

LOOP TRAIL



Published in
cooperation with
The National
Park Service

AROUND

MONTEZUMA WELL



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IF YOU TAKE THIS
BOOKLET HOME

or you may use it free of charge,
returning it to the register stand
when you go

MONTEZUMA CASTLE NATIONAL MONUMENT

60 MILES SOUTH OF FLAGSTAFF, ARIZONA



MONTEZUMA WELL

This is a natural limestone sink created thousands of years ago when the roof of an underground cavern collapsed. Its water comes from subterranean springs, and in the quiet blue-green depth of the well live aquatic plants, insects, reptiles and muskrats.

Seven centuries ago Montezuma Well was the site of a bustling Indian village whose population amounted to more than 300 people. Today the ruined homes of these ancient cliff dwellers stand silently on ledges or around the rim, inviting imaginative scenes of those days so long ago.

This area, comprising 261 acres, is a detached portion of Montezuma Castle National Monument, administered by the National Park Service, United States Department of the Interior. Since it is a wildlife refuge you may see some of the 150 species of birds which have been recorded here. There is also a great variety of plants and animals, all of which are preserved in their natural state for the enjoyment of this and future generations.

CONSERVATION — CAN A LAYMAN HELP?

If you are interested in the work of the National Park Service and in the cause of conservation in general, you can give active expression of this interest, and lend support by aligning yourself with one of the numerous conservation organizations, which act as spokesmen for those who wish our scenic heritage to be kept unimpaired for the enjoyment of future generations.

Names and addresses of conservation organizations may be obtained from the ranger.

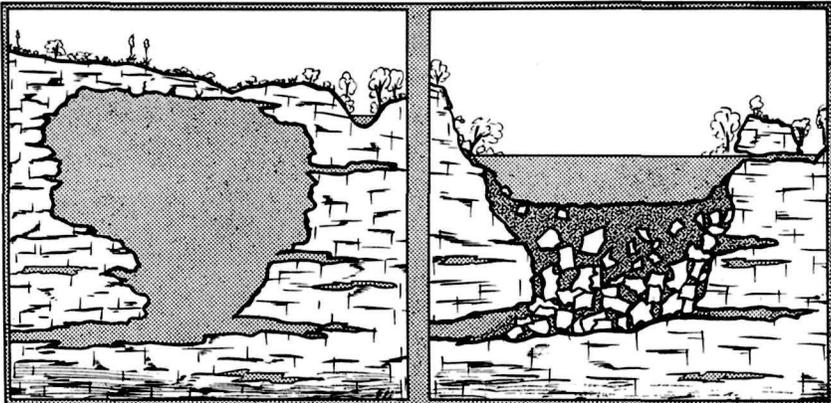
The Loop Trail is a self-guiding nature walk which explains the interesting features of Montezuma Well, past and present. All points of interest may be seen along the trail, which starts and ends at the parking area.

THE LOOP TRAIL

(Follow the Numbered Stakes)

1. **PARKING AREA.** Park here and don't forget your camera! Everything of interest is within easy walking distance. Since the trail trip lasts about half an hour, you may want to lock your car.
2. **CATCLAW** (*Acacia greggi*), a member of the Pea Family, grows rapidly and possesses curved sharp thorns. Catclaw thickets are sometimes hiding places for Jackrabbits, Cottontails and other small animals, since large predators cannot give chase through the tangle of thorns.
3. **CREOSOTE BUSH** (*Larrea tridentata*) is called "the most successful and conspicuous dryland plant in the desert regions of North America" because of its remarkable adaptation to severe climate and soil conditions. It gets its name from the smell of the leaves. The Lac Bug feeds on it, extruding a gummy substance that was collected by pre-historic Indians to cement inlays of shell, stone, or turquoise.
4. **MONTEZUMA WELL** measures 470 feet across. The water is 70 feet below the rim and has a maximum depth of 55 feet. Water enters somewhere in the bottom and flows out through the south wall near the large Cottonwood trees. The rate of discharge is over 1,500,000 gallons a day, all of which is diverted for irrigation.

