Red Rock State Park

Virginia T. McLemore

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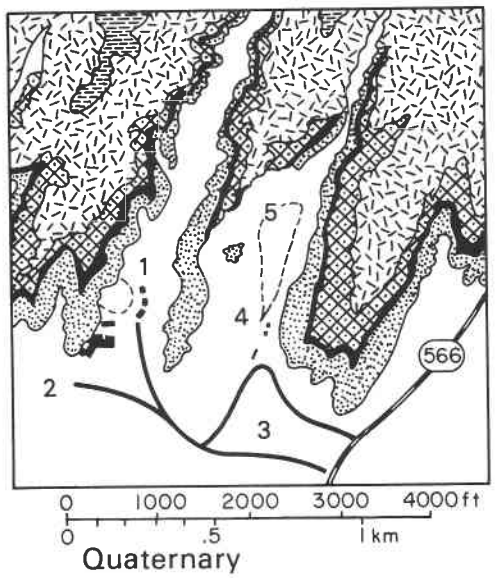
Red Rock

New Mexico State Park Series

Red Rock State Park is a unique attraction blending spectacular views of red sandstone cliffs with an impressive array of public facilities ranging from a rodeo arena to a convention center to a museum (Fig. 1). The park is located 10 mi east of Gallup in McKinley County, north of I–40 via NM–566. The elevation ranges from 6,600 to 7,000 ft. The 640-acre park offers excellent scenery for balloonists, hikers, campers, and other visitors. Red Rock State Park opened in 1972 and is administered and maintained by the city of Gallup. The $6 million complex (Young, 1984) is probably the most frequently visited state park in New Mexico.



Quaternary

alluvial deposits

Jurassic

Morrison Formation

Recapture Member

Cow Springs Sandstone

Wanakah Formation

Beclabito Member

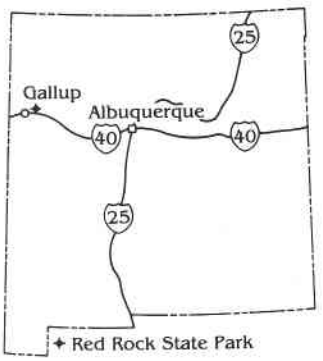
Todilto Limestone Member

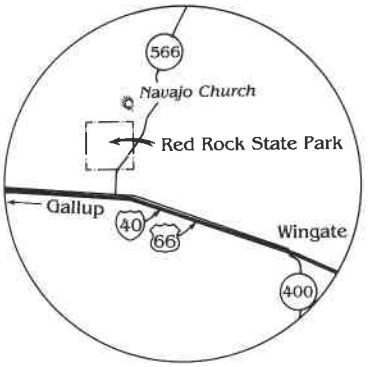
Entrada Sandstone

N

1. Museum, convention hall, arena complex
2. West campground
3. Balloon launching field
4. Main campground, historic Outlaw Trading Post, and U.S. Post Office
5. Nature trail

FIGURE 1—Geologic map of Red Rock State Park, sec. 11, T15N R17W (simplified from Green and Jackson, 1975, with stratigraphic terminology updated from Condon and Peterson, 1986, and Condon et al., 1988) showing location of public facilities.





Facilities

The main attraction in Red Rock State Park is an 8,000-seat outdoor arena used for various events ranging from Motocross competitions to outdoor concerts (Fig. 1). Some 25 rodeos and numerous Indian dances are held from June until mid-November. The Inter-Tribal Indian Ceremonial and All-Indian Rodeo are held at the arena every year in August. The Lions Club rodeo in June is one of the state's finest. The Shrine Circus and the Square Dance Festival are annual events at the park. The Red Rock Balloon Rally in December attracts balloonists from all over the world.

Additional public facilities at the park include the Red Rock Convention Center, which will accommodate conventions, meetings, concerts, shows, weddings, and private parties. The auditorium accommodates 800 people and has a floating stage and flexible lighting for diverse events. The seats and stage can be lowered to allow banquets with seating for as many as 600 people and a dance floor or display area. Seven meeting rooms with capacities of 20 to 150 people and a dining room with 125 seats add to the versatility of this center. The outdoor plaza area can be used for barbecues, square dances, and trade shows (Fig. 2). A restaurant is open on a seasonal basis and for special events. The Inter-Tribal Indian offices are housed at the convention center.

