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REMEMBERING Dr. J HARLEN BRETZ: A PERSONAL TRIBUTE

By H. Dwight Weaver

Yes, I'll admit it. I was once guilty of hero worship and the hero that I admired was a man I had not yet met, a man I really knew nothing about and whose academic standing and accomplishments made my feeble efforts to even sound intelligent embarrassingly childish. It was 1956 and the Geological Survey and Water Resources Division of Missouri had just released *Caves of Missouri* by Dr. J Harlen Bretz. The dark-green unassuming hard-cover 490-page book looked more like a college textbook than the typical book a youngster might buy to learn about caves. It did however, have a neat dust jacket. The book cost the giant sum of \$2.50, which was a good bit of money in 1956 for a kid fresh out of high school without a job. I talked my parents into buying it for me.

Between 1946 and 1956 when I had my first exposure to caves and an opportunity to venture into the undeveloped portions of Mark Twain Cave and Cameron Cave at Hannibal, and then the wild caves in the karst areas of Boone County, Missouri, I had developed a persistent and feverish interest in caves. But my curiosity wasn't entirely recreational. I wanted to know how many caves there were in Missouri, where they could be found, how they were formed and what their length and characteristics were. The first portion of the Bretz book was on the origin of Missouri caves and their features and then came a section describing the show caves. Finally, and best of all, was a large section describing several hundred wild caves in 55 Missouri counties. I lapsed into a delirium of ecstasy that was about as close to being in heaven as I could get without dying.

In my quest to learn about caves from 1954 to 55, I had discovered the existence of the National Speleological Society (NSS) and joined in 1956; they put me in touch with Jerry Vineyard and Dr. Oscar Hawksley. I started my freshman year at the University of Missouri (MU) at Columbia in the fall of 1956 and Jerry was in his final year at MU. It was the exact moment in time when Vineyard and Hawksley along with Frank Dahlgren founded the Missouri Speleological Survey (MSS). I was in on the ground floor and the new Survey was on its way to a grand adventure with the *Caves of Missouri* as an outline and guide from which to work. Bretz's work was, in fact, the primary inspiration that fueled interest in forming the MSS. Bretz's work was an inspiration that I also credit with my personal interest in writing books on Missouri cave history. While Bretz was focusing on the geomorphological aspects of the caves, I was interested in the cultural and social aspects of caves. In his cave descriptions Bretz would drop hints that there was much more to learn about a specific cave. He would say a certain cave once contained a dance floor, or that it was mined for its onyx, or that it was a hideout for outlaws, or that it supposedly contained buried treasure. Those hints grabbed me, sent my imagination soaring, and inspired me to spend the next 60 years writing about the cultural and social history of Missouri caves.

Bretz was more than just an inspiration for Missouri cavers, he was a giant in the field of geology, a man who's somewhat unacceptable theories (at that time) about the origin of caves, his writings about glaciation and the Pleistocene, as well as major geological puzzles like the geological origin of the Channeled Scablands of eastern

Washington State, caused great controversy. His writings exiled him from the Gospel of fundamental religious leaders, the accepted tenants of the geological community in the early part of the twentieth century, and other detractors. Fortunately, the passage of time, new findings and geological research has rescued him from most of the dungeons of old orthodoxy, but it hardly came in time for him to feel comfortable with his theories and accomplishments before his death on "February 3, 1981, 19 months short of 100 years." Still, he was, I understand, a soft-spoken, long suffering jovial man much respected by the powers that be at the University of Chicago, dearly loved by his students, and a man who challenged people in their thinking not by harsh criticism and rejection, such as he received, but by reason and respect for the opinions of others. He earned the endless respect of the cavers of Missouri. Remember one thing: the "J" in his name is not an abbreviation for a given name. He simply bestowed it upon himself to pacify editors and journalists, so if you wish to honor him do not put a period after the J in his name.

I met Dr. Bretz at a Mid-Mississippi Valley-Ozark Region gathering at Hannibal (MVOR) in 1962 when he was given an award by cavers. He led a field trip along the corridors of Mark Twain Cave and as would be expected many of us dogged his heels asking every kind of question imaginable. He kindly suffered even the most foolish of them. In the photo that accompanies this article Dr. Bretz leads cavers through Mark Twain Cave in 1962. Right to left is Dick Meyers, Tex Yokum and Dwight Weaver in the dark shirt over Bretz's left shoulder, photo by Richard Raber.



In "J Harlen Bretz in Missouri" by Jerry Vineyard (*Missouri Speleology*, Volume 19, Numbers 3 and 4, October-December 1979), Jerry says: "It is appropriate to refer to Bretz as the 'father' of speleology in Missouri, because he approached the subject not as a young man, but at a time when most men would have been considering retirement." Advancing age kept him from exploring caves with the endurance of the young and fearless cavers that a lot of us were in the 1950s and 60s, but we revered this perceptive elder, grabbed the torch he carried into the underground and carried on his work as a challenge. Today the MSS that he inspired has one of the largest and most useful volumes of data on caves of any state in the United States. And the work continues on an entirely volunteer basis.

To learn more about Bretz you can read the reference given above and google J Harlen Bretz.

Missouri Speleological Survey -Files Report for September – December 2016. Busy as always with lots of contributions from all over. **Jon Beard** sent: Map of Twelve Barrel Cave in Christian County; A bunch of Christian County corrections and new caves; Map of Genesis Dome Cave on MTNF in Christian County; Beautiful map of Crystal Caverns in Barry County, all 2944 feet of it. The survey was begun way back in 1999 by bob Taylor and Jon finished it up; Fifteen or so replacement and new records, including five new caves in Polk County (courtesy of Richard Thompson); Five new and one modified record from Barton County which is close to Kansas; Map of Patton Branch Cave in Barton County; Map of Hall Branch Cave, Greene County. **Michael Bradford** sent: LiDAR maps relative to Chad McCain's project in Ste. Gen county; **Shelly Colatskie** of MDC sent: Several faunal records. **Jim Cooley** sent: Map(s) of Pin Oak Cave in Lake Ozarks State Park; New related records of reports and faunal observations from a variety of caves; Map of Piney Creek Keyhole Cave in Barry County; Map of Lime Kiln Hollow Cave in Oregon County; New caves from Hickory and Oregon Counties plus a revised record; Map of Knobby Creek Cave, Benton County; Map of Cave Spring Shelter, Shannon County; Map of Jacks Cave, Ripley County; And more modified, related, and faunal records. **Artur Gitzen of Frankfurt/Main, Germany** sent: Information on cave species from a few caves in Ste. Gen and Jefferson County. **Ken Grush** sent: About 400 new related reports and faunal records from a variety of sources; New maps table with 5088 records; And more related records from Perryville; And another sixty-six new faunal records from old information; A variety of other items for the

