October 7-10th, 2021—(Columbus Day weekend). The TAG Fall Cave-In, hosted by the Dogwood City Grotto, is an annual celebration of Caves, Caving, and Community, with 43 events in the last 44 years. After a year of Hindsight in 2020, where we all watched the world shut down and practiced social distancing during the COVID-19 pandemic, we are pleased to invite you to join us. Funds from the Cave-In registration are returned to the caving community through grants for cave research, conservation, exploration, and acquisitions, as well as rescue and training. Pre-registration opens July 4th at register.tagfallcavein.org and we’re looking forward to seeing you there. Let’s Go Caving!

October 18-20, 2021—Timpanogos Cave National Monument invites volunteers to assist in three days of restoration projects in this nationally significant cave system. Work among abundant helictites and colorful formations to help restore natural conditions along the public tour route. Free camping is available. For more information contact Kirsten Bahr at kirsten_bahr@nps.gov or (801)756-5239 ext. 503. Follow us on facebook: https://www.facebook.com/timpanogoscaverns/

November 1-5, 2021—2021 National Cave and Karst Management Symposium (NCKMS 2021) will be held in San Marcos, TX. Featuring Dale Pate, to speak at the banquet! Field trips to local caves and special access to local show caves! Glass-bottom boat tour of local spring! T-shirt! Online pre-registration is open. Reserve your hotel room for reduced rates. More details at symposium2021.nckms.org

November 6, 2021—NSS Regular Board Meeting at 9AM CDT, held via Zoom. The meeting will be open to all members. A zoom link will be added to the NSS web page before the meeting.

December 29-30, 2021—NSS Conservation Expo 2021 will be held at the NSS Headquarters and Conference Center, Huntsville, AL. Open to the public. Purpose; to provide engaging “Leave No Trace” classes and cave simulation with focus on underprivileged children. See https://members.caves.org/event/nssconservationexpo2021

December 31, 2021—Bat Ball 2021 will be held at the NSS Headquarters and Conference Center, Huntsville, AL. A festive New Year’s Event for NSS members and their guests. See https://members.caves.org/event/BatBall2021 for more information and updates.

January 31-February 6, 2022—The Hawaii Grotto will be hosting Hawaii Cave Week. You know it’s gonna be cold where you are, so come bask in some Hawaiian lava caves, take part in removing invasive plant/tree species, and learn how to sketch a cave. The annual grotto meeting is scheduled for Saturday, February 5th, and will be held at Ka‘u Cave Farm on Hawaii Island. Membership to the Hawaii Grotto is included with your NSS Membership. For more information, or if you would like to join the Hawaii Grotto, please email Kim Fedrick at kfedrick@gmail.com. You can also find us on Facebook.

Photos at right: see note on Contents page.
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Gilly Elor

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Speleant Spotlight

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Gary Gibula

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Society News

The NSS Vertical Training Commission

Hazel A. Barton, Adam Weaver, Geary Schindel

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Lake Crowley is a large, manmade lake about 20 miles north of Bishop along the eastern flank of the Sierra Nevada of California. What is not well known are its amazing cliffs and littoral grottos filled with columns, which the locals call the Catacombs or simply The Columns for Google purposes. I found out about them from a friend’s post on Facebook, and as a sea cave afficianado was determined to check them out. Turns out there is a wealth of info about getting to the area on the Internet but surprisingly, very little mention of caves other than the one with the multitude of columns in front. More googling came up with two different sets of conflicting directions. So, after wasting time trying to access them from the south and the roads near the dam, I came in from the north by taking Benton Crossing road off the 395 followed by various U.S. Forest Service roads. There are a number of steep hills covered in loose sand and 4WD is definitely an asset. You can drive a bit south on the beach to save some hiking but otherwise head south on foot and you can’t miss the stuff. The fall months will probably be best for accessing all of them without wading. I took a solo trip there in mid-June 2016 and could not reach everything I could see, but it was a big snowpack this year and the lake was up.

Some of the sea caves extend in from the cliff edge from 50 to as much as 90 feet, small but scenic. The caves and columns are in volcanic tuff and were exposed by wave action after the manmade lake was formed in 1941. The material is fairly soft, and there are many prominent joints that have made zones of weakness along which the lake could erode material away—surf comes up in potentially fierce afternoon winds. The columns are what really make them unique though, and recent studies have shed some light on their formation (see geology sidebar, page 8).

In recent years the drought has made it easy to access the caves, but in summer of 2016 the southernmost required wading or a boat to reach as the lake level was up. I saw at least six decent-sized entrances in the distant cliffs that I couldn’t reach.

The caves I did reach on that first trip were quite photogenic and some had large colonies of birds (swallows) which swarmed about in the entrances. Being solo I was somewhat limited but had brought a tripod and got some multiflash images of myself among some of the columns for some scale.

2020 Survey

In October 2020 I recruited a few friends, Matt Oliphant, Nancy Pistole, and Paul and Kathy Greaves, to meet me out at the lake to conduct a proper survey of the caves. Based on my previous visit and the...
water being too high to reach a bunch of the caves, I had my sea kayak and Matt and Nancy brought theirs. I figured we would get to everything, but might need a couple days to do so. The road in was a bit sandier than I recalled, and in two areas I needed to tow Matt and Nancy’s 2WD Ford Transit up some hills. Not a big deal and with a few miles of driving we reached the beach. Peering down coast, we could see that the most distant cliffs would probably be reachable without wading...so the kayaks weren’t needed on this late Fall trip. We worked our way down the coast, deciding to reach the furthestmost caves and survey back as we went. In all we surveyed ten caves, some of them surprisingly complex. Few extended deeper into the cliffs than 60 feet, as I’d surmised, but a couple had multiple connecting tunnels and hence the longest surveyed was several hundred feet in aggregate.

(continued on page 9)
Cave of the Hundred Columns
How did the columns form?

A study at UC Berkeley determined that the columns formed after a massive eruption 760,000 years ago that created the Long Valley Caldera. A thick layer of pumice and ash was laid down, later congealing into the Bishop Tuff. In some areas cold meteoric water percolated down into the ash, was heated, and rose up as columns of steam. This hydrothermal convection caused a recrystallization and hardening by precipitation of mordenite in the soft ash around its columnar path. The convection cells were evenly spaced, similar to heat pipes. The tufa with the pillars inside covers an area 3km by 5km, and there are approximately 5,000 columns. Since the columns are more resistant to erosion than the surrounding tuff, they have been exposed by surface weathering and littoral erosion by wave action from the lake. The lake can be notoriously windy in the afternoon and so quite capable of having carved the caves we see today 80 years later. We also noted that some caves had collapsed column segments on the floor...waves pushing these pieces around probably are a factor in enlarging some caves even further.

Not all the columns are vertical and some are quite tilted within a region, suggesting some folding or shifting of the bedrock Tuff after they were emplaced.

According to geologist Mark Stock, the Long Valley caldera collapsed shortly after the eruption of the Bishop Tuff. This generated ring faults that define the present edges of Long Valley (with some faults paralleling the present eastern edges of Long Valley). These north-south faults form joints evident in all of the caves.

Left: Rain and wind have stripped away the tuff from columns on the surface, while wave action has exposed larger column segments through cliff erosion. Some have collapsed, below.

A sailboat on the lake gives testimony to the winds that create waves on the lake and formed the existing caves in 80 years.

The study of the Crowley Lake columns was published in Geology in 2017: Randolph-Flagg, N., Breen, S., Hernandez, A., Manga, M., and Self, S., 2017, Evenly spaced columns in the Bishop Tuff (California, USA) as relicts of hydrothermal cooling: Geology, v. 45, p. 1015–1018. The figure here is supplemental figure D12 and can be found at https://doi.org/10.1130/G39256.1. Used by permission from the publishers, Geological Society of America.

Schematic illustration of the Long Valley caldera (California, USA) before and after the forming eruption. Right column is authors' hypothesis of what occurred in the still-cooling deposit. \( \lambda \) denotes the spacing of columns and downwellings.
One of the things I hadn’t really noted before is how many of the columns are on a tilt, with those in a given area all tilting the same way. Surprising for something that might have been formed by springs bubbling up, and indeed most are quite vertical. Perhaps there was some uplift that caused deformation of the columns after formation. Yet the columns are also of fairly consistent thickness, which is why on first glance they look like something manmade, with concrete and Sonotubes. But their segmented, tootsie-roll appearance belied that idea. Only one of the caves had any sort of common name, the impressive Cave of the Columns. During the survey we counted just over a hundred columns in the cave so rechristened it Cave of the Hundred Columns. In other cases we named the caves based on features within. The Bald Eagle Complex was named when we spotted one of these magnificent birds landing just above a pair of cave entrances. Cut column and half white column were based on the appearance of the columns spotted in these caves. Fracture Zone and Double Diagonal were named for the joint patterns on which they formed. In addition to the caves we surveyed, there are lots of small cavelets with interesting features as shown in some of the photos. Generally speaking the 3 caves furthest south (fracture zone, labyrinth, and green crack) had fewer of the columns. We split into a photo crew and a mapping crew, and managed to complete all our surveys just in time to drive out before nightfall. We camped at a nearby hot spring, of which there are many to the north of the lake. Apparently the volcanic activity that led
to the Long Valley eruption is still simmering beneath the surface. I had camped there the night before and had started the day with a sunrise soak in the tub, all to myself and a great way to social distance.

In summary, the caves of Lake Crowley, while not overly extensive, are well worth a visit for their geologic uniqueness. No permits of any kind are needed to visit, and they are accessible year-round...with the caveat that runoff from snowmelt in spring and summer can raise lake levels and flood some of the caves. Fall months are ideal for a visit. Let's hope that visitors continue to respect this resource—I was happy to note that there were no signs of vandalism such as graffiti or carving into the soft tuff. But here at least, nature offers a good mechanism for completely scouring the caves of such actions if they do occur in the future.

<table>
<thead>
<tr>
<th>Cave name</th>
<th>Total surveyed length (feet)</th>
<th>THC (feet)</th>
<th>Penetration (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fracture Zone</td>
<td>123</td>
<td>29.5</td>
<td>55</td>
</tr>
<tr>
<td>Green Crack</td>
<td>147</td>
<td>42.6</td>
<td>70</td>
</tr>
<tr>
<td>Double Double Barrel</td>
<td>271.3</td>
<td>160.8</td>
<td>72</td>
</tr>
<tr>
<td>Bald Eagle Complex</td>
<td>414</td>
<td>183.7</td>
<td>50</td>
</tr>
<tr>
<td>Cut Column</td>
<td>70.7</td>
<td>55.8</td>
<td>50</td>
</tr>
<tr>
<td>Crowley Labyrinth</td>
<td>324.3</td>
<td>213.3</td>
<td>70</td>
</tr>
<tr>
<td>Double Diagonal</td>
<td>107.5</td>
<td>42.7</td>
<td>25</td>
</tr>
<tr>
<td>Half White Column</td>
<td>93</td>
<td>93</td>
<td>93</td>
</tr>
<tr>
<td>Cave of the 100 Columns</td>
<td>189.2</td>
<td>137.8</td>
<td>50</td>
</tr>
<tr>
<td>Double Barrel</td>
<td>91.6</td>
<td>82</td>
<td>60</td>
</tr>
</tbody>
</table>

The 10 Lake Crowley Caves (from south to north)

This table includes Total survey length, as shown on Derek’s map, THC (true horizontal cave with redundant measurements removed) and a measure I call Littoral Penetration, which is the maximum distance any cave extends in one direction from the dripline, without including a measurement across the axis of the dripline. Many sea caves and other erosional features like wind caves or meander caves are wider than deep, so this measure better gets at just how far in from the cliff line that cave extends.

Nancy sketches Fracture Zone, the southernmost cave which lies outside the area of columns. It differs from the other caves as well by the presence of many faults, some perpendicular to each other.

Birds emerging from Double Barrel Cave in 2016

Matt at one of the many small caves we didn’t bother to map but showing some interesting variety in the shape of the columns.

