

Montezuma Well Trail

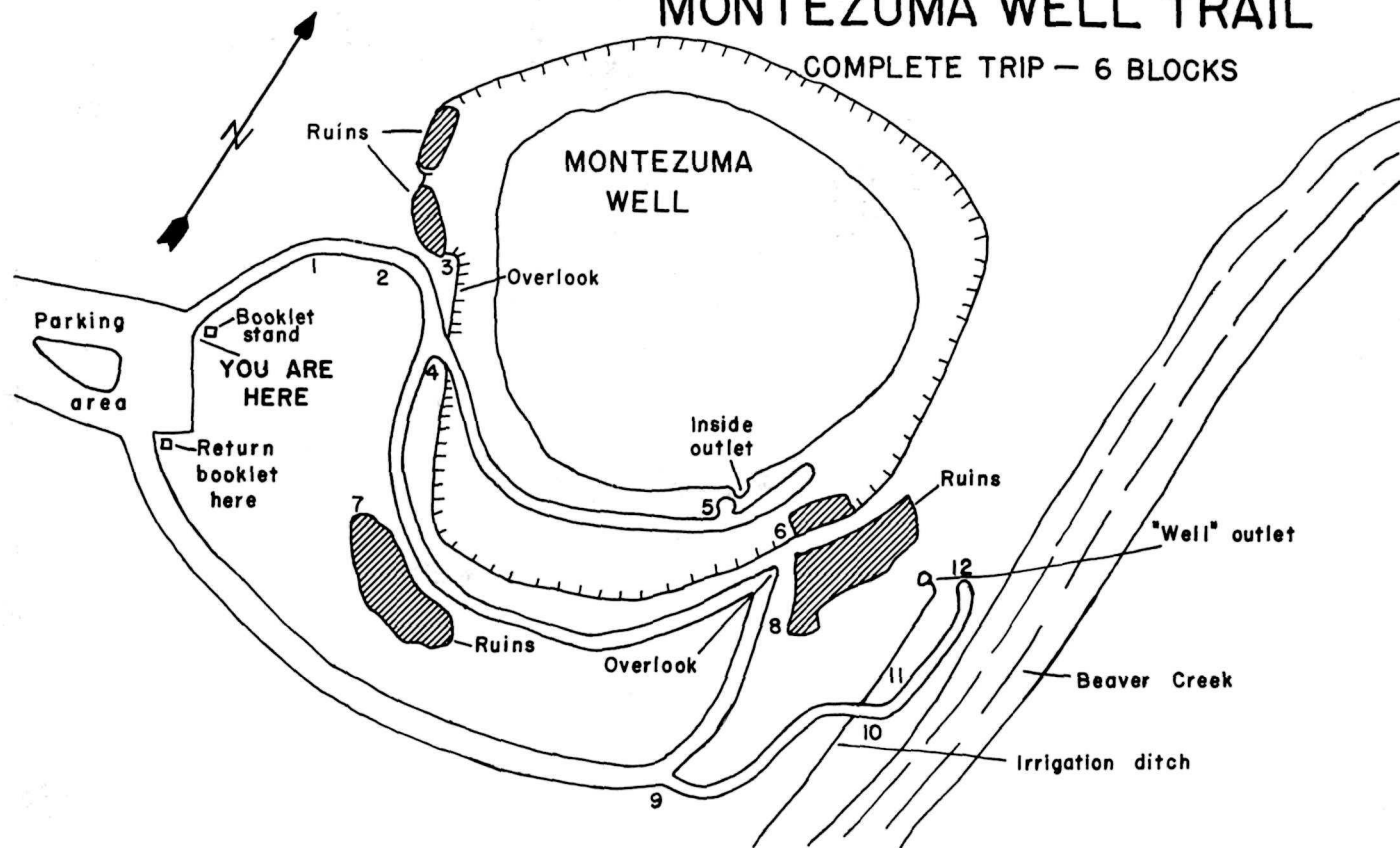


15c IF YOU TAKE THIS BOOKLET HOME

MONTEZUMA CASTLE NATIONAL MONUMENT
ARIZONA

MONTEZUMA WELL TRAIL

COMPLETE TRIP — 6 BLOCKS





Montezuma Well

Montezuma Well Trail

How to use this booklet

This is your guide for use on the trail. Numbered markers along the trail refer to numbered paragraphs in this booklet. If you wish to keep a copy you may *purchase one for 15 cents*, or you may use it free and return it to the box at the end of the trail.