database. **Paul Hauck** sent: Copies of survey notes and a trip report from Crevice Cave. **Scott House** added: Photos of a few Perryville caves; Bunch of data fixes; Revised map of Natural Bridge Tunnel in Ozark County; Faunal records from a number of caves (going back through old survey books); Maps of Legion Caves and Schafer Caves in Perryville; Newly redrafted maps of three caves in Ozark Riverways. **Ed Klausner & Mark Jones** sent: A fat envelope with postcards from Missouri caves, including some nice ones of Round Spring Caverns. Ken Grush digitized them for our files. **Dan Lamping** sent: A revised map of Centennial Falls Cave in Shannon County; New faunal records and trip reports; Very nice new map of Ralphord Cave, Boone County; Report, faunal records, and monitoring record for a trip to SH Cave, Shannon County; Survey data file for Banker Hollow Cave, Shannon County. **Mike Leer** of MMV sent: Bio and monitoring report for a St. Louis County cave. **Chris Lewis** sent: Nice satellite overlay of Allie Spring Cave and Mill Creek Cave in Pulaski County, based on map data being accumulated; A very nice overlay product of Garrison #2 Cave; in which the thing “runs” in HTML and you can “transparentize” the aerial view to look “under” at the cave map. Cool. **Joe Light** sent: Reports on Lone Hill Onyx Cave. **Alex Litsch** sent: Data and map on a new cave on MTNF land in Callaway County; Bio reports (including photographs) on a Phelps County cave. **Chad McCain** sent in: Lots of new information on Esoteric Cave in Ste. Genevieve County; Walls project file for the same cave system; Reports on trips into Esoteric Cave; Updates on files on several Shannon County caves on Pioneer Forest; Database reports on a bunch of new caves along the Katy Trail in Boone County, plus new caves from a couple of other counties; Maps of Fallen Giant Cave and Pigs Ankle Cave both on MTNF land in Ripley County; New cave report for Perry County; Report on Kohms Cave, Ste. Genevieve County; Maps of Salamander Cave, Breakdown Cave, Stacked Cave, and Hideout Cave all in Howell County, on MTNF land; Map of Eagle Bluff Cave in Boone County; Map of Railroad Cave, Wayne County, on MTNF land; Map of Piney Creek Cave, Barry County, on MTNF; Reports on five caves in Ste. Genevieve County, four of them new; Related records on trips to various SGE caves. All import nicely into the database. **Ben Miller** sent: Maps of Cave Trail and Cougar Caves, McDonald County; Maps of Woodroof Cave and Two View Cave, MDD; Descriptions of two of the above; Map of Yarnell Branch Cave and Goat Man Cave, both in McDonald County. **Rhonda Rimer of MDC** sent: Location and report on a new cave in Greene County. **Jo Schaper** sent: Informative article from a Facebook page posting reprinting an older article on Radium Cave in Barry County. **Mick Sutton** sent: Description of Great Scott Cave biology; Additional new species for the species table; Map of a Crawford County cave on MTNF; A bunch of new bio records and bio descriptions.--Scott House, Missouri Cave Database, 1606 Luce St., Cape Girardeau MO 63701. 573-651-3782 scott_house@hotmail.com

Kansas City Area Grotto (KCAG): Jan. 17th- Jim Cooley met with Meramec caverns owners Les and Judy Turilli, then visited Franklin County Bat Cave (FRA-006) to measure it for a chute gate on the main entrance and a more bat-friendly, air-flow-restoring full enclosure gate on a second entrance. A gray bat restoration project was partially implemented by MDC in 2005, resulting in the regating of the upper entrance, but two and possibly three lower entrances also need to be regated to make them much more bat friendly, if this cave is to have any chance of meeting the Turilli’s hopes of regenerating what was once a sizable gray bat colony. **Jan. 15th**- Ken Grush reprised his 2016 trip by returning to the Caves of Three on the upper Jacks Fork River, to monitor caves for CRF. Mark Jones, Ed Klausner and Dennis Novicky completed the team. This area is particularly unique in its portrayal of karst at work. In addition to monitoring a dozen caves, the team saw how a cave stream works its way through one cave into the lower level of another nearby cave, and finally to form a waterfall in a third cave just before it disappears into gravel and under the flood plain as it works its way to the nearby river. **Jan. 18th**- Cooley and Ken Grush did map QC checking in Lewis Cave (RIP-001). **Jan. 19th**- Cooley and Grush accompanied Steve Paes, MDC Area Manager, to Whisper Cave (RIP-007) and Wolfe Cave (RIP-014), which will be surveyed under the new MDC cave survey agreement, for route familiarization and biological inventory. **Jan. 20th**- Cooley and Grush ridgewalked in Ripley County, locating Beefeater Pit, which is now finally sealed, after years of the landowner dumping trees into the hole to close it and prevent it from consuming more of her cows. **Jan. 21st**- KCAG president Jack Peters led a novice trip to Cleveland Cave. Several Cleveland first-timers were on the trip. KCAG manages this cave for the MCKC; it is a popular and convenient destination for Kansas City-area educational trips and is visited heavily

