Speleofest 1992



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GUIDE BOOK



SPELEOFEST 1992

Gary A. O'Dell
Editor

Carol Sue O'Dell
Associate Editor

Hosted by the Blue Grass Grotto
of the National Speleological Society

May 22-25, 1992

Woodmen of the World Campground, Spears, Kentucky

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FRONT COVER The entrance to mile-long Russell Cave in Fayette County, as it appeared in the late 19th century. Russell Cave has been closed to exploration since 1941, but new ownership has allowed access for this year's Fest.

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EMERGENCY PHONE NUMBERS

Clark, Fayette, Garrard, Jessamine, Mercer and Woodford counties are in the 606 calling area. Franklin and Scott counties are in the 502 area.

Woodmen of the World Campground	(606)272-5146
Kentucky State Police (emergency)	(800)222-5555
Forest Fire (collect)	(502)535-7741
Toxic chemical & oil spills	(800)424-8802
Kentucky Disaster & Emergency	(502)564-8682
Emergency services in Fayette, Franklin, Mercer, & Woodford	911
Jessamine County	
Fire Department	(606)885-4114
Nicholasville Police	(606)885-9466
Sheriff	(606)885-4139
Emergency Medical Services	(606)885-7300
Garrard County	
Fire Department	(606)792-2244
Police	(606)792-3023
Sheriff	(606)792-3591
Ambulance	(606)792-2821
Disaster & Emergency Service	(606)792-2244

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WELCOME to the 21st KENTUCKY SPELEOFEST!

Hello, and welcome to the 1992 Speleofest. I am happy that you could attend this year's event, and hope you enjoy your visit to this region of Kentucky.

This year's event, the 21st Speleofest, is being held in the Inner Bluegrass Region. This area of the state has been virtually unknown to cavers outside of the local community. The Inner Bluegrass is best known for numerous thoroughbred horse farms, but also contains some outstanding caves and rather different geology than that which Speleofest regulars have been accustomed to in past years. Caves in this region have developed in Ordovician limestones rather than the more familiar Mississippian limestones common to most of the other karst areas of the state. There are over 300 caves known from the Inner Bluegrass. We have endeavored to select some of the more prominent and diverse caves for your enjoyment this weekend. In addition, in the highlands along the Kentucky River are numerous pit caves, among them some of the deepest shafts in the state.

There are a number of things that are different about this year's Speleofest. We have a whole new set of caves for your caving pleasure. There is a higher proportion of vertical caves than has ever been offered before at Speleofest. Because the Bluegrass is a more intensively developed region than most other Speleofest sites, more of the trips will be led rather than be of open access. We regret this inconvenience, but many of these caves are located on horse farms, where it has taken considerable negotiation to arrange access. **PLEASE REMEMBER TO CAVE SOFTLY.** Many of the finest caves in the area are no longer accessible. Too often landowners have come regard caves and cavers as both a nuisance and liability. Some caves have even been physically sealed. Several of the caves featured in this year's guidebook have been closed for decades. Russell Cave in particular was closed for over 50 years. We are fortunate to have regained access. If the landowners are shown courtesy and consideration, these caves may remain open for years to come.

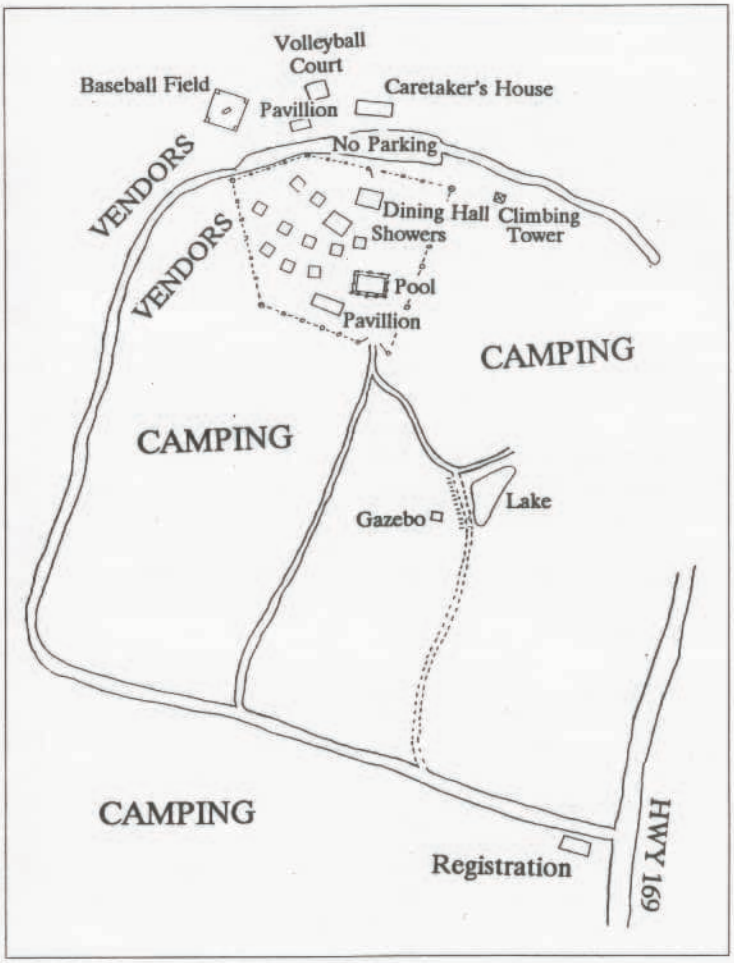
In the event that the cave selections we offer in our local region do not satisfy your appetite, the larger caves of Rockcastle and Pulaski counties are only about an hour's drive south. If you intend to cave in that region, please sign out at the registration before you leave so we will know where you are, should any problem arise. Sign-up sheets for the featured local trips are located at the registration area, as are directions for the self-led trips. All led trips will depart from the registration area.

For those who would prefer to remain above ground, the hydrogeological field trip will provide a nice educational opportunity to learn something about the characteristics of this area. Led by Larry Spangler, it will cover the hydrogeology of the Inner Bluegrass. There are numerous other activities planned. Arrangements have been made to offer canoeing on Elkhorn Creek, near Frankfort. There are also a large number of local attractions to see. For your entertainment, music will be provided by the *Terminal Siphons* at the party Saturday night. Party on and enjoy!

The banquet Sunday night is an all-you-can-eat affair. It is located right here in the campground. Following the feast, our guest speaker this year will be Dr. Ralph Ewers, noted geologist and a fine speaker. This will be followed by the highlights of the weekend, the door prizes. Come see who takes home the PMI ropes!

I hope you all will have the best time ever at this year's Speleofest, and will make plans to return next year. Best wishes, and good caving!

Jim Greer
Speleofest Chairman



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LOCAL ATTRACTIONS

1992 is the year of Kentucky's Bicentennial. Communities all over the state are planning celebrations of various sorts. In addition, there are many attractions of great interest, within a reasonable distance of the Speleofest campground, that provide some alternatives for attendees who would like to spend some quality time aboveground as well as, or instead of, down in those dark holes. The following is a select grouping of the best of the local attractions that will be open during the Memorial Day weekend.

Berea - Follow I-75 for about 40 miles south of Lexington to exit 78, the town of Berea. Here you will find the Museum of Appalachia and numerous stores that feature hand made goods; in many cases you will be able to watch the artist or craftsman as he or she produces a quality item created with traditional skills.

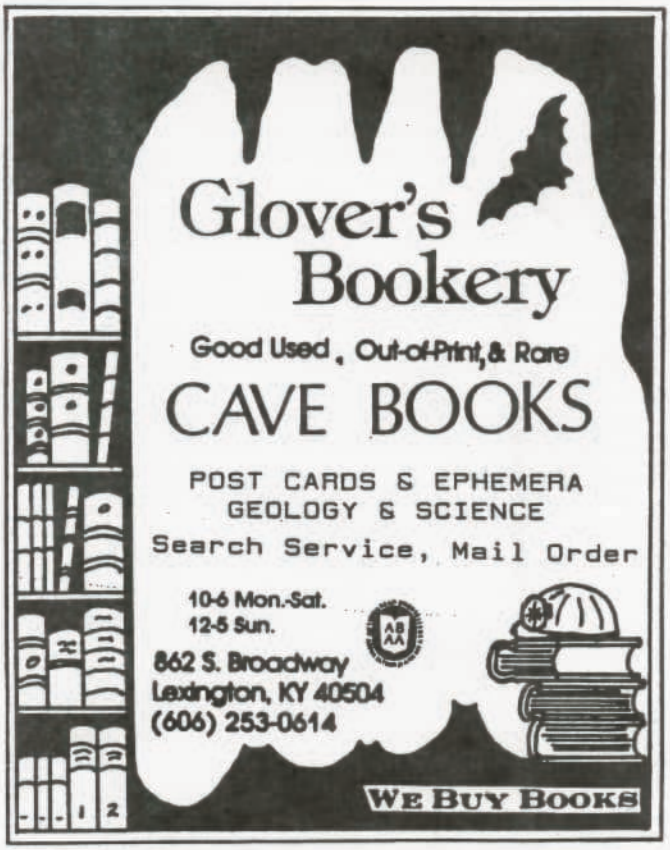
Star of Lexington - Wine and dine on an old-fashioned riverboat as the Star cruises leisurely up and down the Kentucky River in the vicinity of the Speleofest campground. The Star of Lexington will ply the river on a sightseeing tour Saturday and Sunday from 2:00 to 5:00 pm, for which the fares run $9.95 for adults, 5.95 for children. Meals may be had on the lunch and dinner cruises (rates are higher, and reservations are required for these). The Star may be found at her dock by taking the Clays Ferry exit (exit 99) off I-75; if heading south from the Lexington area, turn right. For more information or reservations, call (606) 263-STAR.

Fort Boonesborough - Fort Boonesborough is an authentic recreation of one of the earliest Kentucky settlements. The fort was erected by Daniel Boone and others at the end of the trail they had carved from Cumberland Gap - the Wilderness Trail. Here you may see the inhabitants recreating everyday pioneer life and handicrafts. Open hours for the fort are from 9:00 am - 5:30 pm, admission is $4.00 for adults and $2.50 for children 6-12. Take exit 95 from I-75, and travel north 6 miles on Hwy 697.

Fort Harrod - If you are interested in pioneer history and culture. be sure to visit Old Fort Harrod in Harrodsburg, a recreation of the very first settlement in the state in 1774. Here too you may see local actors and artisans recreating everyday pioneer life and handicrafts. Hours are from 8:30 am - 5:00 pm, with admission $3.50 for adults, $1.00 for children. The museum at the fort is open from 9:00 am - 5:30 pm. Harrodsburg may be reached from US 68, traveling south from Lexington about 35 miles.

Great Saltpetre Cave - Don't miss this very historic cave. It was once the largest saltpetre mining operation in Kentucky as it outproduced even Mammoth Cave! In a later era it was tied to the local country music industry in Renfro Valley, with the very first broadcast of the Renfro Valley Barn Dance made by CBS radio from the cave. The cave is one of our own, being managed jointly by the Greater Cincinnati and Blue Grass Grottos of the NSS. Bring kids and even the non-caving spouse to ramble around on smooth trails and under electric lighting. Tours are self-guided; there are no regular tours. The cave is normally kept locked; check at registration table to sign out key (deposit required).

Kentucky Horse Park - If you are a lover of horses, the Kentucky Horse Park is definitely the place for you! Located just off I-75 a few miles north of Lexington (exit 120), there will be featured equine events all through the Memorial Day weekend in a beautiful setting of whitewashed fences set amid rolling bluegrass pastures. Features include the Museum of the Horse, the Parade of Breeds horse show, horse movies, and of

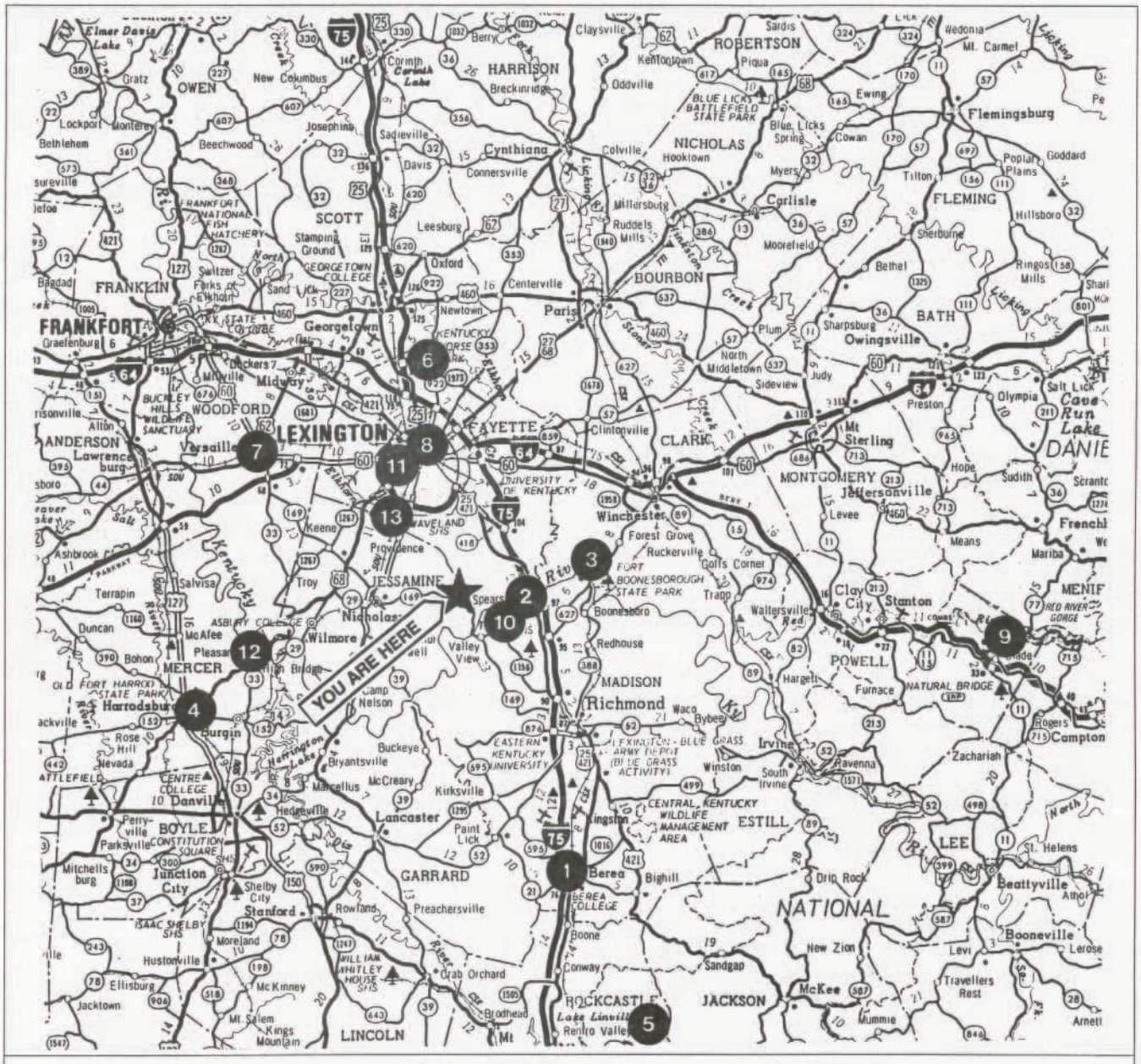


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course lots of fancy barns and horses of all breeds and sizes. Trail rides and carriage rides are also available. In addition, the Saddle Horse Museum is located adjacent to the parking area. Admission is $7.95 for adults, $3.95 for children.

Bluegrass Scenic Railroad and Museum - If the Horse Park is for equine connoisseurs, this is for the railroad buff. Enjoy an 11-mile, 90-minute trip through the Bluegrass while riding behind an old-fashioned locomotive. The Railroad Museum is only about 15 miles from Lexington, one mile west of the community of Versailles on US 62. Fares are $6.00 adults, $5.00 seniors, and $4.00 for children ages 3-12. The train leaves the station on Saturday at 10:30 am, 1:00 and 3:30 pm, and on Sunday at 1:00 and 3:30 pm. All aboard!

Lexington Childrens' Museum - Do you have a whole bunch of bored and irritable children on your hands? Are you and the gang sick of hearing about caves, caves, caves? Turn frowns into smiles at the


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Forks of Elkhorn
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Josephine
Sadieville
Davis
Scott
Stamping Ground
Leesburg
Oxford
Centerville
Newtown
Georgetown College
Sand Lick
Switzer
Forks of Elkhorn

Lexington Children's Museum, a hands-on experience that will delight even the grownup kids. The museum is located in Victorian Square, Main Street in Lexington. Open hours are Saturday 10:00 am- 5:00 pm, Sunday 1:00 - 5:00 pm, and M-F 10:00 am - 6:00 pm. Admission to the museum is $2.50 adults, $1.50 for children.

Natural Bridge State Park/ Red River Gorge - Take I-64 east from Lexington to the Mountain Parkway, and follow this scenic highway to the Slade exit, and you will there be confronted with the choice: Natural Bridge State Park, or the Red River Gorge Geologic Area? Either choice will be a good one. Kentucky's Natural Bridge is a massive monument in sandstone, the largest of the region's many natural arches. There are many hiking trails in the state park, and altogether it is a good place to spend the day. Or, instead, you might follow Highway 77 north to the Gorge. The Red River Gorge has to be seen to be truly appreciated. There are dozens, if not hundreds of sandstone arches, sheer cliffs and towering rocks for climbing, a beautiful river for canoeing, miles of trails for hiking, a fauna and flora that includes many rare and endangered species, and a generous sprinkling of caves. So what more could you want? There is only about an hour's travel time to either of these attractions.

Raven Run - If you would like to do some hiking in a scenic area without travelling too far away from the Speleofest campground, take the nature trails along the gorge of Raven Run, a tributary of the Kentucky River in Fayette County. The Raven Run Nature Sanctuary is a favorite among the local population. It's a chance to get away from the city crowds without getting too far away from the city. The sanctuary is open Wednesday through Sunday from 9:00 am - 7:00 pm; trail entry ends at 6:00 pm. There is no charge. Located off Jacks Creek Pike, only a few miles from the campground.

Red Mile Harness Racing Track - For a different sort of horse lover, this fast harness track offers the chance to drop a little cash -- and maybe to pick up some extra! Saturday, 23 May, is Memorial Stakes Day at the racetrack. The gates open at 10:00 am, the first race is at 1:00 pm. The Red Mile is located in Lexington, off South Broadway. Admission is $6.00.

Shakertown - This former community of the Shaker sect has been preserved, with its historic buildings and furnishings. Hours are 9:00 am - 6:00 pm. Admission to the Shaker village is $8.00 adults, $2.00 children. Take a Kentucky River cruise on the old-fashioned riverboat here, which leaves the dock every 1 1/2 hours. A combination ticket for $11.00 and $4.00 puts you on the riverboat, also. Shakertown may be reached from US 68, on the way to Harrodsburg.

Waveland - Daniel Boone's nephew, Daniel Bryant, settled this tract of land just a few miles south of Lexington, off US 27 on Higbee Mill Road. The house was built in 1847 and is furnished with authentic pieces of that era. Near the house are the former slave quarters, ice house and smoke house, and there are also nature trails. Waveland is open Saturday and Sunday, closed Monday. General admission is $2.50, $2.00 seniors, and $1.00 for students.

And finally, for the stout-hearted, you might take a drive down south of Richmond on US 25/421, past LBAD, the Lexington-Bluegrass Army Depot, where tons of nerve gas weapons are stored in leaking and deteriorating containers, and nobody is quite sure what to do with it all... (They won't let you in. Don't ask.) Some of the storage igloos are visible from the perimeter road.

-compiled by Gary O'Dell

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SPECIAL EVENTS

Boone Forest Karst Tour

Sunday, May 24, 1-5 p.m.

In view of the proposed regulations concerning cave management in the national forests of this country, many cavers have developed quite an interest in finding out just what **are** current cave management policies and practices of the U. S. Forest Service. Several regional grottoes have been working with Forest Service personnel in Kentucky's Daniel Boone National Forest to inventory and assess the cave resources of nearly 700,000 acres of forest land. On Sunday, May 24, from 1:00 to 5:00 p.m. the Forest Service will present a Boone Karst Tour in the Red River Gorge Geological Area. Red River Gorge is a spectacularly scenic region, and well worth a visit any time. Come participate in the Boone Karst Tour, and learn about karst management and other issues on the Boone Forest.

SCHEDULE

1:00 Meet at Gladie Cabin Site
Presentation on Restoration Project
(Don Fig)

1:30-2:00 Presentation of Threatened and Endangered Species Program, including Cliffline Policy (John MacGregor)

2:00-2:30 Presentation on Cultural Resource Program on the Forest (Cecil Isom)

2:30-3:30 Tarr Ridge Shelterwood Presentation of Forest Timber Management Program
(Rex Mann)

3:30-4:30 Angel Windows Wildlife Habitat Project in Geological Area (Donnie Richardson)

4:30-5:00 Wrap-up and Questions. Gladie Cabin.

Take I-64 east to the Mountain Parkway, go to Slade exit (7 miles past Stanton exit). After exiting go north (left) on KY 15, then go approximately 2 miles, then right on KY 77. Approximately 4 miles past Nada Tunnel, go right on KY 715, then 6 miles to Gladie Cabin which is on the right at a one lane bridge at Gladie Creek. Entrance to Gladie Cabin is 1/8 mile past bridge.

Canoe Trip on Elkhorn Creek

Sunday, May 24, 9:00 a.m. (all day)

A canoe trip on Elkhorn Creek near Frankfort has been arranged for Sunday, May 24. The Blue Grass Grotto will provide guides to direct participants to the canoe livery. The trip will leave from the registration tent at 9:00 a.m. Sunday morning. Canoers should be prepared to spend the entire day on the water.

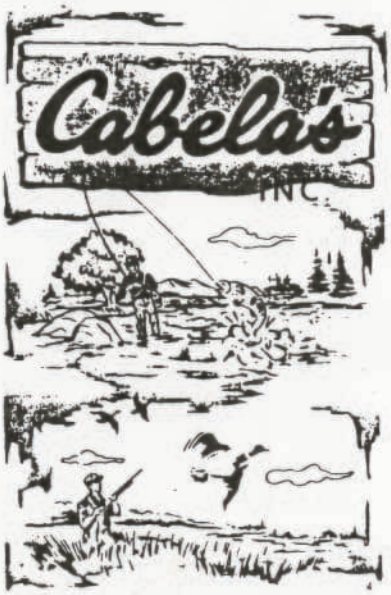
The trip has been arranged through Still Waters Canoe Trails, located in the valley of the Kentucky River at the mouth of Elkhorn Creek in Franklin County, approximately 8 miles north from Frankfort on Highway 127. This location has been a resort since the 1920's, and has been operated by the Strohmeier family since the late 1930's. Rental and personal canoes will be shuttled from the Still Waters Campground to the launch point, located upstream on Elkhorn. Depending upon water and weather conditions, the put-in will either be seen miles upstream at the Peaks Mill Bridge or twelve miles upstream at Souffle's Bottom.

The waters of Elkhorn Creek are unsurpassed in this area for their beauty and recreational value. With its mild, Class I whitewater and wildflower-covered cliffs, Elkhorn is one of Kentucky's most popular canoeing streams. Experienced and beginner canoeists alike should enjoy their float down the lower Elkhorn.

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HISTORY

Cave Exploration in the Bluegrass Region

Gary A. O'Dell NSS 10278

The earliest land grants and deeds to the 18th-century settlers of the region that became Kentucky are the first records of caves and springs in the state. The Bluegrass, with gentle rolling, fertile grasslands, was the first area settled and so the records for this region are the earliest mention of karst features. Large springs were used as named landmarks in the wilderness, and were highly desired as potential water-supply sources by the first settlers. The early deeds showed approximate locations of these major springs and sinking streams, but provided no descriptions of such features. The first record of the exploration of a cave in the Inner Bluegrass is taken from a short account in the Kentucky Gazette in June of 1790, reporting that: "*On the 3d of May last, Mr John Garnet near the mouth of Cain* [cane] *run in Woodford County, lost a calf which was supposed to have gone into a Cave at the head of a spring; the Cave was examined some distance underground, but as they proceeded the passage was obstructed by a large current of water, upon which he had a boat built and proceeded by water up the stream about three quarters of a mile, when they overtook the Calf, which they recovered, and brought down to the mouth again. They saw no evidence of an end to the passage, the aperture as large where they stopped as at any other place. They were provided with candles to see their way.*" One wonders what the calf was doing while they were engaged in boat building.

John Robert Shaw, a Lexington resident and well-digger by trade, rather reluctantly entered one local cave in 1794, relating in his 1807 autobiography that he had been "*sent for by a Mr. Anderson, who had a large cave on his land and was desirous of ascertaining whether or not there was any water in it. I told him there was, but he wished to have it ascertained by someone going down. A number being present, they all refused the disagreeable undertaking; however...I resolved on venturing down. Immediately ropes and every necessary apparatus were prepared and then I made my gloomy exit; at the termination of my career I found what I was certain of before, a fine body of water, a bottle of which I brought up to satisfy the credulous expectants of my resurrection.*"

There are a good number of caverns in the Bluegrass that have been known from the earliest days of settlement. Caves were entered and explored for sprot, but as the commercially valuable substance, saltpeter, was to be found in certain caves, no doubt many explorations were conducted with financial gain as the primary motivation. It is likely that local entreprenuers investigated many caves during the early nineteenth century for nitrate deposits. Certainly it is known that Dr. Samuel Brown of Lexington (**not** the same Sam Brown that fought with Cassius M. Clay at Russell Cave in 1843) was a cave explorer, having in 1806 published a list and description of several saltpeter caves. However, despite some rumors of a saltpeter cave in Clark County, there are no caves in the Inner Bluegrass that are known to have been mined for saltpeter. The Bluegrass was a marketing center for saltpeter mined in caves elsewhere in the state.

John Clifford, a resident of Lexington in the early 1800's, also most likely had explored the local caves. His interest lay not in commercial mining; rather, he was interested in what were known as antiquities. Clifford is credited with having performed excavations in the Mammoth Cave region. It seems likely that he would have, at least briefly, examined the caves near his home town, particularly since the area contained a number of ancient earthworks. It was at Clifford's invitation that one of early Lexington's most noted residents, Constantine S. Rafinesque, was persuaded to live in that community.

An enigmatic man, Rafinesque's scientific pursuits seemed to have encompassed nearly everything with which he came into contact, in diverse fields ranging from archaeology to ichthyology. He was particularly interested in caves, and published descriptions of many in the area. He is also credited with first describing the cave salamander *Eurycea lucifuga* Raf., "*Dwelling permanently in the dark caves of limestone near Lexington.*" Rafinesque also devised a classification scheme for the caverns and related features of the state. In 1823 he visited Mammoth, and wrote of it that "*I spent one day to [examine] it and found it very different from the printed exaggerated accounts, yet wonderful enough.*"

Other than casual ventures of exploration by the local inhabitants, investigation of caves on any systematic basis was not pursued after the departure of Rafinesque until the closing decade of the nineteenth century. The institution that was to become the University of Kentucky had been established in 1865, forming a center for education and scientific study. It is natural that most of the work conducted on caves of the region from that period to the present was undertaken by persons connected with the University (1). In an 1898 thesis on the geology of Fayette County, student G. C. Down-

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ing wrote of several local caves. At about the same time, the skull of a mastodon was uncovered by local workmen, excavating for a pool, who broke into a sand filled cavern in 1897; this presaged the period of intense archeological and paleontological research that was to begin within a few years.

In 1916 the noted archaeologist and explorer of European caverns, Dr. N. C. Nelson of the American Museum of Natural History, came to Kentucky and spent the summer and fall of that year conducting cave explorations in the state. In May, Nelson visited Lexington and was taken to examine caves in southern Fayette County.

Nelson's visit caused local scientists to become interested in the possibility of further discoveries. Arthur M. Miller, dean of the University's College of Arts and Sciences, accompanied Nelson on at least one field trip in the Lexington area and afterward began a similar project, searching actively for caverns, rock shelters, and man-made structures that might yield up fragments of the distant past. His initial interest was soon shared and pursued even more fervently by Dr. William D. Funkhouser and Professor William S. Webb. Aided by their students they began the first systematic study of archaeology and paleontology in the state. This ambitious undertaking occupied many years and took them across the length and breadth of the state, including discoveries in many Bluegrass caverns. The culmination of their efforts was the 1926 publication of the book, *Ancient Life in Kentucky* (2).

In the same year as the publication of *Ancient Life*, two French zoologists toured portions of North America for the purpose of collecting and cataloging cavern life forms, primarily invertebrates. The two speleologists visited Lexington in August 1928 and were shown a local cavern and several sinkholes by Professor J. Garman of the University.

As the twentieth century progressed, interest in cave exploration as a sport or hobby increased. Possibly this may have in part been due to the automobile and the expansion and improvement of roads into rural karst regions. Funkhouser and his students should probably be considered the predecessors of the Blue Grass Grotto; but that later organization did not come into existence until more than thirty years had passed.

Kentucky has always been famous for the number and size of the caverns in its limestone regions; it was quite natural that many persons with an interest in caves and cave sciences would tend to gravitate to this region (3). Dr. Thomas C. Barr, Jr., who had joined the National Speleological Society in 1948, came to the University of Kentucky in 1961 and established the Institute of Speleology in the following year. The Institute has conducted research into the various cavern life forms of this region. Dr. Barr, along with zoologist Wayne Davis and Robert Kuehne and others, in 1962 organized the Blue Grass Grotto of the NSS.

The Blue Grass Grotto was the first organized group in the region dedicated to exploring, mapping, and cataloging the caves in the Bluegrass and elsewhere through the state. Many of those who have been involved in caving in the state of Kentucky have been members at one time or another. In the earlier years of the Grotto, a large proportion of the membership usually consisted of students from the University of Kentucky. At the present time, University students make up only a minor part of BGG membership. During the 1960's, BGG members concentrated on inventorying, exploring, and mapping the caves of the Bluegrass region. They were also involved in the exploration and mapping of the Sloans Valley Cave system in Pulaski County. During the 1970's and 1980's, Grotto interests ranged farther afield, with Rockcastle and Pulaski counties being of primary focus.

At the present time, BGG members' projects include explorations and surveys in the Daniel Boone National Forest as part of a cooperative effort with the U.S. Forest Service; work on the Hidden River Cave system in cooperation with the American Cave Conservation Association; explorations and surveys in Hart County's Hicks Cave system; a new interest in the Meade-Breckinridge County area; and a continued interest in the Rockcastle-Pulaski area. In the last few years, the Grotto has come full circle as many new and old members began to again investigate the Bluegrass caving region near Lexington. From this renewed interest in Bluegrass regional caves has developed the 21st Kentucky Speleofest. We hope you'll agree with us that the Inner Bluegrass has many fine caves.

NOTES

1) This is not to slight Transylvania University in Lexington, the first institute of higher learning west of the Appalachians; Rafinesque was instructor of Natural History at Transylvania. However, it was primarily a college of arts, and the sciences were not held in high esteem; Rafinesque was never awarded a professorship.

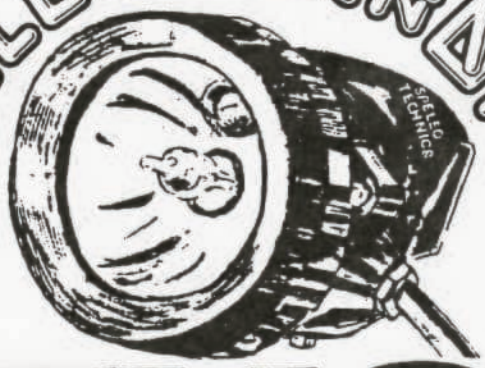
2) In 1925 Dr Funkhouser was appointed by the governor to take charge of the ill-fated rescue of Floyd Collins at Sand Cave. Funkhouser had become well.known as a cave explorer.

3) It has been estimated that 50 percent of the land area of the state has stratigraphic conditions suitable to the development of caves and karst features.