Nancy in another cave feature, with columns less round and more elliptical than most locales.
Cueva Charco is the world’s most miserable cave, at least so goes its reputation. Charco’s character has been described effectively as a continuous squeeze, complete with low airspaces, broken up by many short pitches, which descend all the way down to minus 1,278 meters of depth. Indeed, the standard lore was that finding somewhere just to establish a camp in Charco was so difficult that cavers resorted to sleeping in places with a low ceiling of gypsum several centimeters above their heads and hopping over holes in the floor to a latrine consisting of a trash bag suspended between rocks. Despite all this misery, Matt Oliphant and Nancy Pistole spearheaded multiple Charco expeditions in the late 1990s through early 2000s.1 The primary reason being that Charco’s location in the Cheve “middle karst” is incredibly interesting. Arguably one of the biggest mysteries in cave exploration today is what lies in the mountain between Cheve and its resurgence, and if such voids could prove traversable to humans. The current bottom of Charco is poised to connect with both Cheve and its resurgence, Cueva de la Mano (which has also been proven to be hydrologically connected to Charco). The nagging possibility that Charco could play a pivotal role in unlocking the mysteries of Sistema Cheve has seen cavers return to this supposedly disagreeable cave, up until 2003 when a sump was encountered at its bottom.

I first heard about Charco back in 2013, when I had just become involved in expeditionary caving in Mexico. Stories divulged around the base-camp campfire told of an undivided sump and a virgin dome climb waiting for someone willing to undergo a grueling crawl to the bottom of a 1,000-meter deep cave. To me, there is a difference between a miserable cave and a hopeless one. Having heard of Charco’s reputation, I initially assumed that Charco was the former rather than the latter. But years later in 2019, en route to a cave-diving expedition in the Cerro Rabón, I met Mike Frazier, who (with a mischievous smile) was quick to mention that he had a very good dive lead on the other side of the canyon for anyone ambitious enough to undertake it. When asked where this lead was, Mike replied “Charco.” I laughed initially, but when Mike went on to say that the cave moves a lot of air, the dive lead looks very good, and there are also dome leads at the bottom, I suddenly became interested. Upon my return from Mexico, I started chatting with some of the other original “Charconians” (as we would come to call those who agreed to go on a Charco trip)—Tony Seddon, Matt Oliphant, Nancy Pistole, and Mike Ficco. The more I heard, the more I became convinced of the possibility that Charco might be key to unravelling the mystery of the mountain. So began the dream of reviving exploration in Charco...

After my fateful meeting with Frazier, it would be two years before I would actually cave in Cueva Charco. I started organizing a reconnaissance expedition with spring of 2020 in mind. Given that I had never actually been to Charco, the objectives of the initial push would be to renig the cave and simply see what we were up against (and if things went well, throw in some exploration at the bottom). With the onset of COVID-19, however, all expeditions in 2020 were cancelled. As 2021 approached, the Mexico expeditionary caving community began asking the question of how feasible a return to Mexico would be. There are many concerns when launching an international expedition to a rural area in Mexico in the midst of a pandemic. Of course, we didn’t want to get sick ourselves, but perhaps even more pressing was the risk of bringing a deadly virus to a remote community. It soon became clear that the only expedition that had a shot of working with COVID was the USDCT Cheve expedition, given that its base camp would be situated far from any villages. I was planning on participating in the 2021 Cheve expedition (see https://www.usdct.org/sistemacheve_2021.php for descriptions and updates), and after discussions with Cheve expedition leadership, a plan was hatched to run Charco in parallel with Cheve, and critically, out of Cheve base camp under the same COVID management plan.

Skipping over the usual boring pre-expedition details and a happily uneventful (and COVID-free) drive to Mexico, I found myself in the village of San Miguel Santa Flor in early February of 2021. Permission from the landowners of Charco had been attained thanks to the help of Mike Frazier, David Tirado, and Gerardo Morrill as well as the invaluable assistance of Mary Arroyo and her family—local residents of the town who have been friends to cavers for many years. Meanwhile, an initial core team of new Charconians was formed consisting of me, Tommy Polson, Mike Frazier, and expedition newcomer and digger extraordinaire Vladimir (Vlad) Paulik.

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1 See Matt and Nancy’s article in the AMCS Newsletter no. 23, and Nancy’s article in AMCS Newsletter no. 30.
I were not greeted by any actual decomposing carcases. Rather, we found several cow skulls and dog skeletons amongst a slew of trash: old clothing, plastic bottles, and many, many shoes. Fortunately, in our entire time in Charco, we didn’t encounter any medical waste… which is really all I asked for. Nevertheless, on our initial descent into the entrance of Charco, I toyed with the idea of rigging a traverse around the grimiest parts to avoid having to climb over trash-slimed rocks—an idea that upon acclimatization to Charco would later cause hysterical laughter.

The Charco entrance is actually not that small and, most importantly, it does have very noticeable airflow. The entrance consists of a series of short pitches where I was pleased to find Matt Oliphant’s old steel bolts in near-perfect condition. Adding mail-lons and hangers, we made quick progress down the initial few drops. After the fourth drop, we encountered the first of the infamous “puddles”—Charco’s namesake. The first historic trips into Charco found this area to be sumped. On a later trip, with lower water, Pat Kambeis noticed an airspace and announced “that’s not a sump, it’s a puddle,” or a “charco” in Spanish. Vlad and I found that this first puddle indeed had a very low airspace. I went through feet first, on my back, nose sniffing the ceiling. On the other side we encountered a fly-infested, muddy, yet sizable (for Charco) room, which ended in a sumped second puddle—the infamous surprise maggot sump. On a previous expedition, cavers exiting from a multiday camp found that strong rains had sumped out all the puddles in the Charco entrance series, forcing them to bail out water from the far side. The rains had also washed in a cow carcass, which had been festering and decomposing for a few days and filling the second puddle with maggots, which the cavers had to then swim through. While Vlad and I found no maggots, we did find that we could not see much of the sump, having muddied it up with our thrashing through the upstream puddle. I tried to kick my feet up through it, recalling that Tony Seddon had reportedly done it as a short free dive, but had no luck. Futilly, we then attempted to drain it from the upstream side, even going as far as to build a rock and mud retaining wall, but ultimately the muddy, trash-infested water trickled back down into the sump. So, we had nothing left to do but to turn back and make the short fifteen-minute trip back to the surface.

The following day, Vlad and I returned with minimal dive gear (mask, wetsuit, light, spool, and a single carbon-fiber tank). The plan was for me to “dive” the second puddle to find the way through and then run a line or a rope through so that Vlad could follow. Unfortunately, the visibility in the puddle had not cleared enough from the previous day for a visual reconnaissance. Tying off a safety line to a rock and pushing away floating styrofoam cups and other debris, I entered the muddy, oddly viscous water of the sumped puddle. The visibility of the puddle was that of chocolate milk and once submerged I could not even see my gauges or lights. After taking off my tank, I was able to wedge my hips between two breakdown blocks and felt the passage not fully

**Cueva Charco**

San Miguel Santa Flor, Oaxaca, Mexico

Total surveyed length: 6.71 kilometers
Total depth: -1.277 meters

Surveyed by:
- Peter Bulley
- Harry Barke
- John Carter
- John Casner
- Louis "Pete" Haskins
- Tomo Yamada
- Mike Price
- Mark Flikkin
- Max Dale
- Jennifer Fox
- Michael Forrest
- Nance Person
- Pat Goodwin
- Tom
- Candace
- Tanya
- Jim Van Etten
- Jeff Mullen
- Tony Silver
- Randy Stirling
- John Van Etten
- Nancy Flade
- Bob Decker
- Jim Heckenberg
- Frank Beaudry
- Mark Note
- Ron Oliphant
- Ken Oliphant

Suunto and tape surveys:
- February 1993
- March 1994
- March 1999
- March 2000
- March 2001
- March 2003

Cartography by Nancy Flade and Donkey Savas

Profile outline 60° view

AMCS Activities Newsletter 30, p. 27, 2007
ending below me. However, a zero-visibility no-mount restriction is not wise, and even if I did get through, no one could follow me. I surmised that rock and debris might have gathered in the puddle since the last expedition. “I guess we’ll go back to Cheve and wait for the water level to retreat,” I sadly told Vad. However, we then noticed a small high lead above the sump. Stemming about 4 meters up a slippery climb, we could wedge ourselves into a vertical squeeze that went for about 1.5 meters upwards into a tiny room ending in a small, horizontal fissure that seemed to keep going. That evening, around the fire at Cheve base camp, we studied the map of the Charco entrance series very closely. The map seemed to indicate that the high lead above the second puddle might possibly connect to the other side—perhaps a voice connection had been made? We decided to return the next day and dig on the lead in the hopes of bypassing the sumped-out puddle. Not only would this mean that we wouldn’t have to wait for the water level to go down, but should a major rain event occur, we would have a bypass to a troublesome area.

For the next two and a half days, Vad, Tommy, Mike, and I, joined by Cheve participant Max Koether, dug on the lead in the Charco entrance. For the most part, Vad and I crammed ourselves in the lead’s small anteroom filled with large flies that insisted on buzzing into our faces. We pulled spoils out of the lead, lowering them in haul bags to Tommy in the room below (my strategy involved turning on my light just long enough to lower a bag without the flies swarming my face). Tommy was quick to point out that with each bag, loose sand and small rocks were also being dislodged and falling into the sump below, clogging it even further. Well, I told myself, I hope this dig leads to a bypass, because if the second puddle wasn’t diveable before, it sure won’t be now.

On the third day of digging, Vad handed me some rocks and proceeded to squeeze through ahead, yelling back that he had reached a room with a hole in the side of the wall going down and in the right direction for a possible bypass. I was overcome by what I can only describe as a sort of “booty fever,” but for known passage. I ditched the remaining rocks (forgetting about Tommy and Max who were waiting below to receive them) and proceeded to cram myself into the squeeze that Vad speculated might still be too small for me. Once reunited on the other side, Vad and I rejoiced in breaking through. Vad went back to get rope to rig the drop, but on my end the “rapture of breaking into known passage” was too overwhelming and I proceeded to (safely) free climb down the drop. At the bottom, I was greeted on my right by a sumped-out pool of dirty water and one of the most beautiful sights I could have seen at that moment—the old, obscenely long, green garden hose that Mike Ficco had left on the far side of the puddle so that it could be siphoned out when it sumped.

On my left was a passage that led to a drop with a rope left rigged at the pitch head. “We did it! We bypassed the second puddle!” I yelled back to the others. Regrouping, we all celebrated on the far side of the second puddle. After the elation had stabilized, we uncoiled the old hose and attempted to siphon out the second puddle. Both Tommy and Vad accidentally ingested some of the dirty sump water while attempting to get the siphon going. I was happy that my “dive” a few days earlier had at least happened before the urinary excretions of multiple cavers had trickled into the sump water from higher up.

Tommy, Vad, Mike Frazier and I returned to Charco on Feb 14th. We were also joined by Philip and Max, and first time Charconian Johanna Kovarik. Mike stayed with the truck while the rest of us entered Charco, proceeding down the entrance pitches, through the low airspace of the first puddle, and up through the bypass across the second one. Johanna commented on the sizable population of fly residents in this part of the cave and even named one particularly large fly “Maria Consuela.” Philip, Tommy, and Vad stayed at the far side of the second puddle to work on puddle enlargements and trench construction. Johanna and Max joined me for a trip farther down the cave to rig and search for the third puddle. The map indicated one more potentially problematic low airspace before the cave “opened up.”

To my great surprise, we found the route flagged. It is true that there really is only one way to go in Charco (at least in this part of the cave). However, which little crack, hole or fissure is the correct one to cram oneself into was not actually that obvious. Many times when following the flagging, we found ourselves asking, “Is this really a way one can go?” Furthermore, we found stainless-steel bolts in great condition at pitch heads and sometimes even coils of rope. Installing maillons and hangers, we made fast progress
down the cave. At one point, we found a rope at a pitch head that had several loops in it. Upon uncoiling it and staring at the drop below, Johanna proclaimed, “Well, Gilly, I guess you need to go lasso the lion” (aka sling a natural anchor). Having made some progress and located the third puddle (which would not be a problem at all), we rejoined Vlad, Tommy and Philip just as they were getting ready to unleash the waters of the second puddle onto the lower parts of the cave (of course, they had been waiting for us to return). Returning to Cheve base camp that evening, we were all in good spirits as it seemed that after about a week of slow progress, we were finally off to the races!