by Boy Scouts. **Jan. 22nd**- Dennis Novicky and Rita Worden surveyed the low, wet passage beyond the 847-foot-long entry watercrawl into Allie Spring Cave (PUL-317), but could not reach the end of the passage: It forked and continues, with one side low but dry. **Jan. 27th- 28th**- several teams including Grush, Novicky, Worden, Shawn Williams, Alex Litsch, Jeremy Weih, Krista Bartel and Mark Jones continued the survey project in Allie Spring Cave, gaining an additional 2,000 feet of survey. Surveyed cave so far measures over 9,400 feet, with many leads remaining. **Jan. 28th**- Bill Gee and Cliff Gill led 6.3-hour-long trips into Carroll Cave. The teams downloaded all of the in-cave data loggers. The rain gauge logger did not have any data on it, probably due to a mistake made during set-up. Cliff Gill did photos for 3D photogrammetry from Convention Hall to UL2 entrance. The full year's 2016 data has been posted to the Carroll Cave web site. Participants included Tom Clark, Kelsey Clark, Nicholas Mullen, Ben Perkins, Ryan Wyant, Jack Peters, Laura Jaynes, Kyle Lewis and Alex Vavra. **Feb. 1st**- KCAG vertical specialist Bill Gee accompanied MDC personnel to vertical-entrance Coffin Cave (LAC-005) to support MDC's biannual bat census at this major hibernaculum. An estimated 440,000 endangered gray and Indiana bats were observed. Yep – it's still a MAJOR hibernaculum! **Feb. 9th**- Grush served as one of several cavers functioning as guides during a bat census conducted in Hannibal's relatively new Sodalis Nature Preserve. Nine teams of caver-led biologists monitored the 20-mile-long maze of pillars and passageways for bats. Results of the census have not been published as yet. **Feb. 9th - 10th**- Cooley, Kyle Lewis and Laura Anthem Jaynes conducted biological inventories and surveyed caves on MDC's Fiery Fork Conservation Area in Camden County. Cooley conducted a cave cartography workshop for the other two participants. Caves visited included Onyx Crawl Cave (CAM-022), My Cave (CAM-023), Onyx Mine Cave (two entrances, CAM-100 & CAM-101), and Kings Onyx Cave (CAM-102) Excellent sketches of Kings Onyx Cave were drawn by new cartographess Laura Anthem Jaynes, who will shortly draft the map using Xara. **Feb. 11th** - Cooley, Rita Worden and Joe Williams surveyed in Whisper Cave (RIP-007) but did not complete the survey. **Feb. 16th-20th**- Cooley, Felicia Vannoy, Lee & Jacob Krout, Kyle Lewis, Kirsten Alvey-Mudd, and Jim Mudd conducted KCAG's annual bat count for Cloud 9 Ranch. A very special thanks is due to Kirsten and Jim Mudd of Missouri Bat Census for doing the heavy lifting on the annual bat count for the Ranch. Caves censused included Fogey Cave (OZK-012, entire), Bear Cave (OZK-031, entire), Moonshine Cave (OZK-024, entire), Lion Cave (OZK-095, partial), Cave Hole Cave (OZK-020, entire), Bear Cave #3 (OZK-089, entire), Bear Cave #1 (OZK-088, entire), Frank Cave (OZK-049, entire), Dani Cave (OZK-048, entire), Cold Cave (OZK-008, entire), and Cloud 9 Bat Cave (OZK-029, entire). WNS infection is epizootic on the Ranch, where emaciated, dead, desiccated tricolored bats can be found still clinging to cave walls; overall bat counts are declining. Map QC on the Bear Cave map was also done on Sunday. **Feb. 25th**- Jack Peters, KCAG president, and veteran members Heidi Fletcher and Jim Harmon led a novice trip for three new grotto prospects, Zachary Schmidt, Alex Buzicky, and Olivia Schmidt. Also - Jim Cooley was joined by KCAG's Bill Gee and Jerry Cindric as well as OHG's Charley Rey and Jamie Euliss, and the landowner's brother, who lives in Warrensburg, to investigate a pit cave on an Idaho landowner's property in southwest Benton County. A 31-foot drop through a very tight (one-foot) vertical squeeze led to a narrow, fracture-determined cave that trended northwest for only 15 feet before becoming a critter crawl. This cave could not be matched with any of several vague records and leads of nearby pits dating from the 1970s, and hence will represent a new addition to the cave files. The cave was mapped and photographed by Gee and Rey. The six-person crew also ridgewalked part of the Idaho landowner's 350 acres looking for another sinkhole not thought to have an opening in the bottom, but was unable to find it. **Starting Feb. 26th**- Ken Grush will be on the Ozark National Scenic Riverways, assisting Scott House and Mark Jones in routine monitoring of caves for the park. Target caves identified so far include Granite Quarry Cave, Little Granite Quarry Cave, Lost Man Cave, and Panther Spring Cave.--Jim Cooley

Roubidoux Grotto (RBX): Our major focus had been completion of the Cave Room at Newburg Children's Museum. After design and setup of the simulated cave by the MSM Grotto, completion of painting, passageways, and education displays were made by the Roubidoux Grotto in time for the open house on Feb. 16th. In a cave naming contest, the name Osage Cave was proclaimed by Children's Museum Curator Elizabeth Te Groen. Roubidoux Grotto members Karen Hood, Laura Huffman, Jessica Self, Roger Preston, and Dan Slais

put in 254 hours of work on the Newburg Children's Museum. At the Open House, both Karen Hood (RBX) and Jessica Self (MSM) received certificates from Elizabeth for their Grottos' work. **Jan. 20th** – Dan Slais was involved in the bat count at Onondaga Cave and portions of Cathedral Cave in Onondaga Cave State Park. **Feb. 17th** -Dan Slais went through Marango Cave, a show cave in Indiana. **Feb. 18th** – Karen Hood and Laura Huffman and Ryan Thompson checked on Gourd Creek Cave in Phelps Co. Roger Preston was checking on Gasconade River Caves near Richland, Mo. Throughout the past two months Jessica Self was involved in planning the upcoming MVOR at Boiling Springs set for Apr. 7th – 9th.—Dan Slais