The Well was formed by underground water which seeps down from higher elevations on the Mogollon (Mo-go-YON) Rim and dissolves subterranean channels and caves. Here, ages ago, a giant cave was formed near the surface. Beaver Creek, which flows along the south side of the Well, kept cutting deeper and deeper until it reached a small channel extending out from this cave. When that happened, much of the water within the cave drained away, leaving the roof weak and unsupported. Then it collapsed and the result is Montezuma Well.



Sections through Montezuma Well as it was, and as it is today.

Prehistoric people settled around the Well between 900 and 1100 A.D. and abandoned the area by 1400. To your left can be seen some of their ledge dwellings. The doorway was usually a rectangular opening in the wall and was probably covered by a mat, blanket, or deerskin in winter. Windows were not built because too much heat from the winter fire would escape; instead, notice the small air vents.

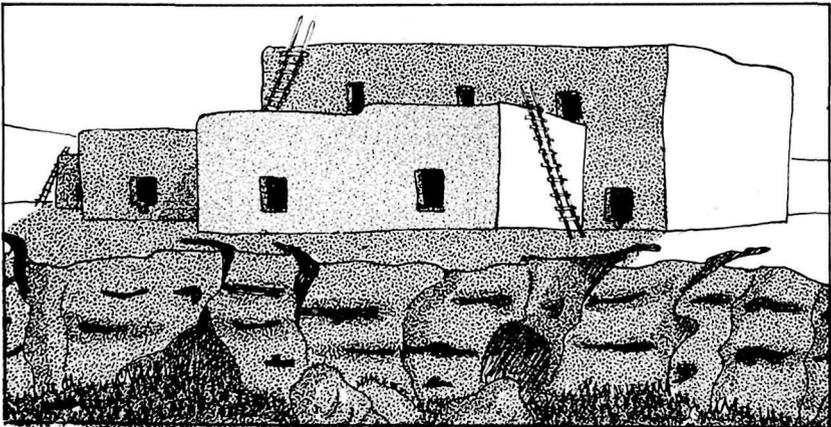
5. **TRAIL TO CAVE.** These steps descend to the Well outlet and to a cave containing prehistoric rooms. The room in back of this cave is for the most part intact, and still has a smoke-hole above and to the right of the door. Water must have flowed through this cave at one time. Now it goes out through a channel just below the cave floor.

Return to the rim by the same trail.

6. **THE VERDE VALLEY.** Look west. Note the fields along Beaver Creek. White limestone layers of the Verde Formation, on which you are standing, can be seen in all directions. They are remnants of a vast lake system that covered the valley in Pleistocene time, 2 million years ago. Those long blue mountains on the horizon are the Black Hills, and far to the right, where they drop almost from sight, is the mining town of Jerome. To your left rises the distant promontory of Squaw Peak.

7. **SMALL PUEBLO.** This area of tumbled rock slabs represents the site of a 20-room apartment house which was typical of community dwellings built in the Verde Valley 8 centuries ago. Rooms were built against each other, and more were added as the village grew.

The people who lived here worked together for the common good. They farmed, built and repaired irrigation ditches, and harvested their



The smaller pueblo as it might have appeared in 1300 A. D.

crops of corn, squash and beans, trading any surplus with other communities. They supplemented their food supply with game and wild plants. The areas of farmland visible below and to the west were used by these Indians.

8. **UTAH JUNIPER** (*Juniperus osteosperma*), a member of the Cypress Family and often erroneously called "Cedar." An excellent wood, burning with aromatic smoke, it assured the Indians an abundance of fire-

wood. They used the berries for food. In fact, modern Plateau Indians have more than 50 different ways of utilizing the Junipers that grow on their reservations.

JUNCTION. The trail to your right here descends 200 yards to Beaver Creek and the Well outlet, where, through a fissure in the limestone, water flows out of the Well at the rate of 1,000 gallons a minute. It is diverted for use in irrigating farmlands downstream, much the same as early Indian farmers used it centuries ago. A striking contrast in vegetation is noticeable along Beaver Creek. The cool shade along your path is from water-loving trees such as Ash, Walnut, Cottonwood and Sycamore.