At the Red Rock Museum, visitors throughout the year can view exhibits and displays depicting the history and culture of local and regional Indian tribes, including Navajo, Rio Grande Pueblo, Zuni, Acoma, Hopi, and Plains Indians. Pottery, rugs, crafts, and paintings are on display. The museum includes a collection of Zuni Kachina dolls. Another exhibit is dedicated to the Navajo code talkers, who served as Marine communication specialists during World War II (Brown, 1977). Eventually 420 Navajos served in the group and their code was the only one never broken by the Japanese (Paul, 1973). The museum features an art gallery where paintings by local and national artists are periodically displayed. Wild flower gardens just outside the museum offer colorful glimpses of the desert vegetation. Corn, beans, and squash are grown during the summer in a Pueblo "waffle garden," the traditional method of agriculture in the area.

Two campgrounds offer campers modern conveniences including restrooms with showers, picnic tables, electrical and water hookups, and a sanitary dump station. Stables for boarding horses are also available. The main campground features the Outlaw Trading Post, a log cabin built in 1888 and now used as a general store, laundry, U.S. Post Office, and information center for camping arrangements and listings of daily events. Picnic areas and a playground are also located at the main campground (Fig. 3).

Hiking along the one-mile nature trail north of the Outlaw Trading Post (Fig. 1) takes the visitor into undeveloped portions of the park. Skunks, ground squirrels, prairie dogs, cottontail rabbits, lizards, gopher snakes, and rattlesnakes may be seen. Other animals, such as coyote, bobcat, and red fox, come to the park on rare occasions. Birds, such as the piñon jay, bluebird, raven, robin, house sparrow, starling, flicker, rock wren, hawk, and morning dove, are seen in the park, especially in crevices in the massive cliffs. Grama grass, Indian rice grass, rabbit brush, saltbush, and various cacti grow in the valley and between piñon and juniper trees. In the higher elevations of the park, ponderosa pine and Gambel oak trees grow.

History

Archaeological sites within the park reveal that the area was once occupied by Archaic (3000 BC), Basketmaker (300 AD), Anasazi

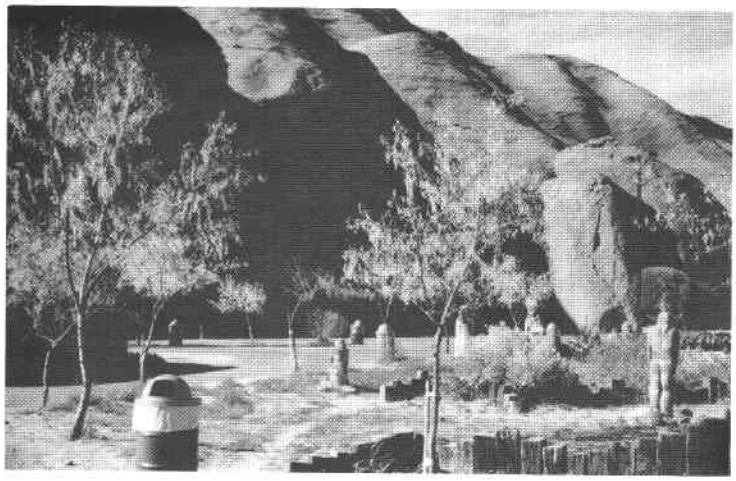


FIGURE 2—Outdoor plaza area with gardens (Fig. 1, location 1). Massive cliffs of Entrada Sandstone are in the background.

