



# SPAN

## The Natural Bridge and Arch Newsletter

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**Volume 1, Number 1**

**August 1988**

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### **!! FIRST ISSUE !!**

by Jay Wilbur

You hold in your hands a labor of love. It is the first issue of what will hopefully become a bi-annual newsletter that will document and disseminate information about the activities of our new arching club and its members.

Many of us have contributed a good deal of free time to make the club and this newsletter a reality. I am personally very pleased and excited that there is such a high level of commitment to, and a broad base of support for, the hobby of natural arch and bridge hunting (which I term arching).

A look at the membership list at the back of this issue shows that we are spread throughout the US. Your letters reflect a wide range of vocations and talents, as well as a broad spectrum of experience in arching. We are a diverse group who can all benefit from the exchange of that experience. **As a coordinated group we have the potential to accomplish much more than any of us working alone could do.** The prerequisite for that synergism is good channels of communication. The purpose of this newsletter is to provide one of those channels.

You'll find some pretty interesting articles in this first issue. Danny Horowitz talks about our club and its functions. Ed McCarrick and Dale Stevens discuss their new book on Arches NP. Robert Moore describes the pleasure of discovering a new arch. Nicholas Terzakis provides information which augments some of Bob Vreeland's books. Finally, I'm pleased to share with you the location and first measurements of Snake Bridge, the ninth longest natural span in the world. I want to thank these authors for submitting high quality articles and challenge all of you to continue to do so.

In addition to articles, each issue of SPAN will include three regular departments: a member's exchange, arch hunting plans, and a list of all members who have given me permission to release

their names. If you are not on this list and wish to be, or if you need to change what's there now (eg. add phone #), please send me a note.

I am planning the next issue of SPAN for early April 1989. If you wish to submit material for that issue, please mail it to me by March 1, 1989. My address is in the list of members.

This issue of SPAN is being distributed to many who will hear of our club for the first time by having received it. If you want to become a member and continue receiving the newsletter, please let me know. The only price of membership is a letter requesting it.

Finally, the publication of this newsletter will require help from all of us. Hopefully, most of you will contribute articles. But the first thing I need from everyone is some feedback. Please write me and let me know what you think of this issue. Do you like the name? The articles? What other things should be in it? I want to hear your criticisms and suggestions. The newsletter will provide a good channel of communication only if you tell me what to do and how best to do it. Thanks.

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### **AN ARCH ASSOCIATION - WHAT NOW?**

by Danny Horowitz

Apparently we have succeeded in our effort to form a loose association of arch and natural bridge enthusiasts. Congratulations, and thanks to all who supported this effort and shared their ideas with Jay Wilbur and me.

That accomplished, where do we go from here, and what should be the goals of the society? Allow me to chart a course for your consideration. I shall propose some specific goals for the next two years, then paint a vision of what the association might do in the future. Your letters and answers to the questionnaires Jay and I sent out were influential in formulating these proposals.

A primary goal of the association should be to update and disseminate information on the location of rock spans in the US, with an emphasis on how to find these marvelous features. This was the overwhelming desire of those responding to the questionnaires. Apparently we are an active bunch who thirst to visit still more arches. It is clear that Bob Vreeland was right on target for our group by publishing his guidebooks, but it is also clear that new discoveries keep popping up so frequently that it is hard for one person to keep current and share the new information.

To address this problem I propose the following: **FIRST**, send Vreeland all the information we can about new finds. He is still willing and able to catalogue these features, so let's be an extension of his eyes. However, do be specific in your information by recording exact mileage, sending pictures, making measurements, and plotting locations on a map (preferably a topographic map.) **SECOND**, if the new find is significant, or if the directions to a documented feature have changed, submit a short report for publication in the newsletter. **THIRD**, volunteer to help set up a computer file with information on all known arches. This could be a lengthy project, with the potential benefits not realizable for a couple of years. **FOURTH**, let us prepare a list of members who are knowledgeable about arches in certain areas and who volunteer to supply information on request. Write to me if you wish your name to be included in such a list for the next newsletter. I hope everyone volunteers to steward at least one area, but I also advise that we limit our requests so as not to overburden our volunteers. **FIFTH**, send me references on useful publications for arch hunters (include information on how to order), and I will compile the list for inclusion in the next newsletter.