For those attending this year's Speleofest who are interested in spelean history, the hydrogeology field trip led by Larry Spangler offers a look at some very historic karst features in the area. Of particular interest is **McConnell's Spring**, which many historians believe to be the site of the 1775 hunter's camp where Lexington was named, from the opening battle of the Revolution in Lexington, Massachusetts. Once slated for an industrial park, the area about this set of sinks and rises is the focus of a local group of citizens who are attempting to purchase this historical and geologically significant site for a city park.

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KARST GEOLOGY OF THE BLUEGRASS

William Duke Hopper
NSS 15832

The Inner Bluegrass Karst Region (IBK), as defined by Thrailkill, *et. al.*, 1982, covers an area of approximately 2,160 square miles in central Kentucky. Included in this region are all or part of the counties of Anderson, Bourbon, Boyle, Clark, Fayette, Franklin, Garrard, Harrison, Jessamine, Mercer, Scott and Woodford (Fig. 1). The city of Lexington is located approximately in the center of the region. The IBK is developed in predominantly carbonate strata of Middle Ordovician age (Fig. 2) within the Inner Bluegrass physiographic region (Fig. 3). The region is both geographically and stratigraphically distinct from the extensive, mature karst developed in Mississippian limestones in the Rockcastle-Pulaski County area and in the Mammoth Cave-Bowling Green-Sinkhole Plain area on the Pennyroyal Plateau. It is also similarly distinct from smaller karst areas in Kentucky developed in rocks of late Ordovician and Silurian age located in the Bardstown-Louisville area.

The topography of the Inner Bluegrass Karst is flat to gently rolling, upland, sinkhole plain, and features seen in the mature, Mississippian karst of the Pennyroyal Plateau are duplicated here on a smaller scale. Numerous karst landforms are present and portions of the region, some with areas in excess of four square miles, have no surface drainage. The IBK is at an altitude of about 900 feet, with generally less than 150 feet of local relief on the eroded surface of the Lexington Peneplain (Jillson, 1961). Most of the surface streams draining the area occur on the upland surface, except for the Kentucky River, which has incised a deep gorge through the region more than 300 feet deep.

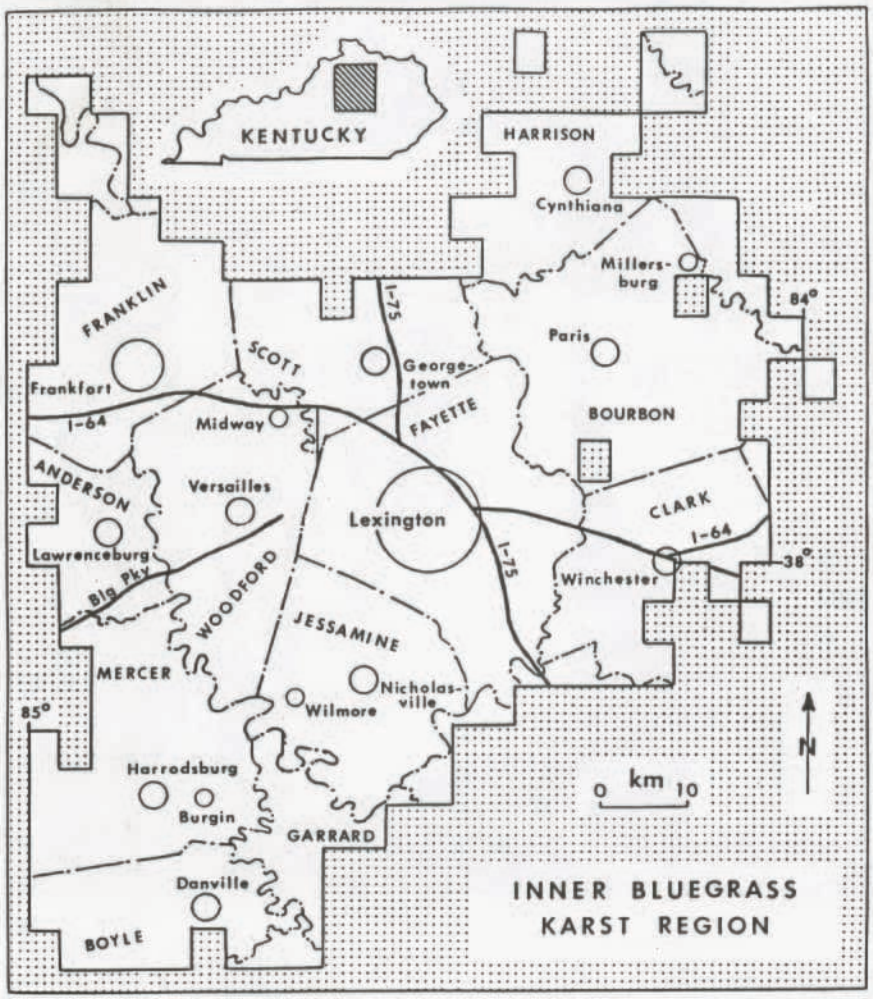


Figure 1. Map of Inner Blue Grass Region. From Thrailkill, *et al*, 1982.

The mean annual precipitation is about 45 inches, fairly evenly distributed over the year. Mean July and January temperatures are respectively about 77 and 32 degrees F. Soils in the upland area are typically three feet or more in thickness and mostly residual. High-level fluvial deposits of Pliocene or Pleistocene age and low-level terrace deposits of Quaternary age are found in abandoned meanders of the Kentucky River and tributary streams. The region has never been glaciated, but has been affected by changing conditions related to glacial cycles. The population of the region is in excess of 350,000 with more than half of that number concentrated at Lexington, near the center of the IBK.

GEOLOGIC STRUCTURE

The IBK is located in an area where predominantly carbonate strata of middle Ordovician age have been exposed by erosion along the crest of the Cincinnati Arch. The Cincinnati Arch is a north-south, regional structural feature of the eastern United States (Fig. 4). A structural high on the Arch, known as

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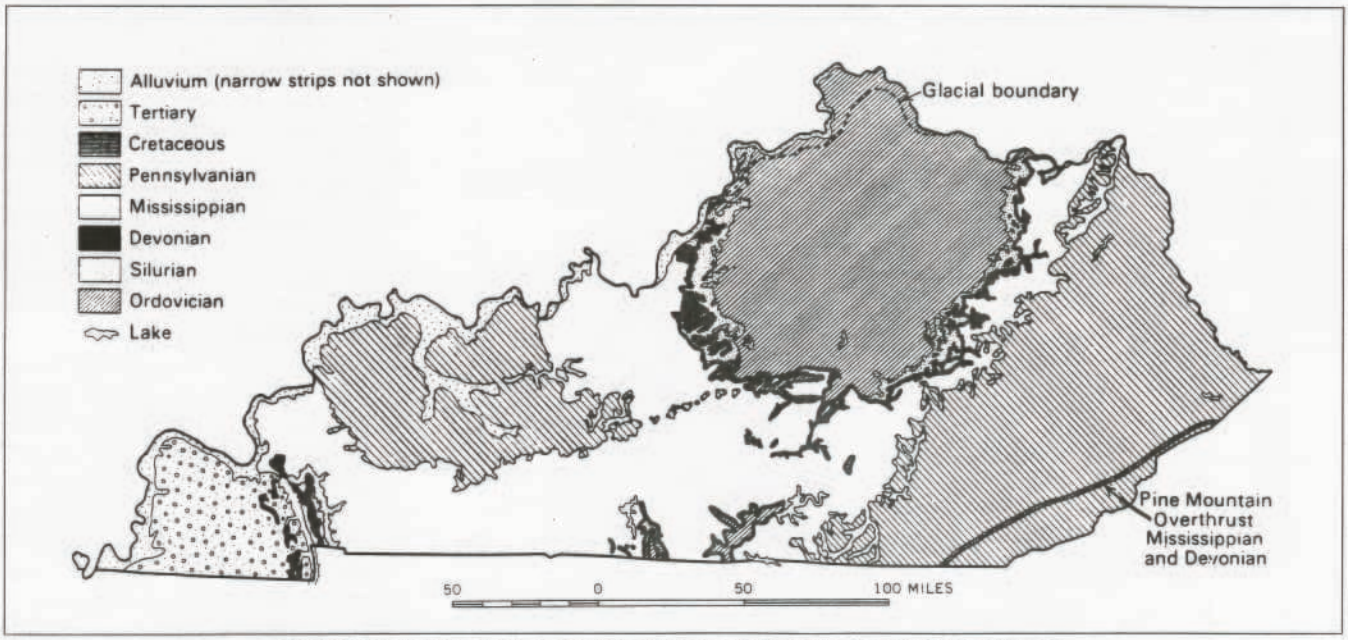


Figure 2. Geologic map showing the age of rock outcrops in Kentucky. From McFarlan, 1958, p. 5.

the Jessamine Dome, occurs near Nicholasville in Jessamine County. The regional dip is generally away from the pinnacle of the Jessamine Dome in all directions, at about 40 feet/mile, except to the southeast, where the strata has been downfaulted. Thus, the regional dip is gentle, and beds seen in outcrop generally appear nearly horizontal.

The southeast boundary of the IBK follows the West Hickman-Bryan Station fault zone (Fig. 4) in the south and intersecting Kentucky River Fault System to the east (Black, et. al., 1977). As much as 300 feet of displacement has occurred in places. The east and south

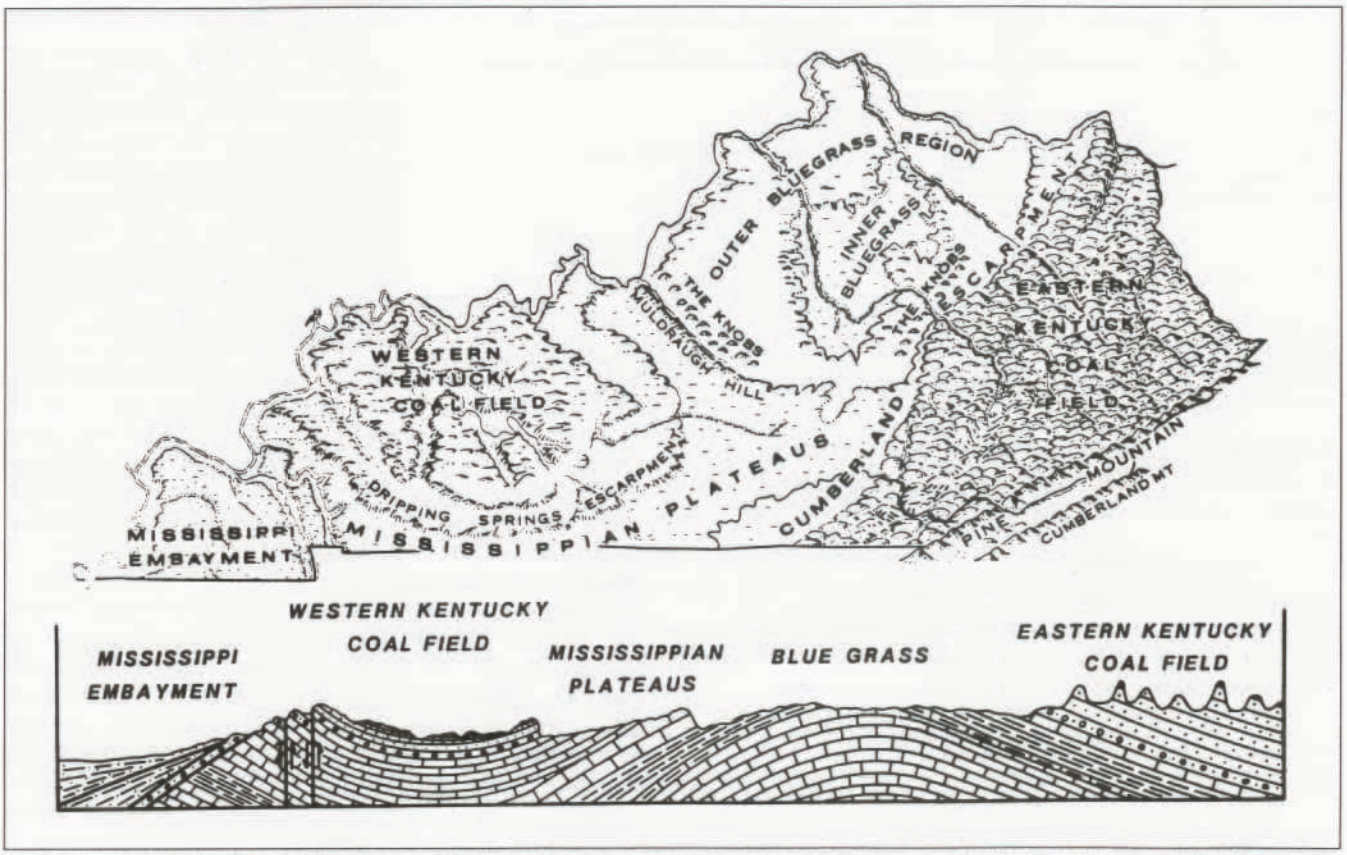


Figure 3. Physiographic map of Kentucky showing geomorphic regions and major escarpments. Generalized cross section depicts the structure of rock units from west to east across the state.. From McGrain, 1983, p. 13.

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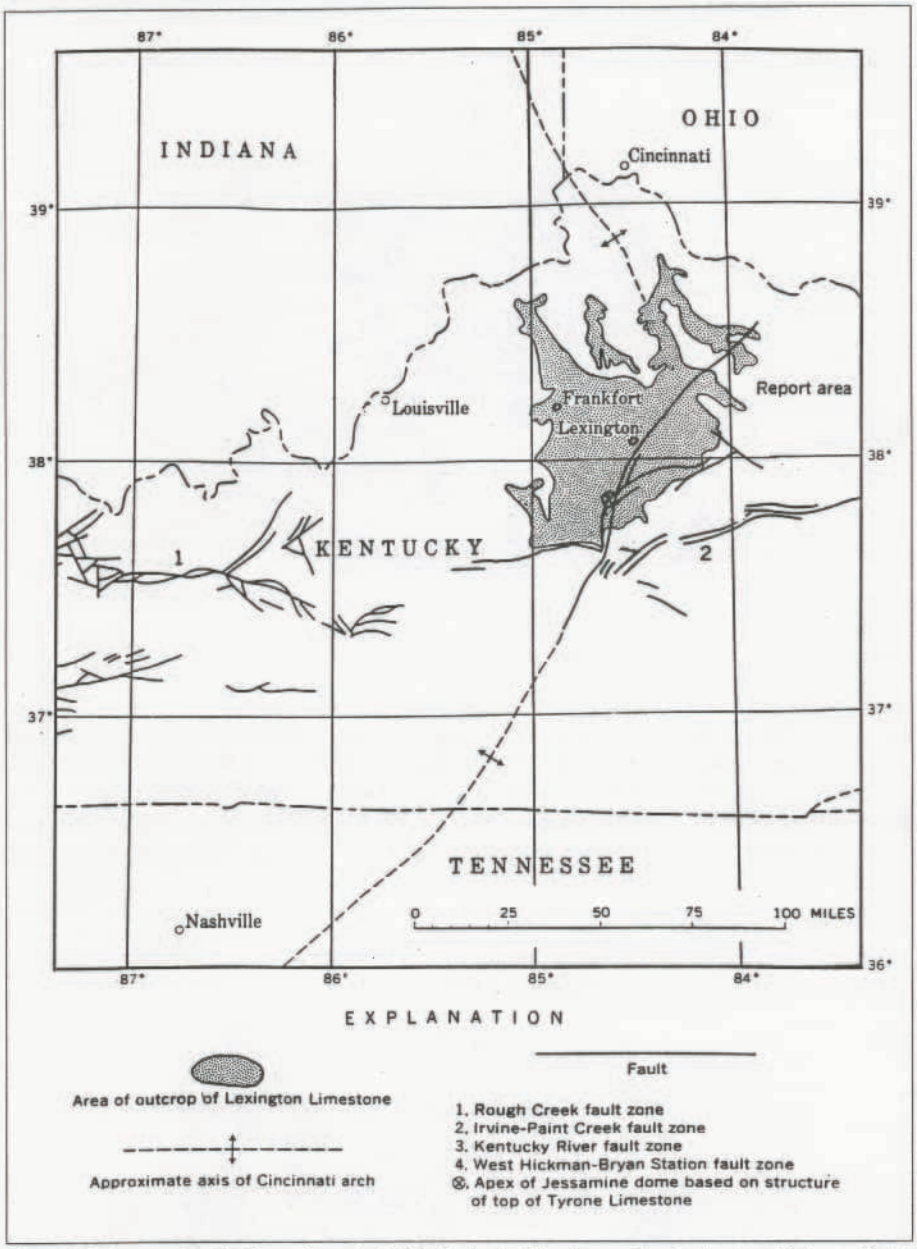


Figure 4. Index map showing the surface extent of the Lexington Limestone and major structureal features. Faults are from the U.S. Geological Survey and American Association of Petroleum Geologists (1961); the area of outcrop of teh Lexington Limestone is modified slightly from U.S. Geological Survey. From Cressman, 1973.

sides of these fault systems are downdropped, creating a boundary between unkarstified upper Ordovician limestones and shales and karstified middle Ordovician limestone.

Other areas of substantial faulting in the region include the Switzer Graben in Scott County and the Versailles Cryptoexplosive Structure in Woodford County. A number of short high-angle faults and mineralized veins are also present in the region.

STRATIGRAPHY

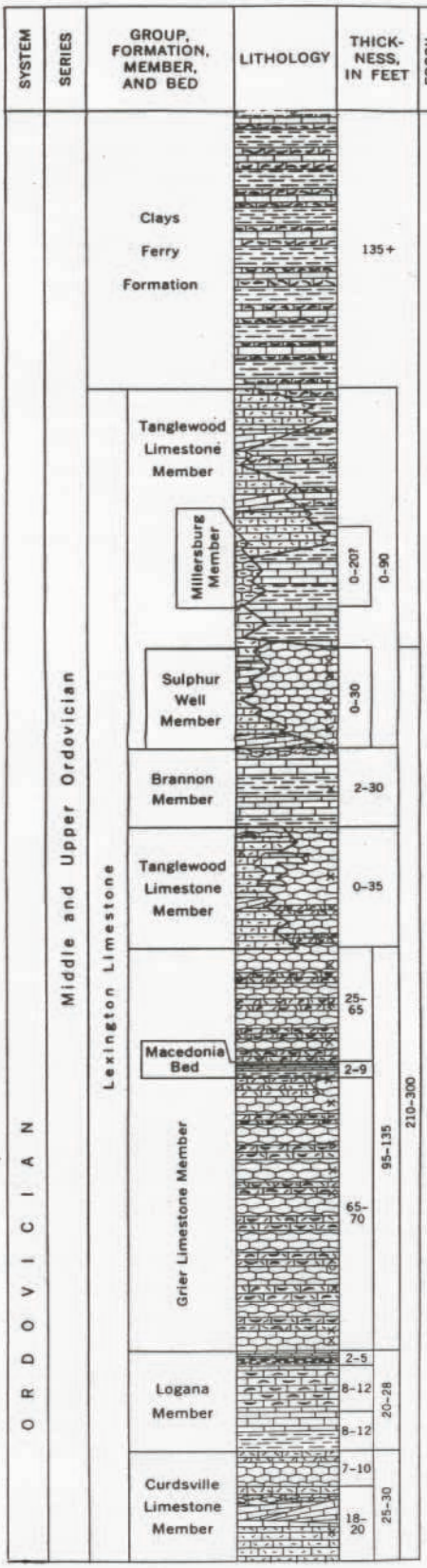
The boundaries of the IBK approximately coincide with the depositional or fault contact of lower and middle Ordovician carbonates of the High Bridge Group and Lexington Limestone Formation with the overlying thinly interbedded limestones and shales of the upper Ordovician Clays Ferry Formation. The High Bridge Group includes, from lowest to highest, the Camp Nelson Limestone, Oregon Formation, and Tyrone Limestone (Table 1). Limestones and dolomites of the High Bridge Group are the oldest strata exposed in Kentucky.

The High Bridge Group is exposed only in the gorge of the Kentucky River and the lower reaches of its tributaries in the southern part of the region where the Kentucky River has downcut its course across the Cincinnati Arch. The thickest section is near Camp Nelson where 440 feet is exposed above river level. Study of surface exposures indicates that carbonates of the High Bridge Group were deposited in tidal-flat environments analogous to those of the Bahamas and Florida Bay. They are part of a vast complex of carbonate tidal flats that extended over much of the craton of the eastern United States (Cressman and Noger, 1976).

The exposed portion of the High Bridge Group consists of three formations. The Camp Nelson Limestone is dominantly micrite, pelmicrite, and biopelmicrite, all containing abundant dolomite-filled burrows. The maximum thickness exposed above drainage is 320 feet near the village of Camp Nelson (Wolcott, 1969). The Oregon Formation is dominantly a finely crystalline dolomite that is interbedded with micritic limestone in much of the area. The thickness of the Oregon ranges from 6 feet near the south end of Herrington Lake (Wolcott and Cressman, 1971) to 65 feet near Boonesborough (Black, 1968). The Tyrone Limestone consists of a variety of limestone types and ranges from 55 to 155 feet in thickness. The thickness of the Tyrone and the Oregon are complimentary; where the Tyrone thickens the Oregon thins. The Tyrone contains several bentonites that are useful for correlation. The "Mud Cave" bentonite is present locally at the top of the formation, and the "Pencil Cave" bentonite occurs 14 to 20 feet below the top and is present throughout the area. Several thinner bentonites are present locally in the Tyrone and are useful for local, but not regional, correlation.

The Lexington Limestone overlies the High Bridge

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Interbedded limestone and shale: Limestone (about 50 percent of unit) is 1) argillaceous, medium to dark gray, micrograined, in beds 0.1 to 0.3 foot thick; 2) medium gray, brachiopodal with micrograined calcite matrix, in beds mostly 0.2 to 0.5 foot thick; and 3) medium gray, crinoidal. Shale is medium gray, weathers dusky yellow; fissile. Basal 30 feet overlying Sulphur Well Member of McFarlan and White (1948) of Lexington Limestone is mostly unfossiliferous micrograined limestone and shale; beds from about 30 to 80 feet above the top of Sulphur Well Member are mostly *Rafinesquina*-bearing limestone and shale. Brachiopods commonly identified as *Sowerbyella* are abundant in upper part of formation; base of zone of abundant *Sowerbyella* is about 120 to 130 feet above the base of the Brannon Member of the Lexington Limestone. Crinoidal limestone is most abundant in a 10–to 20–foot interval below base of zone of abundant *Sowerbyella*. Bryozoans in fossil collection A are *Eridotrypa* sp. and *Constellaria* cf. *C. teres* Ulrich and Bassler.

Limestone, generally phosphatic, medium-gray to pinkish-gray, weathers brownish gray; medium to coarse grained, bioclastic, well sorted; crossbedded in part; some beds contain scattered brachiopods and bryozoans. Upper two-thirds intertongues southward with lower Clays Ferry Formation; lower third grades southward into Sulphur Well Member of Lexington Limestone.

Limestone and shale: Limestone (about 70 percent of unit) is light gray, fossiliferous, with much micrograined calcite matrix; in nodular to irregular beds. Shale is poorly exposed. Brachiopods and bryozoans are most common fossils. Present only in north-central part of quadrangle east of Kentucky River. In Tyrone quadrangle (Cressman, 1964) to north, unit is shown as Greendale Limestone Member of Foerste (1906) as used by Miller (1924).

Limestone, medium-gray, fossiliferous; in irregular to lenticular beds separated by shale partings. Characterized by very abundant bryozoans. Bryozoans identified are *Eridotrypa* sp. (collections C, D, E, and G); *Escharopora* (collections D and G); *Hallopora* sp. (collections B, D, E, and G); *Heterotrypa* sp. (collections B, C, E, and F); *Prasopora* cf. *P. faleri* (James) (collections B and G), *Peronopora* cf. *P. milleri* Nickles (collections C, D, E, F, and G); and a ceramoporoid (collections E and G). Grades northward into Tanglewood Limestone Member in northern part of quadrangle.

Interbedded limestone and shale: Limestone (about 50 percent of unit) is argillaceous, medium to dark gray, micrograined; in even to broadly lenticular beds mostly 0.2 to 0.4 foot thick. Shale is dark gray, fissile. Ball-and-pillow structure common in uppermost beds in northern part of quadrangle. Abrupt thinning from nearly 30 feet in northeast to as little as 2 feet in west-central part of quadrangle with no compensatory thickening of the Sulphur Well Member suggests disconformable contact with overlying Sulphur Well. Fossils sparse, but include *Heterotrypa* sp. and *Peronopora* cf. *P. milleri* Nickles.

Limestone, generally phosphatic, medium-gray to pinkish-gray, weathers brownish gray; fine- to coarse-grained, bioclastic, generally well sorted; crossbedded in part. Uppermost 2 to 3 feet commonly irregularly bedded, poorly sorted, fossiliferous. Intertongues with upper part of Grier Limestone Member. In southwestern part of quadrangle, contains 2 feet, but locally as much as 9 feet, of medium-gray, weathering light gray, cryptograined limestone, the top of which is about 5 to 7 feet below base of Brannon Member; this is probably the Salvisa Limestone Member of Miller (1913). Fossils generally sparse in bioclastic limestone, but the following have been reported: *Hebertella frankfortensis* Foerste, *Rafinesquina trentonensis* Conrad, and *Zygospira* sp. Locally contains stromatoporoids, which are particularly abundant in irregular beds at top of unit in southwest corner of quadrangle.

Limestone, light-gray to pale-yellowish-brown, medium- to coarse-grained, bioclastic, poorly sorted, fossiliferous in part; in irregular beds about 0.5 foot thick, alternating with sets of nodularly bedded fossiliferous limestone containing much micrograined calcite matrix. Basal 15 feet generally contains more interbeds of bioclastic limestone than upper part, which locally consists almost entirely of nodularly bedded limestone. Common fossils are: *Eridotrypa* sp. (collections K and M), *Heterotrypa* sp. (collection K), *Prasopora* cf. *P. faleri* (James) (collections K, L, and M), *Ambonychia* sp. (collections J and K), *Colpomya faba* (Emmons) (collection J), *Ctenodonta* aff. *C. logani* Salter (collection K), *Cyrtodonta grandis* (Ulrich) (collection K), *Cyrtodonta* aff. *C. subovata* Ulrich (collection K), *Vanuxemia gibbosa* Ulrich (collection K), *Bucania* sp. (collections J and K), *Bucanopsis carinifera* (Ulrich in Ulrich and Scofield)(collection K), *Carinaropsis cymbula* Hall (collection K), *Lozoplocus* (*Lophospira*) *burginensis* (Ulrich in Ulrich and Scofield) (collection K), *Murchisonia* (*Hormotoma*) *salteri nitida* (Ulrich in Ulrich and Scofield) (collection K); *Sphenosphaera clausus* (Ulrich in Ulrich and Scofield) (collection K), *Hebertella frankfortensis* Foerste (collections J, K, L, M, N, and O), *Heterorthina macfarlani* Neuman (collections M, N, and O), *Rafinesquina trentonensis* Conrad (collections J, K, N, and O), *Rhynchotrema increbescens* (Hall) (collections K, L, and M), *Sowerbyella* sp. (collection M), and *Zygospira* sp. (collections J, K, L, M, N, and O). In general, the most conspicuous brachiopod in the upper 40 feet is *Rhynchotrema increbescens* (Hall) and in the lower 20 feet *Heterorthina macfarlani* Neuman.

Interbedded limestone and shale: Limestone (80 percent of unit) is argillaceous, medium to light gray, micrograined; in even beds mostly 0.2 to 0.4 foot thick. Shale is fissile, dark gray. Thins from 9 feet in eastern part of quadrangle to about 2 feet in western part.

Limestone, light-gray, medium- to coarse-grained, fossiliferous, poorly sorted; in irregular beds 0.1 to 0.8 foot thick, alternating with sets 0.1 to 2 feet thick of nodularly bedded fossiliferous limestone containing much micrograined calcite matrix; nodular layers are mostly 0.05 to 0.2 foot thick and are separated by shaly partings. Uppermost few feet are locally medium- to coarse-grained, well-sorted bioclastic limestone. Several beds of limestone containing large crinoid columnals and small branching bryozoans are present 10 to 15 feet below top; these beds are overlain by several feet of micrograined limestone containing abundant dalmanellid brachiopods. Fossils identified are *Eridotrypa* sp. (collections P, T, V, W, and Y), *Graptodictya* sp. (collections X and Y), *Hallopora multitabulata* (Ulrich) (collections R, U, V, W, X, and Y), *Heterotrypa* sp. (collections P?, R?, V, and W), *Prasopora faleri* (James) (collections P, V, W, X, and Y), *Peronopora* cf. *P. granulifera* (Ulrich) (collections P, U, V, and X), *Stictopora neglecta* (Ulrich) (collections R and S), *Murchisonia* (*Hormotoma*) sp. (collection Q), *Hebertella frankfortensis*Foerste)(collection Q), *Rafinesquina* sp. (collection Q), and an indeterminate dalmanellid (collection Q).

Interbedded limestone and shale: Limestone (50 percent of unit) is argillaceous, light olive gray, micrograined; in smooth-surfaced, even to broadly lenticular beds mostly 0.2 to 0.3 foot thick. Shale is fissile, olive gray to medium gray.

Limestone, light-olive-gray, weathers pinkish gray; in indistinct wavy beds 0.1 to 0.6 foot thick; consists of closely-packed dalmanellid brachiopod valves oriented nearly parallel to bedding. Contains thin unit of micrograined limestone and shale in lower part that locally has ball-and-pillow structure.

Interbedded limestone and shale: Limestone (50 percent of unit) is argillaceous, light olive gray, micrograined; in smooth-surfaced, even to broadly lenticular beds mostly 0.2 to 0.3 foot thick. Shale is fissile, olive gray to medium gray. Large silicified pelecypods common in some beds.

Limestone, medium-light-gray, micrograined to fine-grained; in irregular beds about 0.3 foot thick; contains many randomly oriented brachiopod fragments set in an irregularly distributed matrix of micrograined and fine-grained calcite. Uppermost few feet commonly brownish-gray, very fine grained limestone with slight fetid odor on fresh surfaces.

Limestone, medium- to light-gray, mostly medium- to coarse-grained but fine-grained in part, bioclastic; in even to slightly irregular beds 0.2 to 0.8 foot thick; crossbedded in part. Some beds contain abundant large randomly oriented brachiopod fragments, some of which are silicified. Layers of chert nodules present in some beds. Zone of micrograined limestone and shale, several feet thick and commonly with ball-and-pillow structure, occurs 16 feet above base of unit. Fossils identified are *Murchisonia* (*Hormotoma*) sp., *Platystrophia colbiensis* Foerste, *Rafinesquina trentonensis* Conrad, and *Sowerbyella curdsvillensis* Foerste.

Table 1. Stratigraphic column for the Salvisa quadrangle. Continued on following page. Adapted from Cressman, 1968.