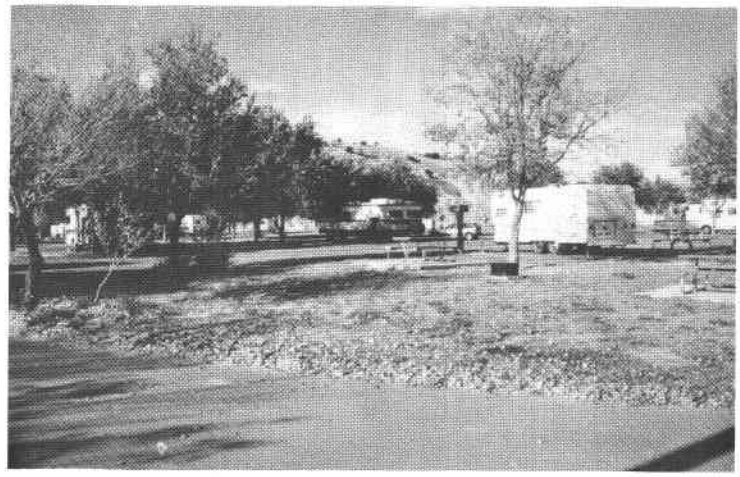


FIGURE 3—Main campground at Red Rock State Park (Fig. 1, location 4) offers camping facilities all year long.

(1000–1100 AD), and finally Navajo Indians.

Ancestors of the Navajo and Apache Indians migrated into the Southwest about 1500 AD. The Navajos settled in the Four Corners region of New Mexico, Arizona, Utah, and Colorado whereas the Apaches settled in eastern and southern New Mexico and southern Arizona. Through contact with the Pueblo Indians and Spanish settlers the Navajos became more dependent on farming and grazing, but they continued to raid neighboring communities. The Spanish and Mexicans perpetuated these raids by attacking and enslaving the Navajos (Strawn, 1967; Young, 1968).

General Stephen Kearney conquered New Mexico in 1846 for the United States and promised to end hostilities with the Indians. Peace treaties were signed with various chiefs of the Navajos but all were broken. Fort Defiance was established in eastern Arizona in 1851 (Fig. 4). In 1860, Fort Fauntleroy, named for the Department Commander Colonel Thomas Fauntleroy, was established at the site now occupied by Fort Wingate. Because raids by the Navajos increased, Fort Defiance was abandoned in 1861 and the garrison was transferred to Fort Fauntleroy. On September 28, 1861, the U.S. Army changed the name from Fort Fauntleroy to Fort Lyon because Colonel Fauntleroy resigned his commission to join the Confederate forces. Fort Lyon was abandoned in December 1861 when the garrison was transferred to Fort Craig near Socorro to meet the Confederate Army, which had invaded New Mexico.

The Navajos increased their raids during 1861 and 1862. The defeat of the Confederate forces at Glorieta Pass east of Santa Fe allowed General James Carleton to transfer troops into the Navajo country to subdue the Indians. A new fort, Fort Wingate, was established in 1862 at San Rafael, south of Grants (Fig. 4). In 1863, Colonel Kit Carson and about 800 men were ordered to pursue the Navajos. Carson was unable to engage the Navajos in major battles, but he did wipe out their economic base by burning fields and hogans and slaughtering livestock. By the end of a severe winter, the Navajos were defeated; in March 1864 they began a 300-mi journey to the Bosque Redondo Reservation at Fort Sumner in eastern New Mexico (Young, 1968; Bahti, 1968). In 1868, the Navajos were allowed to return to their homeland. Fort Wingate, originally located at San Rafael (Fig. 4), was moved to the abandoned site of Fort Lyon in order to be closer to the Navajos.

With the Indian threat removed, northwestern New Mexico could be settled. In 1880, David L. Gallup, a paymaster for the Atlantic and Pacific Railroad, established headquarters for crews constructing the railroad (Pearce, 1965) and a town, Gallup, developed around the site. In 1881, the railroad reached Gallup, which continued to prosper and supply coal to the railroad. Today it is one of the larger cities in New Mexico.

Fort Wingate was deactivated in 1911, was reopened as Wingate Ordnance Reserve Depot in 1918 (James, 1967), and is scheduled to close once again in the near future.

