



SPAN

The Newsletter of
The Natural Arch and Bridge Society

Volume 1, Number 2

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April 1989

SOCIETY NEWS

by Danny Horowitz and Jay Wilbur

We are now official! Our name is **The Natural Arch and Bridge Society** and we are incorporated as a non-profit society in the state of Colorado. We have a set of Bylaws, a bank account in the name of the Society, and an Executive Committee. The Executive Committee consists of Danny Horowitz, President; Jay Wilbur, Secretary/Treasurer; Terry Cain, Director; Robert Moore, Director; and Joseph Rockey, Director. Selection of the Executive Committee was based on the demonstrated interest of the selectees and an attempt to achieve broad geographic representation. You can get a copy of the Society's Bylaws and the Minutes of the Organizing Meeting from Jay Wilbur by sending him a self-addressed, stamped envelope (SASE).

So much for politics, how is the Society working to assist you in enjoying our hobby? SPAN is one obvious way. It has been very exciting for both of us to see the amount of interest and new information you have all sent in to share with everyone else. Please keep on sending in news and articles. Then, how about that nifty project started by Larry Bouchez and Jim Shields to set up a file listing our members' areas of expertise? Soon, we will be able to tap into our collective knowledge base and avoid those futile searches for hard-to-find arches. And surely Nicholas Terazkis gets the distinguished medal of honor for setting up our first computer file of arches, based on data supplied by Bob Vreeland. That puts us a year ahead of schedule. But best of all, you are all invited to attend the Society's first General Membership Meeting which will be combined with a field trip. We are in the planning stages for this event and your input is highly desired. It will be held at an as yet undetermined time in 1990, and early thinking favors a Monument Valley location. If you have any interest in attending (what dedicated arch hunter would not?), please mail your answers to the following questions to Danny Horowitz:

During which time periods in 1990 are you unable to attend?

Which time periods are most suitable for you to attend?

Tentatively we plan to meet at Kayenta, AZ; do you object?

If so, list alternative locations in order of preference.

What is top limit daily motel rate (\$40 is probably minimum).

Would you prefer to commute 2-3 hours to meeting sites if motel rates are significantly cheaper?

Would you share a room to reduce costs?

Should we arrange one formal dinner meeting?

Would you contribute (\$20?) to reserve a private dining room?

What is top limit for daily guide fee (\$30 may be a minimum)?

Should at least half the arches visited be easily accessible by automobile?

Will you bring your spouse, family?

Other comments?

Now, what can you do for the Society? Simple. Let us have your views on the Society's objectives, mandate, and programs in time for the first meeting of the Executive Committee. The Executive Committee will meet April 8 to discuss several topics including what activities the Society should engage in this and next year, financial needs and membership dues, and plans for the 1990 General Membership Meeting. We would very much like to hear from everyone on these topics or any others that you may wish to raise. Please communicate your views to one of the officers or directors named above prior to April 8.

Several of you have sent checks to Jay to help fund SPAN. Thank you very much. All of these have been deposited in our Society's bank account. If others wish to do this, please make your checks payable to The Natural Arch and Bridge Society and mail them to Jay. You will be given credit for any 1989 dues that may be decided upon by the Executive Committee out of your donation. Donations are not tax deductible.

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ANATOMY OF AN ARCH HUNT

by Jay H. Wilbur

On my second visit to Lake Powell, I spent a day on Halls Creek Bay. Of course, I took the opportunity to visit the two well known natural bridges (Vreeland numbers 7-14 and 7-15) that are in two of the many side canyons that flow into Halls Creek.

On that trip, I had with me a copy of *Dowler's Lake Powell Boat and Tour Guide, 4th Edition, 1983*. Intriguingly, it shows a "Bishop" natural bridge in a third side canyon of Halls Creek, north of the location of the other two bridges. No such bridge is listed in Vreeland's book, nor is it plotted on Stan Jones' Lake Powell map. Because of a lack of time, however, and the fact that many of the arches and bridges shown in *Dowler's* are either mislocated or very, very small, I elected not to search for "Bishop" bridge during that trip.

The possibility of a third bridge in that area continued to intrigue me, however, so when I had an opportunity to plan a trip to Lake Powell this past October, I allocated a day for Halls Creek Bay and did a bit of map research at the USGS map outlet in Denver. It turned out that the USGS had just published a new 7 1/2 minute topo map covering the area where *Dowler's* plotted "Bishop" bridge. It is the Provisional Edition map Hall Mesa, Utah, 1987. When I examined this map, I was pleasantly surprised to find that it shows a "Natural Arch", not at the *Dowler's* location but in yet another side canyon of Halls Creek, north of the *Dowler's* location. This "arch" also is not in Vreeland's book nor on Stan Jones' map.

Thus, on a beautiful day in October 1988, with the new USGS map in my pocket, I rented a boat at Halls Crossing Marina and made my way up Halls Creek Bay in search of a third natural arch or bridge. Of course, I had no idea of what I would find at the two locations. I knew from personal experience that *Dowler's* is often unreliable when plotting arches and USGS maps are also occasionally in error. Even if I found a third bridge, would it be large enough to be considered significant? The probability of finding a significant bridge was certainly small given that neither Vreeland nor Jones knew about it.