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SYSTEM	SERIES	GROUP, FORMATION, MEMBER, AND BED	LITHOLOGY	THICKNESS, IN FEET	FOSSIL COLLECTION	DESCRIPTION
ORDOVICIAN	Middle Ordovician	High Bridge Group				
		Tyrone Limestone		45	90–100	Limestone, light-olive-gray to yellowish-gray, weathers light gray; cryptograined, containing specks and small tubes of clear calcite. Zone about 4 feet thick of yellowish-gray argillaceous limestone and calcareous shale approximately 10 feet below top. Some beds in lower part contain irregular layers and pods of yellowish-gray microcrystalline dolomite. Bentonite bed as much as 1.5 feet thick present throughout quadrangle 15 to 25 feet below top of unit; bentonite layer less than 0.1 foot thick present at least locally in top 2 feet. Some beds contain chert nodules.
				8–12		Interbedded limestone and shale: Limestone (about 70 percent of unit) is argillaceous, yellowish gray to light olive gray, cryptograined to micrograined; in even beds 0.05 to 0.6 foot thick. Shale is calcareous, yellowish gray, fissile to platy; in beds 0.05 to 0.1 foot thick. Grades from units above and below.
				15–20		Limestone, very light gray to light-brownish-gray, cryptograined, with specks and tubes of clear calcite; some beds contain irregular pods and layers of yellowish-gray microcrystalline dolomite; contains some interbeds of medium-gray, fine- to medium-grained, pelletal limestone.
				5–10		Interbedded limestone and dolomite: limestone is very light gray, cryptograined; in laminae and beds from less than 0.01 to 0.2 foot thick. Dolomite is yellowish gray, microcrystalline; in laminae and beds from less than 0.01 to 0.2 foot thick. Bentonite approximately 0.2 foot thick at base.
				10–15		Limestone, very light gray to pale-yellowish-brown, cryptograined; containing irregular pods and layers of yellowish-gray microcrystalline dolomite; in irregular beds 0.01 to 0.4 foot thick; contains a few thin interbeds of fine- to medium-grained pelletal limestone.
		Oregon Formation		20–30		Dolomite, calcareous, yellowish-gray to yellowish-white, very finely crystalline, thick-bedded. In southern part of quadrangle, middle of unit passes into cryptograined limestone containing pods of dolomite. Dolomite beds commonly crop out as thick ledges and cliffs.
		Camp Nelson Limestone		140+		Limestone and dolomite: Limestone, light-gray to light-brownish-gray, cryptograined; containing pods and irregular interlaced tubes of yellowish-gray micrograined dolomite that make up 20 to 50 percent of rock; tubes commonly lie parallel to bedding. Bed 1 to 2 feet thick of cryptograined limestone generally present at contact with overlying Oregon Formation; persistent unit of interbedded limestone and shale less than 5 feet thick present a few feet below top.

Table 1, continued.

Group disconformably, and exhibits many complex facies relationships. Black, Cressman and MacQuown, 1965, defined the Lexington Limestone as a sequence of mostly bioclastic and fossiliferous limestone and minor shale of middle Ordovician age. The Lexington Limestone is more than 320 feet thick along a west-east line extending from north of Frankfort through Georgetown and Paris. It thins northward to less than 200 feet and southward to less than 220 feet near Harrodsburg. The thinning results mostly from intertonguing of the upper part of the Lexington with the lower part of the Clays Ferry Formation (Cressman, 1973). The Lexington Limestone is abundantly fossiliferous, and both the calcarenites and calcisiltites are composed largely of fossil fragments. Bryozoans, crinoid debris, brachiopods, mollusks, and stromatoporids are all common.

The Lexington Limestone is divided into 11 members (Table 1). These are the Curdsville Limestone Member (mostly calcarenite), Logana Member (calcisiltite and shale), Grier Member (fossiliferous limestone), Perryville Limestone Member (calcilutite), Brannon Member (calcisiltite and shale), Sulphur Well Member (bryozoan limestone), Tanglewood Limestone Member (calcerenite), Devils Hollow Member (gastropodal calcirudite and calcilutite), Greendale Lentil, Stamping Ground Member, and Millersburg Member (nodular fossiliferous limestone and shale) (Cressman, 1973). These members are complexly intertongued due to the complex facies relationships which occur in a shallow marine shelf, tidal flat, and lagoonal environment in which the Lexington Limestone was deposited.

The lower part of the Clays Ferry Formation overlies and intertongues with the upper Lexington Limestone, and forms the boundary of the IBK. The Clays Ferry Formation is composed of thinly interbedded shale, limestone, and siltstone (Table 1). The outcrop of the

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Clays Ferry also marks the boundary between the Inner Bluegrass and Outer Bluegrass physiographic provinces.

KARST LANDFORMS AND HYDROLOGY

Numerous karst landforms, including caves, are present on the sinkhole plain developed on the erosional surface of the Lexington Limestone and in the gorge of the Kentucky River, where they are incised into the High Bridge Group. The most common of these landforms are sinkholes, ranging from 3 to 300 feet in diameter, and 10 to 70 feet in depth. In addition to sinkholes or dolines, several other karst features are present in the region. Blind valleys where surface streams are diverted underground, and pocket valleys where surface streams rise abruptly at a major spring, are common features in the IBK. Numerous karst windows, where major underground flow emerges as a spring within a sinkhole and then is diverted underground again, are present throughout the region. Of particular interest are the paleovalleys which appear to be normal surface valleys, but contain no surface stream. They usually feature a series of sinkholes in their bottoms, and apparently formed when the surface stream was diverted underground at several points along its course, forming a series of blind valleys, followed by complete abandonment of surface flow.

Investigations in the IBK suggest that the typical groundwater basin occurring in the uplands has an area of about 7.5 square miles and discharges at a spring whose base flow is on the order of 1.8 cubic feet per second (Thrailkill, *et. al.*, 1982). In some portions of the region where karst features are not shown on topographic maps and drainage patterns appear to be in normal surface valleys, the drainage is diverted underground and represented streams either do not exist or terminate in short swallets not shown on the maps. Elsewhere, there are areas which exhibit little or no karst development. These areas appear to be located along the perimeter of groundwater basin divides. In portions of the region groundwater basins are developed along linear trends interpreted as diaclases (Spangler and Thrailkill, 1981). Elsewhere underground flow is not related to such features, nor can it be easily correlated with topographic divides, surface drainage, bedrock lithology, or structural dip (Hopper and Thrailkill, 1983). All of the caves and karst landforms known to exist in the IBK are active elements of the present hydrological system. Evidence has not been found of abandoned elements of earlier flow patterns. Conduit development probably does not exceed a depth of 75 feet below the upland surface.

In the Kentucky River gorge and the lower reaches of its tributaries, the development of karst features and subsurface conduits in the High Bridge Group is limited by the small outcrop area and the presence of argillaceous units in the lower Lexington Limestone and bentonites near the top of the Tyrone Limestone (MacQuown, 1967). Only where valley erosion or faulting has breached the bentonites or confining beds is water allowed to penetrate downward into the beds of the High Bridge Group. There is some evidence that stress-relief fracturing of valley walls may contribute to cavern development along the Kentucky River gorge.

The Bluegrass Grotto has made an effort to feature a number of caves which are representative of the Inner Bluegrass Karst Region. These include dendritic, low-gradient conduit networks ranging from a few hundred feet to over a mile in length, occurring in the uplands of the Lexington Plain, and single-shaft and multi-drop complexes ranging from 60 feet to 200 feet in depth, occurring along the Kentucky River Gorge. Please see individual cave descriptions for details on length, depth, and stratigraphic horizon.

REFERENCES

Black, D. F. B., E. R. Cressman and W. C. MacQuown, 1965, The Lexington Limestone (Middle Ordovician) of central Kentucky: U.S. Geological Survey Bulletin. 1224-C, 29 p.

Black, D. F. B., 1968, Geologic map of the Ford Quadrangle, Central Kentucky: U.S. Geol. Survey Geol. Quad. Map GQ-764.

Black, D. F. B., G. R. Keller and R. W. Johnson, Jr., 1977, Structural Geology, Bouger gravity, and aeromagnetic intensity for a portion of central Kentucky. Kentucky Geological Survey, 4 sheets.

Cressman, E. R., 1968, Geologic map of the Salvisa Quadrangle, central Kentucky: U.S. Geol. Survey Geol. Quad. Map GQ-760.

Cressman, E. R., 1973, Lithostratigraphy and depositional environments of the Lexington Limestone (Ordovician) of central Kentucky: U.S. Geol. Survey, Professional Paper 768, 61 p.

Cressman, E. R. and M. C. Moger, 1976, tidal-flat carbonate environments in the High Bridge Group (Middle Ordovician) of central Kentucky: Kentucky Geological Survey, Series X, Report of Investigations 18, 15 p.

Hopper, W. M. and J. Thrailkill, 1983, the lack of influence of lithology and structure on the development of a karst aquifer (Abs.): Geological Society of America Abstracts with Program, V. 15, p. 252.

Hopper, W. M., 1986, Karst hydrogeology of southeastern Mercer County and northeastern Boyle County, Kentucky. Masters Thesis, University of Kentucky, Lexington, Kentucky, 176 p.

Jillson, W. R., 1961, Erosion cycles in central Kentucky: Frankfort, Kentucky, Roberts Printing Co., 12 p.

MacQuown, W. C., 1967, Factors controlling porosity and permeability in the Curdsville Member of the Lexington Limestone: University of Kentucky Water Resources Institute, Research Report 7, 80 p.

McGrain, P., 1983, The geologic story of Kentucky: Kentucky Geological Survey, ser. 11, Special Publication 8, 74 p.

McFarlan, A. C., 1958, Behind the scenery in Kentucky: Kentucky Geological Survey, Series IX, Special Publication 10, 144 p.

Spangler, L. E., 1982, Karst hydrogeology of northern Fayette and southern Scott Counties, Kentucky. Masters Thesis, University of Kentucky, Lexington, Kentucky, 102 p.

Thrailkill, J., L. E. Spangler, W. M. Hopper, M. R. McCann, J. W. Troester and D. R. Gouaie, 1982, Groundwater in the Inner Bluegrass Karst Region, Kentucky. University of Kentucky Water Resources Institute, Research Report 140, 89 p.

Wolcott, D. E., 1969, Geologic map of the Little Hickman Quadrangle, central Kentucky: U.S. Geol. Survey Geol. Quad. Map GQ-792.

Wolcott, D. E. and E. R. Cressman, 1971, Geologic map of the Bryantsville Quandrangle, central Kentucky: U.S. Geol. Survey Quad. Map GQ-945.

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HYDROGEOLOGY FIELD TRIP

HYDROGEOLOGY OF SELECTED FEATURES IN THE INNER BLUEGRASS

Lawrence E. Spangler
NSS 16822

INTRODUCTION

Northern Fayette and southern Scott counties, part of the Inner Bluegrass Karst Region, encompass an area of approximately 100 square miles. Lexington, the largest city in the Inner Bluegrass, is located in central Fayette County. Georgetown, 12 miles north of Lexington, is the largest community in Scott County. Major drainages in the region include North and South Elkhorn creeks and Town Branch, all of which eventually flow into the Kentucky River. The topography throughout Fayette and Scott counties is gently rolling, except near the larger streams where relief is greater. Elevations range from about 800 to 1,000 feet.

Stratigraphy in this part of the Inner Bluegrass Karst consists of various members of the Lexington Limestone, which is of Middle Ordovician age. These members are composed generally of thin to nodular-bedded, shaley, fossiliferous limestones that intertongue locally. The Grier Member of the Lexington Limestone ranges in thickness from about 100 to 140 feet and is the unit from which most major springs discharge. The Tanglewood Member overlies the Grier Member and ranges in thickness from about 60 to 80 feet. This unit serves as the input for many sinking streams in the region.

Rocks in this part of the Inner Bluegrass generally dip to the northwest and southeast away from the Cincinnati Arch, at about 40 feet per mile. Several prominent joint sets are present in the region, trending generally N 20-30 degrees W and N 45-60 degrees E. Numerous normal, vertical faults have also been mapped throughout this area, generally trending north-northwest.

Most of the major features typical of other karst areas are also developed in the Inner Bluegrass Karst of Fayette and Scott counties. These include sinkholes (dolines), sinking streams (swallets), blind valleys, karst windows, caves and springs. Sinkholes are the most common feature, ranging from less than three to more than 300 feet in diameter and up to 50 feet in depth. Most are the result of gradual subsidence of soil downward along enlarged joints, and not a result of collapse. Sinking streams are also numerous, most which disappear through distinct holes in channel beds. Many streams that are mapped as perennial seldom flow the entire length of their course. Others flow a considerable distance before terminating as blind valleys.

Several dozen caves are known throughout this region, but only a few exceed a mile. Most of the caves consist of a single main stream passage. In a few drainage basins, the main underground stream has been breached, forming a karst window. Springs are also in abundance in the Inner Bluegrass. Discharge from the larger springs ranges from 1 to 2 cubic feet per second (1 cfs=448 gal/min) at low flow to more than 60 cfs at peak flow. Springs emerge as rise pools or discharge horizontally. Most discharge from a single outlet. All of the major springs are situated near or at the level of the major creeks.

More than 25 groundwater basins have been delineated by dye-tracing techniques in northern Fayette and southern Scott counties. They range in size from less than one to as many as 10 square miles. Overall patterns of groundwater flow indicate that drainage is generally dendritic, with widely distributed inputs feeding one output. Several basins, however, display a strong linear trend, indicative of fault or joint control. The major groundwater basins are separated by interbasin areas that are characterized by very shallow subsurface flow and small springs. Consequently, flow from one major basin to another, regardless of discharge, has not been documented. In addition, groundwater flow in the larger basins does not usually correlate with directions of surface-water flow.

This field trip will highlight some of the most representative karst features in this part of the Inner Bluegrass. We will make seven stops featuring springs, blind valleys, sinking streams, and karst windows. A brief outline of the hydrogeologic significance of these sites is outlined as follows.

STOP 1 - Big Elm Sink

This large sinkhole is actually the insurgence point of a stream that flows for several miles across the city. Hence, it is considered a blind valley. This is the largest single input to the Preston's Cave Spring groundwater basin. flows of at least 12 cfs have been observed to enter this sink after heavy rainfall, filling the sink to the rim and overflowing the golf course. Travel time of water between here and Preston's Cave Spring, about 1.7 miles to the northwest, is less than one week and probably only several days. Note that the surface stream to the north of the sink does not disappear, im-

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plying that it is perched on a relatively impermeable or unjointed geologic unit. Lithology in the walls of Big Elm Sink are typical of the Grier Limestone Member.

STOP 2 - McConnell's Spring

One of the most scenic urban karst springs, this feature is actually a double karst window. Upon rising, the water sinks, then rises and sinks again, over a distance of only a few hundred yards. Water from Big Elm Sink rises here first before resurging at Preston's Cave Spring. Note that flow in the lower part of this basin is essentially at right angles to flow in the upper part of the basin. A solutionally enlarged joint between the windows appears to have influenced flow in this part of the drainage. McConnell's Spring is thought to have been the location where a party of explorers in 1775 camped and named the vicinity Lexington.

STOP 3 - Preston's Cave Spring

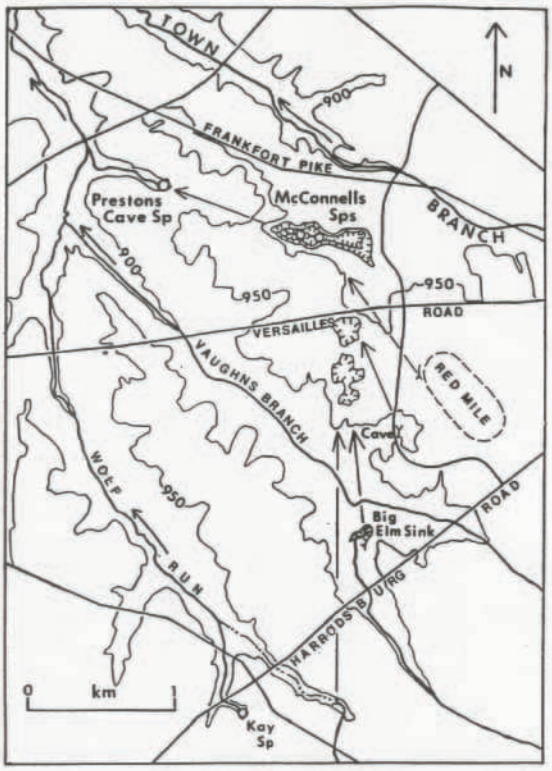
This spring is the final outlet for groundwater that originates from an area of approximately four square miles over the western part of the city. The lithology at the springhead is representative of the Grier Member. As is typical of conduit-fed springs, response to rainfall can be quick. Although normal flow is only about 2-3 cfs, flows of more than 16 cfs have been observed within several days of heavy rain. Preston's Cave is accessible at low flow for only about 400 feet.

STOP 4- Joyland Cave Sink

This insurgence is also an example of a blind valley, where a surface stream terminates at the base of a steep-walled sink. Notice the geology of the walls of the sink. The contorted bedding is typical of the Brannon Member, an argillaceous bed within the Tanglewood Limestone Member. This bed may perch this stream until it is breached inside the cave. Joyland Sink is the largest single input in the Russell Cave Spring groundwater basin. Flows exceeding 7 cfs have been measured here during high runoff periods, filling the sink and flooding nearby streets and houses. Travel time from this sink to the spring, about 3.25 miles to the northeast, is less than a week.

STOP 5 - Russell Cave Spring

One of the largest and most historic springs in the Inner Bluegrass, this spring represents the outlet of a groundwater basin that extends south-southwest over an area of at least 5 square miles. Discharge from the spring after periods of high runoff is more than 40 cfs, producing a spectacular cascade over the dam which has impounded the spring since the turn of the century. Low flows during the summer can be less than 2 cfs. The cave consists of a single conduit that can be traversed for nearly a mile.



Generalized directions of flow in the Preston's Cave Spring groundwater basin.

STOP 6 - Cane Run

Cane Run is one of the best examples of a losing stream in the Inner Bluegrass Karst. More than 20 distinct swallow holes have been noted along the bed of Cane Run over a distance of about 7 miles of channel. The particular group of holes at this stop is one of the major inlets to the groundwater system that eventually resurges at Royal Spring in Georgetown, 7.5 miles to the northwest. These holes have been observed to take as much as 4 cfs before pooling and flowing downstream to other swallets. Travel time to the spring has been observed to be less than 48 hours. The portion of the channel of Cane Run that loses water appears to coincide with a major fracture system trending about N 30 degrees W.

STOP 7 - Royal Spring

One of the largest springs in the Inner Bluegrass and a public water supply for the City of Georgetown, this spring is the point of emergence for water that is lost along the bed of Cane Run. Discharge estimates range from less than 3 cfs at low flow to peak flows in excess of 60 cfs. Normally, between 2-3 cfs of water from the spring is diverted for public water supply. Although the cave from which the water flows was reported to be enterable prior to the turn of the century, the passage undoubtedly has been largely filled by clay and silt from impoundment. Royal Spring emerges from the Grier Member, just below the contact with the overlying Tanglewood Member.

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SPELEOFEST CAVE CHART

CAVE NAME	OWNER	CONDITION	RATING	VERT/HOR	DROPS	FLOODS	OPEN/LED
Anderson Pit	T & K Anderson		Easy	Vertical	26'	No	Open
Blakeman's Well		Dry	Moderate	Vertical	161'	No	Led
Camp Nelson Drop	T & K Anderson		Easy	Vertical	48'	No	Open
Compressor Chasm		Damp	Difficult	Vertical	86'	No	Open/Led
Crisman's Pit		Damp	Moderate	Vertical	120'	No	Led
Daniel Boone's Cave	J C Miller	Dry	Easy	Horizontal	None	No	Open
Dry Ridge Cave	Wdfd Rd Dept	Wet	Moderate	Vertical	40'	Yes	Open
Ebenezer Cave	J Patterson	Damp to Wet	Easy	Horizontal	None	Yes	Open
Hall's Pit Complex	T & K Anderson	Damp	Moderate to Difficult	Vertical	91' plus 6 shorter	Lowest level only	Open/Led
Highbridge Cave		Wet	Difficult	Vertical/ Horizontal	45',20',20'	Yes	Led
Jones Cave	D & G McCann	Damp to Wet	Moderate	Horizontal	None	Yes	Led
Keene Cave	D & C Martin	Damp	Easy	Horizontal	None	No	Open

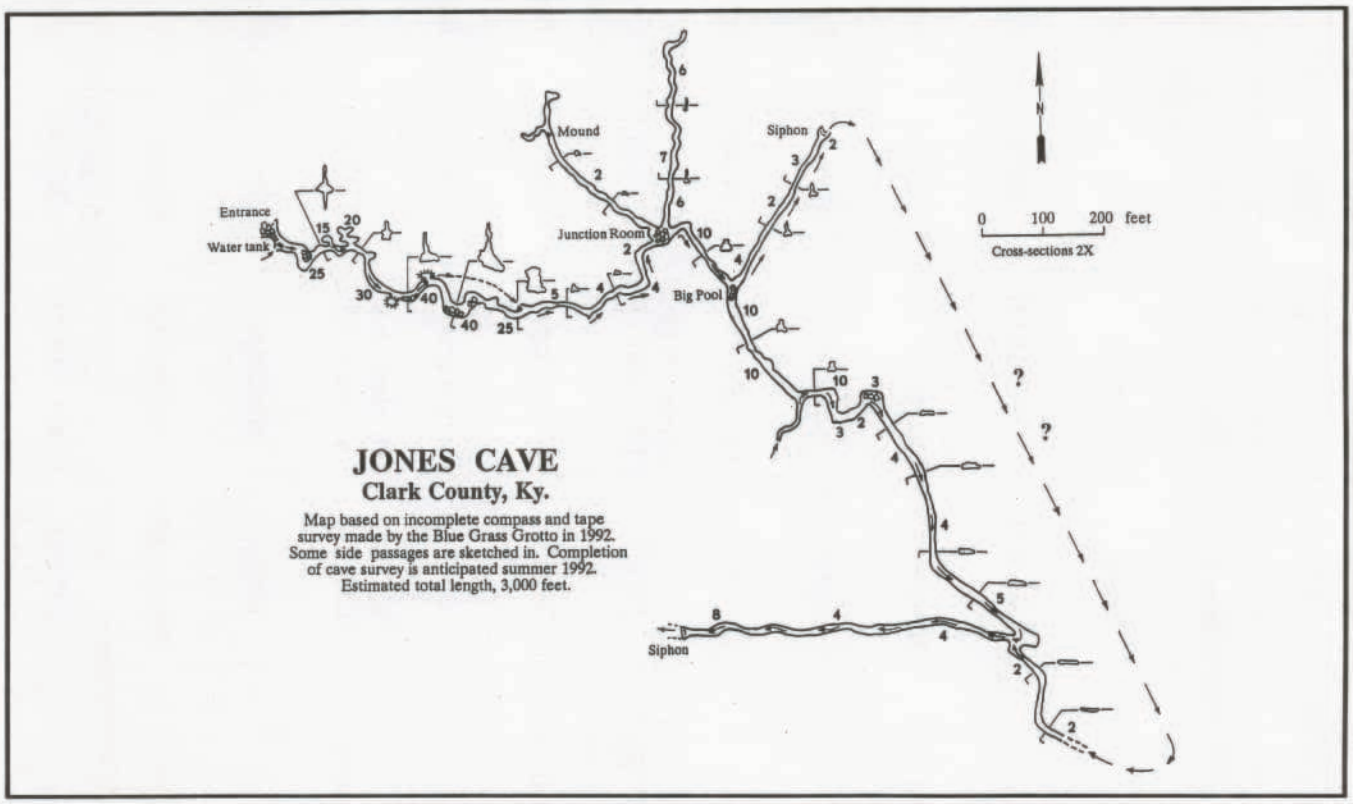
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CAVE NAME	OWNER	CONDITION	RATING	VERT/HOR	DROPS	FLOODS	OPEN/LED
Logger's Hole	T & K Anderson		Easy	Vertical	33'	No	Open
Property Drop	T & K Anderson		Easy	Vertical	42'	No	Open
Russell Cave	Jack Haydon	Very Wet	Difficult	Horizontal	None	Yes	Led
Sculpin Cave	J Ashford	Damp to wet	Moderate	Horizontal/w ladder in ent.	29' (ent.)	Yes	Led
Skull Shaft	T & K Anderson		Easy	Vertical	52'	No	Open
The Source		Wet	Moderate	Vert./Horiz.	50' climb	No	Led
Stringtown Cave	L Adkinson	Damp to Wet	Easy	Horizontal/w ladder in ent.	27' (ent.)	Yes	Led
Talking Pit		Damp	Difficult	Vertical	120'	No	Open/Led
Thornhill Pipeline Cave	Frankfort city	Damp	Easy	Horizontal	None	No	Open
Tucker's Cave	Fares Farm	Dry/Damp	Easy to Difficult	Horizontal/w some climbs	20' climb	No	Led
Utility Pot	T & K Anderson		Easy	Vertical	38'	No	Open
Webber's Cave		Damp/Wet	Moderate	Horizontal	None	Yes	Led
Widowmaker		Wet	Difficult	Vert./Horiz.	20',30',30' climbs	Yes	Led

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CLARK COUNTY







The sinkhole entrance to Jones Cave is in an attractive setting in a paddock of Caveland Farm. Duke Hopper admires the view before a trip into the cave. Photo by Gary O'Dell, 1988.

Jones Cave

William Duke Hopper
NSS 15832

Jones Cave is located within the Jouett Creek watershed in Clark County, at an elevation of approximately 885 feet. The passage in Jones Cave is developed in the Grier Member of the Lexington Limestone Formation of Middle Ordovician age. The Grier Member is a medium to coarse-grained, poorly sorted, irregular-nodular bedded, bioclastic limestone with some interbedded gray shale partings (Black, 1968). Hydrologic research has not been conducted in this part of the Inner

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Bluegrass karst; therefore, little is known about this groundwater basin.

The tract of land on which the cave is located was first settled by Richard Hickman about 1780. The cave was a prominent feature of the landscape, and the farm soon received the name of "Caveland." The cave derives its present name from the owner of the property during the early 1960's, when the cave was first surveyed by members of the Blue Grass Grotto. The cave entrance is in a sinkhole, a few hundred feet from the farm lane where cars may be parked during Speleofest. The cave is strenuous with crawling, and visitors should be prepared for semi-wet conditions. Visitors to this cave are advised to wear coveralls, and/or bring a change of clothes. Clothing changes may be made in the cave entrance, where a degree of privacy is afforded. A wetsuit is not needed, but wool or polypro long underwear are recommended.

The original survey of the cave was done in 1962 and 1963. An original draft of the cave map could not be located, although a partial set of survey notes and a sketch map were found in the Grotto files. It was not possible to entirely reconstruct an accurate map from the data obtained, so a resurvey project was initiated in March 1992 by William Duke Hopper, Paul Donahue, Charles Layell, and Kevin Campbell of the Blue Grass Grotto. Due to seasonably wet weather on days when many of the survey trips had been planned, it was not possible to complete the resurvey in time for this guidebook. The map provided is a combination of data obtained from the resurvey, the original 1960's survey, and an annotated sketch map, and therefore may not be absolutely accurate in every detail.

Jones Cave is approximately 3,000 feet in horizontal length. The cave is comprised of a major tributary passage (through which the cave is entered) that is approximately 1,000 feet long. The tributary joins with a main stream trunk passage that is approximately 2,000 feet in length. The stream ranges from a few inches to a few feet deep. There are several short side passages off the main passage.

The cave entrance is a spacious 20 by 20 feet opening in the southern perimeter of a large sinkhole. The first 700 feet of the entrance passage is a down-cutting canyon ranging from 10 to 40 feet high and 10 to 20 feet wide. Beyond this, the ceiling height suddenly drops to 4 feet, and the stoop-crawl section is entered. The next 300 feet of passage is mostly hands-and-knees crawling, with a couple of short stretches of flat-out belly crawl. Finally the passage opens up to 6 feet high by 5 feet wide, followed by a short drop into the 8 feet high by 6 feet wide main stream passage.

From this point, the main passage continues approximately 400 feet upstream to a dead end, and 1500 feet downstream to a terminal siphon. The main stream passage varies from 3 to 10 feet high and 3 to 15 feet wide. A flowstone crawl begins approximately 500 feet downstream from the Junction Room. The crawl is about 200 feet long and is mostly hands-and-knees crawling with a few tight spots. Four side passages, ranging in length from 100 to 300 feet, join the main stream passage at various locations, and are worth probing.

Please note that all trips to this cave are to be led ONLY during Speleofest, and that all visitors must sign a liability release form to be left with the property owners.

REFERENCES

Black, 1968. Geologic Map of the Ford Quandrangle, Fayette and Clark Counties, Kentucky: U.S. Geological Survey



The initial sections of Jones Cave are of very large dimensions. Pictured: Gary O'Dell Photo by Duke Hopper, 1988.

Please note that the ferry crossing of the Kentucky River south of the Speleofest campground, on Tates Creek Road, operates from 6:00 a.m. to 7:00 p.m. Monday through Saturday and 9:00 a.m. to 6:00 p.m. on Sunday. Rates are $2.00 for cars, $1.50 for motorcycles and $1.00 for pedestrians

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FAYETTE COUNTY



Russell Cave

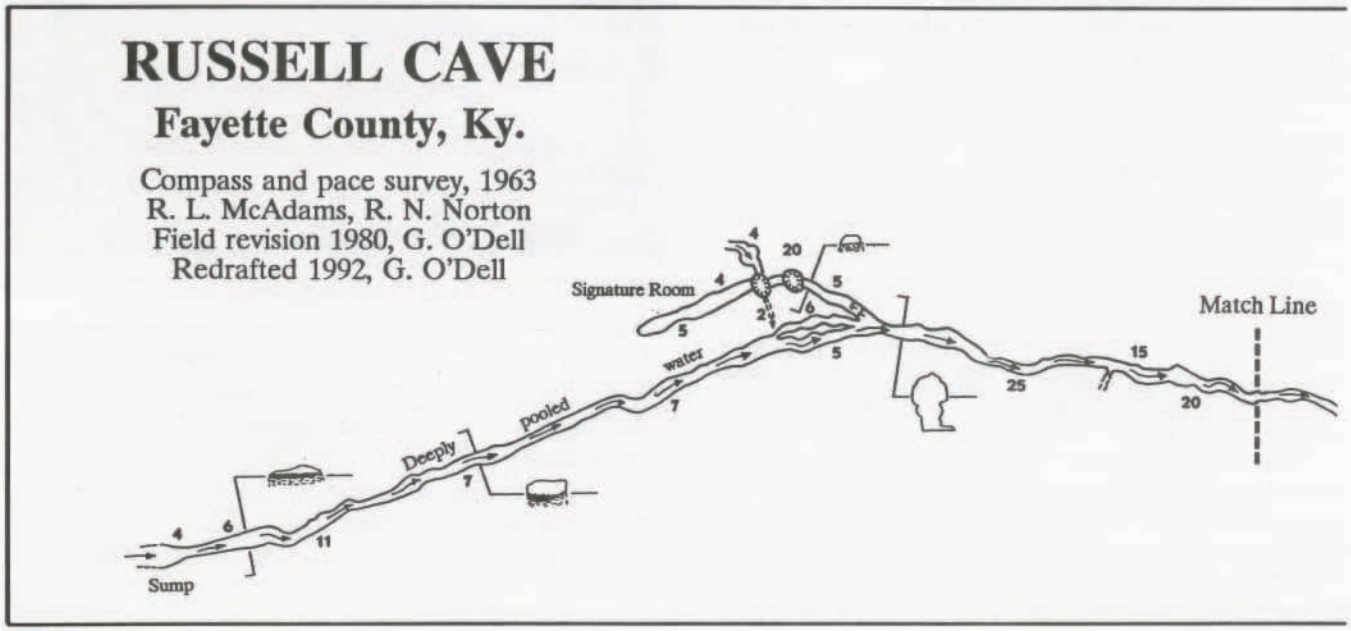
Gary A. O'Dell NSS 10278

Please note that Russell Cave is subject to severe flooding following periods of heavy rainfall. Weather conditions may require cancellation of trips to this cave during Speleofest due to flooding hazard. Check with the registration table for status of trips to Russell Cave. Access to this cave is through led trips ONLY during Speleofest; visitors without previously arranged permission may be considered trespassers and are subject to prosecution.

For the cave explorer, Russell Cave, with more than 5,000 feet of stream passage surveyed, is one of the more challenging and exhausting cave trips in the Bluegrass region. The cold water and deep sticky mud make this a trip for the more experienced cave explorer, and wet suits are recommended though not essential. The cave has been closed to explorers for over fifty years, but recently the trust of the owner has been gained so that the cave is again accessible to organized cavers. The groundwater drainage basin that feeds this cave spring is the largest contained wholly within Fayette County. A number of smaller caves in the northern part of the county have been shown, by dye-tracing, to be part of the Russell Cave system. The cave consists of a stream passage about a mile long with only one significant side passage. Most of the cave is of walking height, but there is a section near the entrance and a longer stretch near the known end that requires a stooping position.