What is Montezuma Well?

The "Well" is a natural limestone sinkhole of tremendous size. It measures 470 feet across and the surface of the water is 70 feet below the overlook. The water averages 55 feet in depth.

The water enters the floor of the "Well" from subterranean springs and leaves through the south wall. The rate of discharge at the outlet is over a million and a half gallons a day.

Centuries ago this steady and dependable source of water was the center of a busy Indian farming community which used it to irrigate its fields in the bottomlands of nearby Beaver Creek. Today the ruined homes of these pueblo people stand around the rim of the "Well" as silent sentinels over the domain of their builders.

Help preserve the natural scene —by observing the following rules:

Stay on the marked trails. Climbing along the cliffs is dangerous and prohibited.

Do not throw anything into the "Well." leave the rocks where they are and put trash in the trash cans.

This is a wildlife refuge. Leave the plants and animals undisturbed for the next visitor to see.

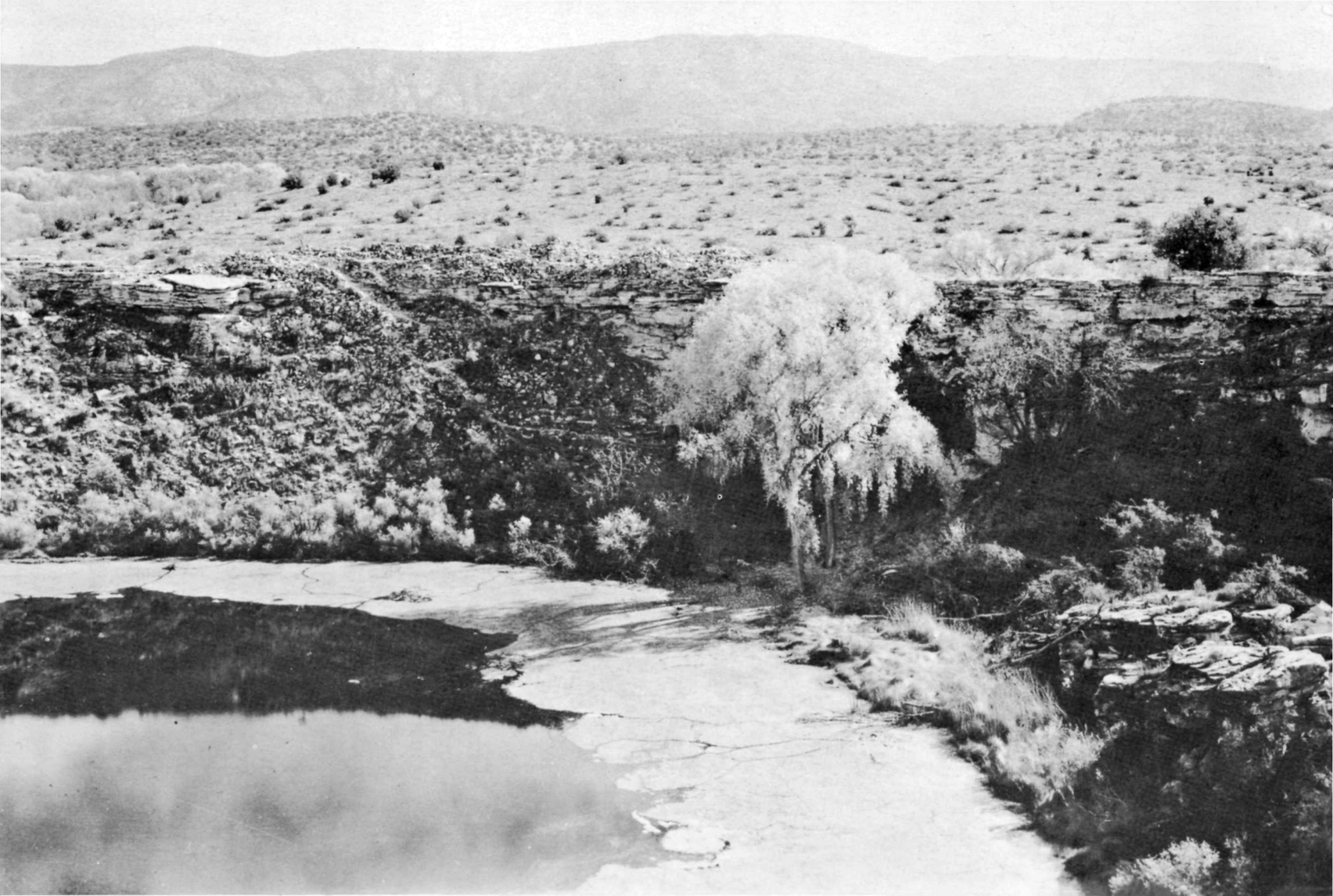
Take nothing but pictures, leave nothing but footprints.