Despite the odds, I was at least certain of having two very enjoyable hikes on a beautiful day, so my optimism was running high. I spent the morning searching at the *Dowler's* location, which is very general, and found nothing. It is certainly possible that I missed something at this location, however, because I did not canvas the area completely. I wanted to spend my afternoon at the USGS location. And there I hit paydirt. After a very pleasant hike of about a mile from where I landed the boat, I found a large, beautiful waterfall type natural bridge exactly where the new USGS map showed it.

It proved easy to view this bridge from above, but a little tricky to get below it. After a little self-encouragement, I descended a very steep slickrock slope

into the canyon just below the bridge and got out my camera and tape measure. Using the latter, I measured the span of the bridge at 45 feet, the width of opening at 29 feet, and the width of the arc of rock at 18 feet. I later estimated the bridge's thickness at 6 feet using these measurements and my photos. The bridge spans the canyon about 50 feet above a medium sized pothole that probably has water in it most of the year. Like 7-15, the waterfall is still close to the bridge. The location of the bridge is 37° 30' 56"N and 110° 50' 20"W. It is cut into Navajo sandstone. For the sake of easy reference, I've temporarily labeled it 7-201. A photo of the bridge is reproduced below.



I do not know if *Dowler's* "Bishop" bridge is a mislocation of 7-201, or a different bridge. After I told Bob Vreeland about it, he speculated that "Bishop" bridge is a mislocation and misnaming of 7-14, since *Dowler's* does not show a bridge where 7-14 is. *Dowler's* does correctly plot the location of 7-15. In any case, we now know that there are at least three significant natural bridges off of Halls Creek Bay.

Interestingly, all three bridges are located within a mile of the west shore of Halls Creek Bay, are similar in size, and progress in maturity from north to south (7-14 is the oldest and 7-201 is the youngest). Although that's certainly a coincidence, the trio present a very nice group of bridges to visit in sequence. All three can be visited in a long day, but I would recommend taking two days to see them. Perhaps you will want to spend part of the second day looking for "Bishop" bridge.

Directions to 7-201 are not really needed if you have a copy of the topo map mentioned above, but let me make one suggestion. In walking up the side canyon, first stay to the left and above the south rim. This will enable you to get around a huge (over 100 feet high) jump or alcove over which the side stream plummets. Cross the floor of the canyon just above this alcove and then climb up the north rim on the right. Follow along the canyon on the north rim to get around a second jump of about 20 feet. Shortly after that jump you will see the bridge. Trying to get under the bridge is somewhat dangerous and I don't recommend it.

LAKE POWELL ADVENTURES

by Larry Bouchez and Jim Shields

For the past seven years we have been making trips to southern Utah, and have been avid arch hunters since 1985. Our 1988 trip to Lake Powell was especially eventful in that we "discovered" some undocumented openings, and had the opportunity to closely examine some documented ones. Regretfully, at none of the openings were we equipped to make accurate measurements. All dimensions reported below are approximate.

Of particular interest to us was Stan Jones' Anteater Arch (Vreeland's 7-119). [*Vreeland reported in 1984 that Anteater Arch has fallen. Furthermore, the location given below is inconsistent with Jones' location for that arch. I suspect that the arch described here is really 7-118. - jhw*] We first saw the arch in 1985 from the lake but could find no way to reach it. In subsequent communications with Jones, we learned that he had made an attempt to reach Anteater but was stopped by a particularly precipitous section of slickrock. Since we had already made arrangements to rendezvous with Dennis, a friend from Salt Lake City who is a professional climber, we took advantage of his expertise. It was our first exposure to technical climbing, but with he and his friend Lisa "showing us the ropes", we gained the arch.

The arch is located on the rim of the finger of land between the San Juan River and the Colorado River arms of Lake Powell, approximately 0.5 mile up the Colorado arm from the junction. It is about 600 feet above (almost directly above) Vreeland's 7-8, which is called Jack's Arch on Jones' map. It appears to be a buttress type arch with a span of 45 feet, a height of 3 feet, a thickness of 2 feet, and a width of 3 feet.

Another documented arch on which we have gathered additional information is Carrot Top Arch (Vreeland 7-109). On our 1985 visit, we found it to be of substantial size, with a span of 75 feet, a height of 40 to 50 feet, a thickness of 20 feet, and a width of 10 to 15 feet. [*Jones reports a span of 75 feet and a height of 60 feet. This arch and Keyhole Arch (7-4) are shown on the USGS topo map, Cathedral Canyon UT, 1985. - jhw*]

Our thanks to Danny Horowitz for steering us to Slit Arch (Vreeland's 7-102). It is a free-standing type arch with a span of 25 feet, a height of 15 feet, a thickness of 2 feet, and a width of 4 feet. While this arch is not very large, its free-standing posture, its circular shape, and its slag-like texture, make it a very interesting formation. It is reached by boating up Lake Powell to Face Canyon, then up that canyon 2 to 3 miles into a major east side arm to water's end. Look up the slope for the circular opening.