The next several days would not see us return to Charco. A Cheve participant reported feeling ill in cave camp and we had to treat it like a potential COVID infection. Since we had all been exposed, we could not risk a return to Santa Flor where we could potentially infect the villagers. We decided to treat it like a potential COVID infection. Finally, on February 19 at around 1 pm, Tommy, Vlad and I entered Charco with rigging hardware, rope, and a drill. Our goal was a long day trip to rig down the cave, find the old Camp 1 and inventory the remaining supplies there in preparation for a camp trip. The three of us made our way across the three puddles and then down various crawls and squeezes that were broken up by pitches averaging around 5 to 10 meters. Eventually, we arrived at “The 33-meter” pitch—the longest drop in the entire cave, which opens up into a windy, large chamber with a mild waterfall. One might expect here that the cave is getting larger, but one would be wrong. On the contrary, beyond the 33-meter pitch is a series of low airspaces and crawls broken up by a few short vertical pitches through stream passages covered in aesthetically pleasing flowstone. In the stream, without the frequent flagging tape markers of our guides from years past, route finding became time consuming and tedious. Again, it was not like there were multiple options, but we still questioned many of the restrictions, thinking that surely they couldn’t be the way on. At one point, Tommy proclaimed, “Well, I have good news and I have bad news. The good news is that I have found the way on, the bad news is also that I have found the way on.” Tommy then proceeded to crawl through an approximately 30-meter-long, low-airspace restriction.

The lack of visible survey stations left us guessing our proximity to Camp 1 by “landmarks”—named locations on the map such as “The Ivy Filter,” “The Showerhead,” “The Mud Climbs / Cruddy Muddy,” “Butt Whomper Falls,” “Lice Hall,” and “Nasty Section #542.” The Ivy Filter was pretty obvious when we came to it, because it matched well the description of a squeeze over a rock in the stream passage that required a headfirst dive into the stream on the other side. The Ivy Filter also marked the end of the flowstone stream crawls. Beyond this, we transitioned into “The Cheese Grater Section.” Here, we found ourselves climbing up and down through narrow, squeezy canyons with sharp and jagged protrusions, occasionally dropping back down to the stream passage below. Without any survey stations in sight, we began wondering where exactly we were and how much progress we had made towards Camp 1. The next landmark after the Ivy Filter was “The Showerhead” (about ⅔ of the way from the entrance to Camp 1), and we debated if any of the little waterfall infeeders we had passed could have been The Showerhead. At this point, we had still been finding old bolts and in more supplies in support of the ongoing effort there. Fortunately, the illness turned out to be nothing but simple food poisoning.

At around 9 pm Tommy, whose stomach had been bothering him the entire day, finally reported that he had had enough and wanted to turn back. Vlad and I gave him a head start and decided to recon a bit more and see if we could find a survey station or landmark. It didn’t take us long to get to an area where the stream passage got substantially larger—roughly 5 by 8 meters. Vlad and I rushed down what we would later realize is labeled on the map as “The Hall of False Hopes” and quickly stumbled upon what was unmistakably “The Showerhead”—a voluminous infeeder coming directly into the passage and we had no other option but to walk right through it. With all the infeeders, the volume of water was in general increasing and we soon found ourselves at the top of an 8-meter waterfall drop that cascaded into deep pools below. A stash of rope had been coiled near the pitch, but it was not in usable condition. Without our own rope, Vlad and I could do nothing but turn around and catch up with Tommy. A bit disappointed, the three of us made our way out of the cave. Tommy’s stomach issues were slowing him down and so progress was slow, yet uneventful. We exited the cave at 5 am.
after a 17-hour-long trip (just about three hours short of our call-out time) to find Mike still happily camping out in his truck. Sleep deprived, I dozed off on the drive back to base camp in the front seat of Mike’s truck. I am told that the whole drive I kept repeating in my sleep, “Survey station? Survey station?”

At this stage in the expedition, “Team Charco,” i.e., Vlad, Tommy, Mike and I, had done a 12-day camp in Cheve early on to rerig the cave to Camp 3, but had yet to participate in any exploration. A window was opening up in Cheve personnel rotation and it seemed like there would be slots for the four of us to go to Camp 5 in Cheve—the current limit of exploration. I might be one of the few people in the world who would hesitate at such an opportunity in favor of a trip to Charco, but I did want to at least get to finish rigging to Camp 1 so that we would be primed for a Charco camp later on in the expedition (when hopefully the water level had gone down). Vlad agreed to go with me on yet another long, fast-paced day trip to Charco, after which we would have a day on the surface before it would be time to enter Cheve.

On the morning of February 22, Mike dropped Vlad and me off at the Charco entrance. We blasted down the entrance series, past the 33-meter pitch, the flowstone stream crawls and the Cheese Grater. Without the need for rigging and route finding, it took us only about two and a half hours to get to the waterfall where we had turned two days prior. We rigged down this drop into a series of pools followed by additional pitches. As we were minimally adding bolts, we were still following the old style of rigging which saw us rappelling through waterfalls and into deep pools. After tossing our bags ahead of us and jumping into one of the deeper pools. I mentioned to Vlad that this seemed to have become a canyoneering trip. It was, actually, a lot of fun. But the great sense of remoteness that we were feeling kept us grounded. With just the two of us hours into what was considered a very challenging, continuously wet cave, we were very deep in Adam Byrd’s “don’t f*** up zone.”

Without a good sense of where we were relative to Camp 1, we persevered down the cave, always on the lookout for a survey station. We knew that camp was at the end of the D survey. About four hours into our trip, I finally saw one: a bit of old flagging tape tied to a rock in the middle of the passage - D31! We must not be too far from camp now! Short of making a connection, I don’t think it was possible to feel as happy about finding an old survey station as I did at that moment. Far and deep into Charco, it felt as though we had Matt, Nancy and the others back with us again. I even made the comment to Vlad that just like in Journey to the Center of the Earth (a book I almost always carry along on deep cave camps), we were following the footsteps of our guides down to remote places where very few had tread before.

It didn’t take us long to hit the final landmark between us and Camp 1— “The Cruddy Muddy.” Here, one climbs up from the stream passage onto a series of big muddy boulders. This part of Charco is truly, in my opinion, not a very nice place. The mud is thick and there is plenty of it. Eventually we dropped out of the Muddy Cruddy and back down to the stream passage. Doing so required us to slosh down a mud traverse to a rope rigged to what appeared to be a rock buried underneath a half-meter layer of mud. After crossing a muddy reelay and a knot, we were finally back down in the stream passage at the base of a waterfall pool, which Vlad and I promptly jumped into to wash off the mud.

Beyond the mud climbs, at about four and a half hours into our trip, Vlad and I slowed down and started looking carefully for signs of camp. Camp 1 is on a higher level above the stream and we were told that it may be possible to simply miss it. Fortunately, we started seeing signs of flagging again. Following the tape, we found ourselves climbing up and down from the stream into higher passages\(^2\), and eventually into camp.

Camp 1 of Charco was larger and friendlier than I expected. There is a classic photo of Mike Ficco in one of the Charco sleeping spots in which he is crammed into a space about a foot in height with a ceiling of mud and gypsum right above his head. Fortunately, the rest of the camp is not exactly this small. It consists of a cooking area on one side of a passage and sleeping spots (including Mike’s) on the other. A small slot in the floor separates the two sides and we noted a rope going down it, which was the way on to the rest of the cave. Vlad and I celebrated our arrival at camp with dried figs, chocolate and white cheddar cheese. We then inventoried camp and were delighted to find four old sleeping bags and three Thermarests in excellent condition. Additionally, there was about 100 meters of unused 9mm rope. Between this and the rope we had brought with us, we reasoned that we had enough to rig to the bottom of the cave. Stashing the hardware we carried in, we made an inventory of the camp and headed out of the cave. We exited at around 1 am, 13 hours after we began our trip.

I spent the next 15 days trying to find the way onwards from Camp 5 in Cheve. But, as my teammates will likely agree, Charco was never far from my mind. In particular, while we were now set up for a camp trip in Charco, we did not have a team. Vlad was still keen to go, but Tommy and Mike had both sustained minor injuries that required them to cave more conservatively. Other cavers who had expressed interest in Charco were on schedules that would not allow them to disappear into Charco for a week or so without missing out on their chance to be at the front in Cheve. I was in full-blown Charco recruitment mode, going so far as to try to organize a Charco camp trip over the cave phone at Camp 5 in Cheve. At some point the Charco recruitment mantra was born, which consisted of such lines as: “Are you tired of Borehole? Are you tired of cave passages where you can’t even see the walls? Then come to Charco!”

2 This part of the cave has a very distinct upper level and it is quite possible that there are some leads here, but arguably they are far less interesting than those at the bottom.
Eventually, a Charco camp team did come together. Joining Vlad and me for a bid to the bottom was Amy Morton. New York cavers Jessica Van Ord and Mark Dickey agreed to help haul gear as far as Camp 1 and spend a night or two there, perhaps looking at nearby leads. Bill Stone, Chelsea Dau and Ben Dau agreed to enter with us on a day trip to help haul bags through the entrance series. We planned to stash my inReach device at the entrance so that various teams exiting the cave could communicate with base camp to arrange a pickup. In mid-March, our team of eight entered Charco with two or three 22-liter Kortuba haul packs each (larger-sized bags do not fit in Charco). As Vlad already knew the way, I asked him to guide Jessica and Mark to Camp 1, while I stayed behind with the rest of the group to shuttle bags. Amy and I eventually parted ways with Bill, Chelsea and Ben, and continued down the 33-meter pitch with six bags between us. Stashing some gear in an alcove at the bottom of the drop, we continued on through the wet flowstone crawls. Concerned about a major rain event, I was unpleasantly surprised to find that the water level here had not gone down at all during our almost month-long absence. It wasn’t long before we caught up with Mark, Jessica, and Vlad, who had been delayed due to a catastrophic failure of Mark’s personal Daren drum. Arriving at the waterfall drops, Amy and I stayed behind, took the drill and began adding bolts. At around 1 am we arrived at camp to find Mark attempting to dry off his wet camp clothing, but still smiling. The other victim of the waters of Charco was the Hilti drill we had been using. Sand on the dry-bag seals meant that water had leaked in, leaving the drill non-functional. Fortunately, a night of me cuddling with it in my sleeping bag managed to dry it out.

Five people is just about the capacity of Camp 1, or as it is marked on the map, “Rubik’s Cube Camp.” We reasoned that the name referred to the fact that every time one person wanted to get up and do something, everyone else had to shuffle around as well. Vlad took Mike Ficco’s old low-ceiling sleeping spot. Mark and Jessica took the double spot in the middle of the sleeping area and Amy the spot one tier above them. I took the attic, which involved climbing directly above Amy’s sleeping spot, dislodging mud and gypsum sand on her every time I went up or down. In addition to the shoddy sleeping arrangements, Charco’s latrines are infamous for their lack of charm. There is nowhere to construct a latrine that would not involve its contents making their way to the stream passage (and our water source) below. As such, our latrine was a communal trash bag splayed open just upstream of camp. Nevertheless, I liked this camp. It was cozy, not too noisy, and was warmer than any of the Cheve camps (established at that point in time), let alone Cheve base camp where temperatures dropped well below freezing almost every night.

Despite my fondness of camp, I had too much on my mind to sleep well that first night. Given the high water levels, and our remoteness from Cheve base camp (recall that given the COVID situation we could not establish our own base camp in Santa Flor), I was questioning whether or not it was prudent to carry on with our full objectives. I had originally hoped to reestablish and use Camp 2 (about ¾ of the way to the bottom) and from there continue on to have a look at the leads. But I realized now that doing so could make the trip extend substantially longer than the weather forecast we had. Ultimately, we decided that Amy, Vlad and I would do a day trip out of Camp 1 to reach Camp 2 and perhaps push below. We would not reestablish or camp out of Camp 2 in 2021.

After a rest period, Jessica and Mark began their exit out of Charco, while Amy, Vlad and I prepared to embark on a trip to rig to and find Camp 2. Traversing through the passage downstream of Camp 1 can be summed up as follows: waterfall drop, stream passage, pool swim, repeat. At this point, the water volume from all the infeeders was sizable and some of the waterfalls were rather substantial, making rappelling down them on the old rigging placements sporting at times. It effectively was a canyoneering trip underground, and I was having a blast rigging down the cave, which was now starting to feel like “our cave.” The passage was also the biggest continuous stretch of cave we had encountered so far. I took my 22-liter pack off only a few times that day, which is to be compared with the journey from the surface to Camp 1, which essentially is “packs off” the whole time. As exploration in this part of the cave was far more recent, survey stations and flagging tape were abundant—a welcome change from our efforts in finding the way to Camp 1.