THE TRAIL

1. The Verde Limestone. This is a good place to stop and look at the rock in which Montezuma Well was formed. About 3 million years ago, because of a lava flow from Squaw Peak (visible over the rimrock to the southeast), the Verde River was dammed and the Verde Valley became an area of marshy land and lakes. Streams from the higher elevations to the northeast carried untold quantities of limy mud into the valley. This material settled, compacted, and eventually became the Verde Limestone.

2. The fields. To the right and over the cliff, the fields used by the Hohokam and the Sinagua Indians may be seen. On about sixty acres of bottom land along Beaver Creek the Indians toiled to raise their crops of corn, beans,

Right: Montezuma Well, looking to the southeast. Large trees conceal cave and part of stream which drains the "Well." Note ruins on "Well" rim.



squash, and cotton. To water their fields they used the overflow from Montezuma Well by diverting the water into irrigation ditches. Today the fields are green and trees abound because modern man is using the same water source to irrigate his crops.

3. Cliffdwellings. In the wall directly in front of you are the remains of two cliffdwellings. The selection of homesites was very important to the prehistoric Indians. They had to be close to water (Montezuma Well), and farmland (which you have just seen), and they needed protection from possible enemies. All of these requirements were met here, protection being gained by the inaccessibility of the homes. Ropes and ladders would have been necessary to reach the water or the rim of the "Well."

4. Trail to inside of the "Well." Turn left here for a side trip down to the "Well" and to Stakes 5 and 6. The trail is about 200 yards long and descends to a total of 100 steps. You must return over the same trail.

Note: *Those who do not wish to make the trip inside the "Well" may continue straight ahead to Stake 7.*

5. Inner outlet. Follow the short trail on the left and you will be able to see where the overflow from the "Well" leaves to begin its trip to the irrigation ditch near Beaver Creek. This ancient channel is the one Beaver Creek intersected, draining the water-filled cavern creating Montezuma Well.

Caution: *The bright green leaves on the far bank are poison-ivy — "three leaves green, don't touch me."*

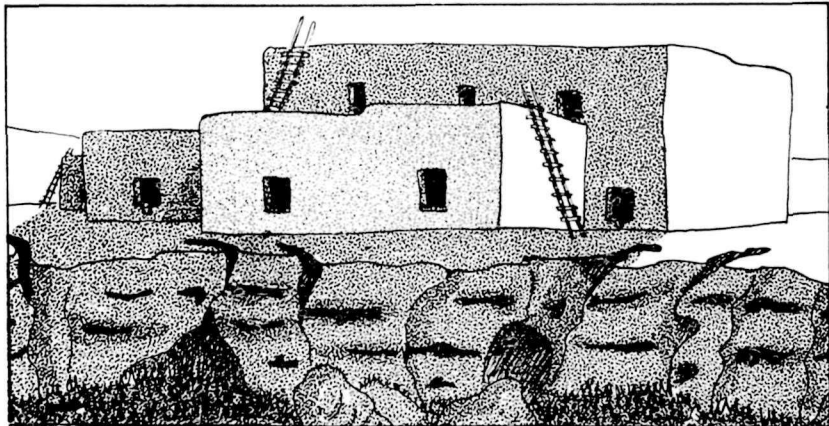
6. "Well" cave ruin. The cave on the right and the excavated ruin on the left at one time were part of a small village near the water level of the "Well."