Carroll Cave Conservancy (CCC): Jan. 28th – Annual data logger date collection trip. Project manager: Bill Gee. Areas of Cave visited: Convention Hall. Entry Time: 9:20am; Exit Time: 3:40pm. Participants – Bill Gee (trip leader), Cliff Gill (Trip leader), Tom Clark, Kelsey Clark, Nicholas Mullen, Ben Perkins, Ryan Wyant, Jack Peters, Laura Jaynes, Kyle Lewis, Alex Vavra. The goal was to download data from every data logger. Since we had a lot of participants, we divided into two groups. The first group was led by me and did the data logger download. The second group was led by Cliff Gill. They did photography work in UL2 that can be used to generate 3D photogrammetry images. Jack, Kyle and I drove down early Saturday morning. We arrived at the silo about 8:40 am, with Ben and Ryan right behind us. After I unlocked the cave, I booted my laptop and attempted to download data from the rain gauge logger. It failed – again. I don't know what the problem was. The last valid download was last year's logger service trip. I replaced the battery in the rain gauge logger, then launched it again. I saved the old battery thinking it might be dead. Later testing at home showed it was nearly new. The only thing I can think of is perhaps I did not get the logger launched a year ago. Everyone had arrived by 9:15 am. The first person down the shaft was Ben, who volunteered to help people get off the rope as they finished the rappel. Jack and I stayed on top to help everyone get on the rope safely. We were the last two people down the shaft at about 10:00 am. I downloaded the two data loggers at the bottom of the ladder. There were no live snakes at the bottom of the ladder, though we saw several that had been dead for some time. Due to the size of the group and the plan for photography, we decided to travel together to Convention Hall. The trip there took a bit over an hour. I downloaded the UL2 data logger as we went by. We saw several cavefish in Thunder River and more in the UL2 stream. We did not get a formal count, but it was in the range of 10 or 15 total. Size ranged from about 30mm to 50mm. We also saw a grotto salamander on a mud bank in UL2. At Convention Hall we all had lunch. Several people climbed up to the overlook area. Everyone was suitably impressed. At this point we divided off the photography team (Cliff, Jack, Ben and Tom). Everyone else came with me. My group left Convention Hall at 12:20 with an agreement to meet at the ladder at 2:30. My group stopped at the entrance to UL2 to admire formations, then travelled straight through to the data logger in Carroll River. I downloaded the logger, which completed our major task. We had a bit of time, so everyone went to the Rimstone Room to admire formations. We were back at the ladder at 2:23. Less than 5 minutes later Cliff's team arrived. Their timing was nearly perfect! They did not come up to the ladder, electing instead to stay in the stream all the way over to Thunder Falls. I led my group through the shortcut and met up with them in the stream. At Thunder Falls everyone but me climbed down the rock face just to the right of the waterfall, then played around in the pool. Photos were taken of several people standing in the waterfall. They returned by the ladder and the Hines Highway. As she was coming out of the Hines Highway, Kelsey Clark slipped on a rock and fell on her left knee fairly hard. It was bleeding a bit. We washed it off in the river until it stopped bleeding. She was having trouble bending her knee, so Tom and Ben half-carried her back to the ladder. Kyle, Alex and I went up the ladder first. We opened the rescue cache and the big hatch, then prepared to use the winch to haul Kelsey out if needed. As it turns out she did not need help. She gritted her teeth and managed to climb the ladder unassisted. Everyone else was close behind her. We were all out of the cave by 3:40. We found a roll of duct tape, so we were able to reseal the trash can rescue cache. I talked to Tom a few days later by email. He said Kelsey's knee was bruised pretty good, but otherwise she was not seriously injured. Two restoration projects were seen in the cave. The Rimstone Room still has some carbide dumps that need to be picked up. The rock wall that protects a formation about halfway from the ladder to the Rimstone Room is mostly knocked apart. It

needs to be rebuilt. It would be useful to put in some stakes with flagging tape to better mark the trail through that formation area.—Submitted by Krista Bartel