Geology

Rocks exposed in Red Rock State Park are Jurassic (180–140 m.y.) and Quaternary (less than 1 m.y.) in age (Fig. 1); however, Triassic (220–200 m.y.) rocks are seen from the park and are described briefly here. The oldest rock unit in the vicinity of Red Rock State Park is the Triassic Chinle Formation that ☞

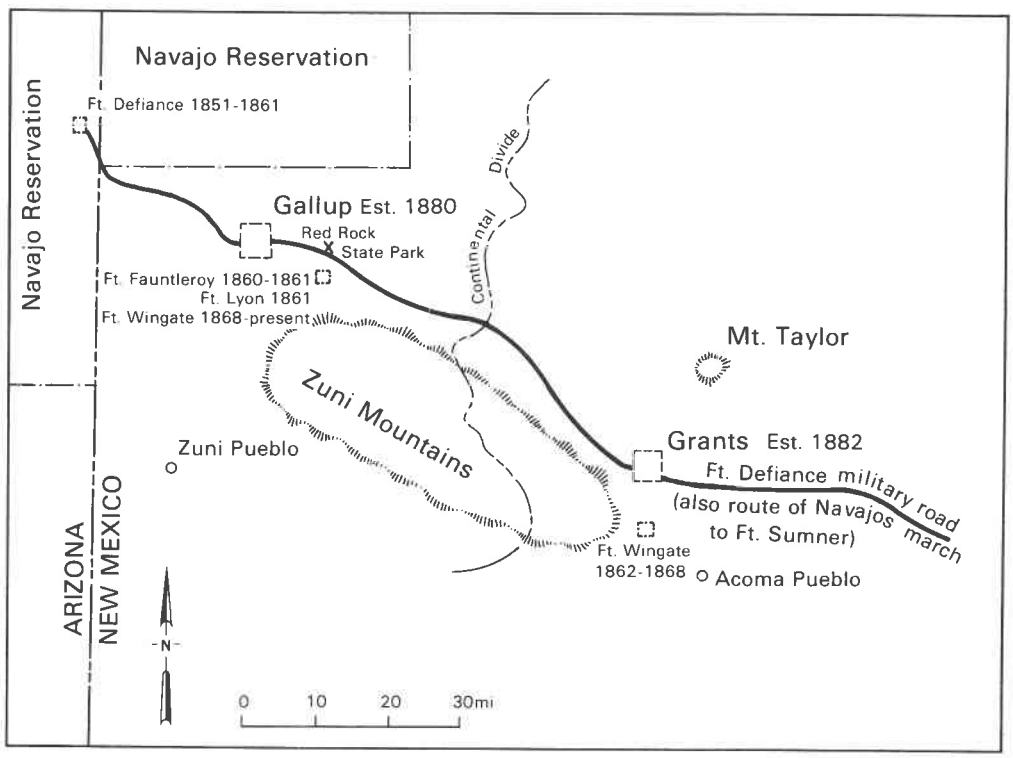


FIGURE 4—Forts of the Navajo country, New Mexico and Arizona (modified from James, 1967).

crops out south of the park (Green and Jackson, 1975). The formation consists of red, chocolate-brown, purplish-white, and gray shales, siltstones, and shaly sandstones; it underlies much of the plains south of the park. These rocks were deposited by rivers and streams and associated flooding events.

The oldest and most prominent rocks within Red Rock State Park are the red sandstones belonging to the Jurassic Entrada Sandstone (Fig. 1). The spectacular massive cliffs forming the background for the public facilities in the park (Figs. 2, 5) belong to this unit. The Entrada Sandstone is divided into three members: Iyanbito Member (oldest), a middle siltstone member, and an upper sandstone member (youngest). The basal Iyanbito Member is not exposed at Red Rock State Park. The middle siltstone member consists of 40–60 ft of reddish-brown to reddish-orange silty sandstone and siltstone that form slopes at the base of the massive cliffs. The upper sandstone member forms the spectacular cliffs and consists of 100–400 ft of reddish-orange, well-cemented, thick-bedded sandstones. High-angle crossbeds or layers are seen in the sandstone (Fig. 5). Close examination of the rock with a magnifying glass reveals that the sandstone consists predominantly of well-rounded quartz grains of uniform size. These characteristics lead geologists to believe the sandstones were once large sand dunes. The sand dunes were cemented by silica and calcite from ground water and compacted to form the massive rock cliffs seen today.