The first of our "discoveries" is located on the Escalante River arm of Lake Powell, about 17 miles from its mouth, on the right hand bank going up river. It is a few feet above, and about 150 yards from, the water's edge. It appears to be an alcove type arch with a span of 40 feet, a width of opening of 10 feet, a thickness of 40 feet, and a width of 20 feet.

Our second "discovery" is located less than a mile from water's end in Llewellyn Gulch, high on the left rim going up canyon. [*Dowler's shows a "small window" at this location. - jhw*] It is best seen by passing it and then looking back. It appears to be a buttress type arch with a span of 20 to 25 feet, a height of 4 feet, a thickness of 10 feet, and a width of 5 feet.

Write us if you have any questions. We'll be glad to respond with additional details and/or maps.

A LAND OF UNDISCOVERED ARCHES

by Chris Moore

My story starts in 1986, when District Ranger Kevin Cheri, at one of our annual staff meetings, asked for a volunteer to record the arches in the Island in the Sky District of Canyonlands National Park. Since I had visited many arches in the Red River Gorge area of Kentucky and had already noted a number of spans in the Island District, I jumped at the chance to do this project. Talking with the rangers in the park, I found there were several arches in the area and that no record had been made of them. Unfortunately, however, I was unable to do much more than because I took a job in Idaho.

A year later I returned. At that time, I met Ed McCarrick and reported a number of arches in Arches National Park to him. When I took Ed to them, we found that many had never been recorded. Many trips into Arches National Park with Ed followed and I learned how he measures and documents the arches.

Meanwhile, at the Island in the Sky, I raised the number to 74 arches. Tom Cox, my supervisor, mentioned that he thought it would be a good idea to measure and set up a file on the arches of the district. I agreed. But when I visited the first 74 arches, I found more and more. The total is now 366 and growing as other rangers at the park continue to report new spans.

The file I created has now been turned into a book, *The Arches of Canyonlands National Park - Island In The Sky District*. It contains information lists, maps, photos, a cross reference to other publications, and other material on the first 366 reported arches. It is modelled after the Stevens/McCarrick book, *The Arches of Arches National Park*. A limited printing of 100 copies has been made. Copies are available for \$6.95 plus \$1.25 postage for the first copy, \$0.50 postage for additional copies on the same order. Utah residents add 6% sales tax. Mail orders and make checks payable to Chris Moore, P.O.Box 430, Moab, UT 84532. In addition, I have compiled a list of 22 arches with spans over 30 feet that do not appear in either of Vreeland's volumes 3 or 5. It will be available to visitors on request at the Island Visitor Center. I will send you a copy of this list if you send me a SASE. If you do visit Canyonlands National Park - Island District, please ask for me. I love to talk about arches!

NAMES OF ARCHES

by Robert H. Vreeland

Back in 1965, a local guide submitted several new names for features in the Maze to the US Board on Geographic Names. (The Board has the responsibility of approving any names to be used on US Government maps.) The superintendent for the National Park Service (NPS) in southeastern Utah was asked by the Board to comment on these names. He wrote, "Although we have no specific objections to these proposed names, we take the position that there is no need to name every rock or canyon in this land of endless variety. One of the intriguing things about the Maze is that the hundreds of side canyons, coves, arches, and rock formations are *not* named. We think that this priceless area, and the maps of it, should remain relatively uncluttered by trite comparisons to common things, so that future visitors will continue to experience the sense of exploration and discovery." A very wise decision.

This appears to be the NPS policy for all of its areas in southeastern Utah, even though the leadership has changed three times since this statement was made. Only two names have been approved by the Board in all that time and these two only after excessive pressure was exerted on the Board. "Beehive Arch" became an approved name after the governor and a congressman pressed for it and "Paul Bunyan's Potty" was accepted after much pressure from within the US Geological Survey of which the Board is a part.

When a visitor enters Arches National Park he receives a brochure containing a description and map of the park. The map shows the general location of 19 arches and the text mentions 11 of these plus "several other arches". If a visitor spends more than a few hours in the park, he will see some of the others. If he is naive enough, he may think he has discovered a new arch, and many have excitedly reported their new "discovery" at the Visitor Center.

To save embarrassment, both to themselves and to the visitor, the NPS at Arches National Park instituted (in 1980) a system whereby a person can check to determine if his natural rock opening has already been documented or not, and can report it if it is new. The system is spelled out in *How to Accession a Natural Arch or Natural Bridge* and the card for reporting is Form 10-30. The form provides space for location, classification, *suggested* name, and other data.

The NPS is under no obligation to accept the suggested name. In fact, as of now, the Park Service has not approved *any* of the names that have been submitted. The NPS Visitor Center merely acts as a repository for the data cards. It looks like the 'no new names' policy is still in effect. Thank goodness that none of the maps will show "Twisted Donut Arch" or any of the other silly names that tourists have suggested.

USEFUL METHODOLOGIES FOR MODELLING NATURAL ARCHES

by Carl Horton

The scientific investigation of natural arches is a discipline that is still in its infancy and has yet to develop even the most rudimentary models of interest to most earth scientists. Systematic studies have not been carried out primarily because it is not obvious what useful information would result. The purpose of this article is to present a few areas of interest to this author as well as to solicit additional thoughts or input from others who wish to pursue the development of a scientific understanding of natural arches.