If you peer into the cave itself you can see a small dwelling toward the rear; imagine what life here would have been like 800 or 900 years ago. *Do not enter the cave.* The danger of falling rocks, rattlesnakes and bats make entering

this cave dangerous and “out of bounds.”

The ruin on the left is the most recently excavated and stabilized within the Monument. Here you can clearly see the outlines and floor plan of this pueblo. Notice how the small doorways afforded protection from the elements and possible enemies.

Note: To return to the main trail you must retrace your steps to the top of the rim. At the top of the stairs turn left for Stake 7.



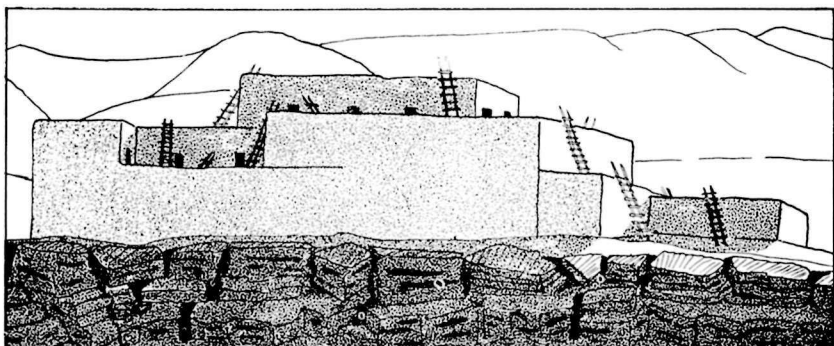
Smaller pueblo as it might have appeared in A. D. 1300

7. Small pueblo. This jumble of limestone slabs was once a 20-room apartment house, and is typical of the small villages which dotted the Verde Valley of 800 years ago. After its abandonment, the roofs decayed and the upper walls fell in, burying the foundations.

The Indians who lived here had many tasks to occupy them. They farmed, dug and repaired irrigation ditches, harvested their crops, gathered wild plants, hunted game, wove cotton and yucca fibers into cloth, and kept busy with many other jobs of a self-sustaining community. No doubt they also gave thanks to the Power they felt responsible for providing this water supply, and left prayer offerings at the “Well” cave.

8. Larger pueblo. Here is another abandoned village of the Sinagua Indians, the same group who built Montezuma Castle and the small pueblo you have just passed.

Originally, this pueblo was a two to three story structure of 55 rooms. Built in a good location for defense, it completely covered the narrowest part of the rim. It also guarded trails which went down into the "Well" and to the "Well" outlet farther down the hillside. It may be that the villagers gave added protection to their homes by building the lower stories without any wall openings. Entry would have been by ladder to hatchways in the roof, from which the ladders could be pulled out of reach in case of attack. The trail continues to your right.



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

9. Turn left here for a side trip down to the "Well" outlet and Beaver Creek, and stakes 10, 11, and 12. The trail is about a half block long and descends a total of 45 steps. You must return over the same trail.

Note: *Those not wishing to make the trip to the "Well" outlet may continue to the right to the parking area.*

10. Beaver Creek. Originating to the north and east in the Mogollon Rim country, spring-fed Beaver Creek is a tributary of the Verde River, joining the latter about 10 miles south of here.

The creek was named for the beavers that at one time were common here, although rarely seen today. Look across the creek and see if you can find evidence of beaver cuttings.

