

DISCOVERY AND HISTORY OF KARTCHNER CAVERNS, ARIZONA

RANDY TUFTS

951 W. Orange Grove, #87-202, Tucson, Arizona 85704 U.S.A

GARY TENEN

1790 Calle de la Culebra, Tucson, Arizona 85704 U.S.A

Efforts to give Kartchner Caverns protective park status required over 13 years to complete following the cave's discovery by Gary Tenen and Randy Tufts in 1974. These efforts involved the discoverers, selected cavers, the Kartchner family, the Nature Conservancy, and the Arizona State government—especially Arizona State Parks. Throughout that period, the cave and the efforts to conserve it were kept secret from the wider caving community and the public. Once in State Parks hands, extensive baseline testing was conducted before development began to help ensure that the cave environment is preserved. Cave environmental and show-cave experts have been involved in development planning and implementation. Surface facilities and a major part of the cave are set to open to the public in late 1999. The continuing support of cavers, the public, and Arizona government will be necessary to ensure that Kartchner Caverns is preserved in excellent condition.

As we first conceived it in 1977, the purpose of Kartchner Caverns State Park is to protect Kartchner Caverns for future generations. Park status allows the cave to be supervised, thus preventing the vandalism which has destroyed so many other caves. As a public park, the cave provides the visitor with a recreational and inspirational experience that creates an appreciation of caves and other natural environments. A big factor in our decision to pursue park status was the location of the cave close to a major Arizona state highway. This location made the cave accessible to vandals who would destroy it, but also made it accessible to supervised park visitors who could learn from it.

Since we discovered the cave in 1974, all our efforts have been for the purpose of protecting the cave for posterity. At first we simply explored the cave and kept it secret. But, by 1977, we realized that secrecy alone would not protect the cave for the long term and that park development afforded the best chance for protection. We were particularly inspired by the concept of "conservation through commercialization" described by Russell Gurnee (1971). So, in 1978 we approached the owner of the cave, James Kartchner, and proposed that his family protect the cave by developing it and that we be kept involved. However, by 1981, the Kartchners had decided that they could not develop the cave themselves, so we sat on the discovery, waiting for another opportunity to make the cave into a park. Then, in 1984, we and the Kartchners approached Arizona State Parks. With the help of former Governors Bruce Babbitt and Rose Mofford, State Parks officials, key legislators, the Nature Conservancy, selected cavers, and a few other helpful individuals, Kartchner Caverns was granted State Park status in 1988, thirteen and one-half years after we discovered it. During that time, those of us involved in the project kept the cave secret from the wider caving community and from the public.

In this paper we present key elements of the history of

Kartchner Caverns. We begin with a first-person account of the discovery of the cave, followed by a chronology of events leading to the achievement of State Parks status for the cave. Then we summarize the development process, which includes the environmental studies conducted before development of the cave interior began. We conclude by reiterating the goal of conserving Kartchner Caverns, and mentioning two strategies we believe are essential in achieving that aim.

The description of the discovery and the events chronology draw heavily on (Tufts 1989a) which was based on interviews with principals and on our personal recollections. The discussion of the development process comes from personal communications with Arizona State Parks officials as well as consultant reports. Locations in the cave, and the sequence of discovery are shown on the accompanying map (Fig. 1) which is based on one by Arizona Conservation Projects, Inc. (1992).

DISCOVERY OF THE CAVE

We discovered Kartchner Caverns through deliberate cave-hunting. Randy Tufts had begun searching for caves in southern Arizona in the mid-1960s and targeted the Whetstone Mountains because of the limestone exposures there. A tip from a miner that an entrance lay in the area led him to discover the cave sinkhole entrance in 1967 along with his uncle Harry M. Walker and a few friends. However, the only possible lead at the bottom of the sinkhole—a narrow crack—did not appear to "go," so the group left without entering the cave.