Despite the relative ease of travel and route finding, rerigging (even minimally) did take some time as we were encountering ever more spinning bolts and old nasty spits. We eventually arrived at Camp 2 about seven hours after we had left Camp 1. We shared some bars, made an inventory, and marveled at the abandoned latrine, which was a trash bag stretched wide open, tied across the passage. After the repast, we assessed our situation. We had enough rope and hardware to keep going for a bit, but given that the old rigging was only expected to become less usable, it was clear that we would not have time to make it to the bottom. So this seemed like a reasonable point to turn around. We had made it to Camp 2, and the next trip would camp here, but it would not be in 2021. While we had a month left of the dry season, with Cheve now “busted wide open,” it was clear that no one would want to be taken away from the leads there. Indeed, if the bottom of Cheve was going good, perhaps it would blast past (or even

Above: Vlad in a hero pose on the entrance pitch and left, Max with the hose that was used to drain the puddle.
connect to) the bottom of Charco, making our effort here obsolete. With this in mind, we headed back to Camp 1, pulling and staging the ropes behind us.

Exiting Charco from Camp 1, we each hauled two 22-liter packs containing personal gear and empty Daren drums. I took up the rear to stage-derig the ropes. At one point while I was pulling the ropes from a waterfall drop, I heard a big boom followed by a splat. I quickly finished derigging so I could get off rope, and rush to see what had happened. It turned out that Amy had a near miss with a large loose rock, but was uninjured. I had had my own close calls with dislodged rocks in various places in the cave, and as we would later learn Mark had dislocated his shoulder on his way out when a hold broke on him. One does need to proceed with caution in Charco. After about 11 hours we made it to the surface in time to put out the call to Cheve base camp where folks were attentively monitoring the inReach devices.

As it turns out, the camp trip would not be my last visit to Charco in 2021. In my haste to exit the cave in time to call base camp, I had forgotten a stash of personal gear at the bottom of the 33-meter drop. Two days later, Tommy and I went to retrieve it. After climbing back up the 33-meter pitch with the gear in tow, Tommy and I shared a Milky Way chocolate bar and reflected on our time in Cueva Charco. Pulling out my GoPro, I shot a mock interview with Tommy our time in Cueva Charco. Pulling out my inReach devices.

Two days later, Tommy and I went to retrieve gear at the bottom of the 33-meter drop. Our time in Cueva Charco had the support of a 2020 NSS International Exploration grant and is a Karst Underwater Research project.

While ultimately not accomplishing all of our objectives, we did learn a lot about the cave on the 2021 reconnaissance trip. Charco is absolutely brutal on gear. It seemed that everything we took in there, be it drills, cave suits, haul bags etc., came out trashed. The biggest obstacle to diving the sump will be to get dive gear to the bottom of the cave in working condition. Also, Charco is very wet, requiring cavers to spend almost the entirety of their time actively in water. While the water temperature is substantially warmer than in Cheve, hypothermia would need to be managed should a major accident in Charco ever occur. Regarding its miserable reputation, I actually find traveling through most parts of Charco to be rather fun. In part this is due to the fact that I am not an extremely tall person (at one point Vlad exclaimed “Gilly, you should not be able to turn around here” after I had done a particularly pretzel-y maneuver). But I suppose I also have a soft spot for challenging caves, as it can feel like they tend to be passed over in favor of lower-hanging fruit. A question I now get asked a lot is which cave is more miserable: Charco or Tears of the Turtle. The answer is hands down Tears, but I certainly invite any other Tears cavers to come for a visit in Charco and judge for themselves.

After the 2021 expedition, we find ourselves in a good position to come back to Charco. The air that we noticed throughout the cave is substantial. It has to be going somewhere and curiosity beckons us to find out where. So when a call goes out for the next Charco expedition, just ask yourself, “Are you tired of borehole?”

Acknowledgements

Many thanks to some of the Charconians of years past: Mike Ficco, Mike Frazier, Pat Kambesis, Matt Oliphant, Nancy Pistole, Tony Seddon and Bill Stone for the many discussions we had before, during, and after the expedition. A special thanks to Matt and Nancy for sharing the Charco maps and old photos, and for their general support. Another big thank you to Mike Frazier who was invaluable on-site for permissions, rides to and from Charco and for general moral support during the expedition.

Thank you to all the new 2021 Charconians for giving this little cave a chance: Ben Dau, Chelsea Dau, Mark Dickey, Mary Hicks, Max Koether, Johanna Kovarik, Amy Morton, Vladimir Paulik, Tommy Polson, Philip Rykwalder, and Jessica Van Ord.

Permission would not be possible without the help and kindness of Mary, Juan and the rest of the Arroyo family. Hugo Rodriguez helped with advanced permission, and Gerardo Morrill and David Tirado helped with on-site permission negotiations.

Thanks to the folks at Karst Underwater Research for their assistance before the expedition. Finally, big thanks to Bill Stone and the United States Deep Caving Team without which Charco 2021 would not have been possible for multiple reasons.

Charco had the support of a 2020 NSS International Exploration grant and is a Karst Underwater Research project.

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For additional questions contact: rraber@effingham.net
FADE IN
Theme music over Three Stooges logo.

DISSOLVE TO:

1. INTERIOR. Office of the CHIEF OF POLICE.

The POLICE CHIEF is addressing a crowd of REPORTERS and PHOTOGRAPHERS.

POLICE CHIEF
Gentlemen, we have a situation. A man is lost in Dead Man's Cave.

REPORTER
Why aren't the police doing anything about it?

POLICE CHIEF
The police have their hands full tracking down a gorilla that escaped from the circus. But don't worry. We've contacted a local Search and Rescue team.

2. CLOSE-UP. The following sign, as theme music plays in the background:
Howard, Fine, and Howard
Last Resort Search and Rescue
Our motto: If we can't find you, you aren't lost.

3. INTERIOR. The boys' bedroom. All three are sound asleep in one bed, making snoring sounds that aren't human. The phone is ringing.

MOE (nudging LARRY)
Shut that off.

LARRY (Nudging CURLY)
Shut that off.

CURLY (nudging empty air).
Shut that... low man again.

CURLY turns the alarm off. The phone keeps ringing.

MOE (smacks LARRY)
I told you to shut that off.

LARRY (smacks CURLY)
I told you to shut that off.

CURLY grunts angrily and throws the alarm clock out the window.

4. EXTERIOR. A COP is directing traffic. Suddenly the alarm clock hits him in the head and he takes a header onto the pavement.

5. INTERIOR. The boys' bedroom. They wake up and realize it's the phone. They rush to answer it, dressed in their nightshirts.

MOE
Hello

CURLY
Hello

ALL THREE IN UNISON
Hello

MOE
Yes? (Pause) Yes Yes? (Pause) Yes Yes Yes?

CURLY leans in. MOE hits him with the phone. Sound effect- something hollow being struck.

LARRY
What is it?

MOE
A job!

LARRY and CURLY
A job!

MOE hangs up the phone. All three take off their nightshirts, underneath which are coveralls. They gather up their gear in their typical chaotic fashion, CURLY “Woo-wooing” through it all. They rush for the door at the same time and get stuck.

MOE
Spread out!

They try again. MOE and LARRY make it through the door, CURLY slams into the wall. He regains his composure (such as it is) and shuffles his way out.

5. EXTERIOR. Entrance to Dead Man's Cave. The POLICE CHIEF, REPORTERS, and a PHOTOGRAPHER are gathered. Enter MOE, LARRY, and CURLY at a run. All three are carrying packs of cave gear.

MOE
What's shaking, Chiefy?

POLICE CHIEF
There's a man lost in Dead Man's Cave. Can you find him?

MOE
Can we find him?!

LARRY
Can we find him?!

CURLY
Can we?

MOE stomps on CURLY'S toe.

CURLY
Oh oh oh oh oh!

MOE
Always clowning. Come on. I'll lead the way. (pushes LARRY and CURLY in front of him) Go ahead.

They run towards the cave. Once again, MOE and LARRY clear the entranceway and CURLY slams into the side of the rock face. Dazed, he follows the others into the cave.

6. INTERIOR. Cave passage 1. There is a pit downhill, multiple side passages, and a slight downward incline stage left. PATIENT is limping. MOE, LARRY, and CURLY rush in.

PATIENT
Thank heavens! You found me!

MOE
Take it easy, pal. You got nothing to worry about.

All three drop their gear packs – directly on PATIENT'S foot.

PATIENT
Yeow!

PATIENT holds his sore foot and begins hopping in pain. MOE, LARRY, and CURLY look on for a second, then join in, doing a jig while singing gibberish.
Eventually, they all stop dancing and PATIENT slaps all three in unison.

PATIENT
You idiots!

MOE
Take it easy, mister. It was an accident. We'll get you out of here.

CURLY
Coitainly! You're as snug as a bug in its mother's arms. Nyuk! Nyuk! Nyuk!

CURLY hefts his cave pack up on his shoulder, and turns abruptly. Cave pack hits PATIENT and knocks him into the pit.

PATIENT
Whooaaahhh!

CURLY
What happened?

MOE
Nothin'

Smacks CURLY

CURLY
I'm a victim of coicumstance!

MOE
Never mind that. Throw him a rope!

CURLY pulls a coil of rope out of his pack and throws the rope into the pit (naturally, he doesn't tie it onto anything).

7. INTERIOR. The pit. PATIENT is stumbling about in a daze. The rope falls on top of him. He goes down. Sound effect - tweeting birds.

8. INTERIOR. Cave passage 1. MOE is holding a rock hammer and looking for the rope. LARRY is offstage.

MOE
Where's the rope?

CURLY
I threw it down to him.

MOE
You nitwit! (Hits CURLY in the head with the rock hammer. Sound effect – clanking iron)

CURLY
Ow ow ow! Oh look!

9 CLOSE-UP. Head of hammer is completely warped.

10. INTERIOR. Cave passage 1.

MOE
Look what you did! You ruined another hammer! Go toss him a ladder. And this time, do it right! (Exits)

CURLY extends his arm in MOE's direction with an annoyed grunt, retrieves a cave ladder, fastens it to the cave floor, while singing. He then tosses the end of the ladder into the pit.

11. INTERIOR. The pit. PATIENT, still dazed, is starting to stand when the ladder clunks him on the head. PATIENT goes down again. Sound effect – more tweeting birds.

12. INTERIOR. Cave passage 1. CURLY is standing by the pit. ENTER MOE and LARRY.

MOE (to CURLY)
Got that rigged? Okay, now go down there and get him into a harness. (To LARRY)
Hey, Porcupine, start rigging a pulley system.

13. CLOSE-UP of MOE and CURLY.

CURLY (indignant)
I'll go down when I'm good and ready!

MOE slaps him

MOE
You ready now?

CURLY
No!

MOE slaps him harder.

MOE
You ready now?

CURLY
Yeah, I'm ready.

CURLY Starts down the cave ladder, loses his footing, falls, and yells.

14. INTERIOR. The pit. PATIENT is more dazed before, is once again trying to stand when CURLY lands on top of him. Both go down in a heap.

15. INTERIOR. Cave passage 1. LARRY has rigged a pulley system with a rope.

MOE
You got him rigged?

16. INTERIOR. The pit. PATIENT is harnessed and tied in.

CURLY
All set!

17. INTERIOR. Cave passage 1. MOE and LARRY have hold of the rope.

MOE
Okay. Heave!

LARRY looks at rope with a bewildered expression and releases it. PATIENT falls back in pit with a terrified yell.

18. INTERIOR. The pit. PATIENT lands on top of CURLY. Both go down in a heap.

19. INTERIOR. Cave passage 1.

MOE enters.

MOE
What happened?

LARRY
I did what you said. I let go.

MOE
I'll let go. (Smacks LARRY). You featherbrained imbecile! Now we'll have to get him up here all over again! (Grabs LARRY by the hair and yanks out a huge chunk).

LARRY
Agghh!

MOE (handing LARRY his hair)
Here, hold that. (To CURLY, down in the pit). Hey Muttonhead! Get up here and get a Sked ready!

CURLY climbs out of the pit and stands there with a typically dumb expression. MOE smacks him.

MOE
Well, what are you waiting for? Get going!

CURLY picks up a cave pack and exits stage right.

LARRY
Ho!

MOE
Heave!

LARRY
Ho!

After several iterations of this, MOE and LARRY have the PATIENT hauled up, almost out of this pit.

MOE
I'll start packing our gear. (Lets go of rope which LARRY is still holding).

MOE exits.

MOE (offstage)
Let's go!

LARRY
What?

MOE
LET'S GO!

LARRY looks at rope with a bewildered expression and releases it. PATIENT falls back in pit with a terrified yell.

18. INTERIOR. The pit. PATIENT lands on top of CURLY. Both go down in a heap.

19. INTERIOR. Cave passage 1.

MOE enters.

MOE
What happened?

LARRY
I did what you said. I let go.

MOE
I'll let go. (Smacks LARRY). You featherbrained imbecile! Now we'll have to get him up here all over again! (Grabs LARRY by the hair and yanks out a huge chunk).