The Jurassic Wanakah Formation overlies the Entrada Sandstone (Fig. 1). The Wanakah Formation is a newly defined rock unit consisting of the Todilto Limestone Member (formerly a formation) and the Beclabito Member (formerly the Summerville Formation; Condon and Peterson, 1986; Condon et al., 1988). The Todilto Limestone Member is the older unit and forms a white to gray, resistant cap on top of the Entrada Sandstone. It consists of as much as 20 ft of fine-grained limestone that was deposited in either a marine embayment (Ridgley and Goldhaber, 1983) or a saline lake. Overlying the Todilto are slopes of interbedded white, pink, and reddish-brown sandstone, siltstone, and shale belonging to the Beclabito Member. The Beclabito Member is as much as 50 ft thick and was deposited in a shallow-water coastal plain environment marginal to the Todilto marine embayment or saline lake (Condon and Peterson, 1986).

Jurassic Cow Springs Sandstone overlies the Wanakah Formation (Fig. 1) and consists of 190 ft of green-gray to pink, well-cemented sandstone (Green and Jackson, 1975). This unit was deposited in an arid environment as sand dunes (Condon and Peterson, 1986).

The Jurassic Morrison Formation overlies the Cow Springs Sandstone and consists of three members: Recapture (oldest), Westwater Canyon, and Brushy Basin (youngest). Only the Recapture Member is present in the park (Fig. 1) and consists of 100 ft of reddish-brown to brick-red siltstone interbedded with white to green to yellow sandstone (Green and Jackson, 1975). The Recapture Member is well exposed at the base of Navajo Church, seen from the Outlaw Trading Post (Fig. 6). The Recapture Member was deposited in both fluvial and eolian, sand-dune environments.

The Westwater Canyon Member is not exposed within the park boundaries, but it is visible on some of the mesas north of the park and at the top of Navajo Church (Fig. 6). This unit consists of 130–230 ft of red to orange sandstone with thin lenses of siltstone and shale (Green and Jackson, 1975). The Westwater Canyon Member was deposited in a fluvial environment. It is host to most of the uranium resources in the Gallup–Grants area.

The Brushy Basin Member also is not exposed within the park boundaries but crops out north of the park (Green and Jackson, 1975). It consists of green to purple to gray shale, siltstone, and sandstone.

Cretaceous seas covered Red Rock State Park almost 100 m.y. ago and deposited thick sequences of shale and sandstone. Sand, mud, and organic remains were deposited in swamps and fluvial environments marginal to the seas, later forming sandstone, shale, and coal. The rocks were subsequently eroded, mainly by wind and rain, to form mesas and spires such as Navajo Church. Erosion of the rock continues today and contributes to Quaternary alluvium and unconsolidated wind-blown (eolian) sand and silt deposits in the park.

Summary

Red Rock State Park takes its name from the spectacular red sandstone cliffs surrounding the impressive array of public facilities, including a rodeo arena, convention center, museum, and camp grounds. The park offers something for everyone including geological features, archaeology, history, camping, hiking, horseback riding, and just plain enjoyment of the scenery.

ACKNOWLEDGMENTS—Special thanks to the staff of Red Rock State Park for their assistance and allowing access to various facilities at the park. Robert Weber, Frank Kottlowski, and Dave Love reviewed the manuscript; Lynne McNeil typed it; and Michael Wooldridge drafted the figures.

References

Bahti, Jo, 1968, Southwestern Indian tribes: KC Publications, Las Vegas, NM, 72 pp.

Brown, C. S., 1977, Cozy Stanley Brown, code talker, Pacific theater; *in* Johnson, B. H. (ed.), Navajos and World War II: Navajo Community College Press, Tsaile, Arizona, pp. 51–63. (This book is composed of personal accounts of participation in World War II and other activities.)