I propose that we convene some time in 1990 to set up a charter to become a non-profit society, assuming we are still a viable association. A convention would not only provide us the opportunity to become personally acquainted, we might also attempt to organize a field trip to some nearby arches. Moab seems a logical choice, unless you prefer another location. Perhaps we could issue a publication with member profiles during or prior to this meeting.

Looking farther into the future, I see our society becoming a major source of information on natural rock openings, and a champion for the protection of neglected or vulnerable structures. Hopefully we can establish a society library for the benefit of members as well as students, researchers, and public officials. Preparing a comprehensive publication of US arches by incorporating and expanding on the Vreeland volumes would be a worthy long-term goal.

I assume all will agree that anyone with an enthusiastic desire to visit, study, photograph, and write about natural spans, and who supports their

preservation, qualifies to be a member. Based on these criteria, there are many we have not reached, but I do urge some selectivity in trying to locate others because we are not yet prepared to deal with a large membership. At least initially, I would hope we can function without dues or administrative problems, and that is the basis for my suggestion.

One last comment. It is obvious that the newsletter will be the mortar that binds the association together. I know you join me in thanking Jay Wilbur for volunteering to publish the newsletter. *[It is my very great pleasure! - jhw]*

### Proposed Names for the Society

In response to my request to propose a catchy name for the society, I received a number of very good suggestions. These are listed below with the initials of the author. Please select your three favorites, ranked from first to third, and send them to me along with any other suggestions about the society. I will publish the winning selection (and our new name) in the next newsletter.

NATURAL ARCH AND BRIDGE SOCIETY -jk  
SOCIETY FOR THE PROMOTION OF ARCHES  
AND NATURAL BRIDGES (SPAN) -rm  
SOCIETY FOR THE PROTECTION OF ARCHES  
AND NATURAL BRIDGES (SPAN) -rm  
SOCIETY TO PROMOTE THE APPRECIATION  
OF NATURAL SPANS (SPANS) -rm/dhh  
INTERARCHES -nt  
THE ROYAL ARCH SOCIETY -ry  
COVENANT OF THE ARCH -jhw  
US ARCHING ASSOCIATION -jhw  
ROYAL ARCHERS -tc  
FRIENDS OF NATURAL ROCK OPENINGS -gn  
FRIENDS OF NATURE'S BRIDGES AND  
ARCHES -gn  
ARCHFIENDS -jww  
SOCIETY OF NATURAL BRIDGES AND  
ARCHES (SONA) -js  
UNDER ARCHES AND OVER BRIDGES -mt  
ARCH 'R' US -lb  
ARCH ANGELS -lb

\* And now for a bunch by lg \*

ARCH SUPPORTERS  
SPANS 'R' US  
WE DO WINDOWS ASSOCIATION  
ARCH BAGGERS ASSOCIATION  
ARCHES UNLIMITED  
ETERNAL SPAN ASSOCIATION  
THE ARCHERS  
ARCH HUNTERS  
SPAN SEEKERS  
SPAN SCOUTS  
ARCH QUEST  
ARCH PRESERVATION SOCIETY  
FRIENDS OF SPAN

(How many could have guessed that lg is a writer?)

## Challenge to Arch Hunters and Sleuths

Here is a list of reported arches and bridges that need to be rediscovered. Bob Vreeland supplied the list, which he titled "Hard-to-find Natural Rock Openings." If you find (or have seen) any of these features, please inform Bob. Provide as much specific information as you can on how to locate (map would help), dimensions, rock type, etc.

Many of you indicated a desire to help Bob in his efforts. Well, this is where he would like your assistance. Let's get behind this challenge! If you are successful, send a report to the newsletter as well.