Russell Cave has had a long and colorful history. The land tract that included the cave was settled by William Russell, Jr., in the 18th century. William had given up to his brother a much larger acreage from a bequest in order to possess the cave and its fine spring of water. The first house was built on the property in 1783, followed in 1792 by a two-story brick residence that formed the base of the elegant mansion seen above the cave entrance. It was first described in 1820 by Constantine Rafinesque, professor of Natural History at Transylvania University in Lexington.

The area around the cave entrance came to be quite popular with the local inhabitants. In an era when radio, television and other forms of mass entertainment did not exist, it is difficult to imagine a more pleasant manner in which to spend a summer afternoon than a short horseback or buggy ride to the cave and a leisurely picnic beneath the trees in the enchanting locale. It was a favorite gathering spot and site of many social affairs such as dances, barbecues, political rallies and debates. During one such debate in 1843, a heated exchange between two men in the audience led to vio-



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lence. Sam Brown, a Lexington attorney, and Cassius M. Clay, cousin to Henry Clay, came to blows and soon the fray turned bloody. Brown shot Clay point-blank with a pistol. Undaunted, Clay pulled out a huge Bowie knife and began to hack at his opponent. Before the two could be separated, Clay had carved off Brown's nose, his right eye and left ear, and a piece of his scalp. Both men survived this encounter.

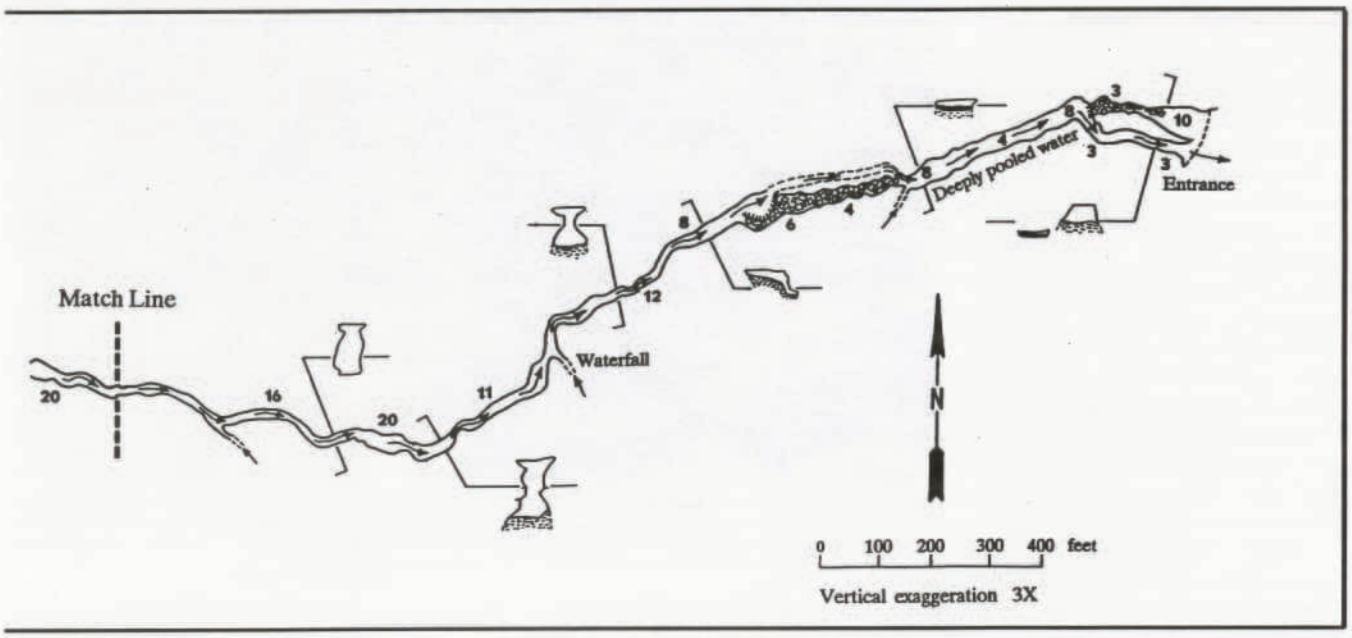
In 1905 the cave property was purchased by James Ben Ali Haggin, who built the dam and pump house before the cave in order to supply his large farm with water. City water was made available to the farm during the 1940's and domestic use of the cave water was discontinued. In 1941 there was a fatality at the cave, when a party of three young boys entered the cave for some casual exploration after school. On their way out of the cave, a large slab of rock peeled off the ceiling near the entrance and struck Grover Hughes, age 13. The Hughes boy died as he was being taken to the hospital. From that time on, with few exceptions, the cave was posted closed to any would-be explorers.

The cave remained closed for nearly forty years. In 1980, through the diplomatic efforts of Larry Spangler, the owners permitted a single trip into the cave. At this time, Larry was a graduate student at the University of Kentucky, conducting research under the direction of Dr. John Thrailkill on the karst hydrogeology of northern Fayette and southern Scott counties. Through repeated friendly contact with the owner, Larry managed to earn his trust. In December, 1980, Larry, Lance Barron, and Gary O'Dell explored the cave to the known limits. Present on part of the exploration were Dr. Thrailkill and Phil Byrd. During the trip, an old map of the cave made by BGG members on a clandestine trip in 1963 was annotated, and is the map included with this article. Recently the property was sold and friendly relations were established with the new owners, allowing access on a controlled basis.

There is a report of an very early map of the cave, made before 1820, though no trace of it now exists. The report of a Russell Cave map comes from a letter written in 1820 by a visitor to the cave. He stated that they were shown, above ground, the exact course that they had followed on their trip through the cave.

This same letter gave a rather humorous description of a visit to the cave and provided some insights into cave exploration techniques of the day: "*We stripped off our coats, tied handkerchiefs round our heads, girded our waists...some of us adopted the oriental custom of paying our homage barefooted, and left our shoes behind. As it was a very warm day, and the water, through which we were obliged to pass, was as cold as that of a well, our outset in this chilling element, notwithstanding the copious draughts which we had made from a bottle of madeira, was more agitating than agreeable. Bare feet furnish by no means the most comfortable soles, with which to meet sharp and rugged stones; nor is the power to guard against falling aided by being compelled to hold a greasy candle in one's hand, whose light is to be most cautiously preserved under the certain alternative of our being bewildered and lost. After going about two hundred yards in a circuitous and changing direction, climbing over rude fragments of rock, and squeezing our bodies through narrow straits, we reached a wide portion of the cave with an immense flat surface of limestone above us, and a shallow lake under our feet with a bottom of mud varying from the depth of the knee to that of the whole leg or limb. Walking with our bodies bent double, our heads and backs striking the jagged and dripping roof, our noses nearly in contact with the water and occasionally ploughing its surface, our legs drawn out of the mud at every step with great difficulty, our candles in danger of a ducking which would not much increase their usefulness, the possibility that we might meet with some deep hole in the way and suddenly plunge entirely under water at the hazard [of] drowning, and being at the same time told that we had only SIXTY YARDS to traverse in this position...we could not consider as perfectly delightful.*"

This letter provides a highly accurate description of



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the first part of Russell Cave and the conditions to be encountered there, although the exploration techniques have changed somewhat over the succeeding 170 years. The cave has a double entrance; the upper, larger entrance is the route normally taken. The passage is floored by mud for about a hundred feet, followed by an extensive area of collapse through the



Traversing the first few hundred feet of the Russell Cave stream passage is a wet, muddy, and tiring chore, despite the promise of walking passage ahead. Pictured is Lance Barron . Photo by Gary O'Dell, 1980.

section where the stream entrance merges with the higher entrance. It apparently was in this section that the Hughes boy was killed.

To continue farther into the cave, one must climb down from the level of the main entrance into the cave stream. After descending, the first portion of the cave is filled from wall to wall by the stream, which in this section is pooled rather deeply. As the ceiling is only 2.5 to 3 feet above the water at base flow, even a slight amount of flooding would completely seal this passage, preventing entry from outside and trapping any who might be within the cave. Fortunately, as most of the cave is of large walking dimensions and there is a high-level passage farther inside that does not ever flood, drowning is not a likely hazard.

After traversing several hundred feet of water, 2 to 3 feet deep, in the stooped position so humorously described by the 1820 account, another area of extensive collapse is encountered. Here the visitor must climb out of the stream onto the large slabs, stacked horizontally and covered with mud, and crawl for several hundred additional feet before rejoining the cave stream, which has followed a course beneath and to the side of the breakdown. Beyond this second collapse area, the cave stream flows unhindered for the remainder of the known passage. The passage through this section is the most spacious of the cave, with widths of 10-30 feet and passage height up to 25 feet. It is generally of a canyon cross-section, wide at the top, narrower in the middle, and wide again at the bottom. There are a few unremarkable flowstone deposits on the walls through this area, though otherwise Russell Cave is barren of speleothems.

In several locations along the stream course are small inlet channels, generally too small too enter, which contribute slightly to the main flow. About 1,500 feet into the cave an intersecting passage near the ceiling forms a small waterfall, and an equal distance further upstream is the only significant side passage. The side passage contains a thick fill, forming a steep bank where it has been cut across by the main stream passage. Midway into the side passage are two sinkholes in the fill which actively take in small amounts of water. The second of the two is the larger and has a small channel at the bottom that probably leads to the main stream in the adjacent passage. Past these two pits in the side passage is one of the very few dry areas in the cave and the only location where names and dates have been preserved. Frequent flooding has obliterated any markings from the main stream passage.



Despite the rather grim conditions through the entrance section, most of the passage in Russell Cave is of moderate walking size as shown here in the mid-section of the cave. The wall-to-wall pooled water and deep, sticky mud of the first part of the cave is not encountered again until the last 1,000 feet before the terminal (???) sump. Larry Spangler and Lance Barron pause to inspect a small waterfall. Photo by Gary O'Dell, 1980.

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At the end of the side passage is a large cairn of stones and many inscriptions on the walls and ceiling. The oldest date observed here was 1858.

Beyond the side passage, the main channel of the cave changes character and resembles the section near the entrance for the remainder of its length: low ceiling, soft, muddy floor, deeply pooled water spreading across the entire width of the passage, with occasional mud banks along the walls. It is a tiring region to travel through; one must remain in a stooped position to the end of the cave without respite, and the knee-deep mud and waist-deep water make every step a struggle.

There is potential for additional passage beyond that which is presently known. The terminus of the cave is not the abrupt, well-defined ending by collapse or fill as seen in many caves, but rather is a gradually decreasing air space above the surface of the stream. At the furthest point explored in 1980, just beyond could be seen the roof of the cave descending to nearly meet the water, leaving scarcely an inch of breathing space. It may be possible that this sump continues for only a few feet and that, during periods of extreme low flow, it may be possible to negotiate the barrier and emerge in a continuation of the passage. As noted earlier, there are a number of other caves upstream from and near to Russell Cave, for some of which a hydrological connection has been demonstrated.

This account of Russell Cave was adapated from the author's previously published article in the Journal of Spelean History, July-September, 1985

Tucker's Cave

Gary A. O'Dell NSS 10278

This cave is located on a thoroughbred horse farm and consequently security is tight. Speleofest trips here will be led ONLY; visitors without previously arranged permission may be considered trespassers and are subject to prosecution.

Tucker's Cave is one of the largest caves in the Inner Bluegrass with 3,060 feet of surveyed passage, and certainly one of the most complex. The cave is located in some of the most picturesque countryside found anywhere in the Bluegrass with the entrance in a deep tree-bordered sink on the Fares Farm in the heart of the thoroughbred district. The Keeneland racetrack and the Manchester Farm lie to the south, the King Ranch to the north, and to the east is famed Calumet Farm, breeder of Derby winners (1); all with the gently rolling karst topography that is associated with the region.

Oddly, for such a major cave, there are few historic references. The area was settled at an early date and the cave should have been a notable landmark. It is possible that an entrance did not exist before the twentieth century, being blocked by soil or rock. Exploration may not have been possible until an opening had developed naturally or had been excavated. Rafinesque, who in 1810 described the other major caves of the county, makes no mention of a cave in this area. The first possible report of the cave today known as Tuckers may have occurred during the Civil War. Sydney Sayre Combs, writing in 1950, referred to a historic mention of a cave in that vicinity. In describing the Manchester Spring, he wrote, "*...to the north, was a cave where many of the escaped Confederate prisoners found haven. In the cave was hidden some of the old family silver.*" This tantalizing fragment, of which the original source is unknown, does point to the location of Tuckers Cave. The cave is only a half mile north of the Manchester Spring; there are no other known caves north of the spring for several miles. Less likely is the possibility that Mr. Combs got his directions crossed, as approximately three miles to the southeast of Manchester Spring is the well-known Phelp's Cave, which during the time in question was owned by a Confederate general and reportedly had a secret passage from the nearby mansion to the cave (2). Either cave would have been an ideal refuge for escaped prisoners, with plenty of dry, spacious areas in which to temporarily reside. As to the family silver, Mr. Combs failed to mention which family or whether it had ever been recovered. With hordes of cave explorers having passed through Tucker's cave, it seems likely that the legendary silver cache would have long since been found if not reclaimed by those who had buried it. Nevertheless, this writer could not resist making a thorough sweep of most of the cave with a metal detector, but alas, no treasure was unearthed (3).

Tucker's Cave received its name from the Tucker family, who were landholders along the van Meter and Rice roads for many generations. The last of the family to own the cave was Mr. L. M. Tucker. In the early 1960's Mr. Tucker was described as "a model of southern hospitality. On several occasions he invited cavers covered with mud into his home and supplied them with refreshments and congenial conversation." As too often occurs, however, this popular cave ultimately proved to be nothing but a headache to the owner. Visits to the cave by locals were frequent and not all were courteous enough to obtain permission beforehand. Noisy excursions late at night, littering and property damage were understandably quite enough to harden his attitude toward would-be cave explorers. One of the last groups to which he gave permission so severely abused the privilege that thereafter he refused to allow any more exploring parties. Several attempts were made to discuss the situation with Mr. Tucker by various interested parties over the succeeding fifteen years but he remained adamant in his refusal. In a conversation with the writer in 1976 he reported that uninvited visitors to the cave continued to plague him and that while he had recently given permission for a few local people to enter the cave, a rash of coincidental

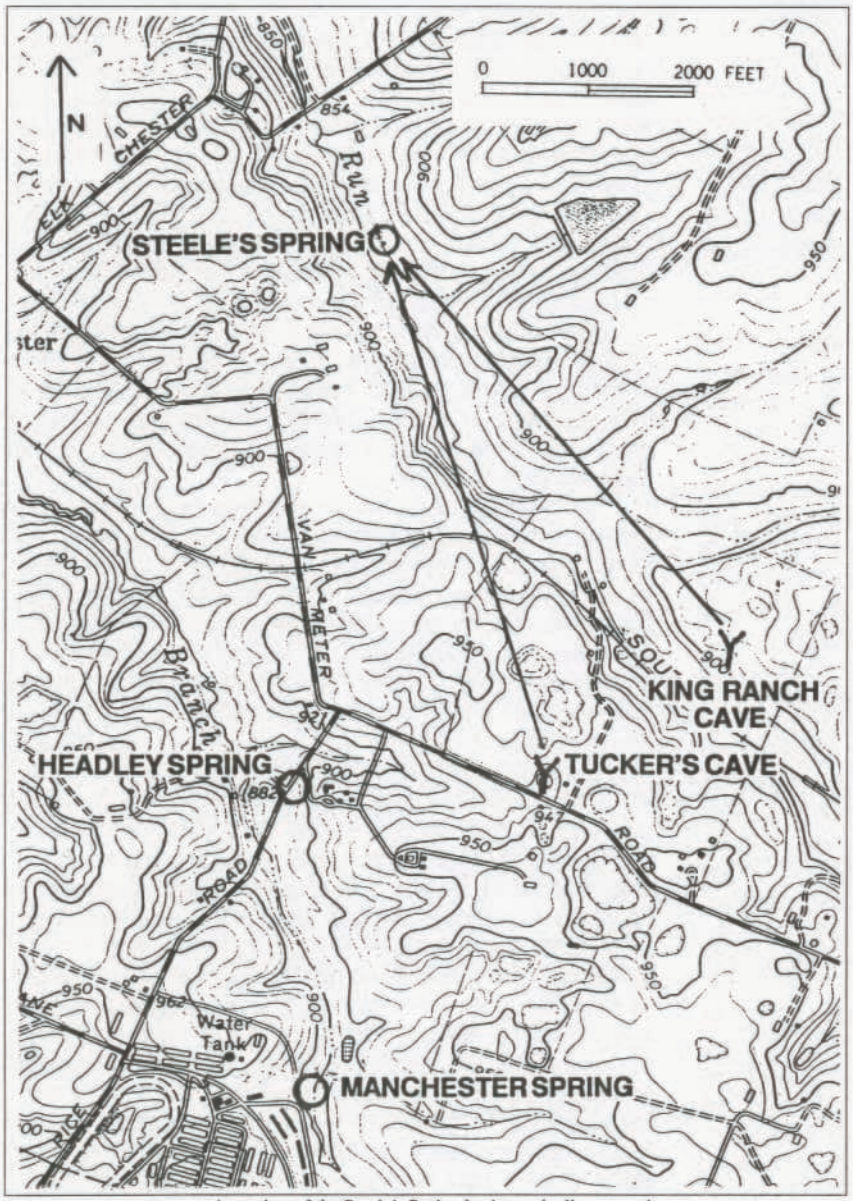
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thefts prompted him to halt even this practice. He stated his belief that some persons given permission to explore the cave, would "hide out" until he had left the premises and then steal farm equipment. Mr. Tucker estimated his then recent losses due to theft at $25,000. (4)

In late 1979 the Tucker land was sold to the Warnerton Farm of Ohio and was also given that name. The author learned of the sale in March 1980 and paid a call on the new farm manager in hope of obtaining permission to visit the cave. The manager was kind enough to allow an exploring trip although he warned of his intention to bulldoze the entrance shut within the week. He explained that during the few months that he had been in residence, groups of cave explorers on numerous occasions had parked along the road and entered the cave--and that not a single one had attempted to ask permission. As Warnerton Farm would soon have valuable thoroughbreds in the pastures about the entrance sink, he proposed to eliminate a temptation for trespassers (5).

A trip to the cave was arranged without delay, the personnel comprised of the writer, along with Dr. John Thrailkill of the University of Kentucky's Department of Geology and a graduate student of the same department, Larry Spangler. Upon return to the surface, it was learned that water supply was a major problem for the farm; a well was to be drilled in a nearby sink in an attempt to supplement the limited supply. Informed of the ample and accessible water within the cave, the manager expressed an interest in determining if a water-supply system utilizing the cave stream was feasible. The intended sealing of the entrance was postponed.

A water sample was taken from the cave stream and analyzed by the Fayette County Health Department; fecal contamination was found to be present although in very low concentrations. The untreated water was rated unfit for human consumption but safe for horses, which have a higher tolerance for this type of contamination.



A portion of the Steele's Spring basins and adjacent springs

A water system was installed in the cave by plumbing contractors during the summer of 1980. The cave entrance was enlarged and plastic water pipe laid underground to the cave entrance, emerging from the passage floor about thirty feet inside. The flexible pipe was rolled out to the proposed source, a waterfall several hundred feet within the cave. A short concrete dam was built across the small canyon passage from which the waterfall spilled, in order to pool water deeply enough for an overflow pipe to supply a redwood tank. This tank, built at the base of the waterfall, is four feet wide by six, and about four feet deep, containing about seven hundred gallons. A submerged pump supplied water to the farm. In conjunction with the installation of the waterworks, a system of electric lighting was installed along the length of passage leading from the entrance to the tank, operated by a switch just outside the cave.

The cave water system performed flawlessly until the severe drought during the summer of 1983 caused the waterfall to dry up completely. A well was drilled in a nearby location, but it, too, failed within a few weeks. Fortunately, an easement was granted by an adjacent farm allowing Warnerton access to city water. Since that time the water system within the cave has been allowed to deteriorate although it could again be made operable if needed. At present, the lighting sytem is also non-

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functional.

The complex stream system within Tucker's Cave forms one branch of a major underground drainage basin in western Fayette County, contributing its flow to the relatively unpolluted waters of Steeles Run. The total extent of this basin has not yet been determined, but a number of traces have established certain portions. The final destination of the Tucker's Cave waters was shown to be Steele's Spring almost exactly one mile northwest. An additional segment of the basin, also emerging at the spring, is water from King Ranch Cave, a half-mile north of the Tucker's Cave entrance. There was no crossover of underground drainage between the two caves, as a detector in the King Ranch Cave showed no results when dye was introduced into the stream at Tucker's Cave. Discharge measurements made in March 1980 indicate that the stream in Tucker's Cave contributed about ten percent of the flow from the spring whereas the King Ranch Cave stream accounted for approximately fifty percent. The source of the water in Tucker's Cave is not yet known but is probably infiltration through the numerous sinks to the south and east (6).

The cave entrance lies at the bottom of a fairly deep sink, some twenty feet lower than the surrounding terrain. Since the enlargement of the entrance in 1980 the increased velocity of runoff into the entrance has eroded six to ten inches of fill away from the area immediately inside; normally, however, there is no water flowing into the entrance. The passage quickly becomes of walking height as the floor slopes downward. In this initial section, and nowhere else in the cave, the ceiling has a concave shape formed by solution along a set of joints, whereas the roof of the remainder of the cave is developed along the bedding plane and is flat. The ceilings of all but some lower level passages appear to be developed along a single bedding plane. The floor throughout most of the cave consists of thick layered sediment deposits of differing textures, in some locations exceeding twenty feet in depth. The cave is multilevel, with a many-branched drainage system and a series of passageways that roughly parallel one another at different elevations. It appears to have undergone a stage during which sediment was deposited to within inches of the ceiling and subsequently eroded away or entrenched.

The entrance passage forks at about one hundred feet inside, with the joint-developed passage cutting across a lower bedding plane passage to the left and bearing north into a transition with another passage. This latter passage, trending almost due north, contains very deep fill deposits that reach nearly to the ceiling in some areas. Very little breakdown is present, having been covered by the sediment. Near the end of this passage the fill gradually increases in depth until further progress is impeded; shortly before this point there is a side passage to the right. This passage is of walking height, several feet of fill having been removed, and consists of a series of meanders that lead to a small hole overlooking the twelve foot drop into a domepit. This domepit is almost directly beneath a shallow surface sinkhole that shows signs of occasional slumpage. Midway along this same passage is the easily overlooked entrance into another passage. A hole at floor level, obscured by an overhang, slants sharply upward into a dome room developed along a joint. The smaller bedding plane passage near the entrance, left or trending south, leads to the major and more complex section of the cave. It is this route along which the water and electric lines were installed. The fill deposit in this passage continues its downward slope, then inclines sharply down into the main junction room, the Tank Room, where five passages converge at two levels. This room is the termination of the passage from the entrance and has the greatest vertical profile of any location in Tucker's Cave, as the waterfall issuing from a small recessional canyon near the ceiling has completely removed the sediment in the area. This waterfall formed the basis for the farm water system previously described. A dozen feet south of the waterfall, the main passage is terminated by a tall rock and sediment bank which stairsteps up to two upper level passages sharing the common ceiling of the main passage and directly opposite one another. Either of these passages must be reached by a difficult climb up the nearly vertical slope; a steel cable many years ago was secured here but the mounting has deteriorated and was removed by the Speleofest advance crew. An aluminum ladder and a length of PMI rope has been temporarily installed at this location. The right hand or western of these upper passages is low and dry with ceiling height generally less than three feet and leads to a breakdown room. Some of the breakdown in this room appears to be unstable, so caution is advised. The left hand or easterly trending upper passage travels several hundred feet to another major junction area; after a final

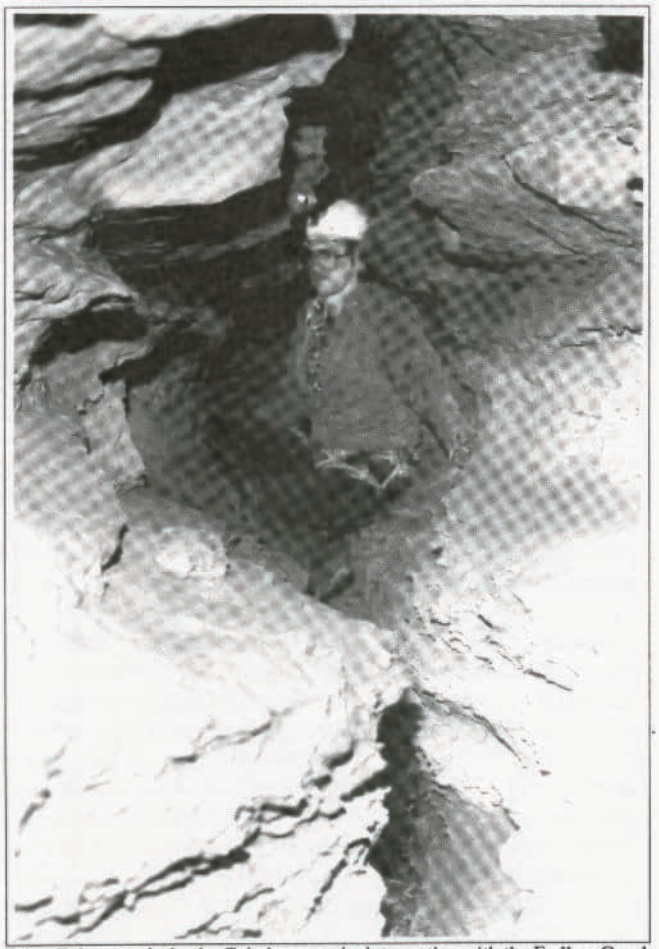


Landrum Haddix takes a break in the left-hand passage just before the Tank Room, where the thick sediments have been cut away by water flow to reveal the true 30-foot height of the passage. Photo by Gary O'Dell, 1980.

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tight crawl one emerges into a large perpendicular passageway, the Break Room. Bearing left, the Break Room passage leads to a thirteen foot drop into another domepit, the largest such in the cave. The top of the dome often has a trickle of falling water that flows into crevices at the bottom of the pit, too small to follow.

Traveling right from the Break Room one passes over some of the largest breakdown slabs that may be seen in the cave to a vadose stream canyon that cuts perpendicularly across and is entrenched at a lower level. The upper passage continues for only a short distance past this point. he stream canyon passage is very difficult to negotiate even though its height ranges from eight to fifteen feet and is up to five feet in width. The meanders formed by the stream in the process of downcutting are often very acute and the passage contours irregular. A typical cross section of this passage might show a maximum width of three or four feet in several places, yet also with a minimum width of a half-foot or less along the section. Further characterizing this passage is the sharp and jagged texture of the walls, shaped by the solutional downcutting; following the survey trip, this passage was named the Grinder. The Grinder passage will be featured on the Tucker's Cave trips rated as "difficult." This canyon passage trends west some three hundred feet before intersecting with a lower level passage that leads away from the Tank Room.



Brian Baker caught in the Grinder, near its intersection with the Endless Crawl. The author wore a brand-new pair of coveralls on the survey trip through this vadose canyon, and discarded them afterwards as rags. Photo: G. O'Dell, 1984.

The waterfall in the Tank Room emerges from a smaller version of the stream canyon, with a ceiling height of four to six feet and a maximum width of about two feet, forming a small recessional canyon. During the dry part of the year the waterfall, prior to construction of the dam, was reduced to a trickle that cascaded down the vertical courses. After heavy rains, however, the flow can be impressive. It has been of sufficient force to move the redwood tank, full of water and weighing over three tons, a distance of several feet.

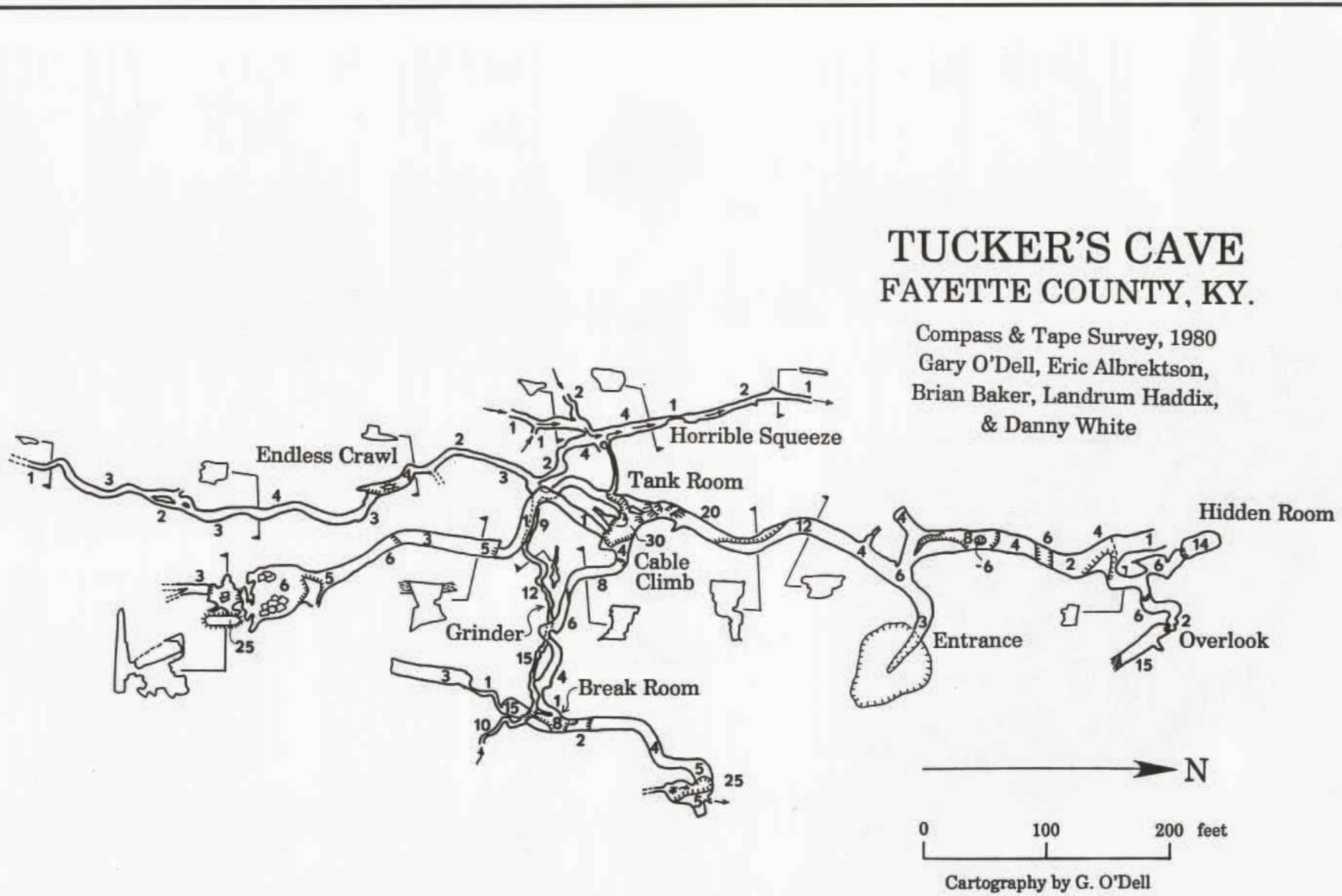
The flow from the waterfall travels a few feet back the main passage, and turns west through a low hole that has been carved through a thin rock wall that separates the Tank Room from a passage that had diverged a dozen feet nearer the entrance. The stream follows this new passage for a few feet and disappears into a low side passage.

The divergent passage, or Endless Crawl, is the longest single passage in the cave, at nearly one thousand feet in length. It has a fill floor several feet thick and is dry through the greater part, although there is a tangential stream passage of minor flow near the end. There is no definite end to the Endless Crawl; rather, the proportion of fill increases until it is no longer passable.