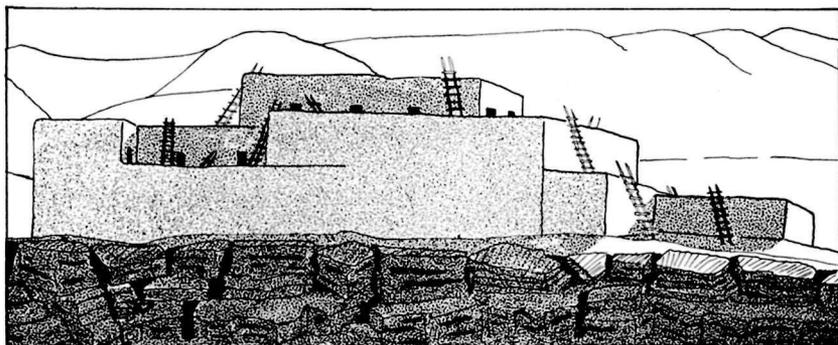
9. **WALNUT** (*Juglans major*), the only Walnut native to Southwestern deserts. The nuts, known in Spanish as *nogales*, are often gathered and eaten, and must have been an important source of food to the early Indians. Walnut grows abundantly along Beaver Creek.

10. **COTTONWOOD** (*Populus fremonti*). This tree is a marker for moisture since it grows only in wet places or near underground springs. Early travelers in the desert were assured a supply of water by digging at its base. The wood was, and is, used by Indians as beams in construction of houses, for firewood, cradleboards; the roots for kachina dolls, and many other articles. The fruit was mixed with tallow and used as chewing gum.

The trees just under the cliff here are **HACKBERRY** (*Celtis reticulata*) whose edible berries were no doubt utilized by the Indians for food.

11. **OUTLET.** Just below and to the right of the Cottonwood trees is the Well outlet. The water goes through a natural tunnel about 50 feet below here and emerges at the base of the cliff behind you (south).

12. **PUEBLO.** This pueblo, larger than the first, once contained about 55 rooms, which were built up in two, perhaps three, stories. The prehistoric Indians built for defense. This structure is on the narrowest portion of the rim and covers it so completely that no one could get in on either side. Entrance was by means of ladders to the second story. In case of a raid, outside ladders were pulled to the roof, and no enemy could enter.



The larger pueblo as it might have looked in its heyday.

13. **PICTURE.** Did you bring your camera? This is one of the best spots for a picture of the Well and of ledge ruins on the opposite side.

14. **COLLAPSED WALL.** Notice how the rocks here are lying. Walls were constructed by laying limestone rocks, which are plentiful here, in a heavy clay mortar. Storms through the centuries have battered the ruin and washed away the mortar, causing the walls to collapse.

The roar you hear below is from the rapids along Beaver Creek. This stream originates from springs 12 miles east of here, in the Mogollon Plateau.

15. **CLIFF.** Turn around. This is what is meant by defensive building. Note the cliffs on two sides of the pueblo. The only places for an enemy to get in were at either end of the structure, and these could be easily defended.

16. **MORMON TEA** (*Ephedra viridis*). Early Mormons and other pioneers made a tonic beverage from the dried stems and flowers of this small shrub. It is a primitive plant, with cone-like flowers, and is very close to the Pine Family.

17. **SNAKEWEED** (*Gutierrezia sarothrae*). This little plant is a member of the Sunflower Family and blooms in late summer. It is aggressive and is often found on semi-arid limestone flats such as this. Modern Indians make use of it to quell digestive disturbances.

18. **BROADLEAF YUCCA** (*Yucca baccata*), a member of the Lily Family. Leaves were collected by ancient Indians, processed, and woven into sandals, rope, aprons, cloth and string, and baskets and mats.

19. **CLIFFROSE** (*Cowania mexicana*). This shrub bears fragrant white and yellow flowers in the springtime. Indians used the wood for arrows and the bark for padding cradle boards. Cliffrose is an important browse plant for deer in winter.