LARRY
Agghh!

MOE (handing LARRY his hair)
Here, hold that. (To CURLY, down in the pit). Hey Muttonhead! Get up here and get a Sked ready!

CURLY climbs out of the pit and stands there with a typically dumb expression. MOE smacks him.

MOE
Well, what are you waiting for? Get going!

CURLY picks up a cave pack and exits stage right.
20. INTERIOR. Cave passage 2. Enter CURLY. Humming, CURLY removes a rolled up sked, lays it on the cave floor, gets on all fours and begins unrolling it. As he unrolls it from one side, it rolls up from the other.

CURLY turns and sees the see that the sked has rolled up again. With an annoyed grunt, he tries again, only to have the same thing happen. After a few iterations of this, he gets annoyed and barks at the sked.

21. INTERIOR. Cave passage 1. MOE and LARRY have re-rigged the pulley system and are about to haul up the PATIENT.

MOE
Hurry up with that sked!

22. INTERIOR. Cave passage 2. CURLY is stamping up and down on the sked like a little kid having a tantrum.

CURLY
I can’t get it to stay flat!

23. CLOSE-UP of MOE.

MOE
Well, use your brain!

24. CLOSE-UP of CURLY with a blank look.

25. CLOSE-UP of MOE, who has just realized the futility of his last statement.

MOE
Never mind! Just put something heavy on it!

26. INTERIOR. Cave passage 2. CURLY exits in search of something heavy. After CURLY leaves, the GORILLA enters from a side passage. The GORILLA sees the sked, and unrolls it the right way - in the reverse direction. The sked stays flat.

GORILLA sits on the sked and rifles through CURLY’S cave pack. He takes a banana, peels it, tosses the peel aside, eats the banana, and exits.

CURLY re-enters.

CURLY
Hey Moe! I couldn’t find... (sees the flattened sked) Nyahhhhh!

Enter MOE and LARRY. MOE is carrying a cave helmet.

MOE
What’s the matter?

In his haste, MOE slips on the banana peel. The cave helmet goes flying, hits MOE in the head. MOE falls. The helmet bounces off MOE’s head and lands on top of a bat minding its own business on the cave floor.

27. CLOSE-UP. LARRY and CURLY kneeling by MOE.

LARRY
Speak to me, Moe!

CURLY
Say a few syllables! Utter a few adjectives!

MOE (coming to)
I’ll murder you guys! (Slaps them both in unison.)

Meanwhile, the helmet is moving along the cave floor, unnoticed by all but LARRY.

LARRY (pointing at helmet)
Nyahhhh ahhh ahhh!

MOE (to LARRY)
What the matter with you?

CURLY
It’s haunted, Moe! I tell ya, this place is haunted!

MOE
I’d say your brains were haunted if you had any! (Noting the contents of the cave pack opened by the GORILLA). And you’ve been eating our food, too! (Smacks CURLY.)

28. INTERIOR. Cave passage 2. CURLY (pointing to the flattened skid) It’s haunted, Moe! I tell ya, this place is haunted!

MOE
As soon as MOE looks, the helmet stops moving. MOE smacks LARRY.

MOE (to LARRY)
Am I gonna have trouble with you, now?

As MOE is talking, the helmet starts flying, once again courtesy of the bat. CURLY is the only one who notices and starts making unintelligible fear noises.

MOE
What’s the matter with you?

Trembling, CURLY points at the helmet which is back on the ground. MOE smacks him and turns back to LARRY.

MOE
Ya know, you’re getting to be as slug-nutty as him. Why, if you’re not careful, you’re gonna...

The helmet rises in the air again, behind MOE’s back. LARRY, terrified, is gesturing at it.

LARRY
It’s flying! The helmet is flying!

MOE (contemptuous)
The helmet is flying.

MOE turns.

MOE
It’s just the helmet flying it.... (The reality dawns on him).

ALL THREE
Nyaahhhhh!!!!

Exit all three on a run, CURLY tripping over the sked. MOE and LARRY run into a side passage, CURLY runs into a crack in the wall and gets stuck.

CURLY
Hey Moe! Hey Larry! I’m stuck! Get me outta here!

29. INTERIOR. Cave passage 3. Enter MOE and LARRY. CURLY’S head is sticking through the cave wall. His butt is in Cave passage 2.

MOE
Take it easy, kid. We’ll get you out! (To Larry) Grab hold of him.

MOE and LARRY grab CURLY by the head and pull. CURLY’S neck elongates, but he remains stuck in the crack.

CURLY
Oh, oh, oh, oh!

MOE
This isn’t getting us anywhere.

LARRY
What are we gonna do?

MOE
I got an idea.

MOE digs in a cave pack, pulls out a carbide and exits.

30. INTERIOR. Cave passage 2. Enter MOE. MOE ignites the carbide. When he has a good-sized flame, he holds it to CURLY’S butt.

31. CLOSE-UP of CURLY’S face.

CURLY
Nyaahhhuhhhhh!
32. INTERIOR. Cave passage 2. As MOE holds the carbide, CURLY smashes through the wall. Offstage, there’s a sound of a loud crash.

33. INTERIOR. Cave passage 3. LARRY is getting up off the ground.

34. CLOSE-UP. LARRY’S face bears the imprint of CURLY’S boot.

35. INTERIOR. Cave passage 3. CURLY staggering against the opposite wall as rocks and pebbles fall on his head. Enter MOE.

MOE
Come on, you guys. This is no time for clowning around.

Exit all three.

36. INTERIOR. Cave passage 1. The PATIENT is sitting on the cave floor, unconscious. Enter all three.

MOE
Let’s take this guy and get out of here!

LARRY
But our gear is back there,

37. INTERIOR. Cave passage 2. Enter GORILLA.

GORILLA rifles through the cave pack looking for more food. He picks up a packet.


39. CLOSE-UP. GORILLA opens the pack, takes out a heating pad and puts it in his mouth. His eyes widen and smoke comes out of his mouth and ears. GORILLA gives out with an angry roar.

40. INTERIOR. Cave passage 2. Enraged, GORILLA tosses sked, cave pack, and miscellaneous gear offstage right.

41. INTERIOR. Cave passage 1.

MOE
I’ll get it.

Suddenly, gear, sked, and everything else comes flying from offstage offstage left, bombarding MOE.

MOE (gesturing toward patient)
Wrap him up and let’s get going!

MOE bends over to retrieve gear as LARRY and CURLY hurriedly pack the PATIENT in the sked. In repositioning the sked, they whack MOE in the butt and he goes flying down the incline offstage left.

42. INTERIOR. Cave passage 4.

MOE comes flying in from stage right and lands in a pool of muddy water. He comes out covered in mud.

MOE
I’m gonna kill those guys!

MOE starts to walk, then bumps his head on a low part of the cave ceiling.

Exit MOE, lurching, hunched over, apelike.

43. INTERIOR. Cave passage 1. LARRY and CURLY have the PATIENT packed in the sked. Enter MOE.

LARRY
Hey look! It’s that gorilla!

CURLY
Let’s capture him! Maybe there’s a reward!

LARRY and CURLY grab cave hammers and shovels and start pummeling MOE. As they do so, the mud falls off.

MOE
Hey! What are you you guys doing to me?

CURLY
It’s Moe!

LARRY
We’re sorry, Moe! We thought you were an ape!

CURLY
Yeah. It’s a natural mistake.

MOE
Ha, ha ha. Don’t worry about it, boys. Things like this happen all the time!

LARRY and CURLY lean in closer.

CURLY
You mean you’re not mad?

MOE
Now why would I be mad?

MOE reaches out and grabs LARRY and CURLY by the scruffs of their necks. He clunks their heads together multiple times. Sound effect: something hollow being struck.

MOE
Get this stuff packed! I’m gonna wash this mud off!

Exit MOE.

44. INTERIOR. Cave passage 5. MOE kneels by a cave stream and starts washing. The GORILLA sneaks up behind him.

MOE (yelling offstage)
Hey! Throw me a towel!

After a short wait, MOE reaches behind him, grabs a hunk of GORILLA’S fur, yanks, and wipes his face. GORILLA grunts angrily.

MOE
What’s the matter, you got indigestion or something? (Turns and sees the GORILLA)
Nyyahhh!

MOE exits at a run, pursued by the GORILLA.

45. INTERIOR. Cave passage 1. LARRY and CURLY see the GORILLA and exit at a run, followed by MOE. Offstage, a crashing sound is heard.

46. CLOSE-UP. The cave wall with three man-shaped holes leading to the exterior.

47. EXTERIOR. Outside the entrance of Dead Man’s Cave. Enter, MOE, LARRY, and CURLY at a run. They collide with the POLICE CHIEF and the REPORTERS. All fall down in a tangle.

POLICE CHIEF
What’s going on here?

CURLY
Run for your life! It’s a monster! It’s a giant! It’s a dinosaur!

48. EXTERIOR. Entrance to Dead Man’s Cave. The GORILLA stands in the entranceway roaring.

49. EXTERIOR. A few feet past the cave entrance. Everyone starts running, screaming, except the PHOTOGRAPHER.

GORILLA exits the cave, pulling the sked with the PATIENT.

50. CLOSE-UP. PHOTOGRAPHER raises his camera.

PHOTOGRAPHER
What a shot! Hold it!

51. CLOSE-UP. GORILLA strikes a pose and grins as the flash goes off. Sound effect: multiple camera clicks

Closing theme.
FADE OUT....THE END.
Interested in them and began to notice that the same shapes had been used at different cave sites all across Europe.

She did some research and couldn’t find anything about the signs. She asked her professor about it and was told that nothing had been done on it. She was started down her path.

On the back of The First Signs, it says, “Part narrative, adventure, part popular science, von Petzinger’s groundbreaking book starts to crack the code on the first form of graphic communication. It’s in her blood, as this talented scientist’s grandmother served as a code-breaker at Bletchley Park during World War II. The First Signs offers glimpses across millennia of an ancient consciousness linked to our own – and a hint of when our Ice Age ancestors became us.”

This is what caving is about to me: curiosity, discovery, and persistence. The author starts us out in Africa and symbolic evidence prior to 50,000 years ago. The writing is not technical in nature or academic and scientific. It’s a first-person narrative, the story, of significant discoveries as they happen.

Von Petzinger took many trips to Africa and Europe. Anywhere she could find mention of cave paintings, she went to look for symbolic markings. She set up a database and kept detailed records. Her husband, Dillon, handily is a professional photographer and her caving partner. She tells the tale well of getting into the ancient people’s heads and climbing to where you wouldn’t expect to find markings, finding them, and getting Dillon to climb up and photograph them.

Through all of this work, she has become the only researcher in the world focusing specifically on connections between the geometric signs from the Ice Age. Her database holds more than 5,000 signs from almost 400 sites across Europe.

Genevieve has written this book, given TED Talks, and has now finished her Ph.D. The bottom line of her work is that the same 32 symbols were drawn on cave walls along with the paintings across most of what is now Europe for more than 30,000 years. It may be that she’s discovered the first writing.

But maybe not. There may be earlier symbols on cave walls in Africa, which she discusses in the book. And being from the Americas, she has taken the first steps toward creating a database of New World ancient symbols drawn in caves. We’re sure to hear lots more from this pioneering speleologist in the future.

So, what do the 32 symbols mean? No one knows—yet. There is no equivalent of the Rosetta Stone. There may never be. Their meaning may never be known. But Genevieve von Petzinger will be the one to figure it out if it’s ever figured out. She’s found her life’s work and she’s on it like a heat-seeking missile.

Bill Steele

THE LANDS OF KARST

428 pages, color, Download for free at http://www.karst.edu.rs/en/. 81 mb file

From the website: A book of nice photographs, “The Lands of Karst. A Visual Story” has just been published and is available for free download on our web site. It is a contribution to the International Year of Cave and Karst declared by the International Union of...
Special Meeting of the BOG

On August 24, the NSS Board of Governors held a special meeting to address some bylaws; to receive a report by Dr. Hazel Barton, chair of the ad hoc Vertical Training Committee; and to act on the ad hoc committee’s recommendations. Dr. Barton presented the findings of a recent survey she performed on vertical caving in the US and on the recommendations from the ad hoc committee. The committee was formed in April 2021 and held numerous on-line meetings over the proceeding months. Members of the committee included Amy Bern, Reilly Blackwell, Eddy Cartaya, Gene Harrison, Devra Heyer, Tommy Polson, Bev Shade, Tommy Shifflett, Jessica Van Ord, and Kurt Waldron. Geary Schindel (NSS President) and Adam Weaver (NSS Administrative Vice President) served as ex officio members. The committee worked tirelessly over several months, having regular meetings to identify some really challenging issues for the society and US caving, and to come up with potential solutions. I would like to thank each member of that committee for their time and service to the society.