In 1974, Randy returned with caver and friend Gary Tenen to re-examine the sinkhole (Tufts 1989b; Negri 1998). Unlike the 1967 visit, this time a warm, moist breeze blew out of the crack Tufts had examined seven years before. With this unexpected evidence that a cave might lie beyond we squeezed through the crack into a small cave room now called the Crinoid Room (Fig. 1). The room was dry and dusty and there

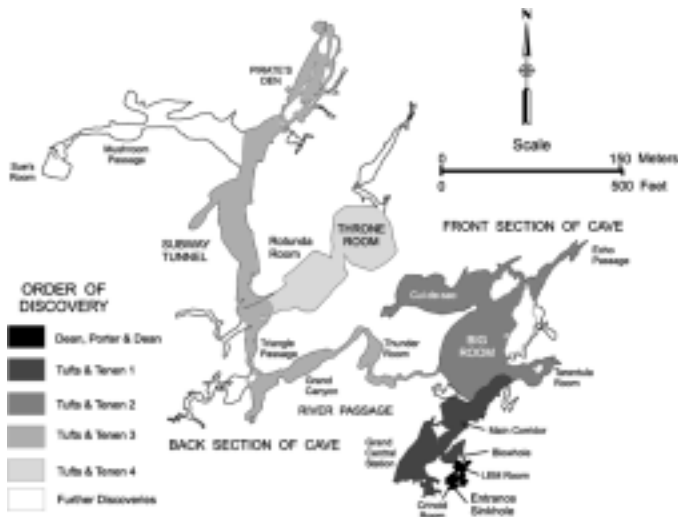


Figure 1. Generalized map of Kartchner Caverns showing locations mentioned in the text and indicating the order of early discoveries. Map layout by Bob Buecher.

were a few human footprints and broken formations. A similar room (LEM Room) connected to the first, but neither was large enough to account for the breeze.

After some searching we traced the breeze to a tight crawlway leading out of the LEM Room. Tufts crawled into the crawlway for about 8 m (25 ft) where the passage seemed to stop at a rock barrier that had a 8 cm (3 in) hole in it. The breeze flowed through that hole. We laid in the crawlway for two hours, widening the hole with an 3 pound (1.4 kg) sledgehammer and a chisel. Finally we were able to squeeze through the hole, Tenen first and then Tufts, but only by taking off our belts and exhaling.

Beyond the tight squeeze, which we named the Blowhole (Fig. 1, T&T1), the cave became very moist and there was no sign of any previous traffic. After about 30 m (100 ft) of crawling through low passages, we emerged into a corridor where we could stand up. The cave was quite humid, very well-decorated, and apparently pristine. Trying not to damage the formations, we slowly made our way along the corridor, which linked three small rooms. At a spot we named the Mud Flats, we stopped, realizing that no one knew where we were. If there had been an accident, no one would have known where to find us. So, we turned around and left.

We explored the cave, which we named Xanadu, for the next two years, eventually finding about 4 km (2.5 mi) of virgin passageways. The two rooms before the Blowhole, which had been visited by others before us, constituted only about 30 m (100 ft). We found large parts of the cave in single trips. For example, the next weekend we found the Big Room and Cul-de-sac (Fig. 1, T&T2). Two weeks later we found the Thunder Room, Grand Canyon, Subway, and Pirate's Den (Fig. 1, T&T3), and a few months later we found the Rotunda Room and Throne Room (Fig. 1, T&T4).

To ensure that the cave was not subjected to vandalism, we kept it secret, even from the local National Speleological Society Grotto. We told only a trusted, small group, so that someone could rescue us without alerting public authorities. To avoid attracting attention to the cave we did not gate it until after we had told the Kartchner family about it and after there had been an unauthorized entry by some local cavers who had heard about the cave via a "leak." We did not treat the cave we found as a recreational cave. Instead, we marked trails, flagged off passages that did not "go anywhere," and tried our best to minimize damage from our own visits.

CHRONOLOGY OF EVENTS THROUGH THE APPROVAL OF PARK STATUS

Below is a chronology of major events in the history of Kartchner Caverns, including the 13.5 years from the discovery of the cave until the cave was declared an Arizona State Park. The purpose of this chronology is to show how development of a cave can proceed along a circuitous and difficult route involving many players including cavers, landowners, and public officials. While specifics will vary from case to case, this timeline is intended to exemplify the attention required in such efforts.

5/19/42. The land overlying the cave is purchased by James and Lois Kartchner for cattle grazing purposes. The property is in the foothills of the Whetstone Mountains of southern Arizona.

ca. 1963. Arizona Hwy 90 is constructed, making the Kartchner land very accessible. The highway coincides with part of the Kartchner property's eastern boundary and passes



Figure 2. James Kartchner, 78, (right foreground) on his second trip to the cave, 21 April 1979. In the rear are cave co-discoverers Gary Tenen (beard) and Randy Tufts (moustache). In addition, from left to right are Milo Kartchner, Dwight Kartchner, Dean Kartchner, Kevin Kartchner, and Fred Kartchner. Photo by Max Kartchner.