20. **ONE-SEED JUNIPER** (*Juniperus monosperma*) is another of the varieties of Juniper, and had many uses. Heated twigs reduced swelling in sprains and bruises. The bark was used for torches and in weaving; the ashes in making hominy. Seeds were used as beads in rattles and for medical and ceremonial purposes. Juniper berries provide food for the birds and animals that live around Montezuma Well.

21. **SOAPTREE YUCCA** (*Yucca elata*) provided the prehistoric people with a detergent. Good lather for washing can be obtained from the roots. A kind of varnish is made from the juice, and a laxative from an infusion of the roots.

22. **PRICKLY PEAR CACTUS** (*Opuntia engelmanni*) This is one of the many varieties of Prickly Pear. The fruit, which ripens in August and September, was formerly eaten as a starvation ration. The Hopi pick the fruits by using a pair of wooden tweezers and rolling them in the sand until all the spines are off. Rabbits and other animals will eat the spiny leaves when food is scarce.

23. **ALGERITA** (*Berberis haematocarpa*) thrives in the chaparral country of central Arizona. Its juicy, blood-red berries are often made into jellies and preserves. The wood is used for arrows, weaving battens, and spindle shafts.

24. **LIFE ZONES.** Certain plants grow in certain places. Look on the rim here: you see cactus, Catclaw and Creosote bush, plants of the lower Sonoran life zone. But there are also stray Junipers, typical of the cooler, upper Sonoran life zone. On the high mountains far in the distance are Pines and Oaks of the Transition zone. On San Francisco Mountain near Flagstaff may be found an arctic life zone. Climate, rather than latitude, determines where plants will live.

25. **BURIAL GROUND.** Those mounds in the flat just below mark the cemetery. The prehistoric people practiced an unusual method of burial. They dug a pit 5 or 6 feet deep, then a shelf in one side. The remains, dressed in finery, were placed in this shelf, legs extended, arms at the side, with pottery near the head as an offering. Then the shelf was closed with limestone slabs, and the main pit filled with earth. The mounds, pits and slabs you see today are the result of excavations made before Montezuma Well became a part of the National Park System.