The ad hoc Vertical Training Committee considered the current state of vertical training in the NSS, the potential need for standardization of vertical techniques, and the type of organizational structure best suited to implement recommendations from the committee. The need for standardized and formal training is particularly apparent in the wide range of skills of people entering NCRC training, a national coordinator, a board of regional coordinators, development of standardized training materials, and development of a program to train “instructors” to perform local and regional training programs and opportunities.

After the presentation by Dr. Barton, the board approved Adam Weaver’s motion to form a Vertical Training Transition Committee to draft a charter for a Vertical Training Commission. The committee will be located within the Education Division of the Administrative Vice President (AVP).

I’m excited for the creation of this new initiative and believe it will go a long way in improving safety in the caving community. The development of this program and how members can contribute is detailed in the article in this issue of the News.

In other business, the board passed a number of modifications to board acts regarding the NSS Awards. This was mostly procedural and included placing the administration and announcements for all awards under the Awards Committee as well as formally establishing the Group Conservation Award.

The board also approved a payment play for Life and Conservation Life membership. We had previously had provisions in our bylaws for payment plans which were removed at some point in the past. This motion just formally approves what has been occurring at the office.

The board also approved a payment plan for regular membership for those that want to commit to a year’s membership in the society and use a monthly credit or debit payment.

The board modified the deadlines to shorten the available voting time for election of directors from 45 days to 21 days. Most voting for directors is performed within 24 hours of receipt of a reminder to vote.

Benefactors of the Society

The board approved Mr. David Hoffman (5761RL FE), Robert Elron (16675RL), C.J. Rushin-Elron (11372 RL FE), Preston Forsythe (14161RL FE), and Shari Forsythe (24794FR) as benefactors of the NSS. All have been longtime members and contributors to the Society. The President, with approval of the board, may designate a member, institution, grotto, or other entity as a Benefactor for lifetime, substantial financial contributions to the society.

Team 404

The Team 404 program was dissolved upon completion of our last payment on August 10. We now own the NSS Headquarters and will schedule a mortgage burning at the 2022 NSS Convention to be held in Rapid City, South Dakota. Our fund raising has been very successful and I want to thank all of our donors for their years of contributions. Our 15-year mortgage was paid off in 9 years and 9 months.

Sustaining Contributor Program

At the August special board meeting, the board also moved to pass a new “Sustaining Contributor” program modeled after Team 404. Participation in the program requires a donation of $25 per month or $300 per year. Funds will go to help support various programs in the society ranging from cave acquisition, supporting an Executive Director position, building a climbing tower, updating the headquarters and campground, etc.

You can help support the society by signing up to be a Sustaining Contributor on the NSS webpage at caves.org.

Membership

Our membership numbers have continued to climb over the last many months. This growth is in spite of the pandemic, the inability to hold the NSS Convention in July, as well as regional events and many grotto meetings, etc. Membership continued to climb to 7,665 members for a growth of 62 members in August. The highest NSS number issued was 71225. Since December 31, 2020, we’ve gained 462 members.

Geary Schindel
Q. How did your sense of adventure develop?
A. My hunger for adventure started at a young age. I was free to roam my small town of 600 souls on my bicycle with friends as a child. I had many discoveries and thrills as a result of my childhood freedom. My first real adventure outside of my home state of Nebraska happened when I left for Brazil as an exchange student to study art after graduating high school. I always tell people I learned three things during my stay there: how to speak Portuguese, dance, and drink. In my 20s, I was addicted to travel and used my career as a means to travel the country, live in different places, see different parts of nature, and experience all kinds of humanity. It wasn’t until I found caving that my craving for adventure was serendipitously fulfilled.

Q. Please provide some information on your background.
A. Hailing from the state of Nebraska, a land of limited higher-educational institutions, I attended University of Nebraska-Lincoln. I earned a bachelor’s degree in Journalism.

Q. Where do you currently reside, and are you in a NSS Grotto?
A. I’m a West Virginia resident. I am a member of Tri-State Grotto and am very active in the West Virginia Association for Cave Studies and the Germany Valley Karst Survey.

Q. What specialized training or certifications have you completed?
A. I don’t have a long list of certifications, but I have taken NCRC’s Orientation to Cave Rescue. Once I learned the craft of Single Rope Technique in 2006, vertical caving came naturally to me. Using ropes is simply another method to help me explore the world better. My goal has always been to become proficient on rope in all kinds of vertical environments, above and below ground.

I’ve had a lot of help from others along the way in fine tuning my skills. I’ve been fortunate to climb the New River Gorge Bridge, during Bridge Day, while snow fell around me; been one of three on rope simultaneously climbing out of Sótano de la Golondrinas; been in the depths of Sistema Huautla in Mexico; been grateful to see the constellation Sagittarius rise above the southern wall of Yosemite Valley while climbing El Capitan at night; been blessed to accomplish several bolt climbs to access virgin passage in West Virginia.

Q. What’s the importance of caving in your life?
A. Caving is everything to me. I pretty much make all of my life decisions with caving as my main priority. I know it sounds cheesy, but it’s the truth.

Q. What is it (in your mind and in your heart) that drives you to explore caves and to find out ‘what lies beyond’?
A. I describe myself as a ‘project caver’ first. It’s hard to explain to a novice caver the joy I feel being the first person in a new underground passage, the excitement rushing through my veins finding a new virgin 100-footer, the feeling of finding a new part of myself with each new underground discovery. It’s very rewarding—almost spiritual, sublime. Trying to solve a cave’s big mystery of its structure and hydrology around a campfire with a few beers is also a grand ‘ol time.

Q. What aspect of being a caver do you like the most?
A. The community. Cavers are my family, the chosen misfits I adore. Together we push the gnarly stuff, waller in the peanut-butter mud, suffer the cold water, push our comfort zone, and rely on each other for footholds and moral support. My project peeps are the finest, depraved angels I know.

Q. Have you ever participated in a real cave rescue?
A. The closest I’ve come was the Carpenter-Swago rescue during Old Timers Reunion (OTR) 2016. I was part of a two-person team dispatched to the cave before rescue officials arrived. We had started to rappel into the Carpenter entrance when friends of the overdue cavers made contact from below that they had already found them, fed them, and warmed them up. We waited at the entrance for an hour before the first person exited. The experience wasn’t very involved as cave rescues go, but it was one hell of a story to tell at OTR!

Q. Tell us about the caving expeditions you’ve been part of, your travels, anything out of the country.
A. I’ve only toured the Western Hemisphere to date. During my studies as an art student in Brazil for a year, I traveled extensively. I’ve seen her northeast beaches and oldest cities, been to the mountain mining towns of Minas Gerais and the impressive Iguazu Falls, sweated in São Paulo’s nightclubs, learned the celebration of
Carnival, sailed the coastline of Bahia, and visited Paraguay and Argentina. The only caving I’ve done outside of the United States has been in Mexico. I’ve been on two tourists trips to bounce pits in the Aquismon area, which included the likes of Sótano de la Golondrinas, Hoja de las GuaGua, and Octufu; and the lesser-known Sótano de la Huasteca and El Socavon. The only project caving I’ve been involved in Mexico was with PESH (Proyecto Espeleologico Sistema Huautla) in 2017.

Q. Please tell the story of your very first cave trip.

A. When I lived in Corbin, Kentucky, my friend, Thor Bahrmann III, asked me to go caving. At the time, hiking and backpacking were my outdoor loves. I thought, “Why not try a new adventure?” We drive to Kingdom Come State Park for a weekend of camping and caving. I was a newbie, and was surrounded by experienced cavers of Pine Mountain Grotto. The only other person I remember being there was Dianne Joop. Looking back, I didn’t even know what a grotto was!

Anyway, on Aug. 14, 2002, we got the gate key for Line Fork Cave, which is in the state park, and ventured underground. I remember the cave had canyon passage covered in slick mud. It was rather treacherous wearing my worn-out hiking boots on several of the exposed canyon crossings we had to negotiate. There was plenty of help by the other cavers, who made me realize how much of a team effort the sport really is. I was instantly hooked. Upon exiting the cave, I found myself asking Thor when he could take me caving again.

Q. What professional or NSS awards have you earned?

A. In my former life, I was a newspaper photographer and earned nearly 100 awards during my 2.5-decade career. This is normal, as entering state and national competitions were expected. The highest honor I ever received was winning the Kentucky News Photographer’s Association’s “Photographer of the Year” for small markets in 2004.

As a caver, I’ve received multiple Honorable Mentions, Caver Choice Award, Merit Awards, and Best of Show through the years in the annual NSS Photo Salon, Print Salon, and Cover Arts Salon. In 2020, I was privileged to be recognized by my caving family and made a Fellow of the Society.

Q. What are some of your caving accomplishments, and of which you are proudest?

A. The majority of my project caving has been in West Virginia—either in Germany Valley or Greenbrier. The first project I was involved with was Shovelerater. It was very exciting when a dedicated team of diggers made the connection into Hellhole. It was a free-for-all in virgin cave, bolt climbs, and exploration. I was lucky to be on a team that found a 158-foot pit we named Mud Rain Rift. Work in Hellhole’s TARDIS area has been ongoing within a small group of people led by Carl Amundson, which I have been a part of since 2016. The TARDIS name is perfect for the area—it truly is bigger on the inside. We have found a series of massive domepits (two of them have the potential to be over 400 feet and one of them currently being climbed measures 310 feet) trending on a northeast/southwest line in the southern part of the cave.

Also in Germany Valley, I was part of a two-person team in Memorial Day Cave (MDC) to add over two miles of complex, vertical passages on the map. Our discoveries led to a connection to Ruddle Cave, making MDC have two entrances. It was here, in 2011, when I experienced my first day of sketching over 2,000 feet (2,171.9 feet to be exact) in a day. The elation felt that day still resonates with me.

But I would have to say I am most proud of following my intuition and doing the diligent research in Maxwellton Sink Cave in Greenbrier that led me to the honey-filled waters of Sweetwater River. When surveying in February 2017, we found Sweetwater. It was a naive discovery at the time, as we had no idea we had found the eastern trunk passage of the David Spring, which is the largest spring in West Virginia, the basin of which drains 73 square miles. Meaning this place floods—bad kinds of flooding, like back flooding, like trapping you and drowning you flooding. We are now much safer in our explorations, having evaluated water probe data and can pretty much determine how surface precipitation will affect the underground hydrology. We do not go into the cave during potentially dangerous times.

In Sweetwater River we have found two significant infeeder, an upper paleo level leaving the Hillsdale limestone layer and entering the Patton, a sexy waterfall, and a handful of sumps. As of June 2021, there have been 11.45 miles surveyed in the Sweetwater section. But it doesn’t stop there. Hydrologically, there are three caves that follow the same 220/40 degrees northeast to southwest strike in Greenbrier County, West Virginia, and have been dye-traced and known to carry the same water. The most northern part of upstream Sweetwater ended in a sump. The cave sitting north of Maxwellton is McClung Cave. During OTR, on Aug. 31, 2019, I coordinated an effort to dive the sump that connects McClung and Maxwellton Caves. Zeb Lilly and Brian Williams were successful in their quest, and thus the Great Savannah Cave System was born! Plans are currently in the mix to dive the southern-most sump in Sweetwater. Hopefully the weather will cooperate and the dive can occur late this summer.

Q. Are there other things about you (as a caver AND personally) everyone might be surprised or interested to find out?

A. My plants are my pets. I am fond of swearing. I am allergic to assholes.

Q. How important would you say is overall full-body health in being a caver (and in life)?

A. It is very important to me to keep my body in shape for caving. The best way to be in “cave shape” is to cave. When not underground, I practice yoga to maintain strength and flexibility. Yoga has been a part of my life for over 20 years, even much so that I got certified as an instructor in Hot Yoga (Bikram) in 2018. My personal journey with food has been ongoing since I was 15 and decided not to eat cow meat anymore. For the last 25 years, I’ve been on an evolution of diet experimentation to figure out my food sensitivities. When underground, I stick to high-caloric foods. I make my own GORP and rely on an assortment of non-dairy and plant-based bars, meatless jerky, and chocolate for fuel. Thick peanut butter and honey sandwiches are a staple for me.