Since arches are purely erosional features, and generally are not associated with depositional features, they provide virtually no obvious information regarding their evolution. We therefore need to ask whether arches are a result of certain geologic and climatic processes or are random side effects. If they are not random features, then the processes governing their evolution need to be included in a model that will answer the following types of questions:

What are the geologically significant aspects of arches?

What are the climatic relationships exhibited by arches?

How old are arches, and what would the age of an arch tell us?

A first attempt to define some lines of research into these questions follows:

What are the geologically significant aspects of arches? This line of inquiry would include seeking insights into stress and strain patterns within the rock that manifest themselves through arch morphology, petrographic relationships, or the relationship of weathering patterns and rock structure. For example, what is the statistical correlation, if any, between basic

arch opening dimensions and the dimensions of the rock above and to the sides of the opening? Are there different correlations for different types of arches? It may be that all arch types follow the same stress pattern, which is doubtful, or that different arch types follow different stress patterns. Important contributions to this type of inquiry would be made by petrographic and micro structural analysis. In any case, this information would be of use in stress mapping specific arches.

Another type of modelling that may prove to be useful in understanding arches, as well as a contribution to rock mechanics in general, is the use of finite elements models. Finite element modelling is used extensively in engineering fields in order to obtain numeric values of forces impinging on nearly any point of an object. It could be directly applied to understanding the internal forces shaping arches.

What are the climatic relationships exhibited with arches? It is has been suggested in the literature that climate plays an important role in the formation of arches. How is this conclusion arrived at other than from intuition? It may be possible to implement the use of scanning electron microprobe (SEM) analysis to better understand this relationship. SEM analysis could be utilized on desert varnish (which is of bio-geochemical origin) collected from arch openings to detect minute changes in the windblown material of the local environment over time. Changes in the microstratigraphy of the windblown material in the varnish would give indications of environmental change, especially change regarding plant species growing in the area. Although SEM will not give highly accurate quantitative results, it can give very good data showing general changes. SEM information from a number of arches could be used to tell if initial varnish formation was in a wet or dry environment. This would allow the researcher to extrapolate information about the initial arch forming environment, as well as the number of climatic cycles exhibited in the varnish.

How old are arches, and what would the age of an arch tell us? Determining the ages of arches will prove to be a rather difficult project, although it can be done. The general consensus is that arches are a product of the Quaternary Period. This concept isn't that revolutionary since many landforms on the earth are of Quaternary or younger age. It would be more useful to know if arches are a product of the Pleistocene Epoch or the Holocene Epoch, or whether arches are a continually evolving process unrelated to climate or time.

The best dating method currently available for arch age determination is radiocarbon (^{14}C) dating using Tandem Accelerator Mass Spectrometer (TAMS) methodology. Since varnish is partly biologic in origin, ^{14}C is absorbed into the varnish structure, thus allowing for dating of the varnish. There are two problems which arise in using this method, however. First of all, although TAMS is designed to date very small amounts of material, it still takes a large surface area of varnish (about 1 square meter) to provide sufficient material. This would obviously be highly destructive to the visual

element that natural arches provide. Secondly, the preparation of the varnish for dating must be done with extreme care since only the lowest varnish layer should be used in the dating process itself.

Determining the age of arches would give valuable insight into erosion rates for the Colorado Plateau and other regions where they occur. Erosion rates are perhaps one of the most difficult aspects of geomorphic research that can be attempted. The best method currently in use is to derive rate information from historic road cuts, quarries, etc., and then extrapolate these results over periods of time on the order of ten thousand years. This method obviously holds a great potential for error. Direct dating of erosional features such as natural arches that are most likely thousands of years old would provide more reliable erosion rates over a greater period of time.

With the exception of TAMS radiocarbon dating, most of the techniques mentioned in this paper are well within the range of limited university budgets. Very useful information could be obtained with only a few thousand dollars of expense, assuming the use of free (for research) computer facilities that are available at many universities. TAMS dating, at least at this point in time, is expensive (\$500-1000) as well as destructive to most study sites.

It is hoped that this paper provides some basis for debate and presents some possibilities for future work in the understanding of the physical processes that form natural arches and govern their evolution.

[Carl Horton is a PhD student in geography at the University of Utah. An interesting article in the December 1988 issue of *Physics Today*, "The Statistical Physics of Sedimentary Rock", reviews methods of rock analysis that may also play important roles in the formal study of natural arches. - jhw]

MAP REVIEW

by Dick Wunder

Map showing geology-related scenic features in the Kaiparowits Plateau area, Utah, by L.M.H. Carter and K.A. Sargent, USGS, 1983; Miscellaneous investigations series map I-1033-K.

Arch hunters should find this map a very useful supplement to Robert Vreeland's volumes on the same area (vols. 6 through 9 of his series). It is a colored map, 89 x 71 cm, folded to 29 x 21 cm. A prominent feature of the map is a table of 42 (some are multiple) arches, windows, and natural bridges, giving dimensions (when surveyed) and other useful information, and locating them by number on the map. The area covered is from longitude 112 on the west (Kodachrome Basin State Park) to 111 on the east (lower Muley Twist Canyon and upper Coyote Gulch), and from latitude 38 on the north (the southern edge of Boulder Mountain) to 37 on the south (the Utah - Arizona border).