Near the beginning of the Endless Crawl, not far from the Tank Room, the Grinder canyon intersects and is entrenched in a broad S-curve, the floor of the stream being about six feet lower than the floor of the Endless Crawl. The canyon passage can be entered here and followed in either direction. To the left, or eastward, the canyon passage returns to the Break Room. To the right or west, travelling downstream, the canyon changes character completely within a short distance and becomes a bedding plane passage with width greater than height. This area is one of the most interesting in the cave, for at the area of transition, several cave streams converge to form a single large watercourse. The canyon stream, the flow from the waterfall, and water issuing from four other passages here commingle before proceeding to their ultimate discharge at Steele's Spring. The major stream passage here is, for about a hundred feet, of walking height and about twelve feet wide, but the path is abruptly barred by a mud and rock plug across the width. An extremely tight squeeze around this blockage can be negotiated, known as the Horrible Squeeze. Immediately past the block, the ceiling height reduces to two feet or less, with a passage width of six to eight feet. Past this the passage has not been explored, but appears to have considerable potential considering that it is continuing downstream and is known to be traced to a large spring several thousand feet distant. The Horrible Squeeze, however, has proved sufficient discouragement to further exploration. Very thin, boneless, and hardy cavers will be required to push onward.

In recent years the Tucker's Cave tract was sold to Fares Farm. The management of Fares has been kind enough to permit trips into the cave for this year's Spe-

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An exhausted Landrum Haddix emerges from the Horrible Squeeze after having participated in the survey of a section of the stream crawl that continues beyond this grim barrier. Photo by Gary O'Dell, 1980.

leofest. Please follow all directions of the trip leader. Park only where indicated, do not climb fences or stray into any areas other than the cave entrance field.

Article previously published in The Kentucky Caver 20(1986):2

NOTES

(1) To the astonishment of nearly everyone, Calumet Farm declared bankruptcy recently and was sold at auction.

(2) For more information on historic Phelp's Cave, refer to O'Dell, G. A. "Phelp's Cave". NSS News (December, 1989)

(3) Rafinesque, C. S. (1832) "The Caves of Kentucky" The Atlantic Journal, and Friend of Knowledge 1:1; Combs, Sydney Sayre (1950) Our Proud Heritage, Lexington

(4) McAdams, Raymond (1965) "Cave Obituary, The Kentucky Caver 1:3; Oral communication, L. M. Tucker to Gary O'Dell, 1976

(5) Oral communication, Montgomery Hinton to Gary O'Dell, 1980

(6) Spangler, Lawrence E. (1981) Karst Hydrogeology of Northern Fayette and Southern Scott Counties, Kentucky. Masters Thesis, University of Kentucky, Lexington, Kentucky.

FRANKLIN COUNTY



Pipeline Cave

Larry Petersen NSS 12348

There are several caves that have the word "pipeline" in the name, usually named after a pipeline somewhere near the entrance. As far as I know, this cave is the only one with an actual pipeline that runs through its length. Thornhill's Pipeline Cave has a 14-inch cast iron sewer line that traverses the main passage from upper to lower entrance.

This rather unusual cave was known to early cavers as two separate caves. Mud and log jams a short distance in from each entrance that sealed the passage from exploration in either direction. This was the condition found by a Lexington engineer in 1964 when he was designing a sewer system for East Frankfort. Nature had provided a cave entrance at a stream sink that drained the land area of town for which sewer service was planned. The outlet of this stream was at another cave entrance in a short, steep tributary to an abandoned meander bend of the Kentucky River.

The engineer projected he could save the city $60,000 by first running the sewer line through the cave, and then either cutting a trench 32 feet deep to the river or building a pumping station. It was a considerable risk for the engineer to propose this novel plan. At that time, only about one-half of the cave passage was accessible and no one knew what was behind the log jams. He did not know the exact length of the cave or whether tunnelling through rock would be required.

Construction began with a small high-lift, a roof bolter, timbers, and installation of an electric line for lighting. After digging through the log jams, the passage proved roomy enough to get the small high-lift through the entire cave. A large walking passage was found to exist between the jams. The 1,400 foot long cave proved to have just the right gradient for the pipeline, with a drop from upper entrance to lower of 36 feet.

Today, the only obvious traces of the construction project are the roof bolts and the pipeline itself. The cave shows little evidence of having been modified by construction. The low areas where the log jams were located are now filled again with gravel and the pipeline is buried in these areas.

The cave is over 3,000 feet long, with over three-fourths of the distance being of walking height. A trip from entrance to entrance along the main passage and

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the pipe is 1,350 feet. There are two short sections, each less than 50 feet, that require a visitor to stoop or hands-and-knees crawl.

Side passages in the cave are found near the upstream entrance. A short distance inside, the caver finds two short but interesting leads. The left lead is a tight, keyhole-shaped passage that quickly leads to a small, 14-foot high dome. Just before the dome there is a tight belly crawl that has not been pushed to the end. Following the main passage deeper into the cave, past this first lead, the visitor encounters several decorated pockets in the ceiling. These pockets can be climbed up into for investigation. Also in this area is a side passage of walking height that ends in mud fill.



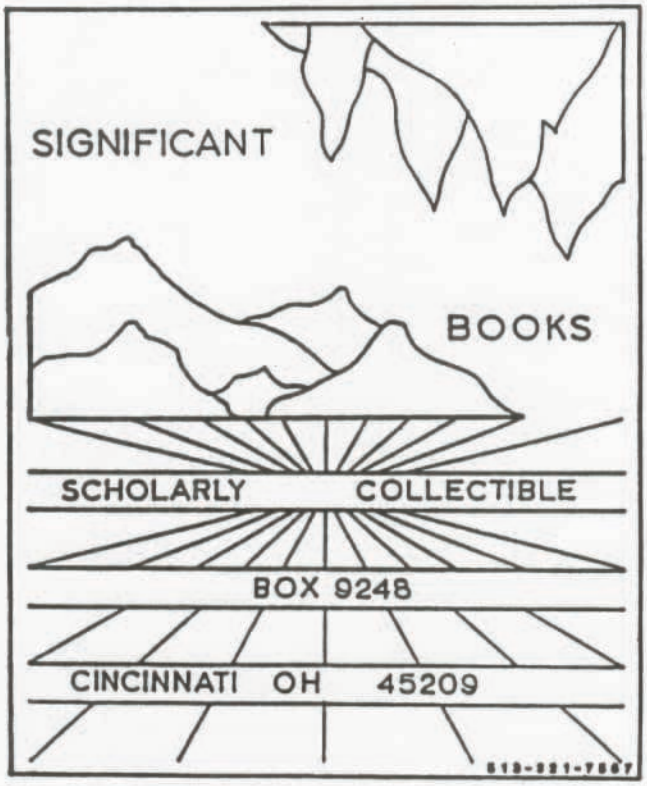
A view looking out the lower, larger entrance to Pipeline Cave. Note the 14-inch sewer line running through the center of the passage. Photo by Wm. Duke Hopper, 1991.

The first room, 300 feet into the cave, contains the major side passages. To the left, over the breakdown, is the opening to an 8-foot high canyon passage. To the right, and more visible, is a narrow passage about 7 feet high. The right-hand side passage was the last to be surveyed. Previous explorers had returned from this lead covered with sticky mud and reported they had not reached the end. After a tight squeeze at the bend, this passage opens up to a mud-coated walking canyon that extends for 400 feet.

The longest side passage is directly across from this muddy canyon, over the breakdown to the left wall. This easy walking passage, 8 feet high and 4 feet wide, follows a trickle upstream and turns to the left while a smaller passage continues straight ahead. Following the stream, left at the junction, the passage grows larger after the turn until a wooden ladder is encountered. The ladder leads up to a crevice filled with speleothems. The source of the stream is a bedding plane passage below this crevice. From here it is a short distance over small breakdown to the final room. Large boulders and tree roots in this room indicate that here the caver is near the surface.

Returning to the junction in the side passage, the smaller passage continues for another 200 feet. It then makes an abrupt turn to the left. After a belly crawl in the stream, the passage opens up to walking height. The passage enlarges to 8 feet high. A point is reached where the small stream emerges from a lower crawlway. Beyond this crawlway, the passage becomes smaller and then the stream is encountered again. The stream flows from a small, narrow passage that has not been pushed. The passage becomes wider but too low to continue further.

Returning again to the main passage and following the pipeline downstream, the explorer does not encounter any more side passages. There is some very attractive flowstone that decorates the passage walls along one long section of the cave. Travel is generally easy and the passage large in size all the way to the lower entrance except for the two short crawls earlier mentioned. The lower entrance is situated at the base of a cliff, and owls nest on the ledges above. Overall, Pipeline is an easy cave for the casual visitor, with some challenging side passages for the explorer.



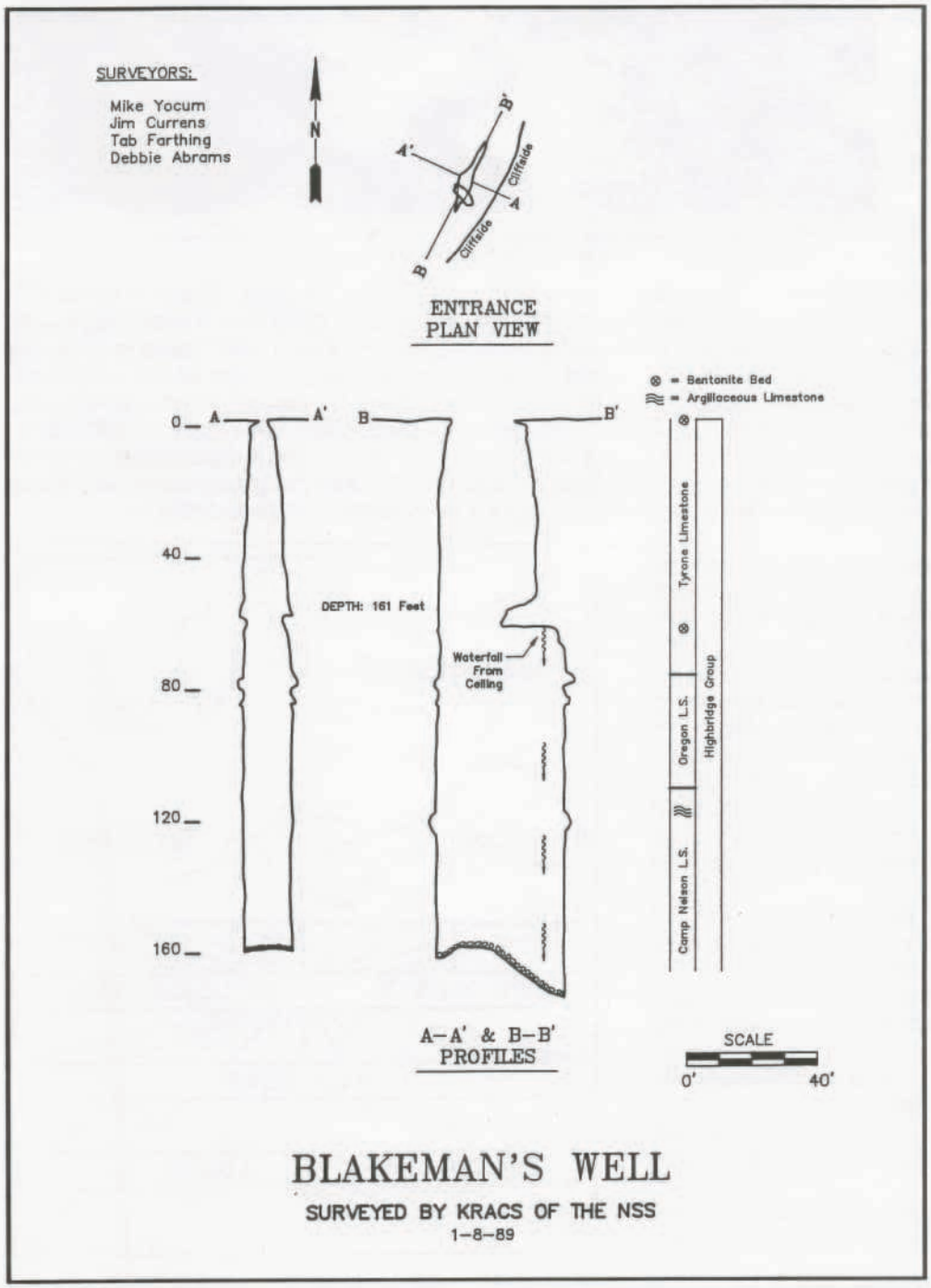
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GARRARD COUNTY



Blakeman's Well

Tab Farthing NSS 27260



Blakeman's Well, a recent discovery, is a KRACS showpiece at 161' free drop on the shallow side. Like Hall's Pit Complex, Crisman's Pit and The Source, this cave is developed in a fault. The displacement is minor; about 1 centimeter at the top and 3 centimeters at the the bottom. While developed in a fault, lithologic controls exist because the top of the pit is at the Pencil Cave bentonite layer of the Tyrone limestone. Evidence of this is given by the diagenetic 2" chert layer on the slab. You you will want to rig over this sharp-edged chert layer with some good padding. A 200' rope is necessary to do this shaft. At the -55' level a ledge is encountered on the north side drop (176'). The traditional 161' south side drop misses this outcrop. The bottom of this ledge often pours water and corresponds to the lowermost bentonite layer in the Tyrone limestone. The bottom of the pit is football shaped and measures 30' by 80'.

Trips to Blakeman's Well will be led ONLY, and the number of trips and participants will be strictly limited at the request of the owners. Inquire at registration for details.

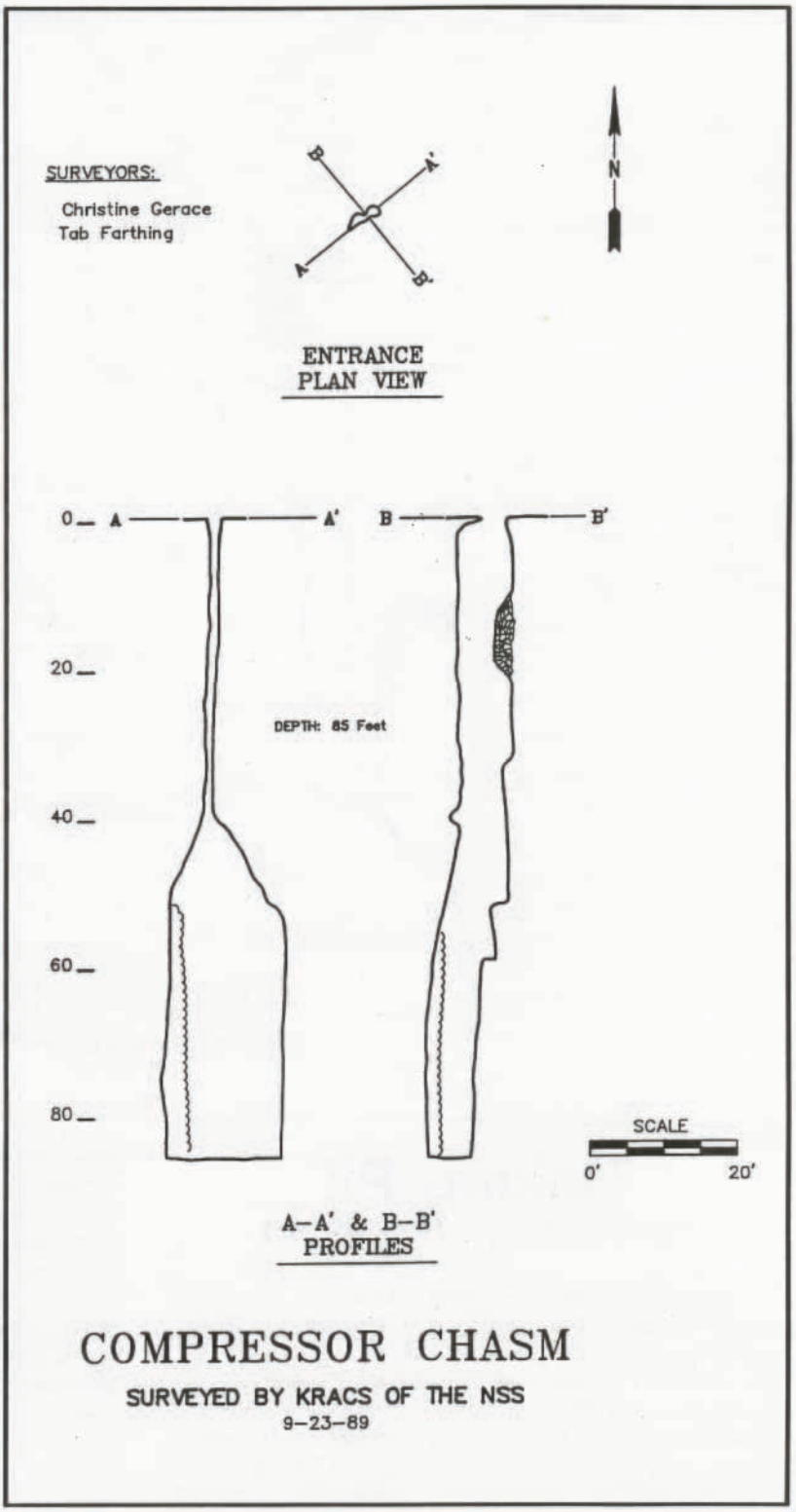
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Compressor Chasm

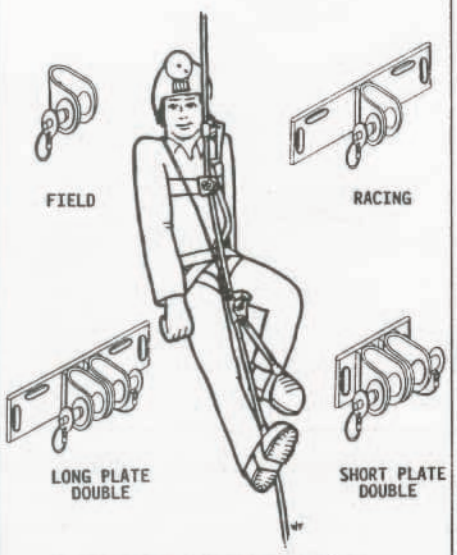
Tab Farthing NSS 27260

Compressor Chasm and Talking Pit are found on an incredibly scenic hill above the Kentucky River in Garrard County. The two pits are located in the woods, about 50 feet apart. Because of some confusion in the local county records, we have been unable to determine who owns this land. A nearby family claims ownership, but other locals believe the owner lives out of state. For this reason (and since the entrance situation for both pits does not allow multiple rig points), please do not attempt these drops if there are cars already parked at the pull-off.

Compressor Chasm has an obscure 1.5-foot diameter entrance. The name for the pit is very descriptive of conditions encountered in the upper half of the drop. Large cavers simply will not fit. The shaft averages 6 foot by 1 foot for the first 40 feet of the drop. It then quickly bells out larger for the remaining 46 feet. This portion of the drop has an impressive, 40-foot tall flowstone column on the southwest side and clean washed walls elsewhere. Compressor Chasm is known to have been descended only once and demands experienced, even-tempered, and very slim cavers. The total depth is 86 feet and a 130-foot rope is suggested.



SIMMONS
ROLLERS
THE COMPLETE LINE OF CHEST ROLLERS



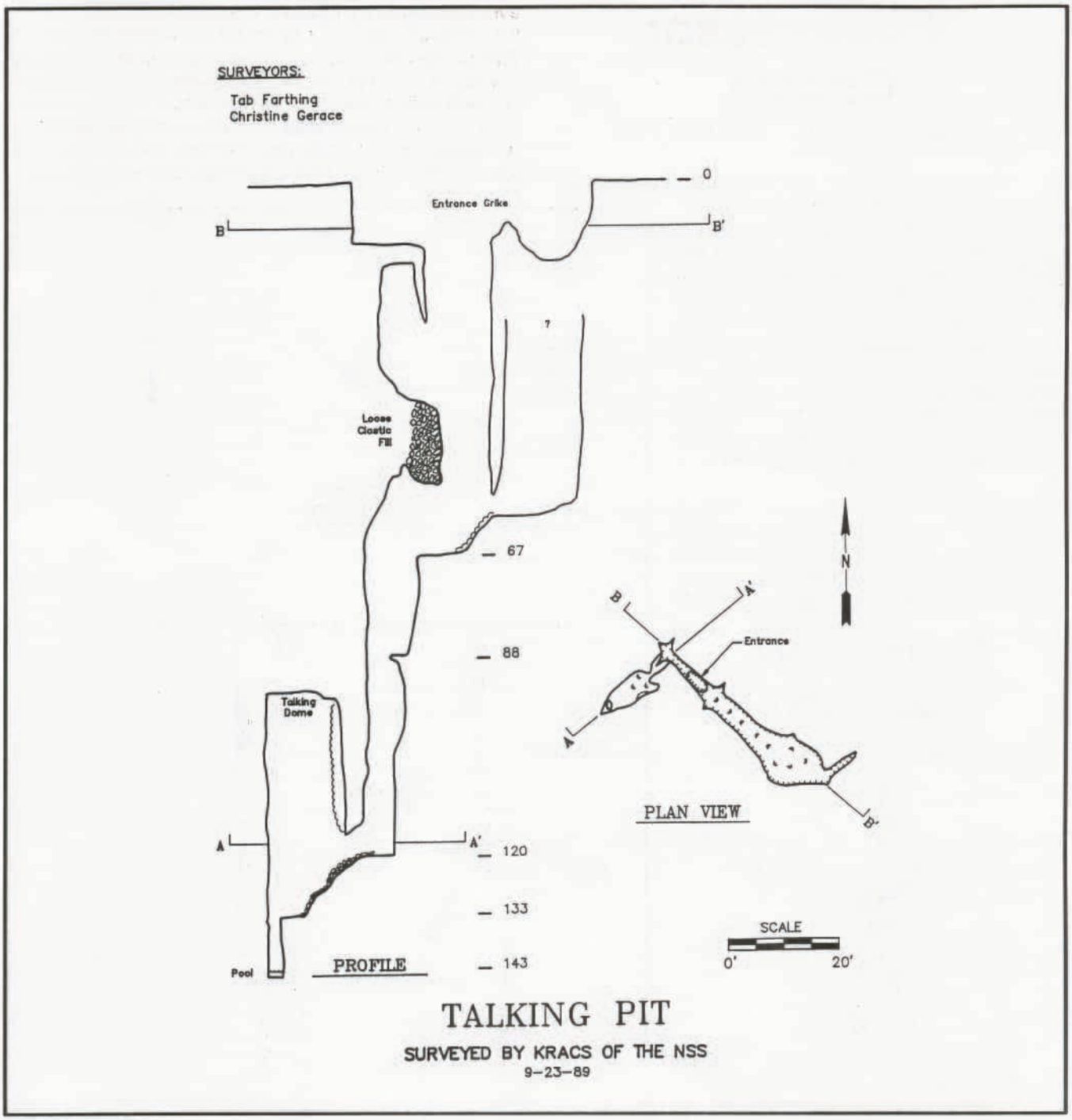
ALL MODELS ARE AVAILABLE WITH EITHER
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TALKING PIT

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Talking Pit

Tab Farthing NSS 27260

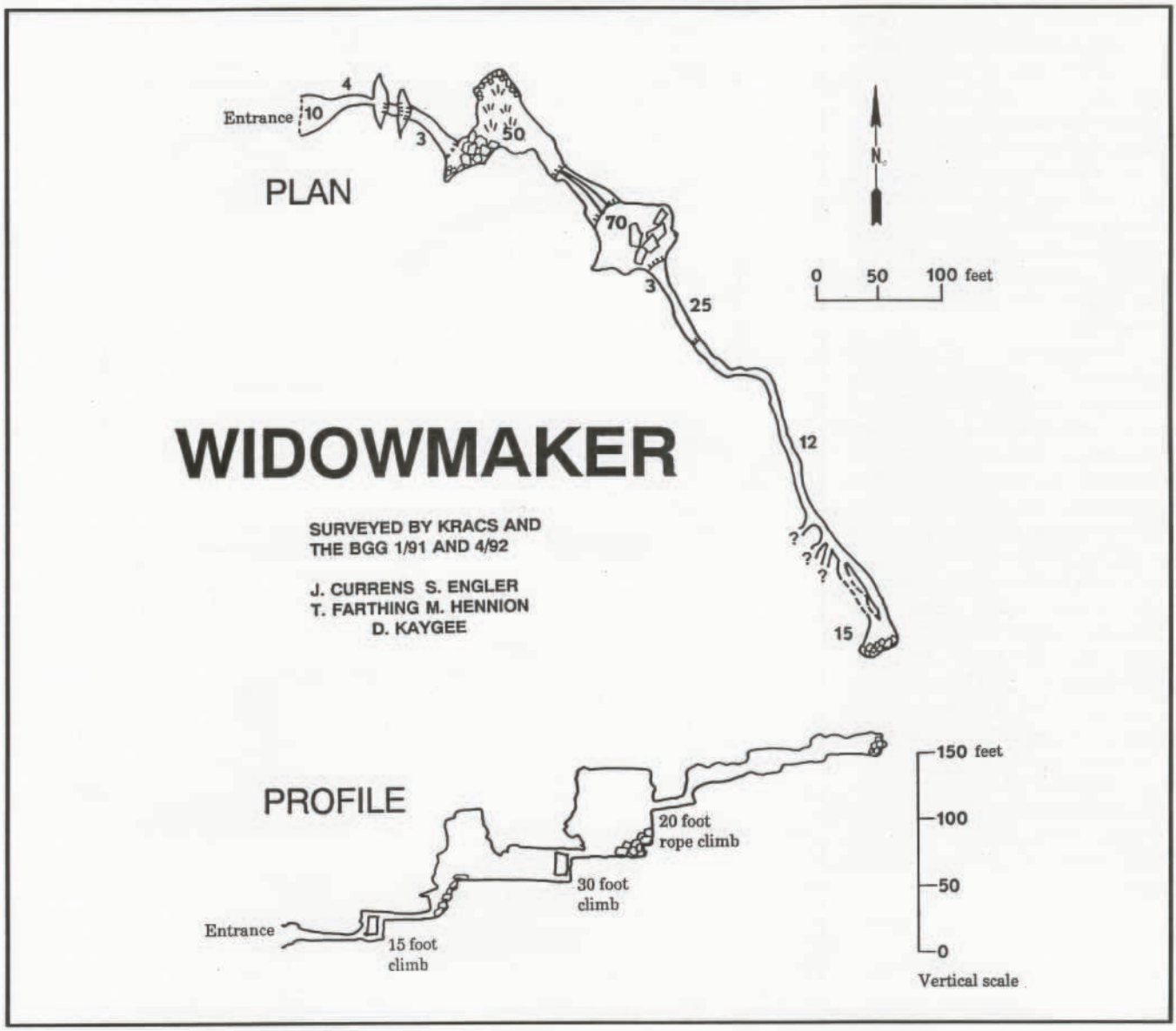
Talking Pit is located about 100' South from Compressor Chasm. The entrance is located in a 50-foot long and 5-foot wide grike. It is very photogenic with a lush covering of moss and assorted greenery. Care should be taken **NOT** to enter the depression at the southeast side as it has recently collapsed and overlies a dome, as shown on the profile map. A 170-foot rope is recommended and rigging to a tree on the south side gives the best drop. The caver will find a slight ledge at -67 feet, where a redirect will be necessary to keep the rope from rubbing the rock fill above. Be aware that a potentially serious incident occurred because of failure to do so and that artificial anchors have been used since. The guided trips will have cams ready as we have avoided setting any permanent placements. The remainder of the pit is offset at points, yet water washed and free of breakdown until the bottom scree slope is reached. This slope leads to the Talking Dome, which may or may not be particularly talkative, depending on rainfall.

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Widowmaker

Tab Farthing
NSS 27260

Trips to Widowmaker will be led ONLY and interested cavers should inquire at registration for details. Cavers should plan on walking in a creek for about 0.7 miles to the Widowmaker resurgence. The entrance, at 8' high by 20' wide, narrows quickly to a 4' diameter stoopway. About 50' into the cave a short dome appears on the right with the main stream continuing to a similar wet 15' dome climb. Either route takes you to the passage above, which leads through a short crawlway into a 50' diameter room with an easy climbup over breakdown. Onward through a narrow canyon the caver will come to a "Y" junction with the stream on the left. After the caver chimneys up on the right for a tight 30' and then goes through a short crawlway, the water is rejoined in the Widowmaker room, largest in the cave. Wwater pours from 40' above, making it impossible to communicate across the room in wet weather. Here there is 20' of easy breakdown climb up to the rope and an ascent against the wall with a simple climbing system. Above, typical Camp Nelson Limestone walking canyon continues for 400' to impassible breakdown. At this point the cave underlies a sinkhole pond. Although the cave is short, partial wetsuits and electric lights are advised for maximum enjoyment unless there has been very dry weather. Plan on getting wet on rope and doing a little climbing as well, since this short cave has 160' of vertical extent in only 800' of horizontal cave. The cave itself, coupled with the beauty of the creek and its swimming holes and waterfalls, is an attractive trip for a warm day or an exciting trip for a wet day.



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JESSAMINE COUNTY

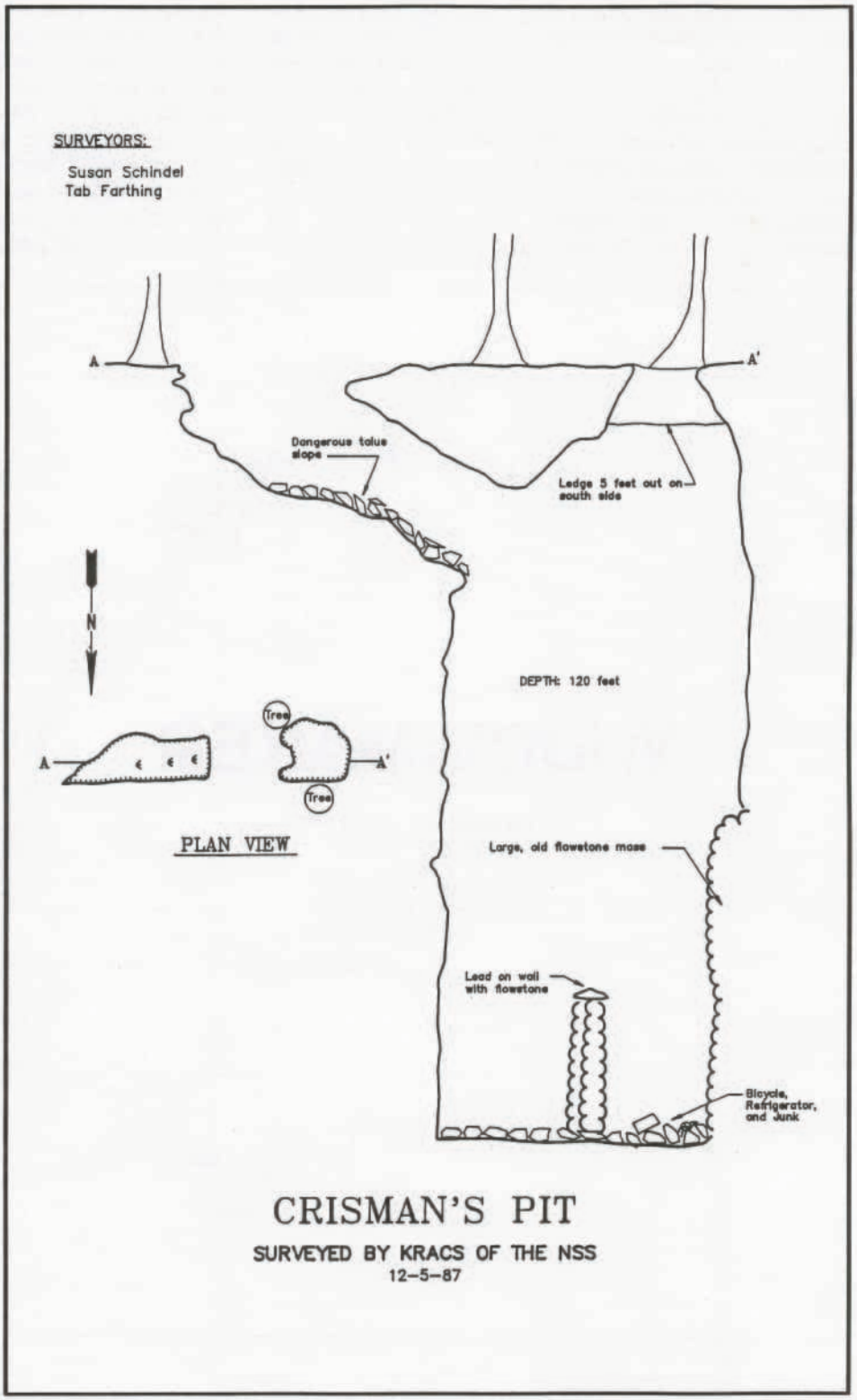


Crisman's Pit

Tab Farthing
NSS 27260

Crisman's Pit is located along the Kentucky River Fault Zone on the tip of a ridge overlooking Hickman Creek valley. This shaft, one of the deepest free drops in the region, was closed for nearly twenty years. Recently, cavers have been allowed extremely limited access. To maintain this improvement in owner relations, ALL trips will be led and will be restricted to relatively small groups. Check at the registration table for more information.