1. Two natural arches (Window Rocks) on Huerfano Mesa, San Juan County, NMX.
2. Two unnamed arches at the entrance to Devil's Sinkhole in Texas, illustrated in *National Geographic Magazine*, June 1964, p.803.
3. Reported natural arches around edge of Acoma Pueblo, Cibola County, NMX.
4. Triple Arch, Lower Sheep Corral Canyon, Gila National Forest, Grant County, NMX (Sec. 4, T15S, R14W).
5. Gunsight Arch, head of main branch of Davis Canyon, Canyonlands NP, UT (38°01'51"N, 109°43'21"W is approximate location.)
6. Natural bridge near Pool, Alabama. Turn west from I65 at Hartselle on SH36. Turn south at Jesseton on county road and drive 6 miles. Turn west on county road and drive 2 miles to Pool.
7. Needle's Eye, Needle's Eye Wilderness Study Area of Coronado or Tonto National Forest, Graham or Gila County, AZ.
8. Needle's Eye, near SH78 in Greenlee County, AZ. Identified on Big Lue Mtn, AZ 1962, 15' quadrangle.
9. Natural Bridge recorded by Joseph C. Ives in US Govt. report dated 1861 and titled *Colorado River of the West*. Specific location was camp 100 at White Rock Spring.
10. Arches and natural bridges in Shoshone Ice Caves, Lincoln County, ID. Noted in Idaho, A Guide in Word and Picture, WPA book, pp.196-197.
11. Three small bridges in Weston and Converse Counties, WY: a. Loglike concretion in Lance Formation about 8 miles south of Moorcroft. b. Head of gulch on divide between Cow and Lightning Creeks in Lance Formation. c. In Fort Union Formation about 30 miles NE of Douglas. These brief descriptions appeared in *Journal of Geology*, Vol. 20, 1912, pp.438-441.
12. Double arch and small bridge in the San Rafael Reef between Spotted Wolf and Black Dragon Canyons, Emery County, UT.
13. Needle Eye off Last Chance Canyon, Near Needle Eye Point, Needle Eye Canyon, or Needle Eye Water, Kane County, UT.
14. Natural Arch in Hammond Canyon, San Juan County, UT. See Bryan Cummings' *Trodden Trails*, a manuscript by Arizona Historical Society.
15. Bright Angel Arch, southern foothills of Black Mountain, off loop road going north from Cottonwood, Apache County, AZ.
16. Natural bridge spanning tributary of Surprise Canyon, probably several miles upstream from mouth of canyon at mile 248.5 on the Colorado River (Lake Meade).
17. Natural bridge across Moenkopi Wash in Blue Canyon, Coconino County, AZ. See *Arizona Highways*, Vol. 35, No. 8, August 1959, p.35.
18. Arrowhead Arch, Hemlock Cliffs Area of Hoosier National Forest, Union Township, Crawford County, IND. In article titled *Hemlock Cliffs* in book Natural Areas in Indiana and Their Preservation by Lindsey, Schmelz, and Nichols, pp.183-189.
19. Mansfield Natural Bridge, 2 miles NE of Mansfield on a small tributary of Raccoon Creek, Parke County, IND. Discussed in paper by Michigan Academy of Science, *Arts and Letters*, Vol. 24, Part 4, pp.51-57.
20. Sea arch at Sand Point near Bar Harbor, Maine. Mentioned in The Geologic Story of the National Parks and Monuments by D.V. Harris, p.225.
21. Natural bridge across Lanville River, Vermont, just downstream from a deep pothole named The Death Pot. Rock is mica schist.
22. Arches in Guilliard Lake Scenic Area, Berkeley County, South Carolina. ("Perforated Limestone Outcroppings on Dutart Creek are among the unique features of this area.")

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## A COMPREHENSIVE STUDY OF ARCHES NATIONAL PARK

by Ed McCarrick and Dale Stevens

We have completed the first phase of a very comprehensive study of all arches and bridges known in Arches National Park. The first 527 arches that were located and visited have been documented in our newly published book, The Arches of Arches National Park. The documentation is complete with photographs, measurements, type, location, and other pertinent data for each arch. The photographs are

arranged into twelve sections of the Park. There is an alphabetical listing of all the arches and a separate listing by size ranking. The two listings plus the photographic portrayals will contain all of the documentation.

The book also includes a detailed discussion of the criteria used for determining an arch, classifying arches into types, and the measuring techniques we used. There is a chapter on the history of reporting and recording arches. Included in other chapters are discussions on geology, naming of arches, and the origin and development of arches.

This is the first comprehensive study of these landforms within a specific, delineated area. Since Arches National Park has such a great concentration of arches, the information gathered in this work can be applied to other locations as well, and should be valuable to future endeavors in this and related areas of research. The book should be most interesting to anyone interested in arches and bridges, and should be a welcome addition to the field of earth science, particularly geography and geology.