Information on the arches is taken from field investigations by the authors and from Vreeland's books, among other sources. Roads and trails are shown, although they are somewhat difficult to make out among the contour lines and special colored markings used to show areas of petrified wood and other fossils and minerals. The map has a scale of 1:125,000, and is based on the USGS Escalante map. Besides the table of arches, there are ten colored photos (six of them arches), an extensive bibliography, a stratigraphic chart, extensive notes on geological and historic features, and the usual explanations of map markings.

Coverage includes about 10 arches from Vreeland's volume 6, 3 from volume 7, 8 from volume 8 (including four which are not pictured by Vreeland but listed in his Others Section for future coverage), and 10 from volume 9. (There may be a few others which I was unable to match up from the map descriptions.) A number of arches on the map are not included in Vreeland's series of books, but in almost all cases they are noted as small arches, which therefore would not have met his criteria. Unfortunately, several sizeable arches documented by Vreeland, and within the map's area, are not included on the map.

The map is for sale by Branch of Distribution, USGS, Box 25286, Federal Center, Denver, CO 80225. This reviewer's copy was purchased last August for \$3.60, from the USGS sales office in Salt Lake City; the current price may be higher. [I believe it is now \$4.00. - jhw]

MEMBER'S EXCHANGE

(Numbers in the format VV-NN are the catalog numbers from Vreeland's *Nature's Bridges and Arches*, where V is the volume number and N is the number in that volume (eg. 7-4 is number 4 from volume 7).)

Larry Bouchez asks for help on how to find Keyhole Arch (7-4), Woolsey Arch (8-51), Old Settler NB (8-17), and the Unnamed Bridge (7-14) from anyone who has visited these.

Larry Bouchez and Jim Shields report an arch in the Valley of Fire State Park, Nevada. They say it appears to be a cave type arch with a span of 20 feet, a height of 12 feet, a thickness of 3 feet, and a width of 3 feet. From the rest/picnic area on the north side of the road, just beyond Elephant Rock I (Vreeland's 20-41), cross the road and proceed about 0.2 miles up the slope on a bearing of 200 degrees true (185 magnetic) to the arch.

John Burns sends the following directions to a view of 19-101: From the junction of S. Dakota highway 20 and North End Rd (Route 124), 0.45 miles east of the Riva Gap campground, go north on 124 for 4.4 miles to a Y. Take the left fork for 0.95 miles and park. Walk to the edge of the cliff line (west) to a view of the arch (difficult to see without binoculars).

John Burns also indicates that Mansfield NB (#19 on the Vreeland challenge list, SPAN 8/88) was destroyed by surveying work for the Cecil M. Harden Lake.

Stephen Jett reports that 12-6 has been officially designated "Jett Arch" (for his father) by the US Board on Geographic Names. New measurements for this arch are: span - 77', height - 34', thickness - 15'.

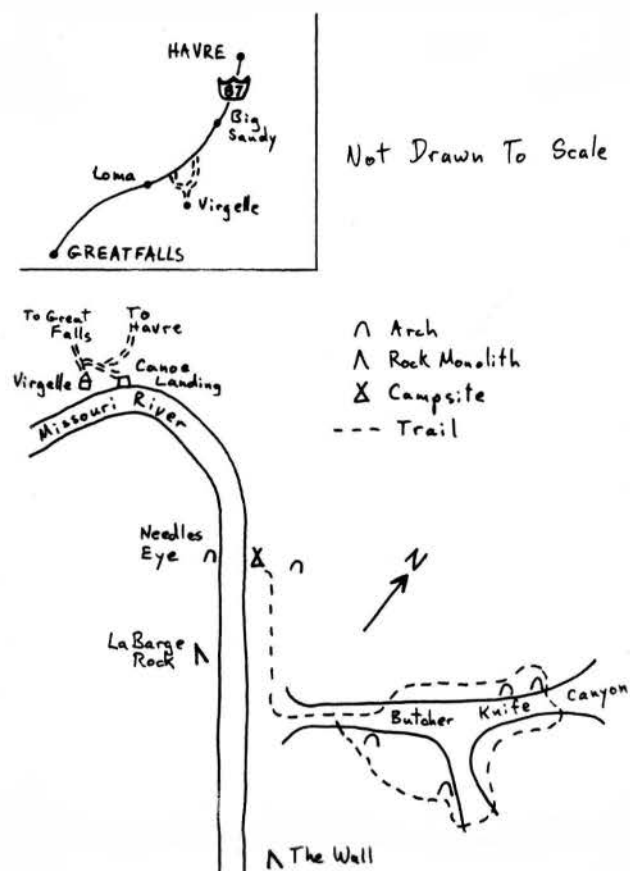
Stephen Jett also sends the following comment: Jay Wilbur's "Snake Bridge" (SPAN 8/88) provides much interesting and valuable information. The only other primary reference to the opening of which I am aware is in Editha L. Watson's *Navajo Sacred Places*, published as Series 54 of Navajoland Publications (Navajo Tribal Museum, Window Rock, 1964, p.21). She wrote, "An example [of a minor sacred place] is the Snake Bridge in New Mexico. Here a natural bridge is marked on the under side of its arch (possibly by water leaving stains) by a picture resembling a sand-painting of a snake. That the place has supernatural power is proven, according to Navajo belief, since it is said that animals passing under it will die." In her unpublished notes (in my possession), Watson located the span "W of Sanastee on Wolf Farm Creek," and added "Lucy Clark, Navajo medicine woman, tells that a flock of goats went under the bridge, and when they were found they were all dead and their skin had become like pine bark. She would not let her son go under it." In my "Testimony of the Sacredness of Rainbow NB to Puebloans, Navajos, and Paiutes" (*Plateau*, Vol. 45 [1973], No. 4), I documented similar Navajo beliefs about that rock opening. Billy Yellow, Monument Valley Medicineman, has informed me that all rock openings are sacred, and belong to the Wind People.