A free drop of 120' may be achieved by rigging a 150' rope on the south side of the 6' by 6' pit opening, with a set of box springs conveniently located at the landing place. In addition to the recommended rigging point at the smaller opening, there is a larger side entrance. This side entrance has a steep talus-covered slope path that can be quite hazardous, so that access from here is STRONGLY DISCOURAGED. The size and location of the side shaft provides good lighting even at the bottom of the pit. The bottom of the pit is approximately 60' in diameter and shows clear evidence of the fault along which it is developed.



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Daniel Boone's Cave

Larry Peterson NSS 12348

There are a great many Daniel Boone caves in Kentucky. The famous explorer would have been some fantastic caver to have seen all those that carry his name today. Regardless of whether Dan'l ever spent any time in a certain cave overlooking the Kentucky River, close to where cars whiz by on US 27 today, this particular Daniel Boone's Cave is well worth a visit for its own sake. The cave is less than 2,000 feet long, but it offers a variety of passage types, ranging from large walking passage to dusty crawlways, from dome rooms to easy chimney climbs. The cave does not have an active stream, which makes it perfect for a rainy day ramble.

Several decades ago, this cave was run as a commercial operation, but failed to draw sufficient trade to remain open as such. Left over from the commercial days are numerous deteriorating remnants including steps, wooden walkways, and dug trenches. The visitor should take care when travelling through the series of dome rooms near the upper entrance, as metal rods protrude from the wall.

A circular route may be taken through Boone's Cave, starting at the upper entrance and emerging from the lower cliff entrance to return overland. The upper entrance, located in a small sinkhole, is partially blocked by an iron gate that can be bypassed by crawling around to the right. This leads to a small, breakdown-floored room which at the far side has a narrow passage, four feet high. After travelling a short distance in this narrow passage, the caver must chimney down past a wooden platform into another room. This is followed by a series of rooms. One room has a concrete block stairway that leads up into another room. There are a number of dead-end leads through this section of the cave; the route to the main passage is by way of the most travelled pathway with climb downs or slopes connecting the rooms.

The last climb down consists of steps cut into a flowstone-covered wall. This leads to the largest room in the cave which is at the level of the main passage. To the right is a low, wide crawlway that appears to end after a short distance. A second lead to the right is the major side passage of the cave. This passage, formerly a belly crawl, has been trenched to hands-and-knees height. After several hundred feet of crawling in this passage, the floor slopes downward to form a room with a ten-foot ceiling. Here, ceiling channels lead to crawlways both left and right. To the right, the intersecting crawlway passage quickly ends; to the left, it leads through a series of low rooms littered with breakdown.

Returning to the large room, the main passage continues as easy walking for about 500 feet to the lower entrance. Part of this distance was trenched by the commercial operators. As you approach the lower entrance, the passage forks and comes together again. The visitor can take the upper route or the most direct path. The upper trail has steps leading up to a breakdown choke and more steps down to the entrance. There is a gate on the lower entrance, but it can be easily bypassed.

At the lower entrance, Hickman Creek can be seen in the valley below. The return path to the parking area is up the trail to the left. This soon joins with a jeep trail. Turn to the left and continue uphill to the upper, sinkhole entrance. This is a very easy cave to explore.

Hall's Pit Complex

Tab Farthing NSS 27260

Hall's Pit was featured during the 1985 NSS Convention held in Frankfort, Kentucky, and was a big hit with those who attempted it. Seven pits over 25 feet deep have been surveyed on Terry and Kaye Anderson's Cuttaway Farm. There are many other small but unusual grikes as well as some enormous sinkholes. The Hall's Pit complex is the gem of the shafts and has been known since the Civil War, when large encampments were established on the farm. The complex is located in an enormous sink, approximately 200 feet in diameter and 150 feet deep, overlooked by the Anderson's log cabin residence. To rig the 91-foot entrance drop, follow the obvious trail down the sink to a fork in the path. Follow the left fork for 50 feet to a small hole high in the sink. Several pads and a 150' rope will be needed for this pit. To rig any of the other entrance drops, proceed to the bottom of the sink where you will find the immense main entrance. Here, you may rig off two bolts, with a third bolt for redirection on the right. This provides a well-lit entrance drop of 55 feet. A small room to the left, above the entrance shaft, leads to three other drops.

The left pit is obscure and falls 65 feet into a large domepit which is best accessed by routes from the bottom of the other drops. However, if you wish to eventually go down a second, lower drop it will be necessary to rig a 150-foot rope on the boulders and drop it down this hole for use below. The middle pit is simply a shallower, 60-foot window into the 91-foot drop mentioned above. The right drop is an obvious window into the main well-lit entrance. All pits mentioned up to this point are connected at their bottoms, and it is highly recommended that you use either the main pit or the 60-foot window into the 91-foot pit. A 120-foot rope will rig either.

An interesting feature at the bottom is the Staircase Dome. It begins as a small climb up near the bottom of the 91-foot pit. The climbs to the top can be mod-

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Daniel Boone Cave

Jessamine Co. Kentucky

Surveyed 1975 by Blue Grass Grotto
National Speleological Society





Legend

- SURVEYED CAVE PASSAGE
- UNDERLYING PASSAGE
- PASSAGE HEIGHT
- DOME IN CEILING
- PIT IN FLOOR
- DOMEPIT
- DROPOFF IN FLOOR
- ABRUPT CEILING DROP
- CEILING CHANNEL
- SLOPE, SUMP OR DRAIN
- FLOWING WATER
- STEPS & STAIRS OR LADDER
- BREAKDOWN
- STALAGMITE & STALACTITE
- FLOWSTONE
- RIMSTONE

TOTAL SURVEYED SLOPE DISTANCE	= 1958.2'
TOTAL HORIZONTAL DISTANCE	= 1895.9'
VERTICAL EXTENT	= 118.1'
RADIAL ERROR OF CLOSURE FOR TRAVERSE	= 11.6'
ACCURACY RATIO	= 1/158.6 OR 0.63 %

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erately challenging, depending upon your skill level. They are: 10 feet, 19 feet, and 13 feet. These provide an overlook into the main shaft at the top of the 19-foot climb.

Returning to the bottom of the pits, one may continue down by finding a 34-foot pit with a bolt for redirection. In order to do this, recall that a 150-foot rope had to be dropped down the narrow slot on the left, in the room above directly to the left of the main entrance (see map). At the bottom, a crawlway turns into a canyon and continues as an exaggerated keyhole passage. The caver must stay in the upper abandoned phreatic crawlway since the lower canyon portion varies from 3 feet in width down to only 6 inches. The floor starts out at 12 feet below you, and 500 feet further is fully 60 feet below. At this point bolts or cams may need to be set, unless the Speleofest crew has replaced the old ones. Please inquire at the registration table for more details.

Past the 60-foot drop to the bottom of the canyon, walking passage leads 50 feet to a dome of enormous proportions. The dome underlies the small sink next to the Anderson cabin and is estimated to be nearly 250 feet in height. A trip to the bottom of Hall's Pit Cave is horizontally short but strenuous because of the lower level chimney traverses. Backflooding and mud in this section is significant, as the bottom cave is plugged at the large dome. Overall, Hall's Pit is certainly one of the most interesting vertical systems in the state.

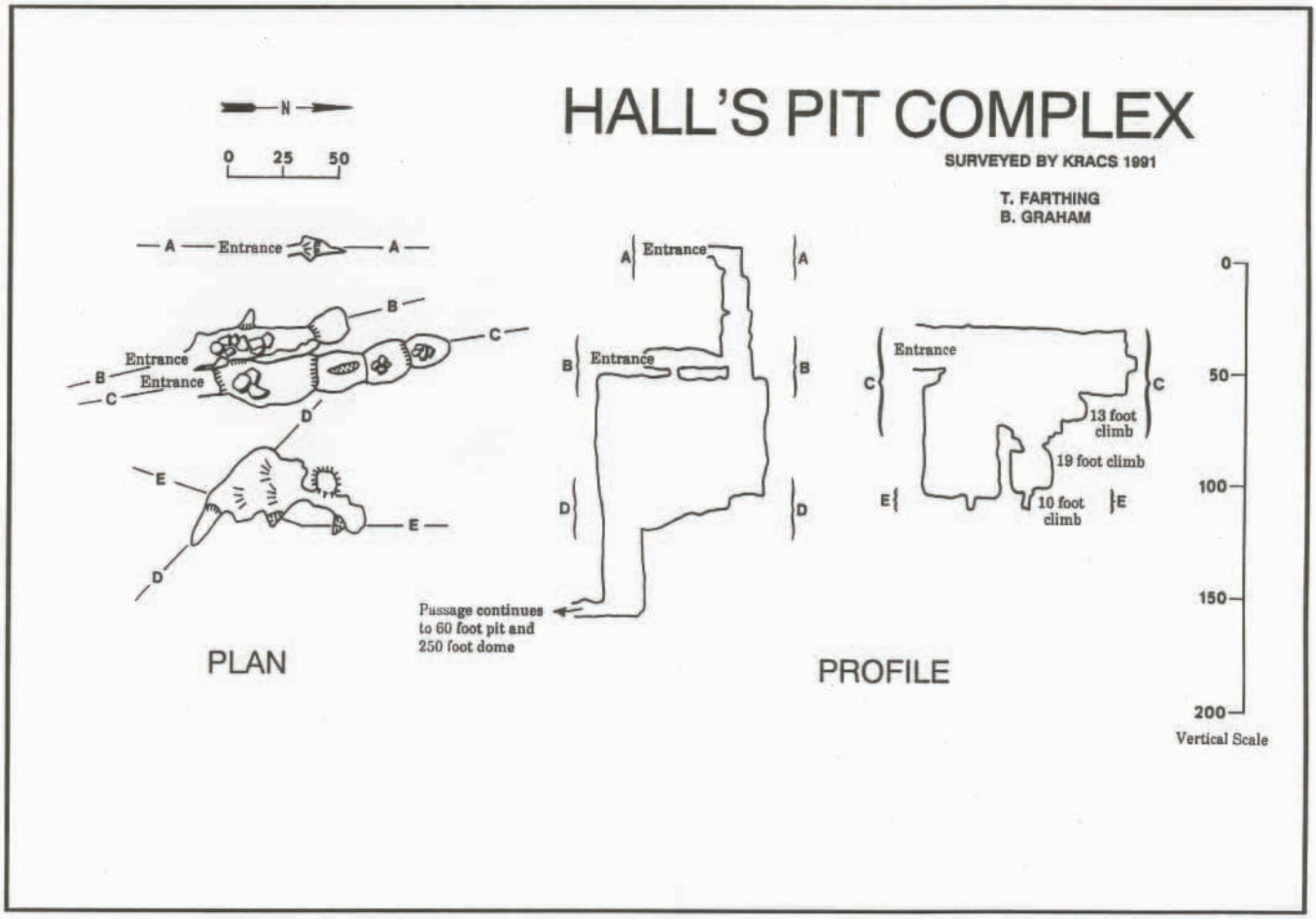
Minor Pits of Hall's Bend

Tab Farthing NSS 27260

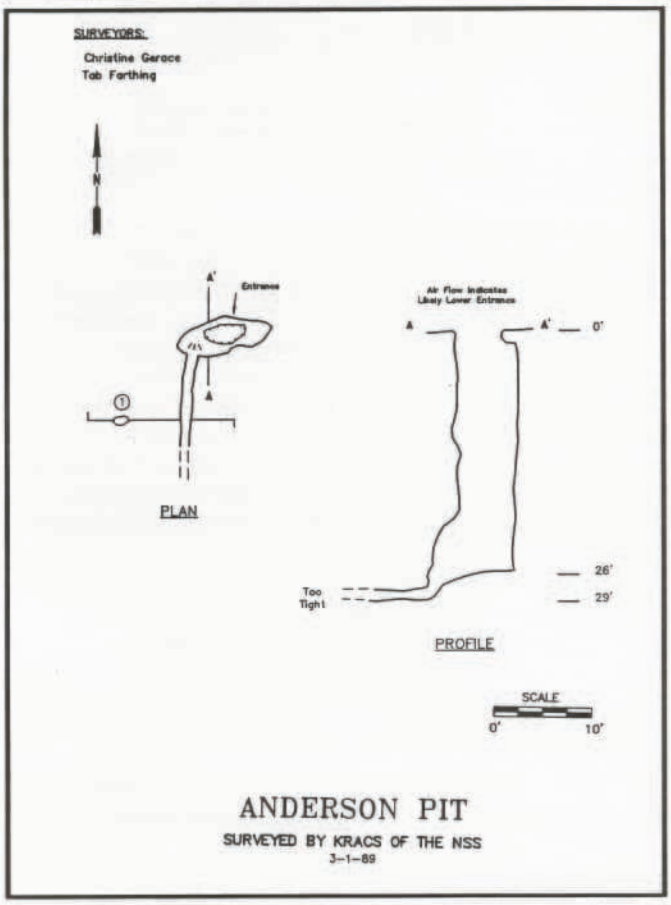
The following pits can be found on Cuttaway farm. While they will be flagged, the topo maps on display at registration and the Andersons will be able to direct you better than any description. Please respect the Anderson's property as we have had excellent relations with Terry and Kaye for over eight years. Terry is a lawyer and a farmer by profession and can tell you more about the history and karst features on his land than this article. Ask them about the history of the area and inform them of your intentions before doing any of the pits.

Anderson's Pit.....26'
Camp Nelson Drop.....48'
Logger's Hole.....33'
Property Drop.....42'
Skull Shaft.....52'
Utility Pot.....38'

All of these pits are slightly decorated and have moderate piles of varied bones at the bottom.

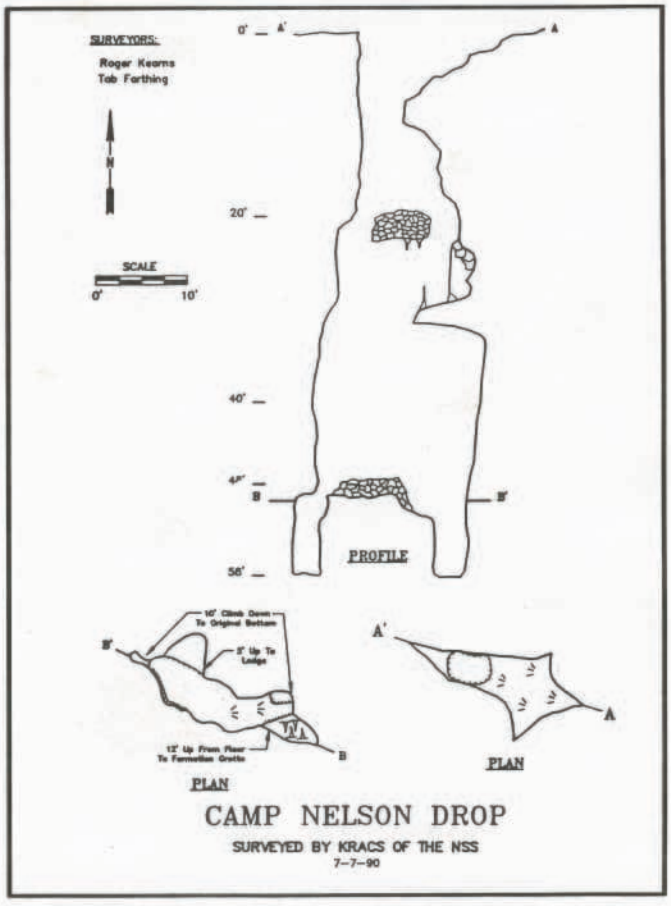


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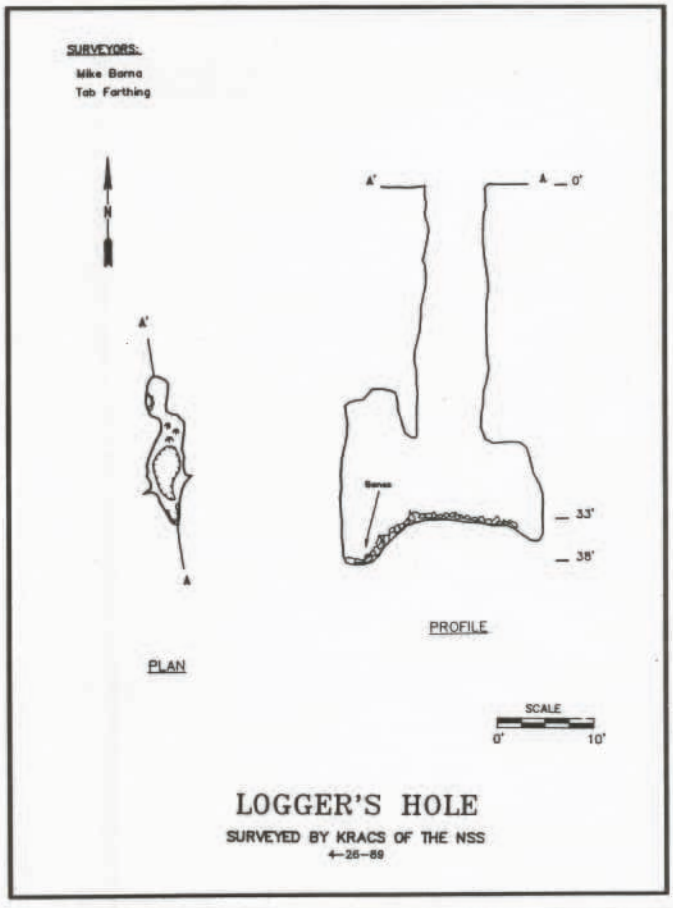
ANDERSON PIT

SURVEYED BY KRACS OF THE NSS
3-1-89



CAMP NELSON DROP

SURVEYED BY KRACS OF THE NSS
7-7-90



LOGGER'S HOLE

SURVEYED BY KRACS OF THE NSS
4-26-89

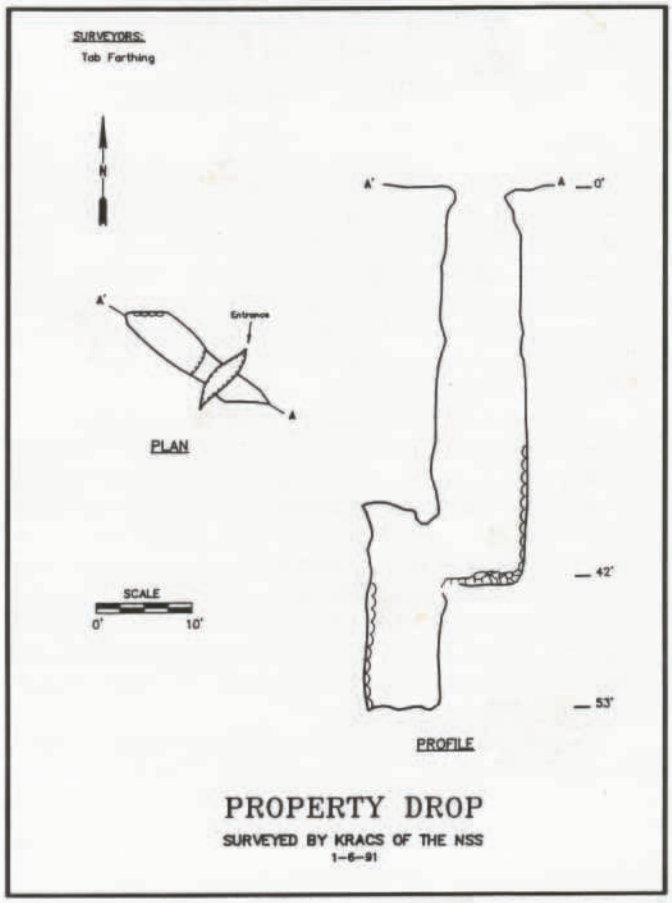
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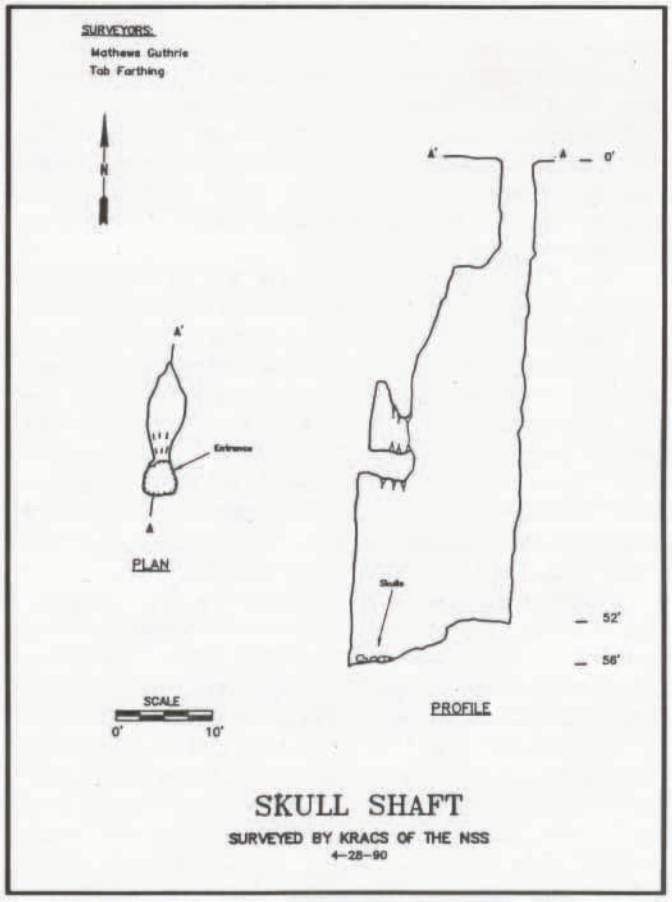
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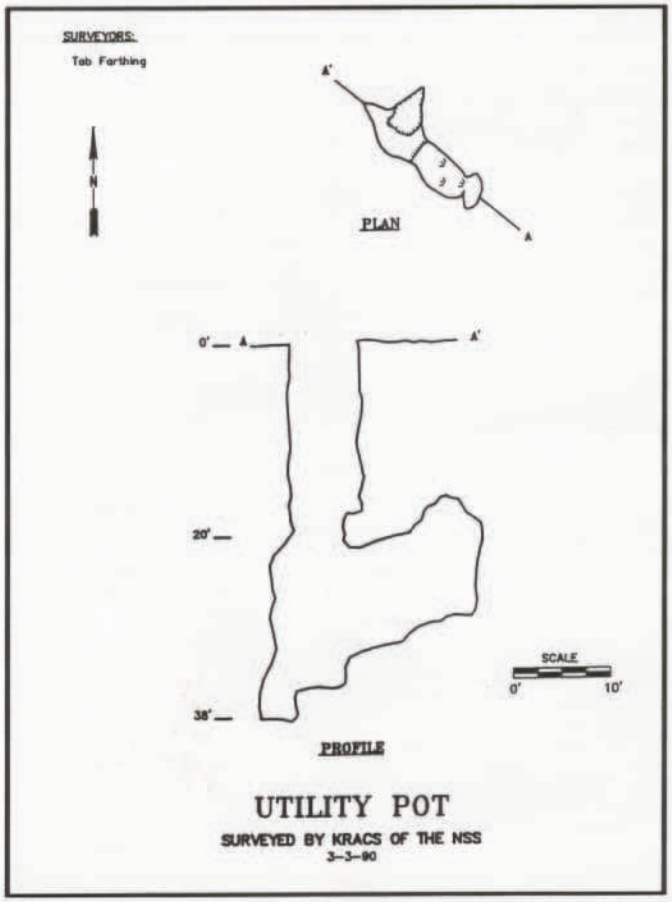
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PROPERTY DROP
SURVEYED BY KRACS OF THE NSS
1-6-91



SKULL SHAFT
SURVEYED BY KRACS OF THE NSS
4-28-90



UTILITY POT
SURVEYED BY KRACS OF THE NSS
3-3-90

Highbridge Cave

Tab Farthing NSS 27260

Possibly among the best protected caves in the United States are Highbridge Cave and The Source. Both are both located in a limestone quarry opened before the Civil War. The quarry was mined as a traditional open pit until about 1920. The pond at the bottom of this large excavation drains into the entrance of Highbridge Cave, which is developed entirely in the Camp Nelson formation. With three separate drops required to reach the lowest level, current survey statistics for this cave indicate a 200-foot total vertical extent and 5,900 feet of horizontal passage.

In 1980 the property was purchased and utilized for what is now a bottled water company. As a result of commercial usage of the property, present access to the two caves is subject to tight security. Sensitive landowner relations will govern the timing and number of trips to either Highbridge Cave or The Source. Speleofest trips will be led only; inquire at registration for details. A trip to both Highbridge Cave and the Source provides an excellent lesson in stratigraphy for the Highbridge Group, as all three members (Tyrone, Oregon, and Camp Nelson) are visible. In either cave, the visitor can anticipate getting rather wet, so that electric lights and wetsuits are advised unless there are low flow conditions.

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Exposed by quarrying, the only entrance to Highbridge Cave extends 20 feet along a narrow channel to Eccleston's Well, a wet, 45-foot drop. Beyond this, along the narrow 700-foot entrance crawl, one passes two major dome sets and then intersects the main stream passage. Upstream, 700 feet of duckwalk passage leads to two domes. The second dome appears to have sizeable passage above and is being contemplated for an aided climb.

Downstream in the main trunk, the cave becomes more complex. Follow the water down Hum Hall (hit the right low note and shake your party) to a wet climb down with a 5 foot deep pool at the bottom, or continue above to a dry climb down. Either option leads to the Mezzanine, where a side passage with a tributary stream parallels Hum Hall upstream 1,000 feet to a sump. There is a very impressive 120-foot dome in this area (All domes depicted on the profile cave map were measured with helium balloons. Please don't ask how the helium was transported into the cave).

Continuing downstream, the visitor soon encounters a 20-foot wet pit and a short climbdown. At the bottom, follow the lower level for 500 feet to a junction, where one can climb up to an abandoned set of muddy maze tubes or continue following the water on the right for another 500 feet to a drop of about 15' (0' to 25' depending on river level). Here the cave is within 150' of the cliff edge of the Kentucky River gorge and at river level. All passages in Highbridge Cave are clean washed rock and the canyon passages have many potholes and intriguingly sculptured solution features.

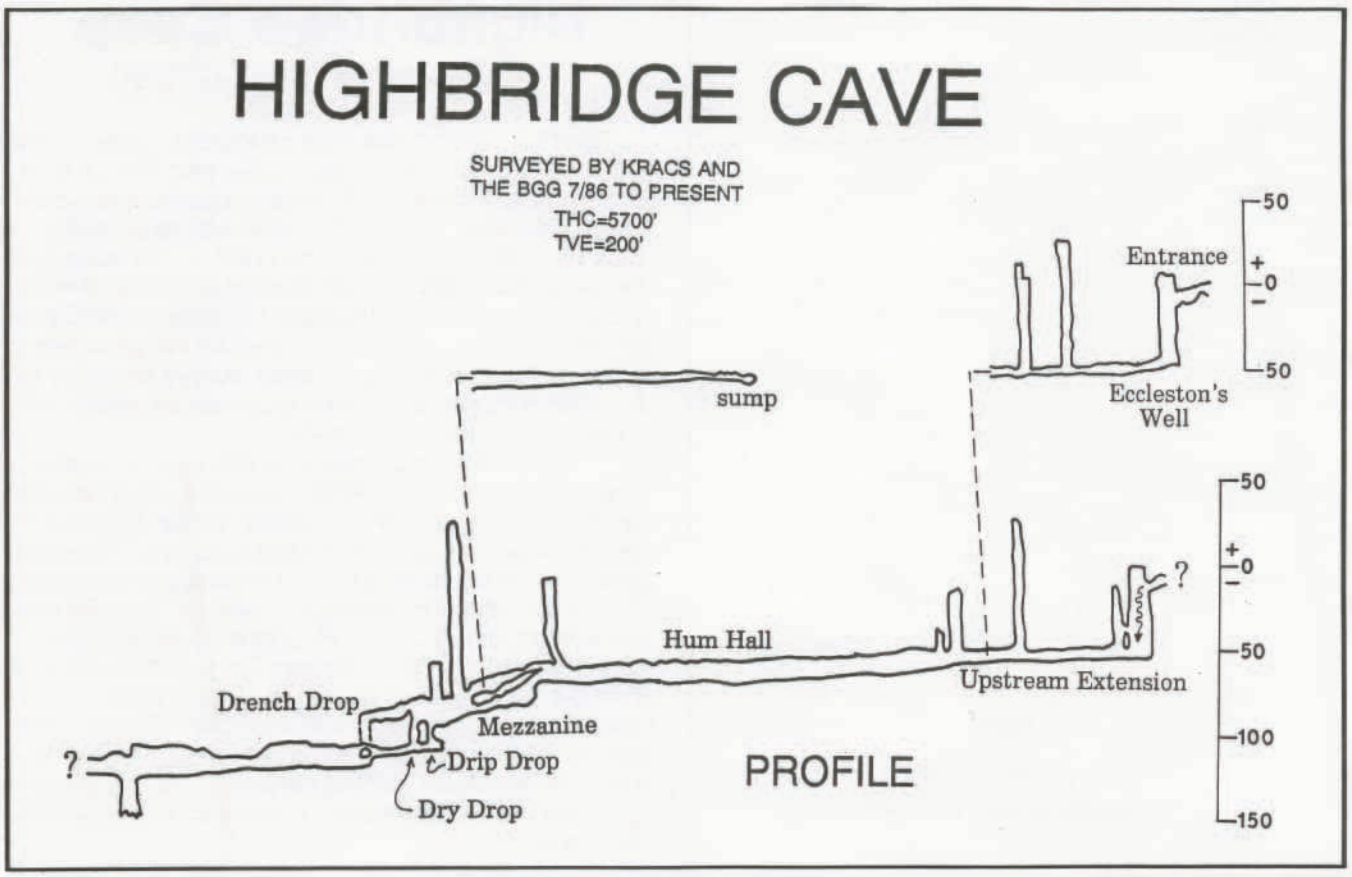
The Source

Tab Farthing NSS 27260

The Source is located in the same limestone quarry as Highbridge Cave. In the mid-1920's quarrying went underground, to selectively mine the Tyrone Limestone below its lowest bentonite occurrence and to mine all of the underlying Oregon formation. The room and pillar mining operation punched into the floor of The Source, which is perched on the bentonite layer above the man-made passage.

The Source must be entered via a 50 foot rope climb up from the floor of the quarry passage. The cave extends 532 feet to a 30-foot diameter, impressive dome. In the center of the dome is a large pile of black gravel, coated with manganese oxide. In this room, The Source displays its beauty, with two waterfalls dropping 50 feet from the Pencil Cave bentonite layer above and landing symmetrically on either side of the gravel pile. A lightly mineralized fault, which presumably allowed formation of the cave by breaching the bentonite above, may be seen in this room.