Condon, S. M., Huffman, A. C., Jr., Peterson, Fred, and Aubrey W. M., 1988, Revisions to stratigraphic nomenclature of Jurassic and Cretaceous rocks of the Colorado Plateau: U.S. Geological Survey, Bulletin 1633 A–C, 69 pp.

Condon, S. M., and Peterson, Fred, 1986, Stratigraphy of Middle and Upper Jurassic rocks of the San Juan Basin: Historical perspective, current ideas, and remaining problems; *in* Turner-Peterson, C. E., Santos,

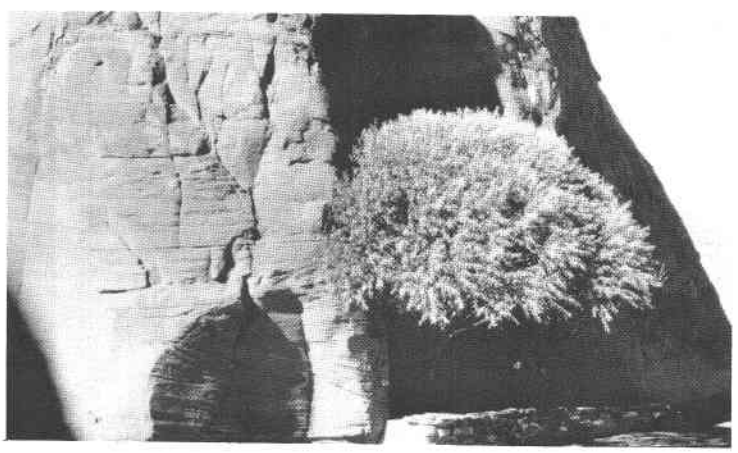


FIGURE 5—High-angle crossbeds or layers are visible in cliffs of Entrada Sandstone.

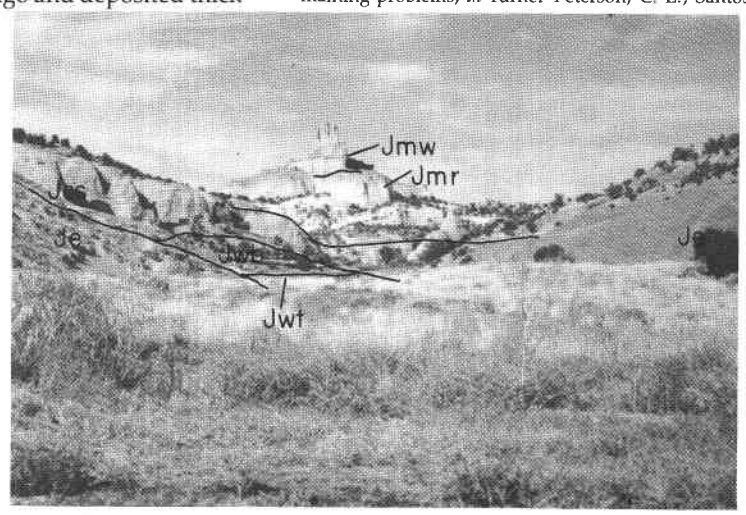
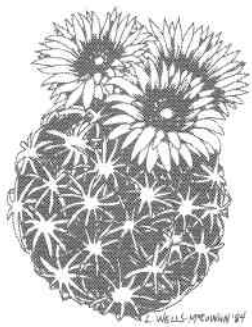


FIGURE 6—View of Navajo Church (a prominent rock spire also known locally as Church Rock) from north of the Outlaw Trading Post near the hiking trail. **Je,** Entrada Sandstone; **Jwt,** Todilto Limestone Member of the Wanakah Formation; **Jwb,** Beclabito Member of the Wanakah Formation; **Jcs,** Cow Springs Sandstone; **Jmr,** Recapture Member of the Morrison Formation; **Jmw,** Westwater Canyon Member of the Morrison Formation (stratigraphic nomenclature from Condon and Peterson, 1986; Condon et al., 1988).