Harold Honsbehn reports the following: The BLM has made it easier to get to western Colorado's Rattlesnake Canyon and its fantastic collection of natural arches. While a high clearance or 4WD vehicle is still required, all intersections are now clearly marked with BLM arrow markers. As in Vreeland's Volume 18, from I70 at Fruita, take Colorado 340 south to the Colorado National Monument (2.6 miles). Continue through the monument and turn right at 13.5 miles toward Glade Park. At 13.7 miles turn right onto the Black Ridge Hunters Access Road. From this point, follow the signs for an additional 10.7 miles on rough roads to a barricade that the BLM has placed at the top of a hill. Hike the road beyond the barricade for 0.2 miles to a large trail marker on the left. This marker indicates that continuing straight ahead on the road takes you to the Upper Arches Trail. It also points to a maintained trail to the right (north) which descends the cliff to the Ute Bench and the Lower Arches Trail. At the bottom is a second trail marker pointing west to Lower Rattlesnake Canyon and east to the Pollock Bench Trailhead. Approximately 0.5 miles east of this marker Window Rock Tower (18-19) can be seen south of the trail. After visiting that arch, return to the second trail marker. Continue west on the bench trail and then around the western tip of the mesa to visit all of the arches on the southwest rim of the mesa. At Rainbow Arch (18-16) you can either retrace your steps back to the trail markers, climb up through Rainbow Arch to the Upper Arches

Trail, or continue along the bench to West Rim Arch (18-15).

Bob Sherrill frequently guides tours into Rattlesnake Canyon for a nominal fee. Contact him directly for more information.

Nick Terzakis reports that there are several small arches in Butcher Knife Canyon, a tributary of the Missouri, reachable by canoe from Virgelle, Montana. His map is below.



Jay Wilbur made the following observations on a trip to Escalante in October 1988:

1. The location of Covered Wagon NB (9-15) is $37^{\circ} 39' 47''\text{N}$ and $111^{\circ} 33' 43''\text{W}$. From the intersection of Center and Main (Utah 12) in Escalante, drive south on Center. At 2.2 miles the pavement ends. Drive through gates at 4.4, 4.6, 7.2, and 7.7 miles. At 8.6 miles, drive over an earthen dam (note the open fence on the right and the drainage system beyond it). Park on the left just past the dam. Hike about 0.3 miles up the drainage on the right (west) side of the road, staying in the left (southern) most tributary.

2. The location of the true Serenity NB (see 9-16) is $37^{\circ} 41' 56''\text{N}$ and $111^{\circ} 37' 23''\text{W}$. It is a mature alcove type arch in Calf Canyon near where it feeds into Alvey Wash. It has a span of 43 feet, a width of opening

of 8 feet, and a width of 9 feet. From Main (Utah 12) in Escalante turn south at the power station. At 0.6 miles the pavement ends. Cross cattle guards at 0.9, 2.0, and 3.2 miles. At 5.4 miles view the arch across Alvey Wash and turn onto a sandy 4WD track that crosses the wash and heads up Calf Canyon. At 5.7 miles park under the arch on the left.

3. The location of Peekaboo Bridges (8-25) is $37^{\circ} 28' 55''\text{N}$ and $111^{\circ} 12' 57''\text{N}$. Directions are given on page 139 of *Hiking the Escalante*, Rudi Lambrechtse, 1985, Wasatch Publishers. Steps have been chiseled into the sandstone jump at the mouth of Peekaboo Canyon making access to the bridges very easy.

Bob Vreeland sends in the following:

1. Both John Burns and Nick Terzakis report that one of the bridges in Telephone Pole Canyon (19-1, the farther one) has already fallen.

2. I found out in person, and Terry Cain has assured me, that the little pillar type arch in Antelope Creek, near the Children's Zoo in Lincoln, Neb., has been destroyed by vandals.

3. It appears that arches 8-33 and 8-34 are in the canyon of the Paria River below its confluence with Sheep Creek. We were stuck in quicksand three times the day we drove down Sheep Creek and the Paria and my notes got pretty muddy and hard to read. I apologize. According to the marked up map that Nick Terzakis sent me, the coordinates for 8-33 are $37^{\circ} 23' 46''\text{N}$ and $112^{\circ} 01' 17''\text{W}$, and the location of 8-34 is $37^{\circ} 22' 42''\text{N}$ and $112^{\circ} 01' 30''\text{W}$.