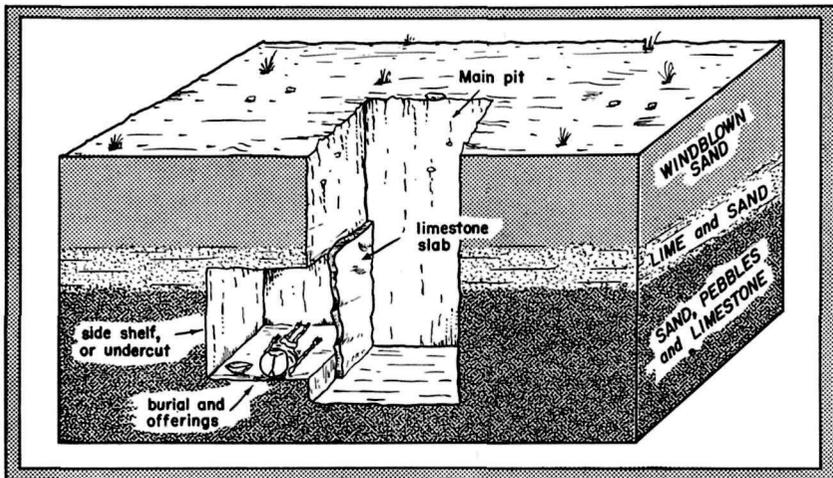
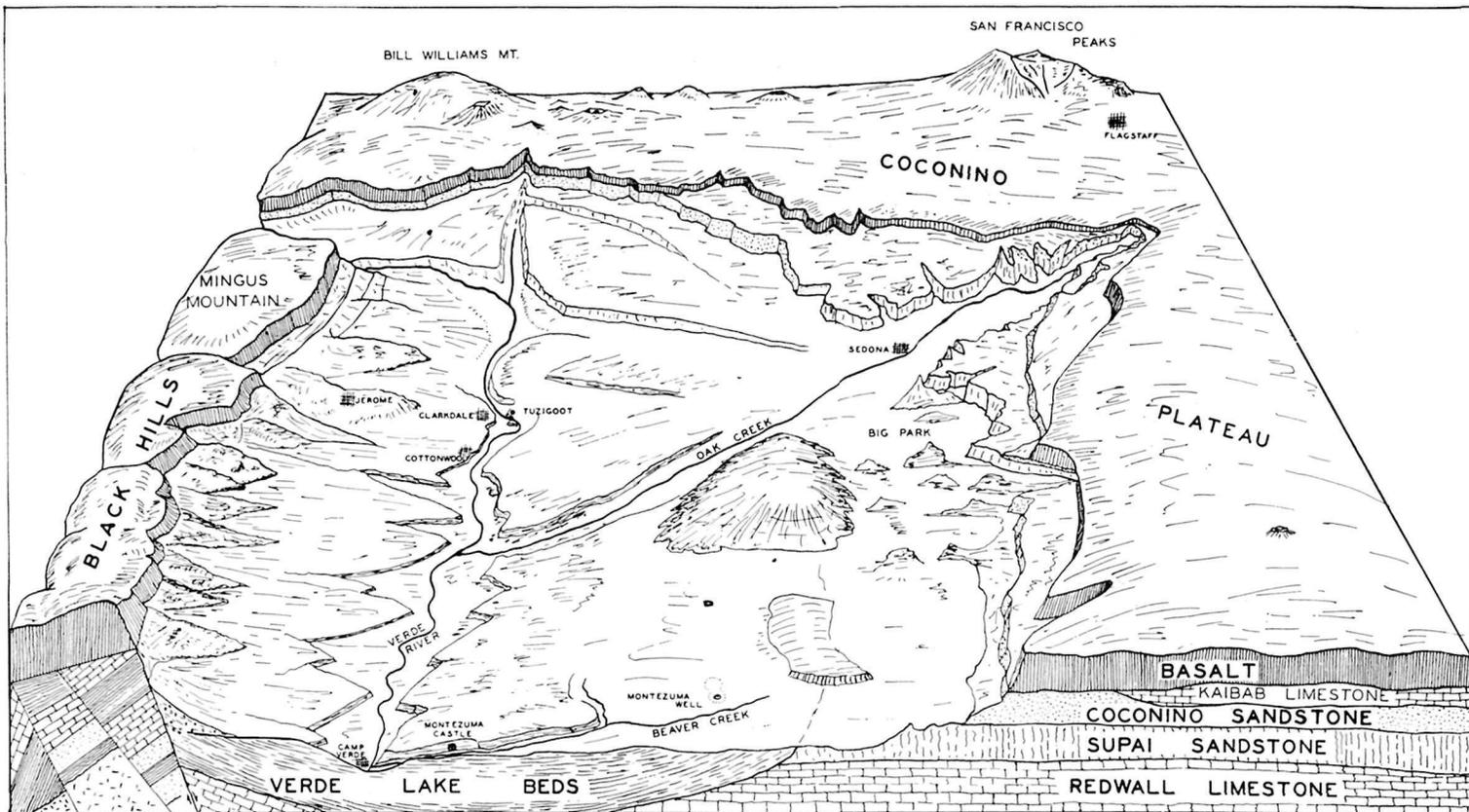


Diagram of the peculiar style of alcove graves found at Montezuma Well

26. **PREHISTORIC IRRIGATION CANAL** (at Museum). This ditch appears to have been cemented, and actually was—but not by man. In prehistoric days water from Montezuma Well flowed through it. That water retains a constant temperature of 78° and contains much lime in solution. Just as it does today, water entered the ditch and cooled off, dropping lime out of solution and depositing it along the canal. As the years passed, a natural limestone coating was formed. Here it is, 6 centuries after. There are many other ancient canals in this area. Today water from the well flows alongside the campground.

(9)



Bird's-eye view of the Verde Valley, including Tuzigoot, Montezuma Castle and Montezuma Well.