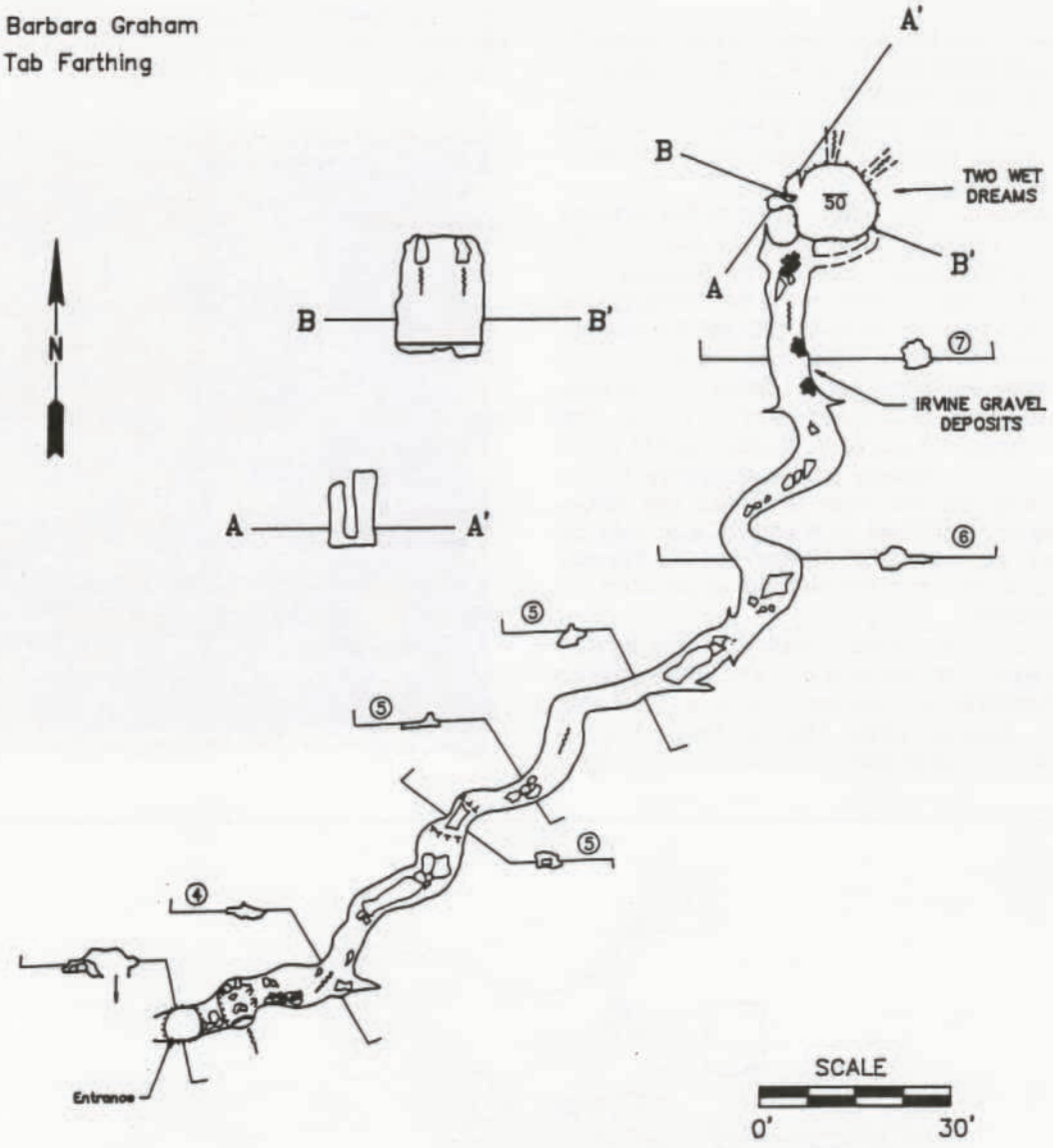
Access to The Source is strictly controlled. Trips to the cave during Speleofest will be LED ONLY.



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SURVEYORS:

Jim Currens
Barbara Graham
Tab Farthing



"I'm fixing a hole where the rain gets in"
"Fixing a Hole"
The Beatles

THE SOURCE

SURVEYED BY KRACS OF THE NSS
8–18–91

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Keene Cave

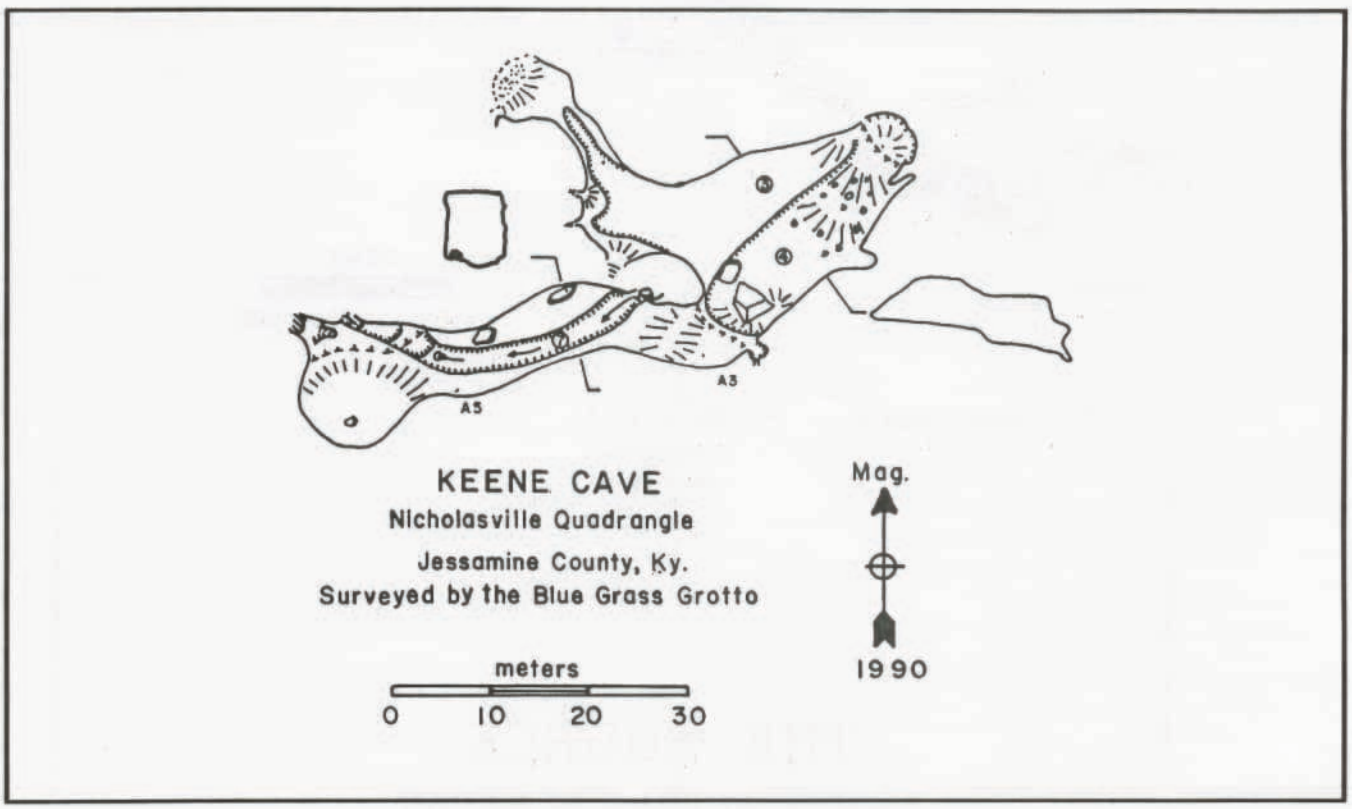
Jim Currens NSS 13110

Keene Cave has been known to local cavers for decades. It had been closed to exploration since the 1960's until a new owner recently purchased the property. The cave was surveyed in March, 1990, as a Blue Grass Grotto project to teach surveying techniques to new cavers.

Driving directions may be obtained at the registration table. Upon reaching the property, turn into the driveway at the residence. Follow the driveway past the house, to the parking area in the field through the gate on the left. Park in the field, **DO NOT** block the driveway! Follow the fence line about 150 feet toward the large sinkhole and turn downhill. Walk into the sinkhole about two-thirds of its depth and turn right. The cave entrance is up the slope on the right at the south end of the sinkhole. **Please show courtesy to the landowners and do not litter or block the driveway. Caving is permitted at Keene Cave only on Saturday from 9:00 am to 8:00 pm and on Sunday from noon to 8:00 pm. No access is allowed on Friday or Monday.**

The cave consists of a section of trunk passage 20 feet high and wide that may be easily followed for about 400 feet. A short side passage is on the right, just inside the entrance. Approximately 150 feet inside the entrance, a stream passage joins the trunk from the right; it might be possible to push this stream passage during dry weather. At the far end of the trunk another stream crawl, about 9 or 10 inches high, continues downstream. this passage is rumored to lead to more cave. Although Keene Cave is virtually devoid of decoration, the size of the trunk demonstrates that large diameter passages exist in the Inner Bluegrass.

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MERCER COUNTY



Ebenezer Cave

Larry Peterson NSS 12348

Ebenezer Cave offers a little more challenge than just a simple walk-through cave, but is still suitable for children who don't mind an occasional pool up to three feet deep and a few short hands-and-knees crawls. Except for the short entrance crawl and some ceiling channels that weave in and out of the main passage, most of the cave is of walking height. The cave has been mapped for over 900 feet. At least an additional 500 feet waiting for the next survey crew. Most of these unmapped passages are crawlways.

The cave entrance is in a small sinkhole located between the owner's house and the county road. A spring and a separate stream both sink at the entrance. The spring is about 30 feet from the entrance, emerging from the remains of an old spring house. The other, normally dry stream bed leads past the spring away from the sink and crosses under the road. The entrance will flood after heavy rains and so the cave should be AVOIDED if precipitation seems likely. The writer has not observed how quickly the cave reacts to rainfall, but, considering that the entrance is the lowest part of the cave and that the owner has reported that the entire sinkhole has been flooded, the stream must drain a sizable area.

At 3 feet in height, continuing for a distance of 25 feet, the entrance section is the lowest ceiling in the cave. Pools of water can be avoided when traveling through here, but bring your kneepads. The passage floor soon drops 3 feet into a narrow canyon of walking height. After the visitor steps across a washed-in tractor tire and passes a small crawlway to the left and some flowstone on the walls, a 6-foot drop down is encountered. This drop can be easily negotiated by stepping down on ledges to the middle of the room.

The stream continues under the ledge, as a gravel floored stoopway. The upper passage is reported to end in clay fill after about 50 feet. Following the stream, soon the passage narrows and a log jam must be climbed over. The passage then opens up again in a "T" junction, about 200 feet from the entrance. To the left, an unmapped passage begins as a stoopway with wall-to-wall water and becomes a hands-and-knees crawlway. This continues 150 feet to a dome room, 15 feet high. A climb up the wall here (CAUTION: this is a fairly difficult climb) leads to the top of the water fall and to over 100 feet of stream crawl.

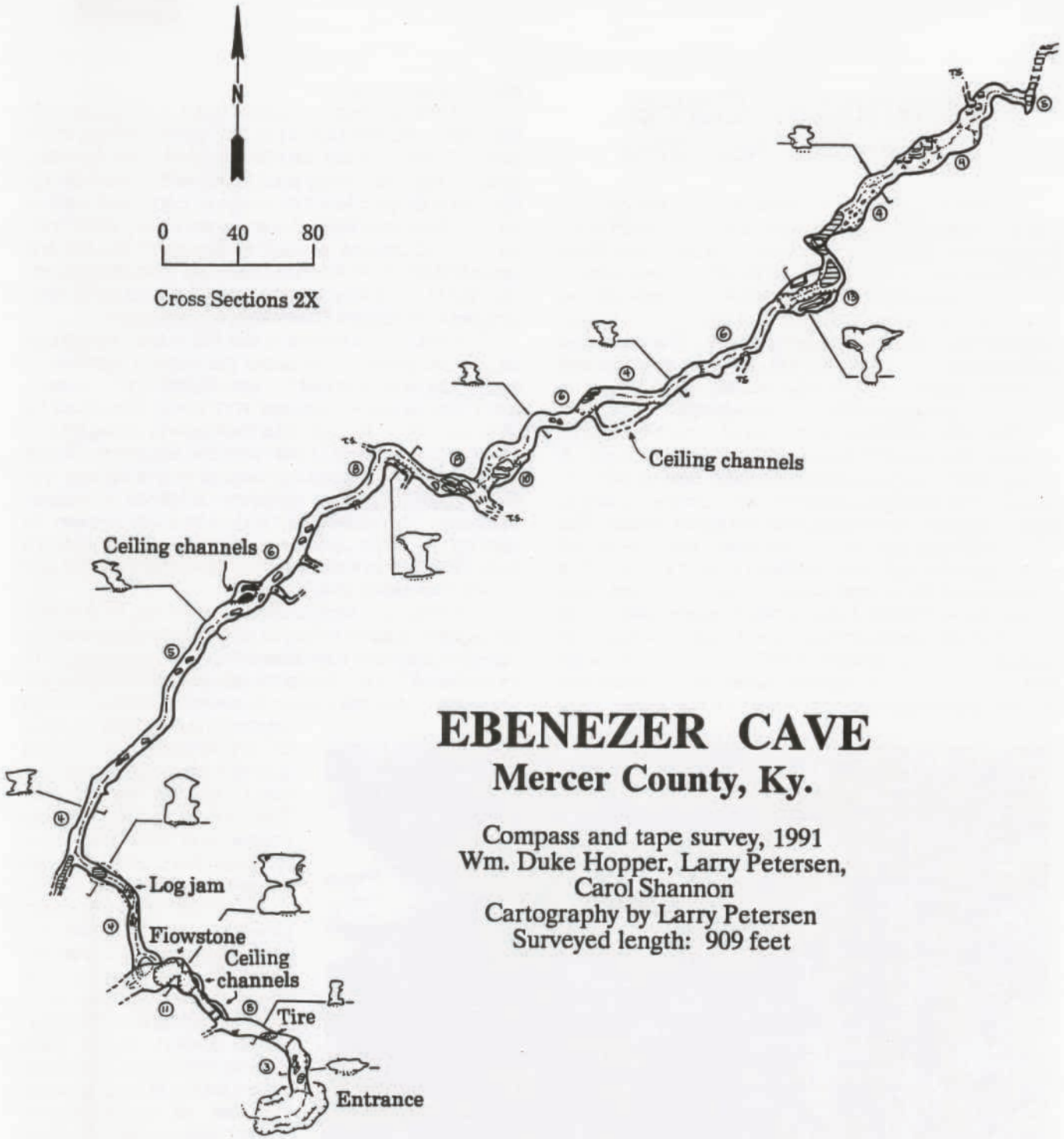
The main passage continues from the "T" junction to the right. It soon enlarges to walking height and becomes a pleasant walk down the canyon passage for more than 400 feet. Along the left wall, at ceiling height, are some crawls that return to the main passage. Just beyond the first ceiling channel encountered on the right is a side passage 5 feet high that curves left after 10 feet. This passage soon becomes smaller and mud-filled. The passage then forks and has not been fully explored.

Near the end, the main passage turns to the left and becomes smaller, with ponded water. For the next 150 feet the passage remains at a stooping height. The surveyed portion of the cave ends at this point. The cave continues for at least another 150 feet as a hands-and-knees crawl in water to a near siphon having 2 feet of water and 1 foot of air space. Past this, the cave goes on but is not much fun.



Ebenezer Cave is an easy cave for those who don't mind getting wet feet, such as Don Pollock. Photo: Duke Hopper

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EBENEZER CAVE

Mercer County, Ky.

Compass and tape survey, 1991
Wm. Duke Hopper, Larry Petersen,
Carol Shannon
Cartography by Larry Petersen
Surveyed length: 909 feet

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Sculpin Cave

William Duke Hopper
NSS 15832

Sculpin Cave is located in Mercer County, Kentucky, approximately four miles north from Harrodsburg. The cave derived its name from the large population of troglobitic Tennessee Sculpin found in the stream flowing through the cave. The entrance to the cave is a 29-foot deep vertical shaft, covered by a wooden shed. The shed was built many years ago to house and protect the pumps and pressure tank that were part of the water supply system for the farm. Since the water district pipeline reached this location, the shed and water supply system has fallen into a state of extreme disrepair. Please follow the instructions of your trip leader to minimize chances for accidents. Aluminum ladders will be provided to descend the entrance shaft. The visitor is cautioned that water depths may vary from 0.5 to 4 feet. Wetsuits are not needed, but do dress warmly. There will be a sheltered area near the cave entrance for changing in and out of cave clothes.

Sculpin Cave is developed within the Grier and overlying Tanglewood members of the Lexington Limestone Formation of Middle Ordovician age. The Tanglewood Member is a bioclastic limestone, fine to coarse grained, generally well-sorted, and cross-bedded in part. The underlying Grier is medium to coarse grained, poorly sorted, irregular-nodular bedded, bioclastic limestone. Alternating thin beds of argillaceous limestone and shale, 3 to 4 feet thick, known as the Macedonia Bed, occur about 15 feet below the top of the Grier Member (Allingham, 1972).

A Grade 5, Class D survey (Ellis, 1976) of the cave was conducted during 1978 and 1979 by William Duke Hopper, Lance Barron, Al Lacazette, Terry Andersen, John Barnes, Don Pollock, Charles Bishop, Tom Sutherland, Richard Kent, and Charles Conn. The total surveyed length of the cave is 7,053 feet with 70 feet of vertical relief between the top of the entrance pit at 880 feet elevation and the terminal siphon at 810 elevation. One main tributary passage contains 3,513 feet of passage with an additional 3,540 feet of passage in the main stream trunk and minor tributary passages. Upstream ends of survey occur at points where decreasing passage height and width made further surveying exceedingly difficult and time-consuming. The downstream end of survey is at a terminal siphon. Water flowing through the cave has been dye traced to Shawnee (Copperhead) Spring, located approximately 5,500 feet southeast from the Sculpin Cave entrance (Hopper, 1986).

Near the downstream end of survey and terminal siphon is a solutionally enlarged joint, trending N 79 degrees E, and a previously unmapped normal fault. The strike of the fault is N 58 degrees E, and may intersect with the N 70 degrees W trending fault shown on the Harrodsburg Geologic Quadrangle, which passes through Shawnee (Copperhead) Spring. The final 50 feet of accessible conduit follows the strike of the fault. Drag folds can be observed in the ceiling and wall of the passage at this location. The conduit cuts obliquely through the enlarged joint, and no evidence of preferential development of conduit along joints was observed (Hopper and Thrailkill, 1983).

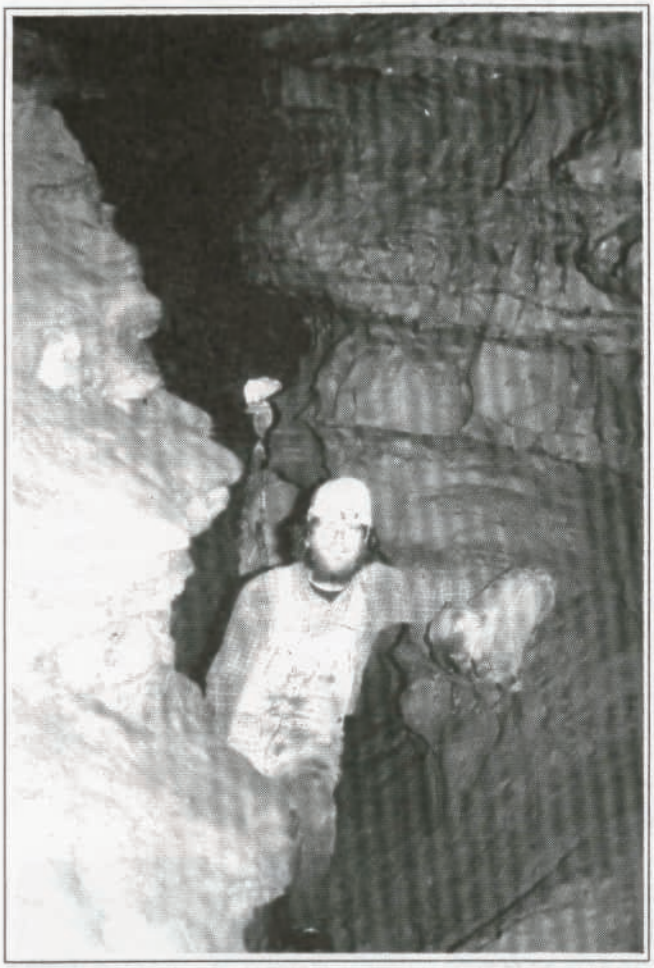
Bryant, *et. al.* (1972) report that life in the cave was not abundantly rich, but quite unique. Cave salamanders and cave crickets can be seen near the entrance. Cave beetles have also been located and identified by Dr. Ron Wilson. The noticeable absence of bats is not surprising, since the only entrance to the cave is covered. Troglobitic millipedes have also been observed. The most diverse and interesting life is found in the streams. The presence of the Tennessee Sculpin is an interesting phenomenon. The fish is not common in central Kentucky. The sculpin population has apparently been isolated for quite some time. No surface streams in the area near the cave are known to contain sculpins. Crayfish, none of which are cave-adapted, are numerous in the stream pools, and probably make up a large portion of the sculpins' diet. In addition to the crayfish, one species of troglobitic cave shrimp has been observed in the stream.



Looking down the shaft of the Sculpin Cave entrance; descending the cable ladder on belay is Terry Anderson. Note the pipes and fixtures of the water supply system. Photo: Hopper, 1979

Upon descending the pit, the visitor must crawl a distance of 277 feet through passage averaging 3 feet high by 10 feet wide. Beyond this point the passage opens up to a comfortable 6 feet high by 11 feet wide. The next 2,118 feet of passage is nearly level and of walking height, ranging from 6 to 10 feet high by 10 to 15 feet wide. The contact between the Tanglewood and Grier members is well exposed in this segment of the conduit. The beginning of a vadose canyon, cutting steeply downward, is encountered at this point. The dry upper level can be travelled for an additional 557 feet

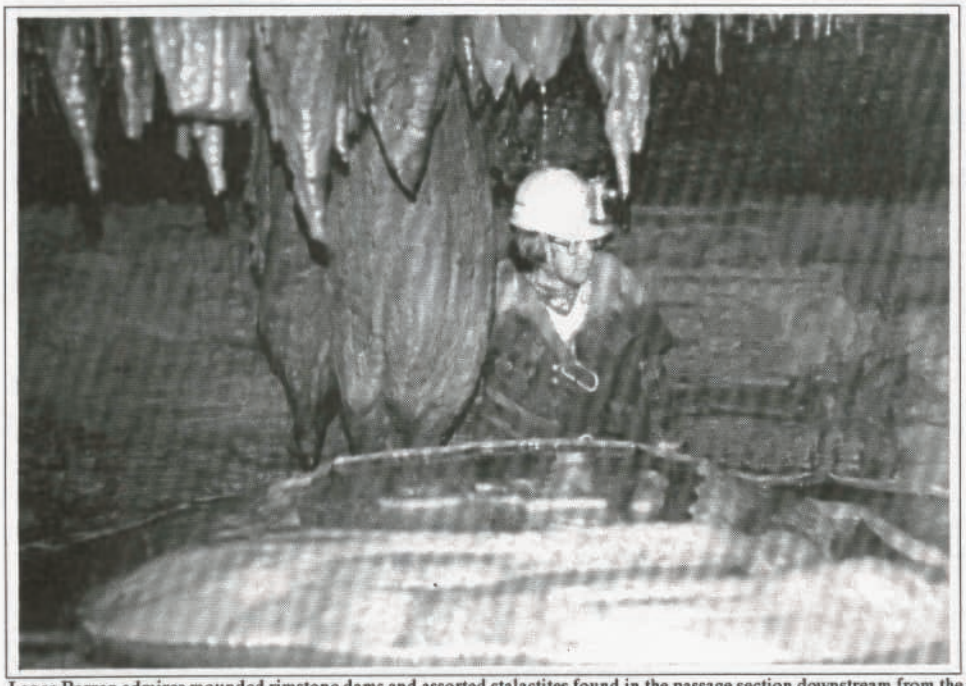
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"Canyonland", a section of jagged vadose canyon where the Macedonia Bed is breached. Grinning for the camera is Al Lacazette. Photo: Duke Hopper, 1979

before descending into the narrow canyon is required. Unfortunately, at one point or another, the caver must drop down into the canyon passage. From the beginning of the canyon passage to its junction with Sculpin River is a distance of 885 feet. The canyon is very steep and very narrow, and for most of its length can only be travelled by walking sideways. The Macedonia Bed of the Grier Member is breached in this section of the cave. It is the thin-bedded argillaceous limestone and shale beds of this unit, honed to razor sharpness, that tend to shred coveralls and cave packs. This section of the cave is known to have drawn blood on at least one occasion!

From the junction, the Sculpin River or trunk passage extends downstream for 670 feet to a terminal siphon (chest deep water at the bitter end), and upstream for 3,540 feet. The upstream section includes several dendritic passages tributary to the main stream. In the Junction Room region of the cave, a wide variety of vari-colored speleothems adorn the passage walls, ceilings and floor. Two large tiered flowstone mounds, with associated stalactites, rimstone dams and pools are located 325 feet downstream from the Junction Room. Travelling upstream from the canyon passage junction, the passage begins at 30 feet high by 25 feet wide. It begins to decrease in size as the caver climbs upward through the Grier Member. Within 120 feet, the passage character has drastically changed, turning to a potholed, narrow canyon averaging 20 feet high by 7 feet wide. The passage is almost completely coated with black manganese oxide, and continues in this fashion for several hundred feet. This section of the cave is difficult to describe, and is noted as the Gallery on the map. Continuing upstream, the contact between the Grier and overlying Tanglewood is again encountered. Passage dimensions become more rectangular. Finally, near the end of the survey of the main stream (bear to the right), the visitor will encounter a series of barite-fluorite veins and clusters of outstanding soda straws, stalactites, and helictites.



Lance Barron admires mounded rimstone dams and assorted stalactites found in the passage section downstream from the Junction. Photo: William Duke Hopper, 1979.

The barite-fluorite veins are completely enveloped by a thick, laminated, black manganese oxide coating. During the cave survey set of three separate veins, trending N 12 degrees E, were mapped. The vein material consisted of clear, crystalline fluorite (CaF_2) with minor amounts of white barite ($BaSO_4$). I had been interested in the mineralogy of manganese oxide coatings, and during the survey thought this would be an excellent opportunity to collect an uncontaminated sample of the coating mate-

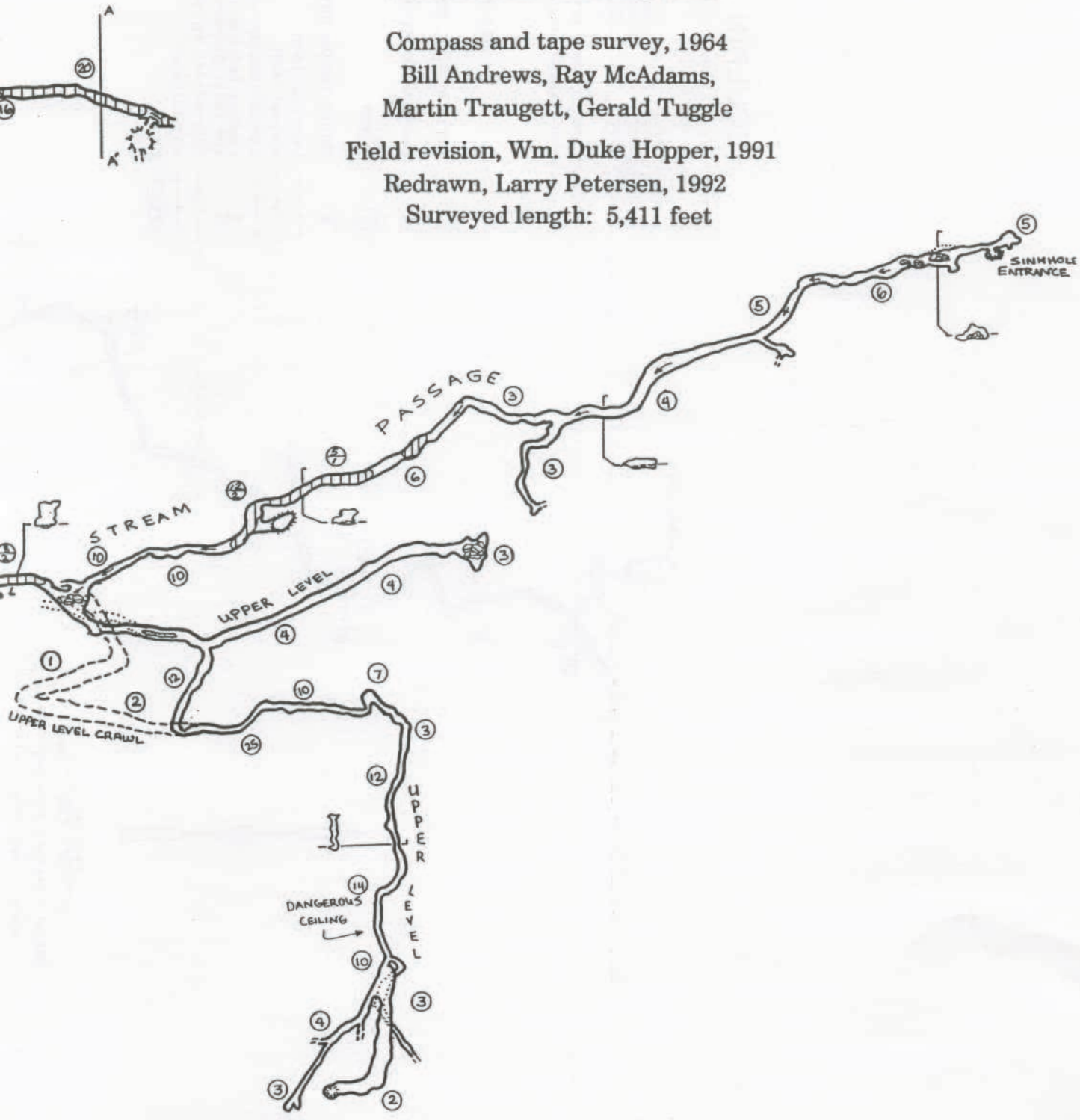
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WEBBER'S CAVE

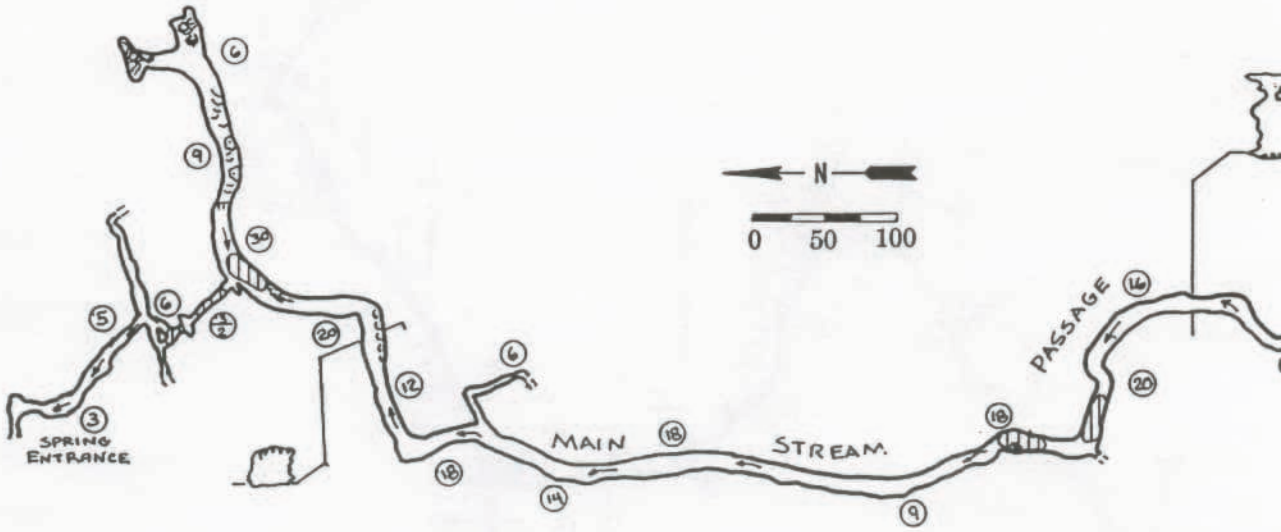
Woodford County, Ky.