0.8 km (0.5 mi) from the cave.

ca. 1964. Sierra Vista (Arizona) cavers John Porter, Charles Dean and his son, Tom, find the Sinkhole (entrance to the cave). Tom Dean enters the first two small rooms (Crinoid and LEM Rooms) through a tight crack in the bottom of the sink (Fig. 1).

ca. 1967. Randy Tufts finds the Sinkhole but does not enter the cave.

4/13/71. Porter and Tucson (Arizona) caver Lane Larson enter the Crinoid and LEM Rooms but go no further.

11/74-ca.1976. Gary Tenen and Randy Tufts enter the Crinoid and LEM Rooms. They push a crawlway at the edge of the LEM Room, widen a constriction in it (the Blowhole) and discover the main cave. Over the next two years, they continue to explore the cave (Fig.1, T&T1-4), with the assistance of a few others. In all, they find 4 km (2.5 mi) of virgin cave passage with beautiful formations. They perceive the cave's accessible location as creating the opportunity for rediscovery and vandalism, so they adopt a strict secrecy policy. They set out to find a long term means of protecting Xanadu.

2/20/78. Disillusioned with a secrecy-alone policy, Tenen and Tufts approach the owner of the property, St. David, Arizona, educator and rancher, James Kartchner, and tell him of the cave's existence. They invite Kartchner to see the cave and ask him to consider their idea of commercializing it as a means of protection.

5/6/78. James Kartchner and five of his sons visit the cave with Tenen and Tufts. Kartchner requests a written development proposal.

10/78. Tenen and Tufts propose that development as a show cave be acknowledged as the best means of long term protection and that background information on show cave development be gathered before making a final decision to proceed. In writing the proposal they begin to gather information from national cave experts while concealing their own identities and the cave's location. The Kartchners accept the recommendations and begin to work with Tenen and Tufts on the project.

Fall 1978. Tenen attends the first of two National Caves Association (the trade group for show cave operators) conventions. He uses an alias to keep word of his trip from spreading among cavers.

12/14-19/78. Texas cave mappers Orion and Jan Knox map the cave as far as the Throne Room. Roy Davis of Tennessee, a cave development expert, visits the cave and recommends that it receive "first class treatment."

Winter-Spring 1979. To observe environmentally sensitive methods of cave development, Tenen takes time off and works for four months at the Caverns of Sonora (Texas) building trails and Luray Caverns (Virginia) helping Roy Davis install new lights. While working on those projects, he continues to use his alias. A series of mapping trips begin to complete the map of the whole cave.

4/21/79. James Kartchner, 78, and sons makes their second trip to the cave, going all the way to the Throne Room (Fig. 2).

ca. 1981. After much consideration, James Kartchner decides his family will not develop the cave themselves. It appears to him to be too risky an investment. A gate is installed at the Blowhole after an unauthorized entry. The project pauses for the next three years.

12/84-2/85. Tenen, Tufts and the Kartchners approach Arizona State Parks. Tufts meets with parks official, Charles Eatherly, who visits the site in January 1985. They recruit Bob and Debbie Buecher to help with technical aspects of the project. Tufts begins frequent telephone contacts with national cave experts, especially Russell and Jeanne Gurnee, and Tom Aley, while using an alias.

3-4/85. Tenen and Tufts approach Governor Bruce Babbitt to seek his advice on project feasibility. Babbitt asks to see the cave. Tenen, Tufts, and Bob Buecher prepare a wider entry for the Governor near the Blowhole in case a rescue is required. (This new passage is called the Babbitt Hole, and is soon gated.) Babbitt visits the cave on 4 April 1985 and becomes enthusiastic about bringing it into the Arizona State Parks system.

ca. 5/85. Babbitt brings environmentalist William Roe and the Arizona Nature Conservancy into the project. Roe visits the cave and begins conversations with the Kartchners.

ca. 6/85. Discussions begin on how to arrange an appraisal, there being considerable uncertainty on how to determine the monetary value of a cave. A natural resources appraiser, H. C. Cannon, is obtained through the Arizona Nature Conservancy. The parties agree to fund and direct his work jointly.