Springfield Plateau Grotto (SPG): Dec. 31st, 2016- Brandon Van Dalsem and Phillip Shurtleff did about nine miles of ridgewalking for the CRF in Mark Twain National Forest in Barry County, documenting a number of short caves and shelters: Crescent Cave, Resolution Shelter (as in “New Year’s resolution”), Northern Dome Cave (as in “northern” long-eared bat), Milk Jug Cave plus three features they weren’t sure qualified as caves or not. **Jan. 4th, 2017-** Brandon Van Dalsem, Treavor Bussard and Jon Beard continued surveying the deeper recesses of Shoal Creek Cave (Newton Co), a gated cave SPG helps to manage on behalf of the landowner. Initially in 2012 the cave was mapped to 577 feet by Jon Beard and Bill Luke, but after Bill and his brother did some digging, it made lots more cave accessible to them. It also meant a resumption of mapping. While Treavor and Jon were mapping the Bathtub Ring Passage, Brandon did some digging at another side passage. By the time Treavor caught up with Brandon, “Brandon’s Folly” virgin passage had been explored some 300 feet. The three then resumed the survey of the main passage, nearly reaching Black Chert Falls. The current length of mapped passages stands at 2,652 feet with much more to survey. **Jan. 7th**—Matt Bumgardner, Jon Beard and MDC biologist Jeanette Bailey documented “new” shelters and a cave in Mark Twain National Forest in Barry County as part of CRF project work there. Tufa Mound Shelter, Slabby Shelter, Creep Block Cave, A Peeling Ceiling Shelter and Pearl Cave were GPSed, monitored and photographed. The hike in this section of the forest was very picturesque with frozen waterfalls in a couple of places and deep hollows. **Jan. 8th**—Matt, Jon and Jeanette continued ridgewalking in Mark Twain National Forest in Barry County, adding Border Line Cave, Gravelly Tunnel, Gravelly Talus Cave and Scorched Tree Cave. A skinny caver will be needed to fully check out the latter cave. The county now has over 230 documented caves. Also—Doug Gouzie took the show cave tour of Caverns of Sonora in Texas, a cave profuse with speleothems. **Jan. 10th**—Jon Beard met with Les Turilli Sr. regarding restoration of speleothems in Meramec Caverns and replacement of a cave gate at nearby Bat Cave. The restoration will take a number of visits to repair some stalactites broken decades ago and a large stalagmite that had been toppled by last year’s devastating flood event. **Jan. 17th**—Jon Beard joined Mark Jones, Dave West and Karen Wilmes in bio monitoring in Barn Hollow (Texas Co) on lands within Ozark National Scenic Riverways and Missouri Dept. of Conservation as part of CRF project work. Caves monitored included Bear Cave (ONSR), Barn Hollow Cave, Flat Rock Cave, Canyon Cave, Big Barn Hollow Cave and Barn Hollow Spring Cave (MDC). **Jan. 18th**—Jon Beard joined Shelly Colatskie (MDC), Patrick Cunningham (MDC), Don Dunham (MMV) and Ed Klausner (CRF) in CRF bat monitoring in Cookstove Cave (Pioneer Forest) and Martin Cave (ONSR easement) in Shannon Co. Bats were counted along with other biota seen in sections of the cave. Although gray and Indiana bats were well represented in these gated caves, solitary bat numbers are down due to WNS. **Jan. 19th**—A group consisting of Jon Beard, Shelly Colatskie, Patrick Cunningham, Don Dunham, Mark Jones, Kristjan Mats and Darren Thornkill visited the first section of Powder Mill Creek Cave (Shannon Co) to count bats and other biota. Shelly swabbed a number of bats (WNS research). After this (and deconning), Jon joined Don Dunham, Kim Houf (ONSR), Scott House, Mark Jones, Dave Tobey (ONSR), Dave West and Karen Wilmes in bat counts and swabbing in Round Spring Cave (Shannon Co). While Kim swabbed, Scott, Don and Mark recorded biology in the Right Passage of the cave while Jon, Dave and Karen counted fauna in the Left Passage. **Jan. 21st**—Gabe Rodgers, Christina Butterworth and Brandan Atteberry visited Eden Falls Cave at Lost Valley (Arkansas), a short but easy cave with its waterfall. **Jan. 22nd**—Jon Beard hosted members of CAIRN to a bio inventory and archaeological trip to Math Branch Cave, Mark Twain National Forest (Christian Co). Bats and other biota were counted in the first 600 feet of the 1000-foot cave, then archaeological searching and documentation in the first 200 feet of the cave was conducted. **Jan. 23rd**—MDC’s Shelly Colatskie, Mo. Master Naturalist Tom Spears, Springfield Parks’ Deah & brother Branden Powell and Justin Smith and SPG’s Melvin Johnson and Jon Beard spent the afternoon at Sequiota Park in Springfield. While the others entered Sequiota Cave, Melvin manned a display on bats and caves outside for park visitors. Bats and other biota were counted while Shelly swabbed a number of pips for WNS study (no visible WNS was seen). **Jan. 25th**—Jon and Alicia Beard monitored Peters Hollow Cave on Mark Twain National Forest as part of a CRF project to check specific caves for bats. There are nine remaining specified caves in MTNF in Christian County to monitor this winter. **Jan 28th**—Brandon Van Dalsem, Phillip Shurtleff, Noah Forsberg, Scarlet Casey, Treavor Bussard, Matt Bumgardner, Bethany Bruman and Jon Beard

conducted the annual bat count in Breakdown and Fitzpatrick Caves (Christian Co). The bat counts for the combined caves averaged 150-170 from 1983 to 2010. However, in the last four years, the count has been 250, 237, 260 and this year 349. Best guess why is that the cave has been closed from Nov. 15 to April 1 every year beginning in 2009 (except for the annual bat count), allowing the bats to hibernate in peace. This year's count may reflect bat behavioral changes due to WNS, however. Ten of the pips had the beginnings of WNS this year. Of the count, 343 were pips, 6 were big browns. Also seen were several pickerel frogs, a cave salamander and lots of helemomyzid flies and cave crickets. **Jan. 29th**—Eric Hertzler and Jon Beard monitored Pole and Hog Pen caves (Christian Co) in Mark Twain National Forest on behalf of the CRF. Biology was recorded including 377 pipistrelles in Hog Pen. While in the latter cave, they mapped a lonely side passage characterized by awkward breakdown and tight dry bellycrawls, which describes much of the cave. **Jan. 30th**—Cynthia Russell assisted Mark Jones in the continuing survey of Three Forks Cave (OK), a lengthy cave in the “Cherokee Ozarks” in the northeast part of the state. Many passages are joint-determined and there is a good biological diversity. For two days, the team amassed more than 600 feet of survey. **Feb. 1st**—Jon Beard guided the owner of Pearson Creek Cave (Greene Co) Don Hancock and his daughter Kaya through the restored cave on a trip to count hibernating bats (44) and other critters. In 2011 Don contacted cavers in a desperate attempt to stop trespassing and vandalism in his cave. In Nov. the cave was gated, and a five-year restoration project was begun, culminating in 2016. **Feb. 3rd**—Eric Hertzler and Jon Beard monitored biota in Stoner Cave (Christian Co) as part of a CRF project in Mark Twain National Forest. The cave is about 200 feet long, developed in the Pierson Limestone. They then hiked to document nearby Powerline Cave, a 42-foot crawlway that contained a few examples of biota. Bats, salamanders and arthropods were counted and added to the cave fauna database. There are now 338 documented caves in Christian County. **Feb. 4th**—Jon Beard assisted with the ongoing cleanup at Goodwin Pit Cave (Laclede Co). The volunteers cleaned out tires, burned scrap timber on the surface and dug at “Amy’s Dig” inside the cave. Also—Brandon Van Dalsem, and Treavor Bussard participated in a Buffalo National River CRF monitoring trip to Skunk Pit while Eric Hertzler was part of a CRF crew mapping Kyles Overlook Cave. Also involved with CRF monitoring at the Buffalo was Dillon Freiburger, who along with Kayla Sapkota, monitored Bear Pit, Stout Root Pit and Clemson Pit. **Feb. 6th**—Clayton and Cynthia Russell monitored Linda Bear Paw Cave (Oklahoma), one of a number of caves in the same hill noted for their biological diversity. **Feb. 7th**—Jon Beard acted as guide to a small group of MDC agents in searching for biota in several small sandstone shelters in Bushwhacker Lake Conservation Area in Vernon County and two small caves in Barton County. Two pips were found, one each in two of the larger shelters, plus various insects and other arthropods. GPS readings for each of the shelters were made to avoid any confusion as to which shelter is which. **Feb. 11th**—Brian Moore, Matt Bumgardner and Jon Beard hiked a series of hollows in search of undocumented caves in Barry County’s Mark Twain National Forest as part of a CRF project, searching the bluffs and shelters for signs of Ozark big-eared bats. On the hike the crew found a massive growth of tufa grown from a rock face fed by a small spring. Later, the hikers found three shelters deep enough to call shelter caves, naming them Pothole, Flaky Rock and Tufa Barrel. On the way back to the vehicles, Matt found a cave entrance to what was named Mosquito Squadron Pit Cave. This was explored some 55 feet to a narrow 38-foot deep pit. As they didn’t have vertical gear, further exploration would have to be done another day, perhaps by narrow cavers. Also—Dillon Freiburger was part of a CRF effort to monitor Triangle Cave and Mud Cave in Arkansas. **Feb. 12th**—Matt and Jon returned to the hollow containing Pothole, Flaky Rock and Tufa Barrel shelters and surveyed them. Tufa Barrel Shelter has an old steel barrel in front of the shelter fed (in wet weather) by a hand-placed log in which a trough had been fashioned. The barrel has been there so long that a thick growth of tufa (which is found elsewhere in the shelter) has grown from an apparent crack in the drum. **Feb. 13th**—Clayton and Cynthia Russell visited Moonshine Cave and Don’s Cave (Oklahoma) to monitor their biology. **Feb. 15th**—Jon Beard guided MDC agents Rhonda Rimer, Frank Loncarich, Cesare Kleeman and Megan through Doty Cave (McDonald Co) to count bats and see if any had WNS. More than 220 pips were counted plus a few salamanders, insects. The 850-foot cave was mapped by SPG a few years ago. **Feb. 18th**—Faith and Chris Lewis, Treavor Bussard and Jon Beard monitored Blind Fish Cave and BH Blowing Cave (Christian Co) in Mark Twain National Forest as part of CRF’s project to monitor several caves for bats. Both caves had dozens of pips, a few in each with WNS. After returning to the vehicles, Treavor and Jon monitored nearby Dripping Cave for biota. Also—Dillon Freiburger joined fellow cavers in surveying in Janus Pit Cave in Arkansas. **Feb. 19th**—Gabe Rodgers, Christina Butterworth and son Brandan