Q. What would you like to say about ‘women in caving’?

A. I think that women project cavers are
definitely in the minority. It’s been a long-time goal of mine to draw more women sport cavers into the project realm. For a decade, I even taught weekly vertical practices to Madison Student University Grotto (the James Madison University student grotto) members, where I was a co-advisor. I had hopes to groom some of the young women into being real cavers, and potentially project cavers. It’s been a difficult task, as most project caving is for a certain kind of personality and determination that most people, regardless of sex, possess.

There’s always some kind of joke made when I go project caving as 98-percent of the time I’m the only female. It wasn’t until 2017, after project caving for nearly 10 years, that I was on my first all-woman survey team at Friars Hole, with Keely Owens and Amy Skowronske. It was a powerful experience that I hold dear to my heart to this day. There’s something to be said about a capable, experienced team of strong women to get it done.

Q. What’s your background in photography and cave photography?
A. I was a newspaper photojournalist and photo editor for 24 years before I was a casualty of the nation-wide trend of large corporations buying up newspapers and then downsizing staff to increase profits. Of course, the beautiful front page art makers are the first to go—because pictures don’t say a thousand words.

Cave photography was a natural extension of my skills. It took many years of trial and error before I developed a system that works for me and the kind of caving I do. I would say by 2010 I had my methods and gear fine-tuned. Only on the rare occasion that I go on a sport trip, do I haul in a DSLR, quality glass, and a variety of lighting sources. It’s the project caver in me to have a mission during a sport trip—I must accomplish my self-assigned task.

I’ve always carried a small point-and-shoot or cell phone (recently I’ve adapted using a Google Pixel 3) to document the day’s discoveries during survey. Sometimes I’ll carry in a single flash gun and a handful of M2s or M3s. Other times I will use head-lamps to light a scene. There are a couple of the cave camps that I have a stash of Tilt-a-Mites and bulbs ready for use.

The key to cave photography is not to be a perfectionist. Sometimes it’s the things you don’t anticipate that create “happy mistakes” in your images. Do not have your helpers suffer mild hypothermia to “get the perfect shot.” My philosophy is that if you cannot get the photograph you envision in three tries, it wasn’t meant to be. On a photo trip, I usually spend most of my time sitting down and “quarterbacking” the image; that is figuring out where I want people and the angles of lighting. Then I’ll send people on their way with instructions and the tools to execute the photo.

Q. Please list your photo gear.
A. My gear is not fancy, nor does it consist of the latest models. I’ve streamlined my gear for three priorities—price, weight, and bulk. I do not want to have each person on the trip carrying a heavy pack full of gear. I want to be able to carry all of it on my own. The following list is the gear I use underground (but not all the time): for bodies I have the Nikon D800 and Nikon D5300. My lenses are Nikkor 12-24mm f/4 and Nikkor 16-35mm f/4. I have multiple Tilt-a-Mites and homemade flashguns that fire bulbs. The bulbs I use range from M2, M3, M5, M25, P25, #5, P40, #11, to #2. I have a handful of electronic flashes that I buy off of eBay or from thrift stores for the smaller passages. This way, I don’t feel bad when I kill the flash underground, which is a usual affair. I always use ones that take only two AA batteries, for weight and size concerns. I also have remotes to fire the electronic flashes if I’m feeling froggy.

Q. What effect has the Covid pandemic had on your caving activities?
A. I had big plans for 2020. I was going to be a cave bum for part of the year, hit all the events, and travel all around to project cave. The pandemic screwed that up right away. So instead of traveling out of state to cave, I simply stuck to my inner circle and hit local areas hard. It was easy to do since I live in the middle of cave country—West Virginia. Thankfully, things are changing, people are getting vaccinated, and normalcy is returning.

Q. What are your remaining goals in caving, and plans for the future?
A. My plans are to continue to project cave. I will cave as hard and as long as my body will allow.

Q. What advice would you give young cavers?
A. Be open to assistance. Listen to more experienced cavers. Absorb all the information you can get and apply the things that works for you. Your body and your mind is unique. Be safe in your exploits and have fun!
NSS AWARD NOMINATIONS

It is time to nominate that deserving member of your grotto, section, or region for an NSS award to be presented at the 2022 NSS Convention in Rapid City, South Dakota. Please submit nominations to the appropriate award sub-committee chair by November 15, 2021. Award information including the selection process and the criteria that well-written nominations should address, is published on the NSS Awards Web Page (www.caves.org/committee/award). You can submit your nominations for the following awards.

William J. Stephenson Outstanding Service Award

The Outstanding Service Award is given each year to a member of the NSS for outstanding service to the Society and its goals. The recipient of this award is selected by the Board of Governors from nominations received by the Awards Committee. This and the Honorary Membership (below) constitute the Society’s highest awards. Send nominations to:
award-stephenson@caves.org

Honorary Membership

An honorary membership is given each year to one person, not necessarily an NSS member, for outstanding contributions to the field of speleology. The recipient of this award is selected by the Board of Governors from nominations received by the Awards Committee. The award confers life membership to the Society. Send nominations to:
award-honorarymember@caves.org

Lew Bicking Award*

The Lew Bicking Award recognizes dedication to the thorough exploration and mapping of a cave or a group of caves. The award is given to an individual NSS member or a pair of members who, through specific joint actions, qualify equally for the award based on work they have done together. Candidates must be NSS members in good standing for at least the past two years. A cash award accompanies this recognition. Send nominations to:
award-bicking@caves.org

Science Award*

The Science Award is given each year to recognize an individual NSS member or a pair of members who, through specific joint actions, qualify equally for the award based on outstanding dedication to the scientific study of caves. Candidates must be NSS members in good standing for at least the past two years. Send nominations to:
award-science@caves.org

Victor A. Schmidt Conservation Award*

The Victor A. Schmidt Conservation Award is given annually to recognize an individual NSS member who, through significant action over time, has demonstrated outstanding dedication to the cause of cave conservation. The award may recognize a pair of members who qualify equally based on work they have done together. Candidates must be NSS members in good standing for at least the past two years. Send nominations to:award-schmidtconservation@caves.org

Spelean Arts and Letters Award*

The Spelean Arts and Letters Award is given annually to recognize an individual NSS member or a pair of members who, through specific joint actions qualify equally for the award, over time has advanced speleological study, letters by significant artistic expression, management, or criticism. Candidates must be NSS members in good standing for at least the past two years. Send nominations to:award-artsletters@caves.org

Certificate of Merit

Certificates may be given to individuals, jointly to no more than three individuals, or to organizations. (NSS membership is not required.) A maximum of three Certificates of Merit may be awarded each year for specific, recent accomplishments in cave exploration, study, conservation, or for accomplishments which further other goals of the Society. Send nominations to:
award-certificatemerit@caves.org

Fellow of the Society

Recipients are members who, over time, have exemplified by their actions their dedication to the goals of the Society or to the Society itself. Candidates must be NSS members for at least five years and be good standing for at least the past two years. Send nominations to:
award-fellow@caves.org

James G. Mitchell Award

This award includes a cash award for the best scientific paper presented at the NSS Convention by a member of the Society who is a student. Eligible papers shall be judged by an interdisciplinary panel appointed by the Mitchell Award Sub-committee Chair. For consideration, contact: award-mitchell@caves.org

Peter M. Hauer Spelean History Award

This award includes a cash award to be given to an individual or group of individuals engaged in an outstanding spelean history research project. The recipient this award shall be selected by the NSS American Spelean History Association. Send nominations to:
award-hauерhistory@caves.org

Steve Hudson Award

This award is presented for service to cave rescue. The annual award is to recognize a person or persons who have made contributions to cave rescue and/or the National Cave Rescue Commission (NCRC). The recipient this award shall be selected by the NCRC. Send nominations to:
award-hudson@caves.org

Outstanding Landowner Award

The award is presented to a cave landowner or land manager whose efforts have been exemplary in supporting cavers and the mission of the NSS; and who have demonstrated a long-term commitment to cave access, conservation, education, and exploration. This annual award consists of a plaque and an invitation to attend the annual NSS Convention. The recipient this award shall be selected by the NSS Administrative Vice President. Send nominations to:
award-landowner@caves.org

Group Conservation Award

This award recognizes the conservation efforts of an NSS Group or Internal Organization. The recipient this annual award shall be selected by the Conservation Division. Send nominations to:
award-groupconservation@caves.org

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award-groupconservation@caves.org

*For these four awards, preference is given to candidates who have not received the Outstanding Service Award or an Honorary Membership.

The Awards Committee requests that nominations be submitted in an editable file (text or word processing format).

Comments and suggestions on the nomination process and operation of the Awards Committee are always welcome. Please contact Mike Backe, Awards Committee Chair:
awards@caves.org or 98 Forest Drive, Boise, ID 83716.

by: Members of the Awards Committee

NSS NEWS, October 2021 27
Over the past few years, NSS members have raised concerns over vertical safety in the US caving community, an issue that is often emphasized when the American Caving Accidents (ACA) is published. In April 2021, a questionnaire was conducted asking US cavers about their learning preferences. This questionnaire, which was completed by over 1,000 cavers, suggested there were real concerns about the quality and availability of vertical training in the US. To address all these issues, the NSS President Geary Schindel, along with Administrative Vice President, Adam Weaver, decided to create an ad hoc committee to examine how they could be addressed within the NSS. This ad hoc committee, consisting of 13 cavers with diverse backgrounds in vertical training, rigging, NCRC experience, with a variety of regional affiliations, spent three months considering whether the NSS should become formally involved in vertical training in the US, and if so, what that training structure should look like.

These considerations were informed by the personal and regional experiences of the committee members and informed by both the findings of the questionnaire and ACA. Using this information, the committee felt that the current structure of vertical training in the US is not sufficiently effective, with an apparent deficit in the quality and quantity of instruction, and with no clearly defined competencies or standards for education. The result has been a patchwork of training, with accident reports indicating that insufficient or inappropriate training may have contributed to numerous accidents and even fatalities over the past few years. A concern that was also raised by respondents in the questionnaire, which suggested that many people felt that some trainers lack the necessary skill to train others safely.

Nonetheless, there are examples of vertical training that works in the US, such as the VPI Cave Club, which has successfully trained safe vertical cavers for generations. There are other organizations within the NSS, such as the National Cave Rescue Commission (NCRC) and Cave Diving Section (CDS), which have carried out the training of advanced caving techniques safely for decades. The committee therefore felt that the NSS BOG should create a Vertical Training Commission (VTC) which would be a hybrid between the NCRC and grotto training – a train-the-trainers hybrid.

It was the recommendation of the ad hoc committee that the VTC is structured as a national commission within the NSS, tasked with overseeing vertical training of interested cavers within the US. To do this, the VTC will define vertical competencies, create educational materials, and train interested cavers through grottos, regional and national events. The overarching goals of the VTC would be to:
- Identify the core competencies and critical thinking needed in vertical caving
- Generate educational materials that meet modern teaching standards with skills-based assessments, including problem solving scenarios
- Bring together the best teaching practices for vertical caving
- Create competent and active vertical trainers within the US
- Focus on creating an accessible program that is attainable and understandable to people of diverse knowledge sets and backgrounds, while maintaining minimal costs and bureaucratic processes
- Resist any efforts to develop vertical certifications as a mechanism to limit or restrict cave access in the US

The NSS Vertical Training Commission

Hazel A. Barton, Adam Weaver, Geary Schindel
The commission will be overseen by a Council of Regional Coordinators (CORC) that represent the following regions:

Northeastern (CT, ME, MA, NH, NJ, NY, RI, VT)
Eastern (VA, WV, PA, NC, MD, DE, DC)
Southeastern (AL, FL, GA, SC, TN, PR)
Central (IL, IN, IA, KY, MI, MN, MO, OH, WI)
South Central (AR, LA, KS, MS, OK, TX)
Rocky Mountain (CO, ID, MT, ND, SD, NE, NM, UT, WY)
Western and Pacific Northwest (AK, AZ, CA, NV, HI, OR, WA)

The CORC will help to identify and train instructors, and schedule regional and/or national training events. The CORC will also select an individual to serve as a national coordinator to oversee the organization and coordinate with the NSS. The VTC will also create a Curriculum Committee (CC), who will identify the core competencies for safe vertical caving and create the training program. These trainings will be geared to helping interested individuals obtain the appropriate and sufficient competencies, critical thinking, and problem-solving skills needed to be safe while using vertical techniques and will focus on facilitating training at the grotto level. The curriculum is envisioned to have a number of levels that incrementally allow the transfer of skills necessary to become a safe caver, which can be taught using a structure that works well in the grotto setting.