ca. late 1985. Staff changes occur within Arizona State Parks and Governor Babbitt approaches the end of his term, which dilute efforts on the cave. Dan Campbell, Executive Director of the Arizona Nature Conservancy, begins to look for another suitable public land partner. He contacts the National Park Service but arouses no interest. Tenen, Tufts, and the Buechers add local cavers Steve Holland and Scott Gibson to their caver group. They and the Kartchners head off an excavation attempt by other Tucson cavers at a lead on the main cave hill. These cavers had heard a rumor about the cave's existence.

ca. 1986. Campbell and Tenen begin a series of trips to the cave with public officials to identify a protective agency. BLM officials see the cave but are not interested. However, State Senators John Hays and Greg Lunn plus State Land Commissioner Bob Lane show great interest. So, Campbell turns his attention back to Arizona State Parks and new Director Don Charpio. But, Charpio resigns in early 1987 and the Kartchners become very discouraged. In their eyes, the appraisal process has also halted. They are unaware that it is Campbell who is urging Cannon to slow down until the State can become committed again. The Buechers complete the first systematic assessment of the cave, including the quality of its features and its favorability for development.

6/12/86. James Kartchner dies at the age of 85.

4-8/87. Ken Travous, formerly Deputy Director of Arizona State Parks, is hired as Executive Director, replacing Charpio.

He begins a planning process to select priorities for new park development. The cave begins to emerge as a prime park candidate. Tufts, Tenen and Travous meet to plan for discussions between the State and the Kartchner family.

ca. Fall 1987. Travous, and new Arizona State Parks Deputy Director Courtland Nelson visit the cave on 7 September 1987. Nelson suggests that a video be prepared for the Arizona legislature. Campbell tells Travous that the Arizona Nature Conservancy could buy the cave if repaid by the State. Travous obtains approval from the Arizona State Parks Board to proceed. The appraisal process is revived including a separate appraisal for the land surrounding the cave. Travous makes initial contacts with *National Geographic Magazine* with help from Campbell. Its editor expresses an interest in including the cave in a planned article on the Nature Conservancy (Grove 1988). Travous secures agreement from KTVK television in Phoenix to produce a video to show to the Arizona legislature. Cavers hold frequent meetings to plan for the creation of a “cooperating association” to act as a “friend of the cave.”

ca. 11/87. Arizona State Parks sponsors a tour of southern Arizona for key legislators on 23 November 1987. Tenen, Tufts, the Buechers and Holland give a presentation to State Representatives Larry Hawke and Joe Lane, followed by a visit to the surface site. Hawke and Travous work out an initial legislative strategy. This strategy includes creating an “acquisition and development fund” to pay for purchase and development costs of new parks out of revenues from existing parks. The cave would be the first use of that fund. The fund would be created by a late amendment to another bill which would not refer initially to the cave or the park, thereby preserving secrecy in case the legislative plan collapsed.

ca. 12/87. Tenen and Tufts insist on controls over TV use of the planned video to ensure cave protection. KTVK agrees to withhold airing the video of the cave publicly until Travous approves it.

11/87–1/88. In view of the strong likelihood that the bill creating the Acquisition and Development Fund would be approved by the Legislature, Campbell obtains authorization from the Nature Conservancy executive staff and the board of its Arizona chapter to use Conservancy funds to buy the cave and hold it for the State of Arizona. The State of Arizona would then reimburse the Conservancy with interest.

1/20/88. Cavers incorporate Arizona Conservation Projects, Inc., (ACPI) as a non-profit organization to encourage the stewardship of the cave.

3/88. KTVK and *National Geographic Magazine* send crews to the cave within the same three-day period starting 1 March 1988 and both complete “shooting.” Later, Travous and Tufts help KTVK producer Steve Bodinet and videographer Bruce Haffner script and edit the final video. Appraisals of the land and the cave are now complete, for a total value of \$1.8 million. Campbell meets with the Kartchners who offer to sell the property to the Arizona Nature Conservancy for a limited time at \$250,000 less than the appraised price, as an incentive

to the State to buy the cave.

4/88. Travous meets with key legislative leaders to apprise them of the cave and of the legislation to be amended, Senate Bill 1188, introduced by State Senator John Hays. The bill makes progress through preliminary action in the Senate and goes over to the House of Representatives.

4/22/88. The *Phoenix Gazette* newspaper picks up the cave story and plans to run an article on 23 April. Travous persuades them to delay for one week. He arranges with legislative leaders for the bill to be voted on within that week. With approval of Governor Mofford’s office, Dick Ferdon, Manager of Picacho Peak State Park, is put on the cave property to guard it.