Atteberry along with Jon Beard visited Fitzpatrick Cave (Christian Co) to monitor and count bats and other biology in the cave. **Feb. 20th**—Jon Beard and Kayla Sapkota ridgewalked and knocked on doors in southwest Stone County, Missouri in a project to search for undocumented caves that might be habitat for the Ozark big-eared bat, a species not documented in Missouri the last 40 years. On this day, locals spoke of one or two short caves, one of which could be seen on a bluff in the distance (to be checked later). **Feb. 21st**—Jon Beard and Kayla Sapkota hiked Pilot Knob Conservation Area in search of caves that might house bats, but no caves were found in five miles of hiking around the exposures of Pierson and Compton Limestones. Ideal cave conditions, but no caves anyway. **Feb. 24th**—Charley Young, Eric Hertzler and Jon Beard assisted Patrick Cunningham and Shelly Colatskie of the MDC in counting gray bats, pips and other biota in the front sections (3,000') of MDC's Smittle Cave (Wright Co). This is an important gray bat site all year round. Also—Dillon Freiburger and Jessica Wheatly checked Keithley Cave #2 (Stone Co), a cave developed in the Pierson Formation. **Feb. 25th**—After searching in vain for long-lost Pseudo-petroglyph Cave (Christian Co), Eric Hertzler and Jon Beard dropped the pit at Sawmill Hollow Mud Pit, a 300-foot cave in Mark Twain National Forest. Biota were recorded (not much), a few photographs were taken, then they ascended the pit. They photographed the entrance to nearby Sawmill Hollow Whiskey Pit but did not enter the 50-foot long cave. Both pit caves were GPSed for more precise locations. **Feb. 27th**—Brandon Van Dalsem and Jon Beard were joined by Kayla Sapkota in the continued search for potential Ozark big-eared bat sites, this time in the border area between McDonald and Barry counties. They made a brief search in the Flag Spring area, but little possibility of caves there, so they went knocking on doors and found two adjacent landowners with at least eight small caves, two of which were already documented. The cave names are Shaggy Bark Caves #1 and #2, Shaggy Bark Bear Cave, Shaggy Bark Shelter, Shaggy Bark Upper Cave and Shaggy Bark Spring Cave. Across the hollow was Taylor Shelter. A few miles away they found a short cave they named Star Hollow Cave.—Max white

Meramec Valley Grotto (MVG). Dec. 10th – 17th, 2016 – Todd Flemming did some wild caving in Cuba. Not Missouri, but Cuba the Country. **Dec. 28th** - Dan Lamping, Josh Hafner, and Bob Lerch spent two days mapping in UR2, Carroll Cave, Camden County Mo. Still going passage, but requires digging. **Jan. 2017** - Gary Hart and Deb Dumont toured Carlsbad Caverns New Mexico. **Feb. 4th** - Bill Roswit, Jim Sherrell and many others counted bats in Berome Moore Cave cat track passage. 60 bats counted with no visible White Nose. **Feb. 5th** -Tony Schmitt, Jim Ruedin, Dan Lamping, Joe Sikorski, Derik Holtman, and many others (MMV, MSM) started a resurvey of Mossy Springs Cave, Washington County Missouri, they also helped with the Bio and bat count. **Feb. 11th** - Chad McCain (SEMO and MVG) with Alex Litch (MSM), Michael Bradford, Ray Shaw, and Gary Resch surveyed 2000+ feet in the ever expanding Gegg Cave, Ste Gen County. Also - Tony Schmitt MVG, Dan Lamping MVG, Shelly Colatskie MDC, and Mick Sutton CRF went to Pleasant Valley Cave, Jefferson County MO to do a bat count and general assessment. Hopefully more on this in the near future. **Feb. 13th** - Tony Schmitt MVG, acting as safety person, Tony Elliot MDC, Shelly Colatskie MDC, went to Prater cave, a Priority 1 Gray Bat pit cave within the boundaries of Ozark National Scenic Riverways on a bat count. Approx. 120,000 Grays call this cave winter home. **Feb. 15th** - Alicia Wallace, Chad McCain and Mark Brewer surveyed 308' in Berome Moore Cave, Perry County. **Feb. 18th** - Tony Schmitt had a rope school at his house in Fenton. Many MVG and CAIRN members showed up for a day of climbing, knots, rappelling and pick offs. MVG – Tony and Mary Schmitt, Mark Andrich, Mike and Natalia Tennant, Joe Light, Laura and Andrué (Spanish cavers living in STL) Issac Booth and his father Greg, Karen Scott Shebik, Lee Kraus, Michelle Ashley and Joe Sikorski. CAIRN, Krista Marsha, Paul and Amanda Konrad. With a special appearance by Lea Claycomb (former MVG) and Cliff Caldwell (MOLES) with their daughters. After the rope school, a party broke out and we ate a bunch of food and drank beer. Also- Alicia Wallace, Jim Ruedin, Derik Holtman, Darrell Route. **Feb. 19th** - Dan, Henry, Margaret, and Valerie Lamping, along with Joe Light mapped a small cave on MDC land near the Huzzah. After surveying the cave Dan realized it might be the mythological "Mouse's Ballroom," a cave Tom Panian pushed 20 years ago. The Lampings and Light, surveyed the normally traversable section of cave, leaving the two body length of less than a ½" of air passage for future (and crazier) generations. Possibly more than 2000' of cave lies beyond the death passage as reported by a few who have been there. **Feb. 22nd** - Chad McCain and Lee Kraus survey 257.96' in Berome Moore Cave,