11. Irrigation ditch. If we had been here 800 to 900 years ago the ditch might have appeared just as it does today; the prehistoric ditch the Indians used would have been in approximately the same location.

The water from the "Well" contains a large amount of lime in solution. This very hard water caused the prehistoric ditch to become coated with limestone, preventing seepage and reducing evaporation. (See excavated ditch by Information Station). About 600 pounds of lime in solution flow through the ditch daily. Under proper conditions, the lime might form a deposit on the wall as thick as one-quarter inch per year.

The warm, 75 degree temperature of the water flowing from the "Well" permits the growth of many plants and small animals. Watercress, dock, whorled pennywort, and monkeyflowers are readily seen. Frogs and turtles are often seen sunning along the bank.

"Well" outlet



12. "Well" outlet. The overflow from the "Well" springs (see paragraph 5) has passed from the inside of the "Well" through approximately 50 yards of limestone to reach this point. Tests have shown that this 50-yard trip requires about 7 minutes. Over 1000 gallons of water a minute, or 1,500,000 gallons a day, leave the "Well" to play its role in bottomland irrigation along Beaver Creek.

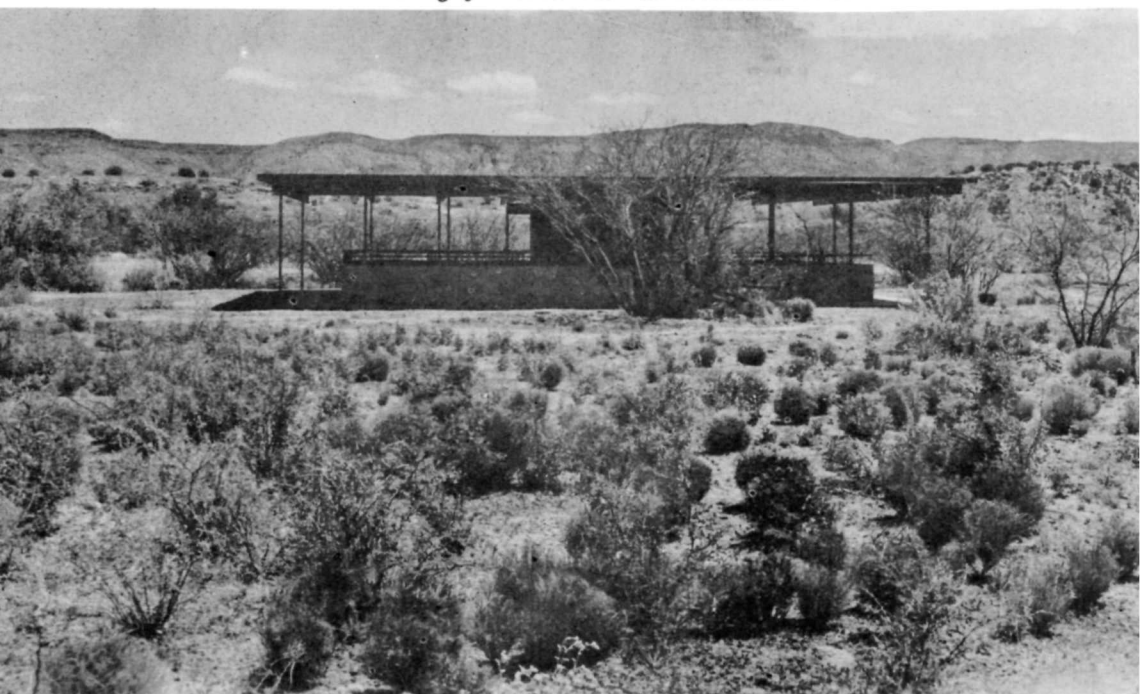
Note: To return to the parking area you must retrace your steps to the top of the cliff and then turn left for the short trip to the end of the trail.

We of the National Park Service hope that you have enjoyed your walk on the Montezuma Well trail. Please return this booklet before you leave, or you may purchase it by depositing 15 cents in the drop box.

OTHER THINGS TO SEE

Before you leave, stop and see the pithouse located near the road on the way back to the Information Station.