4. The upper bridge of 19-30 fell sometime between the visits of John Burns (7/1/88) and Jay Wilbur (7/26/88). In my opinion, this is a great loss of a unique feature.

5. Nick wrote that he had trouble finding the trail to 19-20. The problem was cleared up in a letter from John Burns who stated that the Pinnacle Trail no longer exists officially. The US Forest Service has removed it from current maps and the trailhead has been bulldozed.

6. Arch 12-4 is called Shivwits Arch in the August 1988 issue of *Arizona Highways*.

7. An article in the August 18, 1988, issue of the Moab Times-Independent newspaper states that the 'Natural Arch' in the very short Twomile Canyon off the Green River, shown on the 15 minute topo map Bowknott Bend 1963, has five openings. To receive a copy of the newspaper article send a large SASE to me.

8. According to John Burns, 19-15 is no longer open to the public. The man who is renting the land from the Harrisons has made this a stipulation of the rental agreement.

9. John also says that the road into 19-14 is now blocked by a landslide at the pictographs. [It is still

possible to walk to the arch from that point, however. -
jhw]

10. On April 14, 1986, Lin Ottinger and I measured the span of Landscape Arch (2-2) using accurate surveying tools. Our figure of 290.4 ± 0.15 feet agrees closely with the advertised span of 291 feet.

11. Word from Moab is that the road along Brumley Creek has been cleared of brush, so a visitor can now drive much closer to 8-1 before parking and hiking.

12. Robert Barton is now running the Diamond A Ranch and should be contacted in connection with visits to 19-41 and 19-42.

13. Rock Bridge (14-10) is now called Ladd Natural Bridge. It is still owned by Alice and Ben Ladd, but is managed jointly by them and the Ohio Department of Natural Resources. Access is available by permit only. For information contact the Division of Natural Areas and Preserves, Building F, Fountain Square, Columbus, Ohio 43224.

14. Rockbridge (14-11) is now an Ohio State Nature Preserve. It has a parking area on Dalton Road and a marked trail to the bridge.

15. In the first issue of SPAN, page 3, item 21 of the Hard to Find Openings, the river's name should be Lamoille.

16. Someone has talked the US Board on Geographic Names into changing the name of Flying Eagle NB (7-12) to Aleson Arch for Harry Aleson, Colorado River guide.

17. Bill Crawley of Kayenta, AZ, is a very busy man, trying to run two businesses as well as raise a young family. Please don't ask him for personally guided tours. He has a set fee for driver and 4WD vehicle whether there is one passenger or four. Please don't ask for special rates. We are lucky that Bill is there; the previous owner admitted that he was only interested in making money on half-day tours.

18. Here is an alternate route to Hope Arch (11-13). From the traffic signal at the intersection of US 191 and Navajo Route 7 in Chinle, drive south on 191. At 1.2 miles turn right and drive toward the hospital. At 2.25 miles, go straight ahead. At 2.4 miles make a small jog to the left. At 2.5 miles the blacktop ends. At 3.1 miles pass the water tank and at 3.5 miles reach the top of the mesa where you stay on the main road along the cliff line. At 6.75 miles the other road comes in diagonally from the right. Park at 9.2 miles for Hope Arch [you can get closer with 4WD on the power line track - jhw]. Park at 9.8 miles for 11-14.

The following is a cross-reference between Vreeland Volume 2 and Stevens/McCarrick. The Vreeland number is on the left and the Stevens/McCarrick number is on the right. This list has been reviewed and corrected by Vreeland.

2-1	SW14
2-2	SD56
2-3	WS15,16,17
2-4	WS32
2-5	WS31
2-6	WS33,34
2-7	WS9
2-8	WS12
2-9	SD79
2-10	SD72
2-11	SD64
2-12	SD50
2-13	SD54,55
2-14	SD49
2-15	SD17,18
2-16	KB7
2-17	SD24
2-18	FF2
2-19	SD84
2-20	FF40,41
2-21	FF27
2-22	FF37
2-23	SD77
2-24	KB12,13
2-25	SD39,40
2-26	HP8
2-27	UC19
2-28	SD85
2-29	FF51
2-30	ND82
2-31	ND72
2-32	GW6
2-33	SA5
2-34	WS19
2-35	WS4
2-36	SD73
2-37	SW15
2-38	WS1,2
2-39	KB9,10
2-40	SD76
2-41	SD13
2-42	ND62
2-43	ND23
2-44	SD35
2-45	WS21,22
2-46	EP35,36
2-47	HP3
2-48	ND50,51
2-49	SD42
2-50	ND7
2-51	FF46
2-52	GW4
2-53	SW13
2-54	WS29
2-101	SD12
2-102	ND63,64
2-103	ND43
2-104	FF45
2-105	NOT INCLUDED
2-106	ND36
2-107	NOT INCLUDED
2-108	ND79
2-109	SD14
2-110	ND20

2-111	GW2
2-112	FF13
2-113	SW12
2-114	NOT INCLUDED
2-115	WS30
2-116	NOT INCLUDED
2-117	WS5
2-118	KB16
2-119	NOT INCLUDED
2-120	FF19 (13?) *
2-121	FF26
2-122	NOT INCLUDED

* Vreeland disputes the Stevens/McCarrick statement that FF19 is the arch that was called Box Arch and thinks 2-120 should be cross-referenced to FF13. However, regardless of its accuracy, that statement is made on page 12 of Stevens/McCarrick. Therefore, I believe that the *cross-reference* should be to FF19. - jhw

EDITOR'S MARK

by Jay H. Wilbur

The response to the first issue of SPAN was very gratifying. Almost everybody liked it, and I hope you've found this second issue even better. A number of you made some excellent suggestions for improving SPAN which were implemented in this issue. Thank you very much for your help. I also want to thank everyone who submitted articles and items of news for this issue. Without these efforts, a quality SPAN would obviously be impossible. However, a comment received from one member leads me to make the following point.