E. S., and Fishman, N. S. (eds.), A basin analysis case study: The Morrison Formation Grants uranium region, New Mexico: American Association of Petroleum Geologists, Studies in Geology 22, pp. 7–26.
Green, M. W., and Jackson, T. J., 1975, Geologic map of the Church Rock quadrangle, McKinley County, New Mexico: U.S. Geological Survey, Open-file Report 75–258, scale 1:24,000.
James, H. L., 1967, The history of Fort Wingate: New Mexico Geological Society, Guidebook to 18th Field Conference, pp. 151–158.
Paul, D. A., 1973, The Navajo code talkers: Dorrance and Company, Philadelphia, 170 pp.
Pearce, T. M., 1965, New Mexico place names: University of New Mexico Press, Albuquerque, 198 pp.
Ridgley, J. L., and Goldhaber, Martin, 1983, Isotopic evidence for a marine origin of the Todilto Limestone, north-central New Mexico (abs.): Geological Society of America, Abstracts with Programs, v. 75, pp. 414.
Strawn, E. J., 1967, Dineh means "The People": Four Corners Geological Society, Guidebook to 2nd Field Conference; reprinted in New Mexico Geological Society, Guidebook to 18th Field Conference, pp. 92–95.
Young, J. V., 1984, The state parks of New Mexico: University of New Mexico Press, Albuquerque, 160 pp.
Young, R. W., 1968, The role of the Navajo in the Southwestern drama: The Gallup Independent and Robert Young, Gallup, 94 pp.

—by Virginia T. McLemore



The State Geological Surveys—a History

This comprehensive, 500-page volume was published in November, 1988, by the Association of American State Geologists. Edited by retired Pennsylvania State Geologist Arthur A. Socolow, the hard-covered book contains the history, organization, and functions of each of the 50 State Geological Surveys in individual chapters prepared by the respective Surveys. The chapter on New Mexico was written by Frank Kottlowski, George Austin, and Candace Merillat.

More than 30 of the State Surveys originated over 100 years ago and the accounts of the development and activities of America's State Geological Surveys shed light on a major component of geologic mapping and research that has been achieved in the United States. Geologists in government, academia, and industry, and all who are interested in geologic achievements will find this illustrated publication informative and thoroughly readable.

The State Geological Surveys—a History may be ordered from the Geological Survey of Alabama, P.O. Box O, Tuscaloosa, AL 35486. The price is $20.00 (includes shipping). Make check payable to: Association of American State Geologists.

Abstracts

New Mexico Mineral Symposium

The 9th annual Mineral Symposium was held November 12–13, 1988, at New Mexico Institute of Mining and Technology, Socorro. Following are abstracts from talks given at the meeting that concern New Mexico. The numbers in parentheses refer to locations on the map.

LOST PADRE MINE—FACT OR FICTION? by *Russell E. Clemons*, New Mexico State University, Las Cruces, NM 88003 (1)

It is said . . . that Padre La Rue came to Mexico in 1796 and was assigned a small pastorate about 10 days journey south of Paso del Norte. An old soldier told him of a gold prospect in the Sierra Organos near a Spirit Spring. Some years later, after the soldier had died, drought hit the Padre's fields. He and his followers journeyed north and succeeded in finding the gold placers and rich vein(s), but they neglected to report this to the church in Mexico City. A man named Maximo Milliano was sent north to find them. Upon learning of the approaching expedition, the miners hid the gold and the location of the mines. Milliano and his expedition eventually located the Padre and his mining camp but were refused admittance. Allegedly, the Padre and some of his followers were tortured and killed, but none revealed the location of the gold.