Shelter covering pithouse near Montezuma Well.



About A. D. 1100 the Hohokam Indians built a "community building" here. It was larger than a typical family dwelling and was probably used for religious and other meetings. The walls of poles, brush, and mud have long since disintegrated, but the hard-packed floor surface remains to tell how it was built.



Excavated portion of prehistoric irrigation ditch located near the Information Station at Montezuma Well.

Located next to the Information Station is an irrigation ditch. This is part of the original prehistoric ditch that carried water from the outlet of Montezuma Well to fields along Beaver Creek. This ancient waterway was dug with stone tools to an average depth of 3 feet, and a length of over a mile.

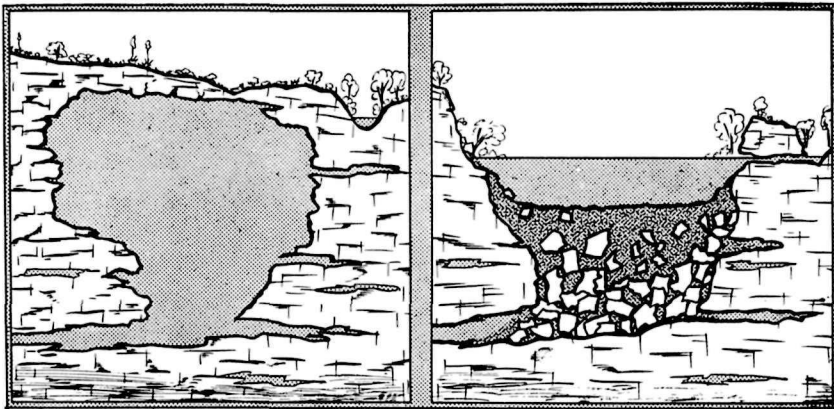
The water from the "Well" contains a great deal of dissolved lime which, deposited over the centuries, has given the ditch a natural "cement" lining. Since the lime deposit prevented water loss by seepage, the Indians left it undisturbed when the ditches were cleaned. In some places the lining built up to over a foot in thickness.

HOW THE "WELL" WAS FORMED

The Verde Valley has a violent history. About 3 million years ago a volcanic eruption from the flank of Squaw Peak, southwest of Camp Verde, poured lava down the mountain side and blocked the canyon through which the ancient Verde River flowed. A series of lakes were backed up behind the dam and covered most of the valley. Tributary streams brought lime, sand, and silt into lakes, and as the centuries passed, limestone formed.

Meanwhile, lake overflow patiently wore and deepened a permanent stream channel through the lava dam. Finally the lakes drained and the limy deposits were left high and dry. The resurrected river and its tributaries cut deeper and deeper into the lake bed formations, and after thousands of years carved the wide valleys and limestone cliffs we see today. Erosion's relentless tools — wind, water, and frost have shaped and molded the exposed limestone into its present form.

The stage was now set for the formation of Montezuma Well.



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

Through the long centuries after the draining of the lake, ground water slowly dissolved the limestone, forming an immense underground, water-filled cavern. Beaver Creek eventually intersected one of the side passages (see dia-

gram) and the water supporting the roof began to empty into the creek. With the support gone, the weakened limestone above the cave collapsed — and Montezuma Well came into being. Water continues to flow into the bottom of the "Well" and out through the side passage, keeping the water level of the miniature lake constant. At the outlet the Indians diverted the flow into an irrigation ditch centuries ago.

The "Well" is a natural wildlife refuge. In the blue-green waters live aquatic plants and insects, frogs, turtles, muskrats, and other dwellers of this strange, silent little world. The water entering the "Well" is highly charged with carbon dioxide, as are many subterranean waters. This explains the absence of fish, even though there is an adequate oxygen supply. The carbon dioxide level is such that it interferes with respiration and is, therefore, lethal to fish. During the winter ducks and coots skim the surface, harvesting the abundant food they find there. Land birds are numerous, over 100 species having been recorded. In summer, you might see lizards, ground squirrels, and maybe even a harmless snake. The only dangerous animal is the rattlesnake, easily avoided if you stay on the trails.

