Billings, Mont., also stops at Cheyenne.

#### NEARBY ATTRACTIONS

Rangers at the park information desk will assist in planning a trip through the Black Hills and also give information about other national parks. In a trip of about 300 miles many interesting areas, including Devils Tower, Jewel Cave, Fossil Cycad, Scotts Bluff, and Badlands National Monuments, Custer State Park, three national forests, both Federal and State fish hatcheries, and a bird refuge may be visited.

**JEWEL CAVE NATIONAL MONUMENT.** transferred to the National Park Service from the Forest Service by Executive order of the President on April 1, 1934, is open to the public all year.



ADMINISTRATION BUILDING

Grant photo

It is 14 miles west of Custer on Highway 16. The cave is a series of passages and small rooms, the walls of which are lined with calcite crystals.

**FOSSIL CYCAD NATIONAL MONUMENT**, created in 1922 to preserve large deposits of fossil remains of fernlike plants that grew many million years ago in the Mesozoic period, is located in the southern edge of the Black Hills, a short distance from Wind Cave. The monument lies several miles from the highway and is not accessible to cars except through private property. As the area is of interest mainly to paleobotanists and geologists, it is not open to the public at the present time. A specimen of an interesting fossil is on display at Wind Cave National Park headquarters.

**BADLANDS NATIONAL MONUMENT**.—In sharp contrast to the verdant Black Hills country, the White River Badlands, a barren, treeless region lies 68 miles northeast of Wind Cave National Park. Here nature has beautified the earth with all shades of buff, cream, pale green, gold, and rose. Fantastically carved erosion forms rise above the valleys, some of them 150 to 300 feet high. The constantly shifting color and the weird formations make this a region of strong imaginative appeal.

**DEVILS TOWER NATIONAL MONUMENT**.—Another unusual natural phenomenon of the Black Hills country is the Devils Tower across the State line in Wyoming. This is a great mass of igneous rock towering 1,280 feet above the Belle Fourche River.

## GLOSSARY

A brief description of the technical terms used in this booklet and by rangers guiding visitors through the cave:

**ARAGONITE** (4<sup>1</sup>)—A mineral which represents one form of calcium carbonate (CaCO<sub>3</sub>), white or tinted, which frequently occurs as compound or radiating groups of crystals.

**BOXWORK** (3<sup>1</sup>)—The unique honeycomb formation of Wind Cave, composed of calcite with small amounts of hematite.

**CALCITE** (3<sup>1</sup>)—A mineral representing the most common form of calcium carbonate, which effervesces in acid. The formations in limestone caverns are composed principally of calcite.

**CHERT** (7<sup>1</sup>)—A very hard, amorphous form of silica which is frequently found associated with limestone. In Wind Cave the chert is fossil bearing.

**CONCRETION**—A rounded aggregate of mineral matter formed by precipitation or deposition around some nucleus (not a cave formation).

**CONGLOMERATE**—A sedimentary rock composed mainly of cemented, rounded gravel.

**CRETACEOUS**—The last period of the Mesozoic era.

**DRIPSTONE** (3<sup>1</sup>)—Irregularly shaped deposits of calcium carbonate which is precipitated from evaporating water that seeps through the walls of a cave; stalactites and stalagmites are sometimes called dripstone.

**ERA**—A major division of recorded geological time.

**FAULT**—A dislocation or movement in rock masses along a plane of fracture.

**FLOWSTONE** (3<sup>1</sup>)—Calcium carbonate (CaCO<sub>3</sub>) deposits formed by deposition from trickling or flowing water chiefly over walls.

**FOSSILS**—Remains or traces of ancient animals or plants preserved in sedimentary rock, such as shells or tracks of animals or birds.

**FROSTWORK** (3<sup>1</sup>)—A delicate aggregate of aragonite crystals resembling frost; generally pure white.

**IGNEOUS ROCKS**—Rocks which have been formed by the cooling and hardening of molten rock material.

**LIMESTONE** (4<sup>1</sup>)—A sedimentary rock composed principally of calcium carbonate. It may be produced by the action of algae and invertebrates or by the precipitation of calcium carbonate from water.

**METAMORPHIC ROCKS**—Igneous or sedimentary rocks altered by heat and pressure. Slate is metamorphosed shale and marble is metamorphosed limestone.

**MISSISSIPPIAN**—A period of the Paleozoic era.

**OUTCROP**—An exposure of rock at the surface.

**PALEOZOIC**—The third great era of recorded geological time. The time of great development of invertebrates, fish, and fernlike trees. The era is subdivided commonly into seven periods: Cambrian (oldest), Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian, and Permian.

**SEDIMENTARY ROCKS**—Rocks formed by the accumulation of sediment, either in water or on land; may consist of shale, limestone, sandstone, fossils, gypsum, or loess.

**STALACTITES**—Calcareous cones that hang from the roofs of limestone caves and are formed from the lime-bearing waters that seep through the roof.

**STALAGMITES**—Structures similar to stalactites which develop on the floor of limestone caves and grow upward by additions from water dripping upon them from the ceiling of the cave. Usually more blunt than stalactites.

**TRAVERTINE** (3<sup>1</sup>)—Calcium carbonate (CaCO<sub>3</sub>) deposited from solution by springs or running water. Embraces many types of deposition.

<sup>1</sup> Scale of hardness of minerals:

- 1-Talc
- 2-Gypsum
- 3-Calcite
- 4-Fluorite
- 5-Apatite
- 6-Orthoclase
- 7-Quartz
- 8-Topaz
- 9-Corundum
- 10-Diamond



# RULES AND REGULATIONS

[Briefed]

*Let no one say, and say it to your shame,  
That all was beauty here until you came.*

**THE PARK REGULATIONS** are designed for the protection of the natural beauties and scenery as well as for the comfort and convenience of visitors. The following synopsis is for the general guidance of visitors, who are requested to assist the administration by observing the rules. Full regulations may be seen at the office of the superintendent and ranger station.

**GUIDE SERVICE.**—No person is permitted to enter the cave unless accompanied by the superintendent or other park employee.

**FIRES.**—Light carefully, and in designated places. Extinguish completely before leaving camp, even for temporary absence. Do not guess your fire is out—know it.

**CAMPS.**—Use designated camp-grounds. Keep the campgrounds 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. Dead or fallen wood may be used for firewood.

**TRASH.**—Do not throw paper, lunch refuse, kodak cartons, chewing-gum paper, or other trash over the rim, or walks, trails, roads, or elsewhere. Carry until you can burn in camp or place in receptacle.

**AUTOMOBILES.**—Careful driving is required at all times for protection of yourself and other visitors. Your car must be equipped with good brakes, horn, and lights. Passing on curves is prohibited. Obey traffic rules. Tractors with lugs or vehicles without tires are strictly prohibited.

**PARK RANGERS.**—The rangers are here to help and advise you. When in doubt ask a ranger. Rangers at park headquarters will be glad to help you plan your activity while in Wind Cave and to explain the regulations.

**CAMERAS.**—Still and motion-picture cameras may be freely used by amateurs for general scenic purposes.

**WILDLIFE.**—Visitors should remain on the highway and in, or very near, their cars in the park because the buffalo are not confined by fences. These animals are dangerous to persons on foot.

**WIND CAVE IS OPEN TO THE PUBLIC  
EVERY DAY THROUGHOUT THE YEAR.**