It is available from Mainstay Publishers for \$9.95 plus \$2.00 postage and handling for the first copy, \$1.00 for each additional copy on the same order. Since we have agreed to handle distribution of the book, orders may be mailed to either of us:

Ed McCarrick  
1170 West Kayenta Drive  
Moab, Utah 84532

or

Dale Stevens  
471 West 650 South  
Orem, Utah 84057

Since the completion of this first volume, we have documented several other arches in the Park, bringing the total to well over 700. We are currently working on a supplement to our first volume to include these latest finds.

As part of our project to map and measure all of the arches in Arches National Park, we have also produced a four color map of the original 527 arches. This map is at a scale of 1:50,000, the same scale as the 1974 map produced by the USGS titled Arches National Park, Utah. The map includes contour lines with an interval of 80 feet and some areas at 40 feet, many more place names than the USGS map, the proper placement of all arches with an identification number for each, and the road system of the Park. Foot trails are not included.

In addition to the map itself, this publication contains a list of all the arches and some of their dimensions, a general discussion on some aspects of natural arches and bridges, and some color photographs of a few arches that do not normally

occur in other publications. The map is scheduled to be printed later on this year, probably in October.

We welcome further inquiries about our new book and soon to be printed map.

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## ARCH 12-119

by Robert Moore

In Vreeland's Volume 12, in the list of others on pages 84-85, is this reference: "119. An odd shaped natural arch was discovered by Robert Moore of Phoenix on the eastern face of Sugarloaf Mountain in March 1982." This is my story of that exciting day.

I am an avid hiker and backpacker, and my location in central Arizona is ideal for pursuing this hobby. During the warmer months, it is only a couple of hours to the high, cooler mountains and plateaus. In the winter, while the rest of the country is shoveling snow, thousands of open square miles of rugged desert await the eager explorer.

It was on one such day that I headed out west of Phoenix to do some hiking. It was already spring in the desert so the brittlebush, prickly pear, and globe mallow were alive with showy blossoms. My destination was Sugarloaf Mountain, a prominent peak about fifty miles west of the city. Sugarloaf is the centerpiece of the 67,680 acre Hummingbird Springs Wilderness Study Area, a region of rolling desert hills, small peaks, and dry washes. Sugarloaf is the most prominent peak in the vicinity, rising steeply to 3,418 feet. It consists of colorful masses of volcanic tuff, andesite, and basalt, broken into rugged cliffs and ridges.

I had planned to drive to Hummingbird Springs, site of an old windmill and corral, then to hike about two miles cross-country to the base of Sugarloaf and climb it - an easy day's outing. I was using old 15' topo maps of the area, which I assumed would be good enough. However, several significant changes had occurred in that part of the state since the maps were published in 1961.

First of all, a new freeway had been built across the desert, but I was able to compensate for that without much trouble. Not so easy was the Central Arizona Project Canal, which cut a deep trench entirely across my route and took me by surprise when I came upon it. Fortunately, there was no locked gate. I was able to drive along the edge of the canal until I came to a bridge over it. But by the time I was once again aiming for Sugarloaf, I had no clear idea of which road I was on.

It turned out to be a wrong road that ended at the abandoned Moon Anchor Mine. This was a mile further from the mountain than Hummingbird Springs, but still not too far, so I decided to go on with my hike.

I soon started climbing and found the peak surprisingly rough. Everywhere I looked were steep walls, jagged rocks, and cactus covered loose slopes. The east face I had tackled proved to be too difficult for a solo hike. The cliffs near the summit were too risky to climb without a companion. I was very disappointed. Since there was no longer enough time to circle around to the west and go up the easy way, I decided to head back.

Then, at my final turnaround spot ready to go back, I looked around one last time and nearly choked in amazement. Less than a hundred yards up the slope stood a huge arch! I forgot my disappointment with the hike and scrambled up the hill. What a sight!

The arch spanned a minor ravine on the slopes of the mountain. It appeared to be a cave type arch formed in a wall of igneous rock halfway below the summit. Subsequent erosion formed an alcove behind. A large rock in the middle projected back and down like a uvula in a gaping mouth.

As volcanic rock cools, it forms numerous cracks and joints that are conducive to arch making. Many arches, mostly small, are common in the volcanic areas of Arizona. But this large arch is not shown on the quadrangle and was previously unknown to the BLM. It may have been seen by others before me, but, if so, they failed to report it.