MAN IN THE VERDE VALLEY

The earliest Indians of the Verde Valley may have lived here as far back as 4,000 years ago. Their long-abandoned campsites tell us that they were nomadic hunters and gatherers, but most of their story is obscured by the long passage of time.

The first permanent settlers, called the Hohokam, moved into the valley from the south, about A. D. 600. These were the industrious farmers who constructed the irrigation canals at Montezuma Well. The Hohokam lived in small, scattered villages; their dwellings were made of poles, brush, and mud. These homes were built partly underground, and today are called *pithouses*. They made plain,

brown pottery vessels for storage and cooking, and buff-colored ware with red designs for more important occasions. About A. D. 1070 many of the Hohokam left the valley and, attracted by better farmland, moved north into the Flagstaff region.

Shortly afterward, another group of Indian farmers, called the Sinagua, entered the valley from the plateau to the north and east. The Sinaguans, while living on the plateau, practiced "dry farming" taking advantage of the natural moisture in the soil. Upon arriving in the Verde Valley they adopted the more efficient Hohokam method of irrigation. The Sinagua also lived in small villages, but their houses, though made of the same material as those of the Hohokam, were built on the surface.

A prolonged drought on the plateau to the north during A. D. 1276-99, caused a "land rush" into the valley where spring-fed streams continued to flow. As more and more refugees came into the valley competition for precious farmland doubtlessly caused considerable inter-village strife. The small villages were abandoned as the people moved together and built large pueblos. It was during this time that Montezuma Castle, the hilltop fortress of Tuzigoot, and the village at Montezuma Well were constructed. Between A. D. 1125 and A. D. 1400 a farming community of about 150 to 200 Indians lived in the vicinity of Montezuma Well.

By A. D. 1400 the pueblo dwellers abandoned the valley. Why? Nobody knows. Perhaps lack of farmland, disease, conflict, and other reasons were the cause. They scattered like the wind; many perhaps returning to the plateau to the north and merging with the ancestors of the present day Hopi. Behind them the great Verde Valley pueblos slowly crumbled into ruins.

Over 100 years after the Indians moved away, the "Well" was discovered by another group of people — the Spanish expedition of Antonio de Espejo, who stopped here in 1583. Almost 300 years later, the sinkhole was given its present name when a group of pioneers returning from a

scouting trip said, "That's quite a body of water for a dry country; must have been old Montezuma's well." Although the Aztec emperor and war lord, Montezuma II, who lived during the 1500's in the Valley of Mexico, 2000 miles to the south, never came this far north and certainly didn't include this in his water rights, the name has stuck.

It wasn't until 1854, when Arizona became a territory, that the first American settlers came to the valley. 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.

Montezuma Castle, in danger of being damaged by souvenir hunters, was made a National Monument under the newly established Antiquities Act, in 1906. In 1933-34 Tuzigoot Ruin, near Clarkdale, was scientifically excavated, and in 1939 was also made a National Monument. Eight years later, in the spring of 1947, Montezuma Well was