We hope you have enjoyed your trail trip. Please return this booklet before you leave, or you can purchase it by dropping 10¢ in the coin slot in the register desk.

If you have questions, please feel free to ask the ranger on duty at the museum.

THE VERDE VALLEY

This entire valley has had a violent history. Three million years ago a volcanic eruption occurred near Squaw Peak, southwest of Camp Verde, and poured lava down the mountainside, blocking the canyon through which the ancient Verde River flowed. A series of lakes backed up behind this dam and covered most of the valley. Tributary streams brought lime, sand and salt into the lakes, and as the centuries passed, limestone was deposited throughout the valley.

After patiently wearing down the lava dam the Verde River assumed its present course and began cutting into the limestone. Since then, erosion's relentless tools—wind, water and frost—have shaped and moulded the landscape into its modern form.

Archeologists believe that the first people to enter the valley, a group known as the Hohokam, came in about 900 A.D. These, presumably, were the industrious farmers who laid out and constructed the canal system at Monteuma Well. The Hohokam made plain brown pottery and a buff-colored ware with red designs; they lived in pole, brush and mud dwellings, and cremated their dead. Most of them moved to the Flagstaff area about 1070 A.D., attracted by good farming lands that resulted from the eruption of Sunset Crater, now a National Monument.

Shortly afterward, another group entered the Verde Valley. These people came from the north and east, made plain brown pottery, irrigated a little, lived in rock houses, and buried rather than cremated their dead. More and more people moved in. During the long drought from 1276 to 1299 A.D. there was a "land rush" from neighboring plateaus into the valley, where spring-fed streams continued to flow. Now there were too many people. They fought—with enemies, with each other. Montezuma Castle and Tuzigoot were built — so was the village at Montezuma Well, all constructed for defense. By 1300, these people (known as the Sinagua) were living in caves, on hilltops—any place they could find along the streams.

A century later they were gone.

Why? No one knows. There was a lack of farmland; there perhaps were epidemics, diseases, other varied reasons for abandoning their pueblos. They returned to the plateau and merged with ancestors of the present-day Hopi Indians. Behind them, the Verde lay silent, their great pueblos crumbling into ruins.

For a long time, warlike Apaches and Yavapais were the only inhabitants in the Valley. The first white man to enter it was the Spanish explorer, Antonio de Espejo, in 1583; later there were trappers, pros-

pectors, other explorers. It wasn't until 1864, when Arizona became a Territory, that the first settlers came. A military post was established at Camp Verde to subdue the Apaches—which was accomplished by 1873. Then, at long last, the Verde Valley settled into peace and security and awaited the westward march of civilization.

In 1906 Montezuma Castle, in danger of being severely vandalized by untrained souvenir hunters, was created a National Monument under the newly established Antiquities Act. In 1933-34 Tuzigoot ruins, near Clarkdale, were scientifically excavated, becoming a National Monument in 1939. Eight years later, in the spring of 1947, Montezuma Well was added as a detached portion of Montezuma Castle National Monument.



Montezuma Castle

So it is that the outstanding scenic and archeological features of the Verde Valley have been set aside for the benefit and enjoyment of present and future generations. The National Park Service preserves them in their natural, unspoiled condition. Hunting, cutting trees or in any way defacing natural or historic features is prohibited. U. S. Park Rangers are on duty the year round to protect these areas for you. They consider it a privilege to explain outstanding features, to answer questions, or to direct you to other Indian ruins and scenic areas of the Southwest.

Montezuma Well, a unit of the National Park System, is one of 180 areas administered by the National Park Service, U. S. Department of the Interior.

The traveling public is becoming increasingly aware of the National Monuments, which have received less publicity than the great, well-known National Parks, yet which possess extremely interesting features.

Many of these are in the Southwest we hope you will take the opportunity to visit one or more of them on your trip.

*Administered as a group by the Regional Director, Region Three,
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Saguaro National Monument, Rt. 8, Box 350, Tucson
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Tumacacori National Monument, Tumacacori
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