When I returned home, I told my friends of my find. Several people expressed a desire to see it, so the next winter I led a hike back out there. I still haven't made it to the top of Sugarloaf, but I suspect that I'll be returning to the mountain again one of these days!

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## VREELAND UPDATE

by Nicholas Terzakis

Here is an update on some openings that I have visited. I've listed each piece of information by Vreeland's volume.

**Volume 2.** The park service has named some of Vreeland's unnamed arches:

- 2-32 Beanpot Arch
- 2-33 Baby Arch
- 2-34 Christmas Tree Arch
- 2-35 Serpent Arch
- 2-38 Pothole Arch
- 2-39 Parallel Arch
- 2-40 Diamond Arch
- 2-41 Box Arch
- 2-43 Bigeye Arch
- 2-44 Debris Arch
- 2-45 Parade of Elephants
- 2-47 Herdina Arch

- 2-48 Tea Time Arch
- 2-49 White Fin Arch
- 2-50 Far Out Arch
- 2-52 Hard To See Arch
- 2-53 Frame Arch
- 2-54 Little Duck Window

**Volume 8.** The park service has named 8-45 Elephant Arch.

**Volume 9.** For 9-4, Little Jumbo Arch, I've drawn a map on how to get there (Figure T1 on page 6). The best way to see 9-15, Covered Wagon NB, is to drive east on Main St in Escalante and make a right at the general store. Follow this road and park by the earthen dam. The bridge is not too far from the road up a drainage on the south side. For 9-31, Spear NB, I've drawn another map on how to get there (Figure T2 on page 6).

**Volume 21.** Arch Rock XII, 21-12, has a second opening to the right. The road to 21-14, Arch Rock VII, is paved and there is a sign which says 'Natural Arch'.

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## SNAKE BRIDGE

by Jay Wilbur

The great age of geographical exploration may be over, but there are still a few surprises left. Until this year, only eight natural arches or bridges longer than 200 feet had been documented. Six of these were discovered and measured during the first wave of scientific expeditions into the Colorado Plateau. The other two escaped public attention until the early 1950's. Last March, a ninth span was added to this list of giants. The first rigorous measurements made of Snake Bridge near Sanostee, New Mexico, show it to be a whopping 204 feet across, the ninth longest span of unsupported rock in the world. For the list see 'World-class Natural Spans' below.

Snake Bridge is an example of what some geologists call a meander natural bridge. How it formed can be inferred from its appearance and surroundings (see Figures 51 and S2 on page 7). Prior to the formation of the bridge, both the Sanostee and one of its tributaries were undercutting opposite sides of a narrow ridge of Wingate sandstone that delayed their junction (see Figure S3 on page 9). The tributary carved an especially deep rock alcove several feet above the alcove cut by the Sanostee. Eventually the tributary broke through, creating the natural bridge. At a later time, the tributary found a shorter route to the Sanostee which avoided the bridge altogether. Its junction with the Sanostee is now well downstream from the bridge. Since a streambed is no longer in evidence under the span, other geologists would label Snake Bridge as a rock shelter type of natural arch.

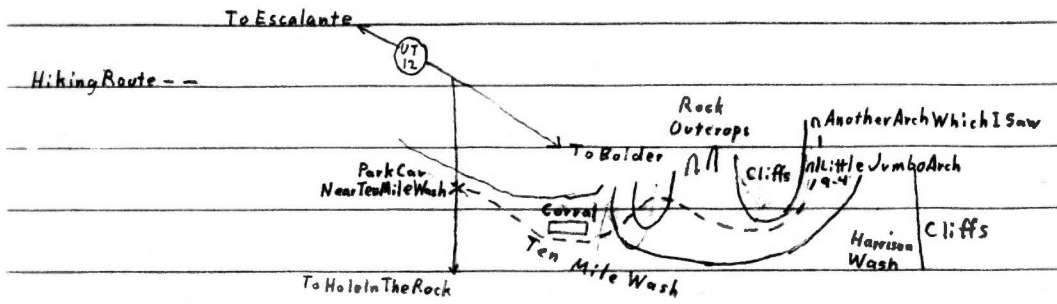


Figure T1. Map for 9-4, Little Jumbo Arch.