Montezuma Castle





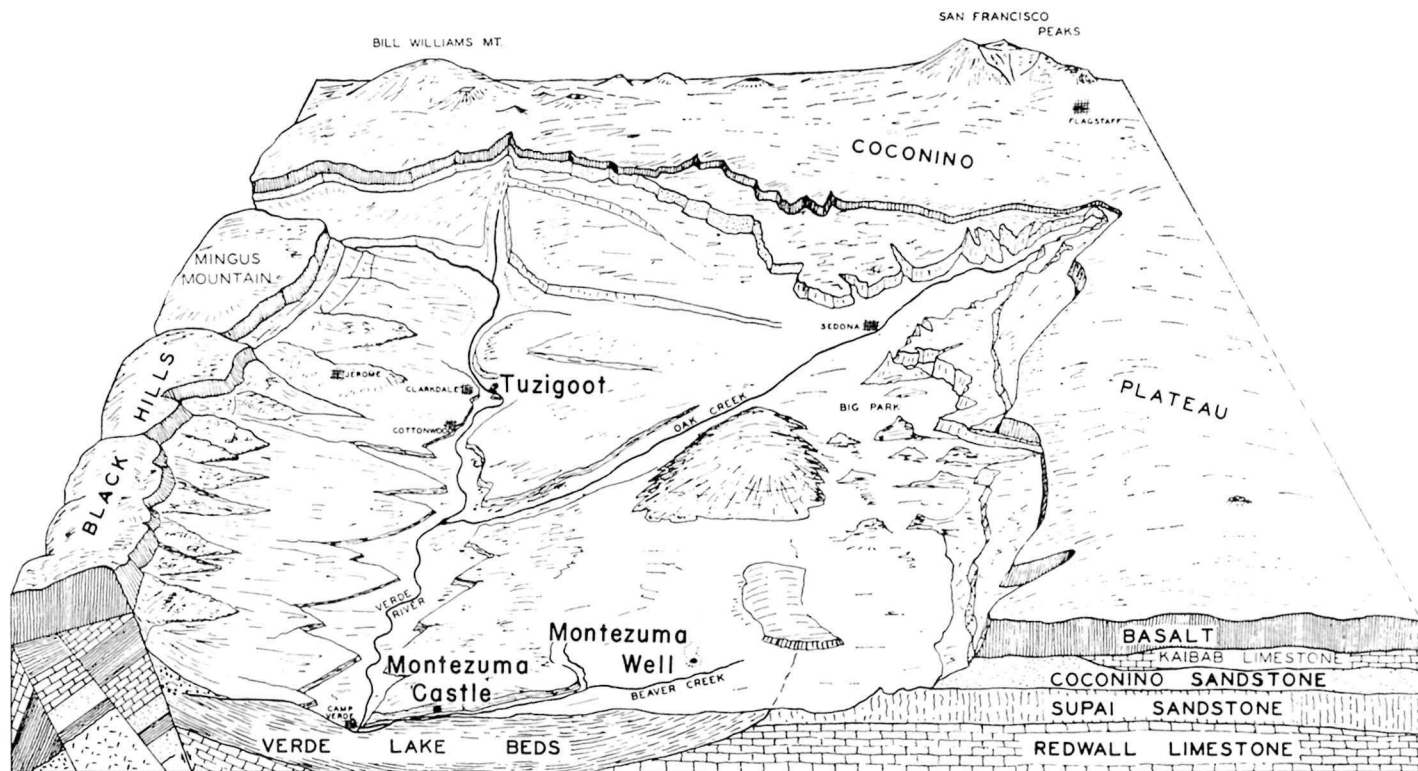
Aerial view of Montezuma Well and Beaver Creek

added as a detached section of Montezuma Castle National Monument.

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, tree cutting, pottery hunting and defacing natural or historic features is prohibited. National Park Rangers are on duty the year round to protect these areas for you. They consider it a privilege to explain outstanding features, answer questions, or direct you to other Indian ruins and scenic areas of the Southwest.

Montezuma Well and the 262 acres surrounding it is



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

part of Montezuma Castle National Monument and is administered for the American Public by the National Park Service, a part of the United States Department of the Interior.

MISSION 66

Mission 66 is a 10-year conservation program, now in progress, to insure the wisest use of the National Park System. Its aims are to enable you to enjoy and understand the Parks and Monuments to the greatest extent possible, and at the same time, to preserve their scenic and scientific values for future generations.

CONSERVATION — YOU CAN 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 alining 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.

OTHER NATIONAL MONUMENTS IN THE VICINITY

TUZIGOOT	Near Clarkdale
WALNUT CANYON	Near Flagstaff
WUPATKI	Near Flagstaff
SUNSET CRATER	Near Flagstaff
CASA GRANDE	Near Coolidge
TONTO	Near Globe & Miami

Pride in your government, love of the land, and faith in the American tradition, are things the National Parks and Monuments give to you. To assure these in fullest measure is our task, worthy of our highest measure of dedication.

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