Perry County, most of it being virgin. Just goes to show if you look close enough you can find virgin cave, close to the entrance, even in Berome.—Tony Schmitt

Middle Mississippi Valley (MMV). Jan. 1st - Doug and Michael Leer visited Mud Cave in Greensfelder Park (St. Louis County) and did a quick bio survey of the small but interesting cave. They also found a gated pit nearby, one of several in the park. Jan. 12th - Don Dunham, Doug Leer, Mike Joiner and Darrol Gasawski visited Lost Valley in Northern Arkansas near Ponca. Along the 1.25 mile trail are two caves, a natural tunnel, a very large shelter cave and a very nice waterfall. It is well worth the visit. Jan. 15th - Don Dunham did bio inventory and monitoring of caves in the Ozark Scenic Riverways. Jan. 20th - Jason Hanewinkel, Mark Elbert and Chip Arnold took a trip into Tom Moore Cave via the "Tube". It was a round trip to the pit entrance and back. Feb. 2nd - Jim Sherrell, Chad McCain, Brian Biggs and Larry Abeln went to Valle Mines to survey and inventory. Along with the mapping, they checked several pits. Feb. 4th - Jim Sherrell coordinated an annual bat count in Berome Moore (Cat Track Passage). There were enough people attending to do the count as well as a couple of other trips. Doug Leer led a loop trip through Gypsum Passage to Main Stream and Josh Haffner took some people from Base Camp and exited via the Pit Passage. The Bat count netted only 60 bats, down from 85 last year and 200-300 bats in years past. Only one bat had noticeable WNS but most bats were not close enough to get an observation. Feb. 12th - Don Dunham along with others started surveying Mossy Spring Cave in Washington County. Several cavers were involved in the initial re-survey of this significant cave. This project is being done in coordination with MDC. Feb. 15th – 22nd - Cad McCain, Alicia Wallace, Mark Brewer and Lee Kaerun did mapping in Berome Moore Cave (two trips) and surveyed from A16 in the Entrance Passage up to W28. Total survey length was not provided. Feb. 17th - Bret Meisel, Laura Belarbi accompanied SEMO field biologists Wes Sleeper and Sindalpo Da Silva to Berome Moore Cave for a Grotto Sculpin survey. 45 Sculpin were observed in mainstream near the Maze. Feb. 18th - Jim and James Sherrell Jr. toured Arch Cave and Natural Bridge Cave. Also - Don Dunham participated in a bat count of Lime Kiln Mine in Hannibal, MO. The cavers led biologists into several sections of the mine. The results of the count were not provided for this report. Feb. 25th - Bryan and Ian McAllister visited a couple of unnamed caves on an uncle's property that was being sold. The names and locations will be registered into the cave files before access to them is likely to end. Also- Dane Driskill and Laura Belarbi visited Wind Cave and Sehl's Cave in Perry County. They counted 10 and 45 bats, respectively, in the caves and would like to return with more cavers to push wet passages.--Doug Leer

MSS MINUTES. The Winter 2017 Board meeting of the Missouri Speleological Survey was called to order by President Dan Lamping on January 21st at the DGLS Annex Bldg. in Rolla. **Introduction of Officers:** Dan Lamping, President; Scott House, Vice-President; Don Dunham, Treasurer; Alberta Zumwalt, Secretary. **Roll Call of Directors:** Al Quamen, LEG; Dan Slais, RBX; Max White, SPG; Bill Heim, OHG; Tony Schmitt, MVG; Chad McCain, SEMO; Krista Bartel, CCC; Rita Worden, Chouteau; Alicia Wallace (Proxy), MCKC; Doug Leer, MMV; Jim Cooley, KCAG; Jessica Self, MSM; Craig Williams, CAIRN; Gary Zumwalt, LOG. Absent was: Lorin O'Daniell, PEG. **Secretary's report.** Alberta Zumwalt reported that the minutes of the Fall 2016 meeting were distributed after the meeting to the Directors and Officers and were printed in the Sept-Oct issue of *MSS Liaison*. The minutes were approved. **MSS Liaison.** Gary Zumwalt reported sending out 45 paper copies and the rest as electronic copies with cash on hand of \$344.83. The next deadline is March 1st. He continues to send out electronic copies to whoever wants them. Pres. Lamping said that he is putting the issues on the MVOR Yahoo group, MoCaves yahoo group and the MSS website. **Treasurer's Report.** Don Dunham had sent out the report electronically before the meeting and copies were distributed at the meeting. He said that Paul Johnson had given \$5,000 to the MSS with no designation so he put it in the general fund. Accounts: General fund \$10,373.78; Subscriptions to *Missouri Speleology/Liaison* \$3,816.34; Research Funds \$12,724.78; Anne Johnson Data Fund \$19,739.73. Interest checking \$71.77; Affiliation fees \$800.00; Liaison \$841.00; Assets: Savings bonds \$2,000.00; Interest checking \$46,367.40; Total \$48,367.40. Income statement for the year ending Dec. 31st, 2016. Income: Individual Membership