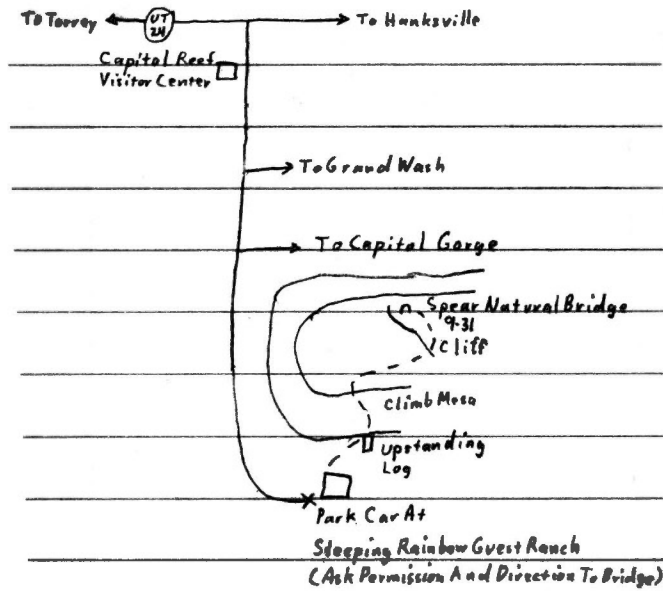


Figure T2. Map for 9-31, Spear Natural Bridge.



**Figure S1. The west face of Snake Bridge.**



**Figure S2. Underneath the ninth longest span.**

After Snake Bridge formed, rock continued to exfoliate from the bottom of the stone arc, enlarging the opening beneath. This process is still going on. Indeed, the pattern of patina on the bridge and the boulders under it indicate that exfoliation has increased the bridge's span by several feet within the last 100 years or so. The sandstone ridge in which the opening formed appears able to support an opening about 300 feet across. It is possible that Snake Bridge will eventually become the longest natural span in the world.

But Snake Bridge is already one of the longest. Using two independent methods, I determined its span, the horizontal length of the opening below its arc of rock, to be 204 feet. Three other important dimensions of Snake Bridge were also measured. The maximum vertical height of the opening is 61 feet. The vertical thickness of the arc of rock is 64 feet at its narrowest. And, the minimum horizontal width of the arc of rock is 20 feet. An expected error of +/- 3 feet should be assigned to these results.

Snake Bridge is located in the upper Sanostee Wash canyon system, on the Navajo Indian Reservation, in San Juan County, New Mexico. It is about 1.5 miles east of the Arizona border. The geographic coordinates of the bridge are 36°25'07"N latitude and 109°01'01"W longitude. It is not shown on the USGS Provisional Edition 7.5 minute topographic map, Roof Butte AZ-NM 1985, but the sandstone ridge that the bridge is in is fairly obvious.

The Sanostee canyon system is an incredibly beautiful and unspoiled area. It is a hiker's paradise. In my experience, only the Escalante River and some of its tributaries can compare with the Sanostee system for scenic attraction. The sandstone cliffs are beautifully sculpted, colored, and stained with patina. The area abounds with very old and tall Douglas Fir and Ponderosa Pine. Tributary streams bubble crystal clear over a seemingly endless series of small waterfalls and pools. In the Spring, wildflowers and an occasional cactus bloom accent the canyon's already multi-hued palette. And, of course, finding a spectacular natural bridge in such a setting makes visiting the area an especially rewarding experience.

Since Sanostee canyon is part of the Navajo Reservation, visitors should obtain permission at the Sanostee Trading Post before entering the area.

While the discovery of Snake Bridge must be considered a recent event, it is impossible to give an exact date or to say who the discover was. The bridge was unknown to the general public in February 1979. That month's issue of New Mexico Magazine included an article titled 'Natural Arches of New Mexico'. It listed 165 ft long La Ventana Arch as the longest span in New Mexico and made no reference to a Snake Bridge or any large bridge

near Sanostee. On the other hand, the residents of the Navajo community of Sanostee have certainly known about the bridge for some time, perhaps for 50 years or more.

Natural bridge and arch authority Robert Vreeland was one of the first whites to hear of the feature the Navajo called 'The Snake' during a trip he made to the area in the early 1970's. Bob was unable to search for 'The Snake' at that time and never went back. In a 1987 letter to me, Bob summarized what he had been told by the Sanostee Navajo some 15 years earlier. One intriguing claim stood out. "It is said to have a span of 200 feet. That's probably an exaggeration, but it must be large."