4/26/88. Travous meets with the Senate caucuses and shows the cave video. KTVK, with Travous’ approval, runs a brief story about the cave and the impending legislative vote on the 10:00 p.m. news.

4/27/88. The *Phoenix Gazette* runs its story about the cave on the front page of its morning edition (Kossan 1988). Travous meets with the House of Representatives caucus and shows the KTVK video of the cave. The House and Senate begin a pre-planned sequence of actions designed to approve the legislation that day. First, the House makes a technical amendment to Senate Bill 1188, which is rejected by the Senate, triggering a conference committee. Then the conference committee amends the bill to include the cave, listed as the JAK Property, as the first use of the new Acquisition and Development Fund. Next, the Senate approves the conference report and the bill by a vote of 27-0. Then, the House takes the same action by a vote of 52-4. Last, Senate Bill 1188 is sent over to Governor Mofford who signs it into law. The park is named the “James and Lois Kartchner Caverns State Park.” Over 13 years of protective secrecy ends.

THE DEVELOPMENT PROCESS

Once the State of Arizona purchased the cave from the Kartchners in September 1988, the development process began. Arizona State Parks immediately initiated a multi-year program of environmental baseline studies (Arizona Conservation Projects, Inc. 1992). These studies were conducted by Arizona Conservation Projects, Inc., the non-profit organization that cavers Bob and Debbie Buecher, Steve Holland, Scott Gibson, and the authors formed to advocate the welfare of the cave. The study project was managed by Bob Buecher. Researchers included Tom Aley, Cathy Aley, Bob Buecher, Debbie Buecher, Larry Coats, Owen Davis, Derek Ford, Chuck Graf, Carol Hill, Dave Jagnow, Art Lange, Jim Mead, Blaine Schubert, Ronnie Sidner, Ken Thomson, and Cal Welbourn. Assisting with the ACPI organization after the legislation passed were cavers Ron Bridgemon, Anita Pape, Tom Strong, and Dave Thayer.

By the mid-1990s, Arizona State Parks began to solicit direct consultation from the national caving and cave environmental community. Show cave experts such as Russell Gurnee

and Jeanne Gurnee, Tom Aley, Orion Knox, and Jack Burch were recruited to assist with the actual planning and development of the cave. At their suggestion, Bruce Herschend from Missouri was hired to plan the trail layout and Bob Burnett from Texas was employed to supervise the underground construction. During this time, plans were made and construction begun on surface park facilities, including a 2100 m² (23000 ft²) visitor center (Vernon Swaback Associates 1992; Travous 1995). Plans for the surface park development were made taking cave environmental considerations into account (McGann & Associates 1992).

Underground development by Arizona State Parks has been painstaking, with considerable efforts being made to minimize changes in the cave and to create a safe and educational tour. Two parts of the cave are being developed—the Rotunda/Throne Room complex and the Big Room/Cul-de-sac area. The Rotunda/Throne Room is set to open to the public in November 1999, which is the twenty-fifth anniversary of the discovery of the cave. The Big Room/Cul-de-sac is set to open about two years later. Total project costs will exceed \$25 million. Arizona State Parks estimates that ~150,000 people will visit the park and 100,000 people will visit the cave each year (McGann and Associates 1992). A Friends of Kartchner Caverns organization has been created. Composed of local community leaders, the Friends will help raise funds for the park's grand opening and for educational programs.

CONCLUSIONS

While the discovery of Kartchner Caverns was personally exciting, the real story is the conservation of the cave. The vast majority of the effort involved in this project has been directed at creating long term protection. In this regard, the pre-development environmental studies are invaluable. It is important that we support Arizona State Parks in its efforts to manage the cave using these studies in concert with ongoing environmental monitoring. It is also important to tell the public, on a continuing basis, that: (1) caves are unique and non-renewable resources; (2) it is our responsibility to protect caves for future generations; and (3) this protection can be achieved with proper care and attention. We hope that the conservation of Kartchner Caverns as detailed in this paper sets a good example.

ACKNOWLEDGMENTS

Tremendous effort has been expended by many people and groups throughout this project. Thanks go to cavers Bob and Debbie Buecher among many others, the cave researchers who participated in the pre-development environmental studies, and the consultants who helped plan the park. We owe our deep gratitude to the Kartchner family, the Nature Conservancy, and the Arizona State Legislature. Particular thanks go to Arizona State Parks, its Board, friends, and staff and especially its Executive Director, Ken Travous.

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