Most reports of lost mines are based on some facts. Typically, there are also many variations in background narratives. The Organ Mountain Mining and Smelting Association's 1881–82 prospectus suggested the Padre mine had been worked in Fillmore Canyon on the west side of the Organ Mountains, about 8 mi east of Las Cruces. Sir Kingsley Dunham indicated, in his 1935 geologic report on the Organ Mountains, that Col. A. J. Fountain may have found the mine shortly before his mysterious disappearance. Dunham also reported that a local goat herder, Tirso Aguire, was a descendant of one of the original miners. L. H. Davis had written in 1917 that Teso Aguirri (Tirso Aguire?) had shown a local prospector the cave in which the Padre lived. Henry James in his 1953 book, *The Curse of the San Andres*, wrote that he had found records in Santa Fe of Padre La Rue. James further wrote that he believed the lost Padre mine was in Hembrillo Canyon of the San Andres Mountains. Frank Kottlowski, in a 1966 paper on the lost Padre mine for *New Mexico Magazine*, quite conclusively pointed out the technical inaccuracies in James' book. Tim Kelly, in an article on the lost Padre mine and the Organ mining district published in the 1975 New Mexico Geological Society Guidebook, indicated that historic and geologic evidence support the likelihood that the mine existed—near the east slope of San Agustin Pass. Kelly also provided the Padre with two names, Philip La Rue. The search continues.

References

Dunham, K. C., 1935, The geology of the Organ Mountains: New Mexico Bureau of Mines and Mineral Resources, Bulletin 11, 272 pp.
Griggs, G., 1930, History of Mesilla Valley or the Gadsden Purchase: L. C. Bronson Printing Co., Mesilla, New Mexico, 128 pp.
James, Henry, 1953, The curse of the San Andres: Pageant Press, New York, 163 pp.
Kelly, T. E., 1975, The Lost Padre mine and the Organ mining district: New Mexico Geological Society, Guidebook to the 16th Field Conference, pp. 163–165.
Kottlowski, F. E., 1966, The Lost Padre mine: New Mexico Magazine, Oct., pp. 22–23, 34, 36.
Stoes, K. D., 1957, The story of San Agustine Ranch: The New Mexico Stockman, March, pp. 36, 60–61.
The Organ Mountains of New Mexico: 1881–1882 prospectus, descriptive catalogue, and report on the mines of the Organ Mountain Mining and Smelting Association Ltd. Office, 821 Cherry St., Philadelphia, PA, 68 pp.

MINERALOGY OF CARLSBAD CAVERN AND OTHER CAVES IN THE GUADALUPE MOUNTAINS, by *Carol A. Hill*, Box 5444A, Route 5, Albuquerque, NM 87123 (2)

A variety of carbonate and sulfate speleothems have formed in Guadalupe caves from dripping, flowing, seeping, pooling, and condensing water. Examples of these are stalactites, stalagmites, columns, draperies, flowstone, coral pipes, coralloids, helictites, shields, cave pearls, rimstone dams, shelfstone, baldachino canopies, rims, frostwork anthodites, moonmilk, selenite needles, cave cotton, and cave rope. Evaporation and carbon dioxide loss have been prime factors in the deposition of the magnesium-carbonate minerals, hydromagnesite, huntite, and dolomite, and in the formation of certain speleothems such as moonmilk and popcorn. Native sulfur and endellite deposits in the caves and the pronounced condensation–corrosion of speleothems are the result of the peculiar H_2S–CO_2, sulfuric-acid speleogenetic origin of Guadalupe caves.

Guadalupe speleothems are famous for their immensity, profuseness, and beauty. Size and profuseness result from: a) a sulfuric-acid mode of cave dissolution created huge chambers in which speleothems could grow large; b) the caves are very old and, therefore, there has been sufficient time for speleothems to grow; c) wet climatic episodes earlier in the Pleistocene provided the moisture necessary for speleothem growth; and d) speleothem-depositing solutions easily entered the underground through jointed limestone uncapped by impermeable strata.

THE BLANCHARD MINE—NEW DEVELOPMENTS, by *Ramon S. DeMark*, 6509 Dodd Place, NE, Albuquerque, NM 87110 (3)

Intensive mining for specimens and exploratory activity at the Blanchard mine in 1988 resulted in a number of unexpected, as well as expected, discoveries. Activity was widespread throughout the various tunnels, numerous prospects, and outcrops. In mid-June a backhoe was brought in with three specific goals in mind: 1) opening the Sunshine #6 tunnel that had been blasted/bulldozed shut; 2) exploratory trenching in the Clarence Barrett workings; 3) developing the working area in the vicinity of the ore bin in the Portales/Glory Hole area.

The Sunshine #6 tunnel was closed in 1979 by ☞