Enlisting the help of three Sanostee residents as guides, I tried to find the bridge in October 1987, but failed. Two other unsuccessful attempts to find the bridge were made by others shortly afterwards. Then finally, on my second try, I found the bridge on March 25, 1988. On May 21, 1988, I returned to the bridge with Bob Vreeland, who measured the span at about 205 feet using a tape measure.

### World-class Natural Spans

Stone spans longer than 200 feet form a special class. While natural arches and bridges are a fairly common phenomenon the world over, only in the Colorado Plateau Province of the western United States have a rare few grown to such incredible size. Except for the Snake Bridge entry, the following table was compiled from Robert Vreeland's Nature's Bridges and Arches, 1976:

Name	Span(ft)
Kolob Arch	310
Landscape Arch	291
Rainbow Bridge	278
Sipapu Bridge	268
Wrather Arch	246
Morning Glory Arch	243
Stevens Arch	225
Kachina Bridge	210
Snake Bridge	204



## MEMBER'S EXCHANGE

(Please submit arching related questions, requests for information, comments on material published here or elsewhere, announcements, and short items of interest for publication in this column. Hopefully, someone will respond to your question or request. An example follows.)

Message to Joe Rockey: The arch labeled Castle Rock in Marvels of the New West, is a small rock shelter arch near 'Cave of the Winds' in Manitou Springs, Colorado. It's location is 38° 52' 32"N, 104° 05' 12"W. It can be viewed from the hairpin on Williams Canyon Road which runs between Cave of the Winds Road and Manitou Springs. **It's** dimensions are: Span-5 ft, Height-9 ft, Thickness-10 ft, Width-4 ft. -jhw.

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## ARCHING PLANS

(Send in your arch hunting plans for publication in this column. This will be useful if you would like to link up with another arch hunter on your trip. In the April issue, I'll print plans for April through October. In the October issue, I'll print plans for October through April.)

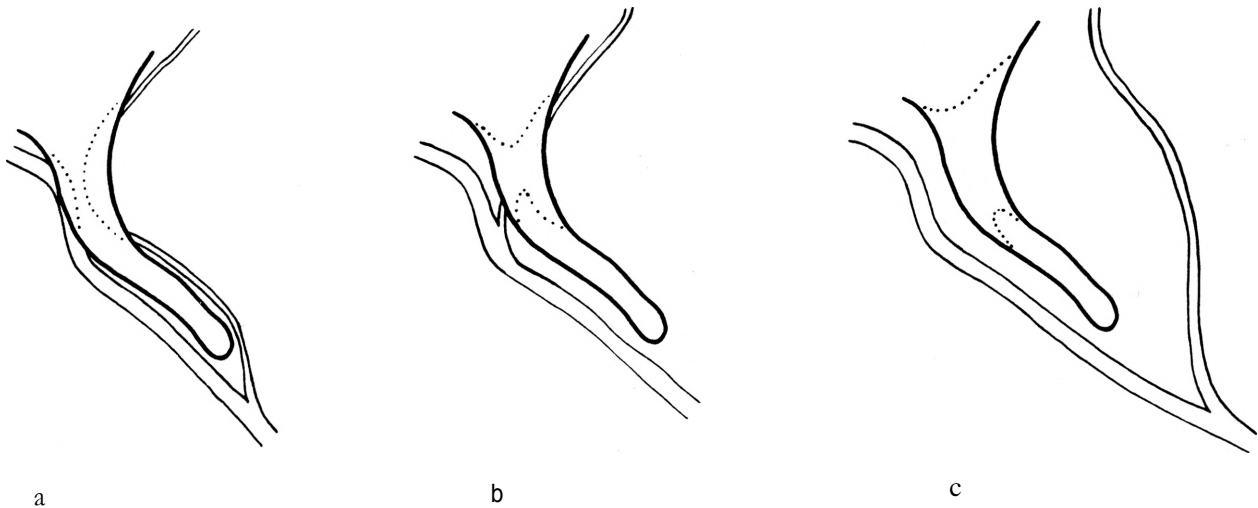


Figure S3. Prior to bridge formation (a), the Sanostee and a tributary undercut opposite sides of a narrow ridge of sandstone. Eventually, the tributary cut through to form the bridge (b). Finally, the tributary abandoned the bridge for a shorter route while exfoliation enlarged the opening (c).