Please understand that the information and opinions expressed in the articles and news items that appear in SPAN are the responsibility of the authors alone and are not necessarily verified fact or reflect my opinion. While I try to correct or at least suppress items that I know from personal knowledge to be incorrect, I obviously cannot filter out all the errors or verify the judgements of the authors who express their opinions.

Furthermore, it is not my intention to make SPAN uncontroversial. On the contrary, I am certain that different investigators will inevitably arrive at conflicting observations and judgements about our area of interest. Hopefully, SPAN provides a forum in which to express these various positions so that our audience can arrive at their own judgements based on exposure to a range of well reasoned, albeit differing, positions.

That said, please forgive me for probably starting a new controversy. We need a new word. There needs to be a word that is defined to mean *the study of natural arches and bridges*. Furthermore, calling ourselves arch hunters or something similar just won't do. We need the equivalent of the words *geology* and *geologist* for our particular area of interest. Unfortunately, the words *arch* and *bridge* are too loaded down with meanings other than the one we want for either to serve as the root of our new

terms. For example, *archology* would be too close to *archeology* and *archery* is already taken. And, of course, a bridge enthusiast is a card player, right?

One approach to coining a new word is to base it on the Latin or Greek equivalent of an appropriate English word. Here too, one runs into problems. For example, Latin for *arch* is *arcus* or *fornix*. *Arcus* suffers from the same problem as *arch* and I suspect few of us would want to be called *fornicologists*. *Pons*, the Latin for *bridge*, also seems clumsy as a root for a new word, not to mention the likelihood of it getting us taken for a bunch of cold cream users. For a time, I thought the Latin for *intel* might work. Then John Burns pointed out that the resulting *limenology* is much to close to *limnology*, the study of lakes. And alas, the Latin words for *hole*, *opening*, *span*, *tunnel*, and *window* all suffer from similar problems.

Greek offers only slightly better fare. The Greek word *gephyra*, which translates to *bridge* or *earthen dam*, seems a fairly appropriate root. The resulting *gephyrology* sounds okay, is not close to any existing English word that I'm aware of, and avoids mixing roots from different languages (*ology* is derived from the Greek word for *description*). Unfortunately, for some unfathomable reason, scientists have chosen *Gephyrea* as the name for a class of earthworms. However, none of the other Greek or Latin roots is any better. I suspect that *gephyrology* is the best word that can be derived from the classical languages, although I feel obligated to mention one other possibility, the word *troglodyte*. *Troglodyte* is of Greek origin and translates literally into *one who crawls into holes*. Is there a better description for an arch hunter? Perhaps it wouldn't be inappropriate for arch hunting to be associated with earthworms. After all, here I am digging around among roots.

Of course, another approach for coining our word is to resort to mythology. I vaguely remember an episode of Roman mythology which involved a staunch defender of a bridge, but I am unable to locate this story in Bulfinch's. I did, however, find a possible source in Norse mythology. There, the earth is connected to the heavens by a magnificent rainbow bridge called Bifrost. Furthermore, Bifrost is defended by a great warrior named Heimdall. Perhaps we should name ourselves after this great bridge or its defender. Do you feel comfortable calling yourself a *heimdallian*, or saying that you pursue *bifrostry*? The more I think about it, the more I like earthworms.

Hence the controversy. I hereby suggest the following additions to Webster's:

gephyrology - the study of natural arches and bridges

gephyrologist - a person interested in the study of natural arches and bridges

If you like these words, start using them. That's how new words are always born. If you don't like them, suggest an alternative and give me a reason why your choice is clearly better. Again, thanks for all the

comments and suggestions, please continue to send in articles and news items (due to me by September 1 for October publication), and good luck with all your geophysical endeavors.

ARCHING PLANS

Late April: Jay Wilbur will be in the San Rafael Swell and Escalante areas.

May: Harold Honsbehn plans on visiting Tennessee.

Late May: Bob Vreeland will be in northern Ohio.

June 12-24: John Burns plans on being in the Moab, Mexican Mtn, Horseshoe Canyon, and southern Canyonlands areas.

June 19 - July 6: Terry Cain and his wife will be in Oklahoma, Texas, Louisiana, Mississippi, Tennessee, Kentucky, and Illinois looking for spans.

August: Danny Horowitz is going to Lake Powell.

August: Terry Cain hopes to get to New Mexico.

General: Virginia and Sam Allen frequently hike in Arches NP and would enjoy other members contacting them to arrange joint hikes in that park.