Dues/Subscriptions \$1,185.00; Interest \$23.02; *Missouri Speleology* \$93.00; Organizational Affiliation fees \$425.00; Hats \$104.00; CRF Donation \$1,250.00; Merchandise \$189.55; Paul Johnson Bequest \$5,000.00; Total = \$8,269.57. Expenses: *Missouri Speleology* \$3,494.42; *Liaison* \$600.00; Membership Refunds \$379.00; Anne Johnson Fund \$345.30; 7000th cave cake \$39.38; bank fees \$30.00; posters \$154.00; Total = \$5,042.10. Net Gain \$3,227.47. Balance sheet. Ending balance 12/31/2016: Interest checking \$46,367.40; savings bonds \$2,000.00. Total \$48,367.40. Beginning balance 1/1/2016: Interest checking \$43,139.93; savings bonds \$2000.00. Total \$45,139.93. Net gain \$3,227.47.

Missouri Speleology. Don Dunham reported Vol. 56 Caves of North Fork Basin 1 is available. Upcoming issues will probably be 2 & 3. They are also working on more issues and may have another volume available at the next meeting. **Affiliate Organizations.** With the position vacant, annual reports should be sent to Pres. Lamping. He asked for volunteers to take the position. Chris Lewis asked what was involved and showed an interest. Pres. Lamping will talk to him after the meeting. **Cave**

files/database. Scott House reported a lot of work being done. There are approximately 170 new caves. Ken Grush added some statistics: 7,300 records, not all caves; 14,000 related records; 26,000 faunal records. He has cave archives – a repository for digital records. He also has 34,000 newsletter files. Scott requested that photos being sent to him should be put in a folder with cave accession numbers such as Grn 102, your name. He added that he does not want pictures taken with a phone.

Agency reports. Mark Twain National Forest – Mick Sutton said they are focusing on bat surveys.

Ozark National Scenic Riverways – Scott House reports bat surveys and not seeing any bats. He said they are seeing a 90% drop in pipistrelles from 2 years ago. **Missouri Department of Conservation** –

Scott reported some people have been able to obtain wildlife collection permits. They are not collecting critters, just monitoring caves but the MDC did not have a permit specifically for that.

People with the permits are trip leaders and must be on the trip. The permits are good for one calendar year. When asked if they could go in any of the caves, Scott said they have a “work list” of caves they can visit. **State Parks.** Scott House reported that they wanted some data field work.

Others. Scott House and Jim Sherrell participated in a meeting on Perry County. **Affiliate**

Organizations Project reports. Carroll Cave: Pres. Lamping said they spent a couple days in Upper Thunder River which was probably the last trip that was made there. **RBX:** Dan Slais said they are working on the Newburg Children’s Museum. MSM members did the cave room for the museum.

SEMO: Chad McCain said they found out that Bat Cave is owned by the city instead of a private landowner, with lots of graffiti in the cave. He reported the cave in Ste. Genevieve is still going. **Public**

Outreach. Pres. Lamping said he can put stuff on the MSS Facebook page. He said to share with the MSS and then he has to share to get it on. He can also put things on the MSS website.

Announcements. MVOR - Jessica Self announced the Spring MVOR to be held April 7th-9th at Boiling Springs Resort in Licking, MO, hosted by MSM. Tony Schmitt asked for people to send him maps to display at the MVOR. Alicia Wallace said she is taking nominations for the Lester B. Dill Award. **Next**

Meeting. May 21st, 10 am, Onondaga State Park. Meeting adjourned.-respectfully submitted, Alberta E. Zumwalt, Secretary.

MSS OFFICERS.

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Secretary - Alberta Zumwalt, 1681 State Route D, Lohman, MO 65053. 573-782-3560 Gzumw@aol.com

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SPG – Max White, 2748 W. Maplewood, Springfield, MO 65807. 417-880-8475 bildmwc@aol.com

Note: New Directors for KCAG and MCKC.

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Affiliate Organizations – vacant

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MSS store - Don Dunham, 147 Ron de Lee, Arnold, MO 63010. 402-203-3191 don_g_dunham@yahoo.com

Research committee - Jerry Vineyard, Ozark Riverview Manor, 1200 W. Hall St., Ozark, MO 65721
JelenVnyrd@aol.com Other members – Oz Hawksley, Dwight Weaver, and David Ashley.

Historian-Dwight Weaver – 38 Village Marina Rd., Eldon, MO 65026. 573-365-1171 dwightweaver@charter.net

Cave Files - Scott House, 1606 Luce St., Cape Girardeau, MO 63701. 573-651-3782 scott_house@hotmail.com

MSS web site –www.mospeleo.org

Ozark Caving web site– www.ozarkcaving.com

Carroll Cave Conservancy website <http://www.carrollcave.org>

MCKC website – <http://www.mocavesandkarst.org>

Caves of Missouri Discussion Group – <http://groups.yahoo.com/group/cavesofmo>

Petroglyphs, inscriptions, & pictographs: rockartmo.com

The new MoCaves: <https://groups.yahoo.com/neo/groups/mocaves/info>

CALENDAR:

April 7th-9th – **Spring MVOR**, hosted by MSM, at Boiling Springs Resort in Licking, MO.

May 1st – **Next MSS Liaison deadline.**

May 21st – **Spring MSS Meeting**, 10 am, Onondaga Cave State Park, Leasburg, MO.

Annual affiliate fees of \$25.00 were due at the January meeting. Payment should go to the MSS Treasurer, Don Dunham. The organizations that still owe their fee are; CAIRN, CCC, Chouteau, KCAG, MCKC, PEG, SEMO, and SPG.

Annual reports for 2016 were also due at the January meeting. Reports should go to the MSS President, Dan Lamping. Organizations that have turned in their reports are: CAIRN, CCC, KCAG, LOG, MVG and Roubidoux.

FIRST CLASS

MSS LIAISON
Gary Zumwalt
1681 State Route D
Lohman, MO 65053