The VTC represents an exciting change in the NSS structure, one which could benefit our caving community for generations, as has been the case for the NCRC. If you are interested in serving in any role, either as an instructor, member of the CORC or member of the CC, please visit https://learnmore.caves.org/index.php/VTC/. In order to succeed, we are looking for those volunteers that will help us build a vibrant, successful and meaningful training organization.

Future Convention Hosts Sought

Do you remember going to the NSS Convention? Those fun times, meeting in person around the country and seeing new and interesting caves?

Conventions may seem like a distant memory, but we are coming back strong with South Dakota in 2022 and West Virginia in 2023.

Following those two great events, every caver in the country is going to be excited for 2024...and we are searching for who will be the next to host. Hosting a convention showcases a caving community and the local karst. Did you know there has never been an NSS convention in Arkansas, Arizona, Georgia, Ohio, Utah, Hawaii, or Wisconsin? These are all states with great caves and great conventions. The last time we were invited to have an NSS Convention in Maryland was in 1974, Massachusetts 1979, Minnesota 1980, Wyoming 1984, Kentucky 1985, New York 1991, and Oregon 1993. These were great locations and folks had a wonderful time. If you have ever attended an NSS Convention and enjoyed the experience, please consider being a host and inviting 1000 of your friends!

For more information please contact Carol Tiderman: ctiderman@caves.org

West Virginia Caver

West Virginia Grottos
August 2021, Vol. 39, Number 4

Two trips to Dry Cave in April and May pushed the cave into the 100-longest caves in the United States at over 8.47 miles. Nick Socky and Eric Pelkey surveyed 670 feet in the far reaches of Dry Cave, mopping up several leads. The duo managed to navigate through breakdown rooms and formation-filled passages, closing several loops in the process. Meanwhile Dave Knox, Greg Springer and Emilie Hollingsworth worked near the entrance of Dry Cave traversing carefully through heavily decorated passages, while mapping nearly 900 feet.

Amy Skowronska, Hunter Campbell and Dave Knox returned to the recently discovered Dilatation Domes of Friars Hole to aid-climb. Along the way the new passageways were re-rigged and improved for ease of travel. Hunter topped out both domes, which are around 30 and 20 feet tall. Both domes have going passage atop them, but neither were pushed. While one is heading towards known cave, the other dome carries a lot of wind and is heading to blank space on the map.

Nikki Fox, Carl Amundson and Dave Socky traveled to the Sweetwater section of the Great Savannah Cave System to continue downstream survey. The trio spent their time navigating caves and passages above the river itself. 31 stations were set and 748 feet of passage was added to the survey books during the overnight camp.

Returning to Coon Cave, Mark Minton and crew continue to push leads in the cave. Focusing on a new area, Mark, Yvonne Droms and Dwight Livingston were able to gain access to a tight crawl that terminated at the end of a seemingly deep drop. Dropping rocks appears to indicate a significant chasm is below. However, access to the drop will be difficult due to the tightness of the lead-in crawl. The remainder of the trip was spent enlarging the crawl and improving lip conditions for a future descent.

Rocky Mountain Caving

Colorado Grottos of the NSS
March 2021, Vol. 39, Number 1

Doug Medville’s love of soilig piping caves led him back to New Mexico several times where he and friends surveyed Stairstep Canyon Cave. Located very near the deepest and longest soilig piping cave in America, B&B Cave, Stairstep shares many of the same features. A steep-downcutting cave, Stairstep is interspersed with several open-air pits along its nearly 1,200 feet of passage. With a total vertical extent of 331 feet, Stairstep is only the second soil piping cave in the United States to surpass the 100-meter mark.

Participating in the 2020 Cerro Rabon expedition, Mike Frazier found himself exploring several virgin pits and pushing new leads in some of the more well-known caves of the area. Mike spent a good deal of his time cutting trails through the thick vegetation enabling access to sinkholes visible on Google Earth. The expedition saw a total of 21 new caves surveyed and the discovery of several connection points between Hard Rock Cave and Kihaje Xontjoa, which is now a 1,200-meter-deep system.

The Meramec Caver

Meramec Valley Grotto
August 2021, Vol. 52, Number 8

Several Meramec grotto members visited Mammoth Cave to participate in a Cave Research Foundation project weekend. Chad McCain and Isaac joined other CRF cavers to explore high leads around Cathedral Dome and in the Bransford section of the cave.

NSS NEWS, October 2021 29
John Warren Fox

NSS 17432RE, FE
1947-2021

John Warren Fox, age 73, passed away on Thursday, August 12, 2021, at his home in Radford, VA. He was born December 22, 1947 in New York City, NY, to his parents, the late Elliot Milton and Byrdann Margaret (nee Sachs) Fox of Montrose, NY. John was a 1966 graduate of Hendrick Hudson High School in Montrose. He received his B.S. degree in 1979 in Speech Communication (with an emphasis in Radio and Television Production) and an M.S. degree in 1988 in Education Media, both from Radford University.

John is survived by his wife, Betty Beirne Jones, whom he married in 1982 in Radford, VA, their daughter, JoAnna, born in 1990, his sister, Catherine Fox (John Didier) of Washington, D.C., and brothers, Jim Fox (Mary Anne) and Jeff Fox (Carol), both of Alexandria, VA, in addition to several other family members.

John was a member of Unity Christian Church in Radford and the Radford VFW Post #776 (he served with the U.S. Air Force). As a veteran, he volunteered on the local Memorial Day Committee.

At Radford University, John was a member of the Information Technology Department where he managed campus computer assets and taught Mac Deployment classes (1993-2018). Frequently he assisted fellow cavers, colleagues, and friends in solving issues with their computers. He was previously employed at the Radford Army Ammunition Plant and Kollmorgan Corporation.

When John focused his energies on an interest or activity, he did not just join an organization—he participated enthusiastically, usually contributing his time as a volunteer. Various aspects included caving, music, computers, scouting, and civic duties, commonly serving as an officer within the corresponding organizations. He was honored for his speleological work, including the Virginia Region (VAR) with the 2005 VAR Outstanding Service Award and the National Speleological Society (NSS) as a Fellow in 2007.

As an avid outdoorsman and lover of nature, especially caves, John shared his knowledge with young people. He encouraged safety and conservation in caving and the outdoors. As Scoutmaster of Troop 46 in Radford, VA (during the 1970s and 1980s), he made a dedicated effort to provide outdoor activities once a month throughout those years.

John started caving in 1973 and joined the NSS in 1976. In the years following, he caved primarily with fellow members of the New River Valley (NRVG) and Blue Ridge (BRG) grottoes. Invariably, he participated in local, regional, and sometimes national caving projects, including the James Cave Sinkhole Restoration (a 5-year-long project in Pulaski County, VA), the semi-annual cleanup of Hickman Cemetery Road (a 2-mile stretch by James Cave), the Dixie Caverns Haunted Cave events (raising money for cave conservation), Project Underground, the annual Grand Caverns Spring cleanups, the NRVG’s Cave Escapes, the building of the NSS New River Cave Preserve Trail, VAR meetings, the annual Old Timers’ Reunion (OTR) with The Robertson Association (TRA), WVACS, and assisting NSS volunteers with production of the annual Photo Salon and the Awards Banquet. John was happy to have had the opportunity to help demolish the old kitchen at the new NSS Headquarters in Huntsville, AL, and to help clear the grounds of brush to facilitate camping for the 2014 NSS Convention.

Throughout all these caving and scouting activities, he usually also served as an officer, especially Treasurer, Secretary, or Membership Chair and as a committee member for the New River Cave Preserve. He served on the Registration Committee for the 2009 International Congress of Speleology (ICS) and the 2013 NSS Convention in Pennsylvania. One stint alone that is worth mentioning was his 20 years as VAR Treasurer (1998-2018). Additionally, he regularly volunteered to provide DJ services for numerous civic and VAR meetings, providing his own sound equipment and extensive playlist of music.

John had a fascination with all types of music which he willingly shared via his decades-long Radford University radio show See You at Nine (WVRU), as DJ for weddings, parties, and picnics, at local events for the cities of Radford and Blacksburg, and by attending various musical events. One of those exciting moments that John relished was meeting Alice Cooper at musical events (actually twice). He shared a photograph of one of those encounters on his Facebook page.

In 1981, John joined the Radford Kiwanis Club where he served over the years as President, Secretary-Treasurer, Certified Trainer, District Chair Historian, and Webmaster Historian (many of those positions for over 20 years).

Most recently (July 2021), John participated at an OTR work-weekend in Elkins, WV. He wasn’t slacking off either—he had plans to help lead a scout troop on a caving trip on the Sunday after he passed away, attend the 2021 OTR on Labor Day weekend (he’d previously attended 46 OTRs), and DJ the music for the Fall 2021 VAR meeting.

John’s friendly and helpful presence will be sorely missed by the many members of the organizations that he served. Due to COVID-19, a memorial service will be held at a later date. Condolences may be sent to Betty and JoAnna Fox (204 5th Street, Radford, VA 24141). Donations in honor of John’s memory may be made to the National Speleological Society (6001 Pulaski Pike, Huntsville, AL 35810-1122). You may choose to specify one of John’s special interests: Save the Caves Fund, New River Cave Preserve, or the Junior Speleological Society (JSS).

Compiled by Karen M. Kastning, with contributions from many NRVG, BRG, and VAR cavers.

Cleanup at New River Cave, VA with John and Scout Troop 46, 1987
Michael and Susan Warshauer

NSS #4428 and NSS #11008


Michael visited caves while growing up in Northeast US. Susie first caved in Wales in the late 60s when studying at the University in Swansea. Caving brought them together and provided many hours of enjoyment and challenges. They caved most weekends after marrying in 1968. They lived in Kansas City and Springfield, Missouri as well as Mountain View, rural Stone County, and Little Rock, Arkansas where they were closer to great caving country. Michael kept a fast pace both with his feet and his words, sharing his vast knowledge of caves. Even after Susie stopped caving due to back problems, she worked at world’s deepest cave, Veryovkina Cave in Abkazia, a breakaway state of Georgia. Not part of the expedition, the individual described as a climber entered the cave solo and proceeded down the dangerous alpine cave without proper equipment or training. Cause of death had not been determined but he was attached to a rope. https://www.daily.mail.co.uk/news/article-988411/BODY-climber-fell-death-worlds-deepest-cave-reclaimed-team-100.html

Submitted by Mike Mezmar

To NSS Members:
Check your YM profile

Please check your “members since” date in your YM (Your Membership) profile. Call the office to update this field if you believe the date is incorrect. Please keep in mind that if your membership lapsed prior to 2018, your membership date will have been reset as membership is only allowed to lapse up to 90 days without it affecting your member start date. We did make an exception for all members whose membership expired in 2017-2020 as we moved to YM and we were all experiencing a new program and no paper renewals for the first time.

Thank you.
Christy Starr,
NSS Office Manager

The Albert and Ethel Ogden Undergraduate Research Scholarship in Geology and Geography

This scholarship has been established to encourage karst research by geology and geography undergraduate students. A $1,000 award is available for spring or summer research conducted in the United States. The applicant must be a member of the National Speleological Society. Example projects include dye tracing, spatial analysis of karst landforms, water quality of springs and cave waters, cave sediment analyses, etc. Applications describing the proposed research are limited to three pages of text. Send or email your application to John Hoffelt, 208 Cheatham Ave., Smyrna, Tennessee 37167-4766; mossyguymossyguymossy@comcast.net. A letter of recommendation by the professor overseeing the research should be included in the proposal. Application deadline is December 28th, 2021 with the award being announced on January 5th.

Soloing Death in World’s Deepest

In what may be one of the world’s deepest body recoveries, Russian cavers are set to recover the body of Sergei Kozeev from 1100 meters down in the world’s deepest cave, Veryovkina Cave in Abkazia, a breakaway state of Georgia. Not part of the expedition, the individual described as a climber entered the cave solo and proceeded down the dangerous alpine cave without proper equipment or training. Cause of death had not been determined but he was attached to a rope. https://www.daily.mail.co.uk/news/article-988411/BODY-climber-fell-death-worlds-deepest-cave-reclaimed-team-100.html

Submitted by Mike Mezmar


West Virginia Cave Books www.WVASS.org

Is your Grotto or Region looking for new caves to explore in the Virginia area? RASS can offer your group a complimentary place to camp in Bath County, VA, once the COVID-19 situation has improved. There are more than 100 caves improved within an hour drive. We support cave conservation and education. Contact Richie Ellison at rellison1120@gmail.com

The Richmond Area Speleological Society (RASS) supports cave conservation, education and research by offering grants to assist projects aligned with these goals. To receive a grant request application please email us at rass-grants-committee@googlegroups.com. Applications reviewed quarterly.


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