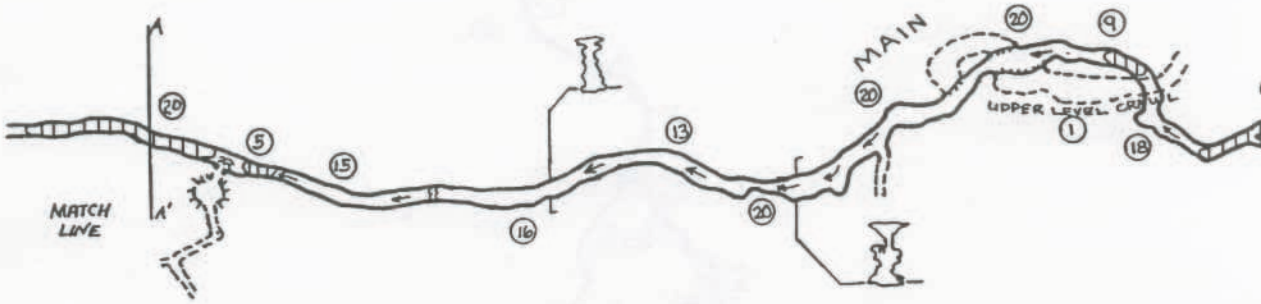
Compass and tape survey, 1964
Bill Andrews, Ray McAdams,
Martin Traugett, Gerald Tuggle

Field revision, Wm. Duke Hopper, 1991
Redrawn, Larry Petersen, 1992
Surveyed length: 5,411 feet



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SCULPIN CAVE

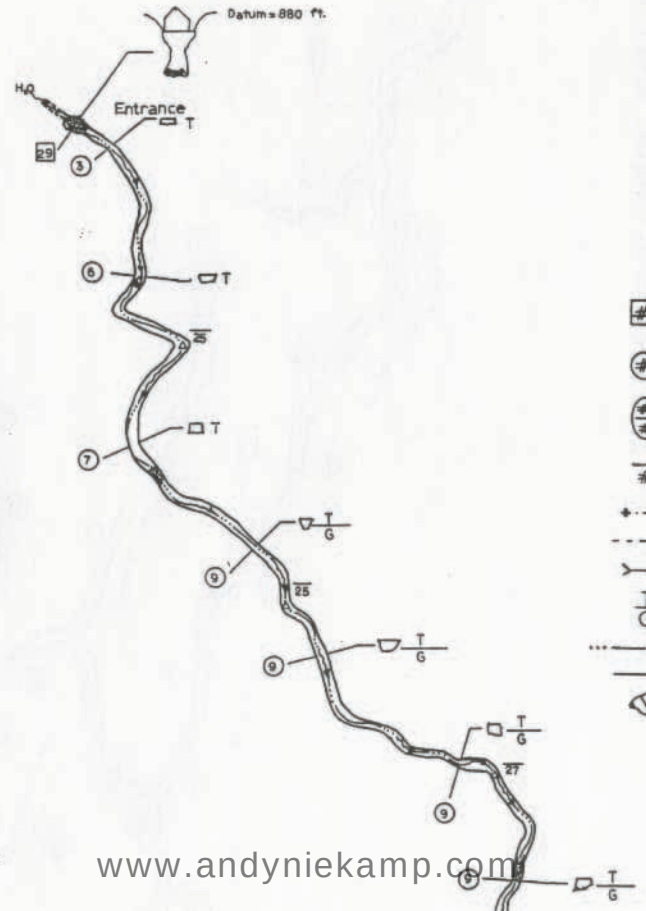
Mercer County, Kentucky HRDB CC 0.76 5.80

Surveyed 1978-1979 by:

Wm. Duke Hopper	Don Pollock
Terry Anderson	Charles Conn
Lance Barron	Richard Kent
John Barnes	Al Lacazette
Charles Bishop	Tom Sutherland

length 7053 ft., depth 70 ft., relief 70 ft.

Lexington Limestone, Mid-Ordovician



Legend

- vertical drop, depth
- passage height (air filled)
- air / water
- ceiling (below datum)
- vertical joint
- normal fault
- barite-fluorite vein
- T / G — contact between Tanglewood(T) and Grier(G) Mbrs.
- intermittent stream
- small stream
- pool



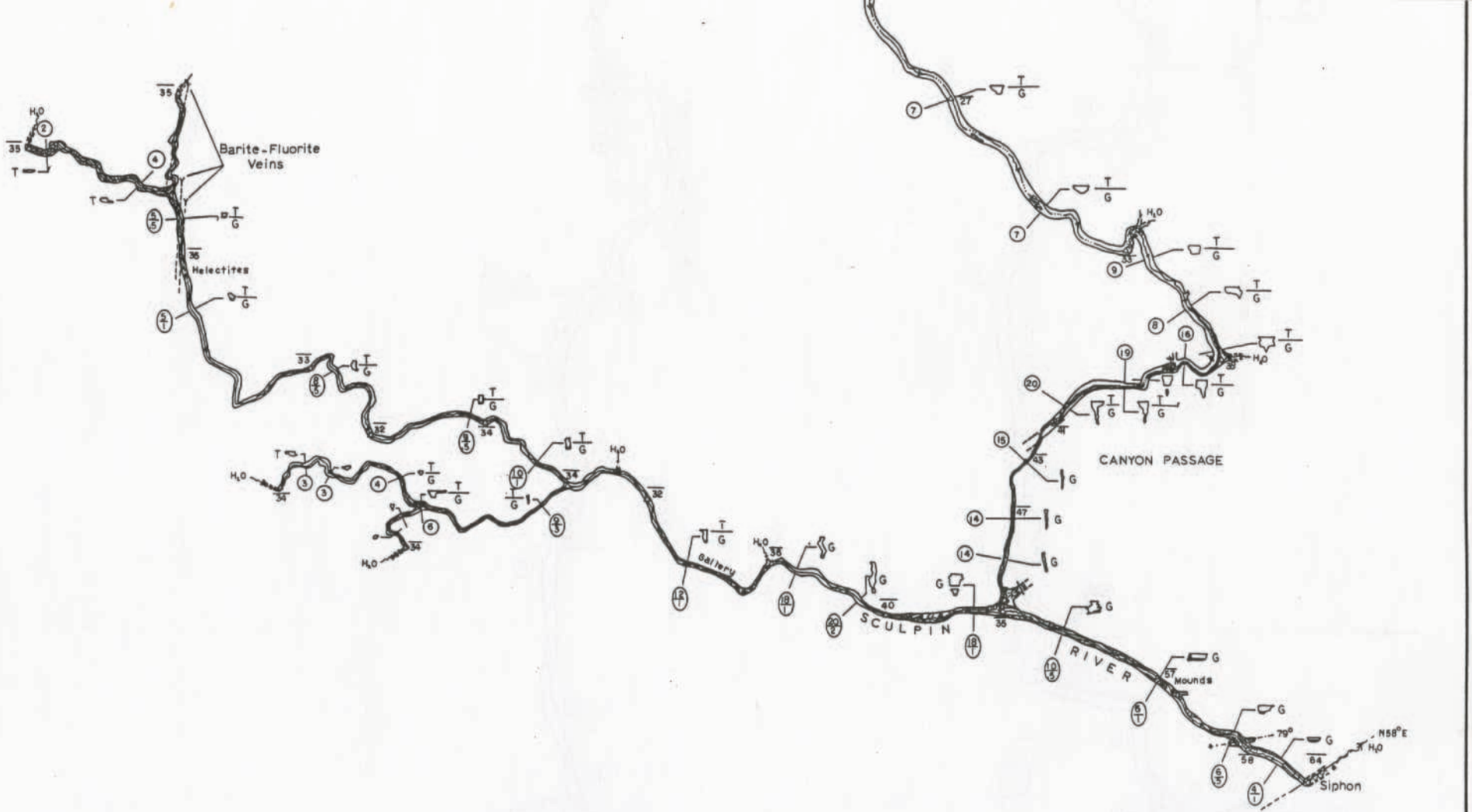
Scale in Feet

0 100 200 300

passage x-sections twice map scale

magnetic declination +1.70°

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rial. A conservative collection of black coating material was made. Coating was scraped from the surface of fluorite crystals and subjected to X-ray diffraction. Two peaks were obtained at 37o and 66o. Being uncertain as to the identity of this mineral, I forwarded a sample to Dr. George Moore. Dr. Moore positively identified this material as Birnessite ($(Mg,Ca,K)Mn_7O_{16}H_2O$). Dr. Moore also noted that many current investigators are considering material like this to be a separate phase, delta-MnO_2, and recently the name vernadite has been applied to it (G. Moore, personal communication, 1979).

We hope that visitors to Sculpin Cave enjoy their trip. The Blue Grass Grotto regrets that only a limited number of people will be able to visit this cave during Speleofest. If anyone would like to visit this cave in the future, please contact the Grotto at the address in this Guidebook. Our relationship with this cave owner is very good, and we can easily arrange trips to this cave with permission from the owner. To do otherwise would jeopardize access to this outstanding cave to all cavers in the future.



Terry Anderson and John Barnes take a break in the upstream section characterized by Tanglewood Limestone. Photo: William Duke Hopper, 1979.

REFERENCES

Allingham, J. W. 1972. Geologic Map of the Harrodsburg Quandrangle, Mercer and Woodford Counties, Kentucky. U.S. Geological Survey Geologic Quadrangle Map GQ-1020.

Bryant, W. E., R. Erisman and J. Hockersmith. Sculpin Cave: An Unusual Blue Grass Cavern. Happy Hunting Ground, Kentucky Department of Fish and Wildlife Resources. Jan. 1972: 9-12.

Ellis, B. 1976. Surveying Caves. British Cave Research Association.

Hopper, W. 1986. Hydrogeology of Southeastern Mercer County and Northeastern Boyle County, Kentucky. Masters Thesis, University of Kentucky. Lexington.

Hopper, W. and J. Thrailkill. 1983. The lack of influence on lithology and structure on the development of a karst aquifer. (Abs). Abstracts with Programs. Geological Society of America, 15: 252

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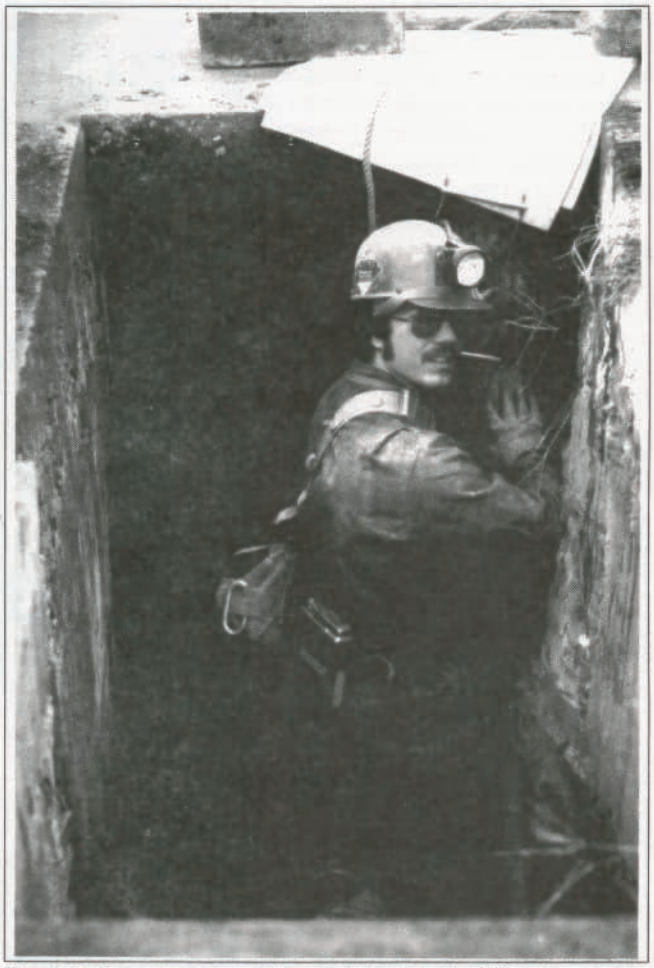
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Stringtown Cave

William Duke Hopper
NSS 15832

Stringtown Cave is located approximately 1.2 miles northeast from Harrodsburg, Kentucky. The cave entrance is a vertical shaft, covered by a concrete slab, in the center of a mobile home court. The owner and manager of the trailer court have had numerous problems in the past with people visiting the cave unannounced and without their permission. The Blue Grass Grotto has obtained permission to enter this cave for Speleofest. It is very important that visitors be courteous and do not disturb any of the residents of the mobile home park. Please follow the instructions of your trip leader, so that our cooperative relationship with this cave owner may continue. An aluminum ladder will be provided for descending the pit into the cave below. The visitor is cautioned that a stream flows the length of the cave. Water depths may vary from 0.5 to 3 feet. Wetsuits are not needed, but do dress warmly. Please note that the cave entrance does not offer a place to change clothing, so be prepared beforehand.

Stringtown Cave is developed in the Tanglewood Member of the Lexington Limestone Formation of Ordovician Age. The Tanglewood Member is generally phosphatic, fine to coarse-grained, bioclastic, generally well-sorted, and cross-bedded in part (Allington, 1972). A Grade 5, Class D survey (Ellis, 1976) of the cave was conducted during 1978 and 1979 by members of the Blue Grass Grotto. A total of 4077.1 feet of northeast-southwest trending, meandering stream passage was mapped. The stream flowing through this cave has been positively traced to Big Spring, located 5,200 feet southwest from the cave entrance (Hopper, 1986). Like many other caves and springs in the Inner Bluegrass, Stringtown Cave was once a source of domestic water supplies. At three locations in the cave, water well casings penetrate the conduit.



Don Pollock prepares to descend a cable ladder into the 27-foot deep entrance shaft of Stringtown Cave. The entrance is located in a mobile home park. Photo: William Duke Hopper, 1979.



Stringtown Cave, like many caves in the Bluegrass Region, was once used as a domestic water supply. Lance Barron and Larry Spangler inspect one of three well casings present in this cave. Photo: William Duke Hopper, 1979.

The cave entrance is a vertical shaft approximately 27 feet deep. A substantial pile of rubble rises from the floor to within 15 feet of the surface. The entrance pit breaches the conduit about midway in the course of the surveyed passage. Upstream from the entrance 1,798 feet of passage were surveyed, and downstream from the entrance 2,287 feet were surveyed. The limits of the survey do not

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STRINGTOWN CAVE

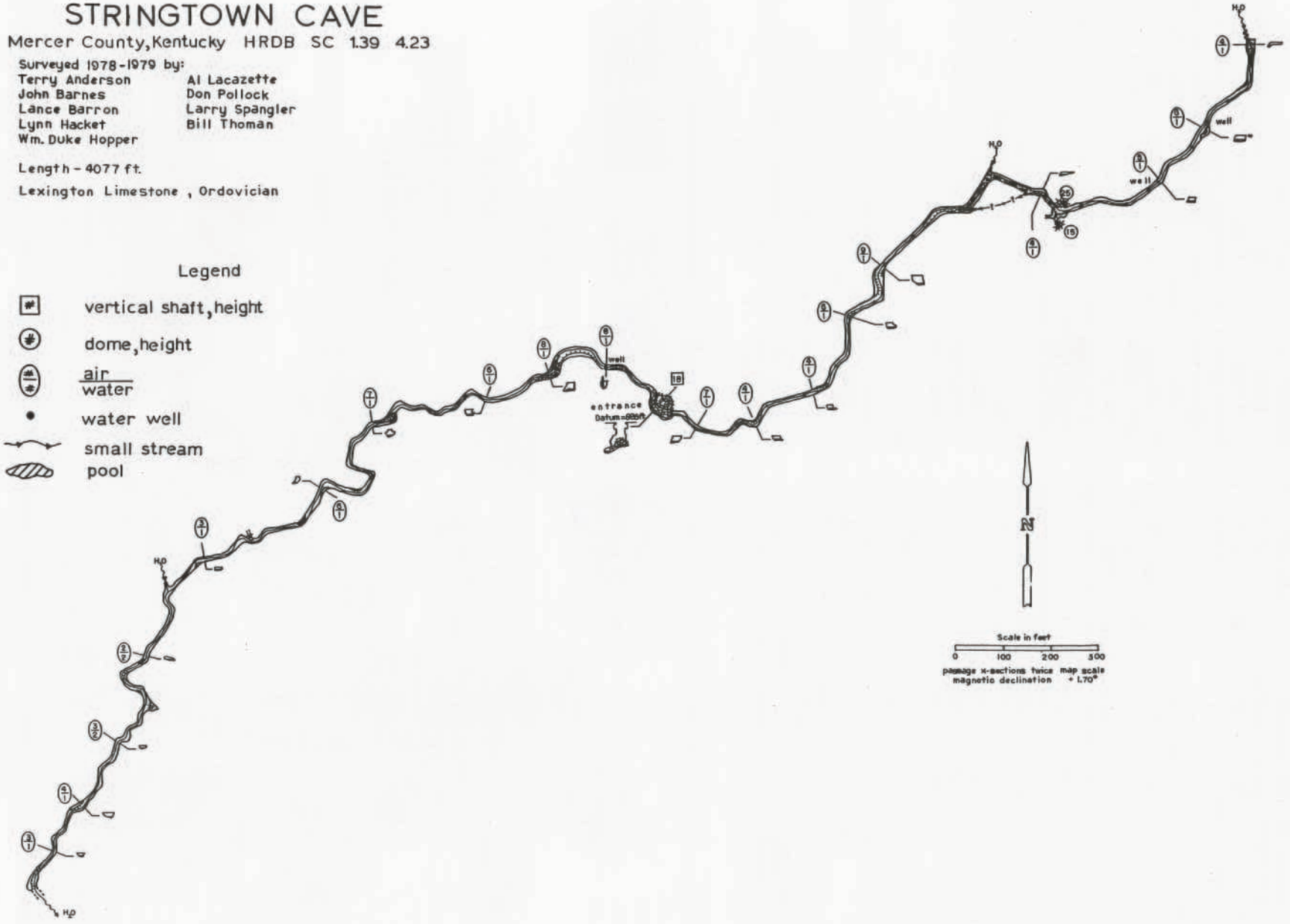
Mercer County, Kentucky HRDB SC 1.39 4.23

Surveyed 1978-1979 by:

Terry Anderson	Al Lacazette
John Barnes	Don Pollock
Lance Barron	Larry Spangler
Lynn Hacket	Bill Thoman
Wm. Duke Hopper	

Length - 4077 ft.

Lexington Limestone, Ordovician



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reflect the ends of the cave. At the upstream end the passage continues 4 feet high by 18 feet wide with one foot of water. The downstream section continues past the end of the survey as a passage 2.5 feet high by 12 feet wide, also with about one foot of flowing water. How far these passages extend beyond the surveyed portions is unknown.

Upstream from the entrance, the meandering stream passage averages 6 to 8 feet in height and 10 to 13 feet wide. Although the width remains fairly constant, there is some variation in the ceiling height. Approximately 270 feet from the entrance the passage ceiling drops to 4 feet, and continues at that height for 289 feet. The following 448 feet of passage is of comfortable dimensions, 6 feet high by 14 feet wide. Beyond this section are 120 feet of passage with an average ceiling height of 3 feet, just too low to stoop and seeming too high to crawl through. The width of this portion is 14 feet. The visitor who passes through the crawl will be rewarded with a walking passage and a nicely decorated twin dome complex. This is the beginning of a section 531 feet long with passage 6 feet high by 13 feet wide. In this area the visitor will notice two water well casings. In the past these were used to supply residents of Stringtown with domestic water supplies. The next 90 feet of passage is the final surveyed portion of the upstream section. The width remains constant at 13 feet, but the ceiling height again drops to 4 feet. The poker chip that once marked the end of the survey may still be present. Please feel free to continue caving beyond this point.

Downstream from the entrance pit, there are over 2,280 feet of meandering stream passage, ranging in height from 4 to 7 feet and in width from 7 to 11 feet. Passage dimensions in the downstream section are fairly uniform. Throughout the first 1,000 feet downstream, the passage remains 6 to 7 feet high and 9 to 11 feet wide. Approximately 185 feet from the entrance another water well casing may be seen as it penetrates the conduit. Beyond the first 1,000 feet downstream, passage dimensions decrease slightly. The following 1,280 feet of passage range from 4 to 5 feet high and 7 to 10 feet wide. Beyond the surveyed portion, the passage continues at 2.5 feet high and 12 feet wide. As in the upstream section, feel free to push the passage downstream as far as your fortitude allows -- what lies beyond is unknown!

REFERENCES

Allingham, J. W. 1972. Geologic Map of the Harrodsburg Quandrangle, Mercer and Woodford Counties, Kentucky. U.S. Geological Survey Geologic Quadrangle Map GQ-1020.

Ellis, B. 1976. Surveying Caves. British Cave Research Association.

Hopper, W. 1986. Hydrogeology of Southeastern Mercer County and Northeastern Boyle County, Kentucky. Masters Thesis, University of Kentucky. Lexington.



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WOODFORD COUNTY



Dry Ridge Cave

James C. Currens NSS 13110

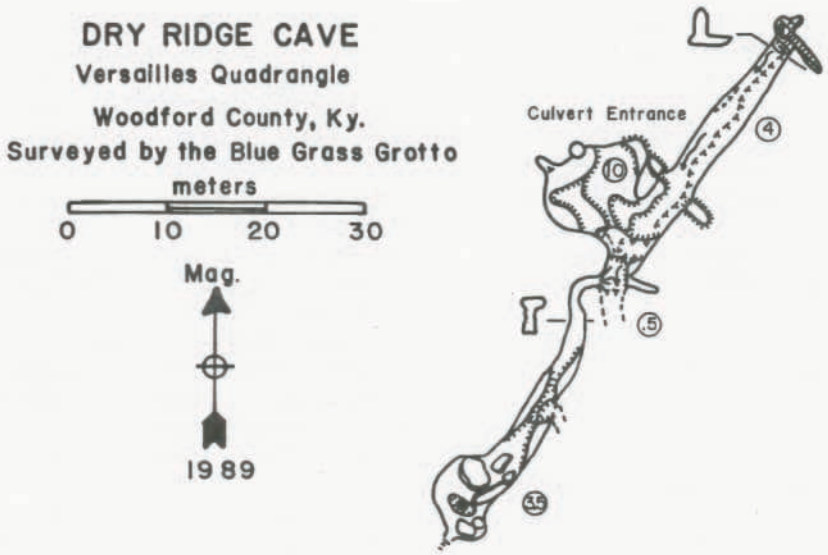
Dry Ridge Cave made its debut to modern caving in 1988 with its discovery by Blue Grass Grotto member Herb Gilkison. The entrance was in a small sinkhole on the shoulder of a rural road. Initial explorations revealed a shallow pit leading to several hundred feet of walking passage, with a promising lead into a stream crawlway. BGG members surveyed the upstream section of the cave in December, 1988, on an evening trip, but interest faded thereafter. The cave was resurveyed in December, 1989, and was completely mapped at this time except for the stream lead. Interest in further surveying faded again, and although the crawl has been pushed for about 150 feet, it remains unsurveyed.

The Woodford County Road Department planned to seal the entrance, believing it to present a hazard from its location beside the roadway. Stuart Butler of the BGG convinced the Department to allow the Grotto to gate the entrance instead, and for the Department to supply the heavy equipment and most of the materials. A corrugated steel culvert was placed vertically in the entrance during autumn, 1989, and the sinkhole backfilled. The Grotto was not, however, given a choice as to the type of gate door.

The entrance is across the road from the entrance of the farm shop for Sycamore Farm. Leave your car in the parking area for the farm shop and cross the road to the entrance along the fenceline. DO NOT enter other areas of Sycamore Farm, on foot or by car, as you may be arrested for trespassing! The road beside the pit entrance has a surprisingly high traffic flow, so be very careful. DO NOT cross the fence! The lock on the gate is very stiff but persistence will pay off. To more easily remove the shackle from the hasp, stand on the door. When you leave, be certain to leave the lock in the hasp, unfastened.

The entrance requires 60 feet of rope, or 40 feet of cable ladder with 20 feet of rigging, to reach from the edge of the pit to the rig point. Be certain to rig to the best available tree, not to the fence! It is important to securely tie the door open and carefully pad the edge of the culvert. A guard to provide security for the rope is suggested, as the entrance is clearly visible to passers-by on the road. The short drop through the 30-inch diameter culvert opens into a shaft complex with the rope along the wall. At the bottom of the pit, a debris pile slopes toward a small walking canyon passage, in which a stream flows. Upstream, the passage ends in a siphon after 150 feet. Downstream, the passage splits. A low, unsurveyed stream crawl continues ahead. Up and to the right, the upper component of the canyon leads to another 200 feet of walking passage. Decorations are sparse but the general character of the cave is interesting.

Driving directions may be obtained at the registration table.



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Webber's Cave

Jim Greer
NSS 21448
William Duke Hopper
NSS 15832

Webber's Cave ranks as one of the longest in the Inner Bluegrass, with 5,411 feet of surveyed passage. Although this is not particularly long by standards elsewhere in Kentucky, the cave certainly is one of the more interesting in the region, and not difficult to explore.

The upstream entrance is located in a rather obscure and shallow sinkhole in a field. This entrance is a small, tortuous, steeply sloping chute through breakdown. From this a short crawl over flowstone leads to a "T" intersection, dropping down a few feet to the cave stream. Upstream from the intersection (to the right), the passage quickly ends in fill. The major portion of the cave is downstream, beyond a short climb over some breakdown. The main stream passage is initially of walking height, but soon lowers to a comfortable hands-and-knees crawl that continues for a few hundred feet and then opens up again to walking passage. A short side passage is encountered about 450 feet from the entrance which quickly ends in fill.

The first major side passage is on the left nearly 1,000 feet from the upstream entrance. Although the visitor must initially climb out of the main stream to gain access, the side passage drops down into a tributary stream. This passage forks about 100 feet from the main stream into an upper level lead to the left and a lower canyon to the right. The left hand lead soon lowers to a crawlway and eventually terminates in breakdown. The canyon to the right gets very narrow. To negotiate this often requires climbing 25 feet up to the ceiling and alternately descending to the stream to belly crawl through the water. This section continues for 500-600 feet. Beyond this point, the ceiling becomes VERY unstable and no further penetration should be attempted! Previous explorers have had shale collapse on them or around them in this location. For your own safety please avoid this area.

Returning back to the main passage and continuing downstream, the passage dimensions enlarge considerably for most of the remainder of the cave, ranging from 15 to 20 feet in height and width. There are some interesting flowstone and drapery decorations encountered now and then in this section. After travelling nearly 2,000 feet from the stream junction, the passage expands out into a large room. The ceiling height here is nearly 30 feet. A number of impressive draperies, stalagmites, and columns can be seen here. A short climb up from this room leads to a well-decorated side passage. EXTREME CARE must be used in this area to avoid tracking mud on the flowstone and rimstone or otherwise damaging them.



Throughout most of Webber's Cave, the stream passage is of large dimensions and affords easy travelling. Photo: Jim Greer, 1992.

The exit from the large room is made by following the water downstream through a rather nasty canyon, half-filled with water. Negotiating this final section of the cave requires getting thoroughly wet. To add to the sporting nature of this section, two nearly invisible water-filled pits must be traversed. The unsuspecting caver is liable to receive a complete immersion. Once past this area, a short belly crawl over breakdown leads to the spring entrance. This entrance is very photOgenic and affords a fine view of the valley below.

Webber's Cave is developed within the lower 25 feet of the Grier Member of the Lexington Limestone of middle Ordovician age. The swallet entrance occurs at an elevation of 775 feet, and the lower spring resurgence, some 3,100 feet northwest, is

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LEFT: Although most of the passages in Webber's Cave have few decorations, this drapery midway in the main stream passage would be an impressive speleothem in any cave. Shown are Christine Gerace and Landrum Haddix. Photo: Gary O'Dell, 1986.

For Webber's Cave map, see foldout

BELOW: John Barnes and Duke Hopper emerge from the spring entrance to Webber's cave, cleaned and refreshed from a final crawl in the cave stream. This "back door" to the cave was the only known entrance until a few years ago, and is a very attractive locale on the hillside above Clear Creek. Photo: J. Greer, 1992

perched on the Logana Member of Lexington Limestone at an elevation of 750 feet. The lower Grier Member is a light gray, poorly sorted, fossiliferous, irregularly bedded limestone with irregular sets of nodular bedded layers ranging from 0.1 to 2 feet thick, separated by shaley partings (Cressman, 1968). The underlying Logana Member is 20 to 28 feet thick and composed of thin layers of interbedded argillaceous limestone and shale. The Logana Member is known to function as an aquitard throughout the Inner Bluegrass Region (Thrailkill, et. al., 1982).

This cave is particularly interesting from a geomorphological standpoint. The cave is located in the Nonesuch Abandoned Channel of the Kentucky River (Jillson, 1946). Uplift of about 800 feet during the Pliocene and Pleistocene brought to an end the erosional cycle that created the 1,000 foot plateau level that marks the course of the Cincinnati Arch across Kentucky. Rejuvenation began with the uplift and continued well into the latter part of the Glacial Epoch. This has caused the Kentucky River, with its graceful meanders established earlier on the surface of the Lexington Peneplain during the Miocene, to entrench itself some 400 to 500 feet deeper into the Upper and Middle Ordovician rocks. This entrenchment has exposed the oldest rocks to be seen anywhere in Kentucky (Jillson, 1961). In such places as this, channels were abandoned and later filled with Pliocene and Pleistocene age fluvial deposits, such as those which mantle the area over Webber's Cave (Cressman, 1968). It is also interesting to note that the spring resurgence



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to Webber's Cave is perched on the argillaceous Logana Member approximately 150 feet above an abandoned meander of Clear Creek, a tributary to the Kentucky River. This abandoned meander is itself approximately 100 feet above the present day Clear Creek channel.

REFERENCES

Cressman, E. R., 1968. Geological map of the Salvisa Quandrangle, central Kentucky: U.S. Geol. Survey Geol. Quad. Map GQ-760.

Jillson, W. R., 1961. Erosion cycles in central Kentucky. Roberts Printing Co., Frankfort, Ky., 12 pp.

_____, 1946. The Nonesuch Abandoned Channel of the Kentucky River: A study in Pliocene drainage, physiography, and geology. Roberts Printing Co., Frankfort, Ky.

Thrailkill, J. L. E. Spangler, W. M. Hopper, M. R. McCann, J. W. Troester and D. R. Gouzie, 1982. Groundwater in the Inner Bluegrass Karst Region, Kentucky. University of Kentucky Water Resources Research Institute, Research Report 140, 108 pp.

SCHEDULE OF EVENTS

May 22	12:00 noon	Registration opens
	9:00 p.m.-?	Open slide shows
	9:00 p.m.-?	Refreshments available
May 23	9:00 a.m.	Hydrogeology field trip departs (all day)
	9:00-10:30 a.m.	Cave trips depart *
	9:00 p.m.-1:00 a.m.	Party with the *Terminal Siphons*
	1:00 a.m.-?	Party on your own
May 24	9:00-10:30 a.m.	Cave trips depart *
	1:00 p.m.	Daniel Boone Forest Karst Tour departs from Gladie Cabin
	7:30 p.m.	Banquet
	9:00 p.m. (approx)	Speaker: Ralph Ewers
	10:00 p.m.	Door prizes
	?-?	More refreshments
May 25	12:00 noon	Speleofest officially ends

** Some trips will leave after lunch. Check registration*

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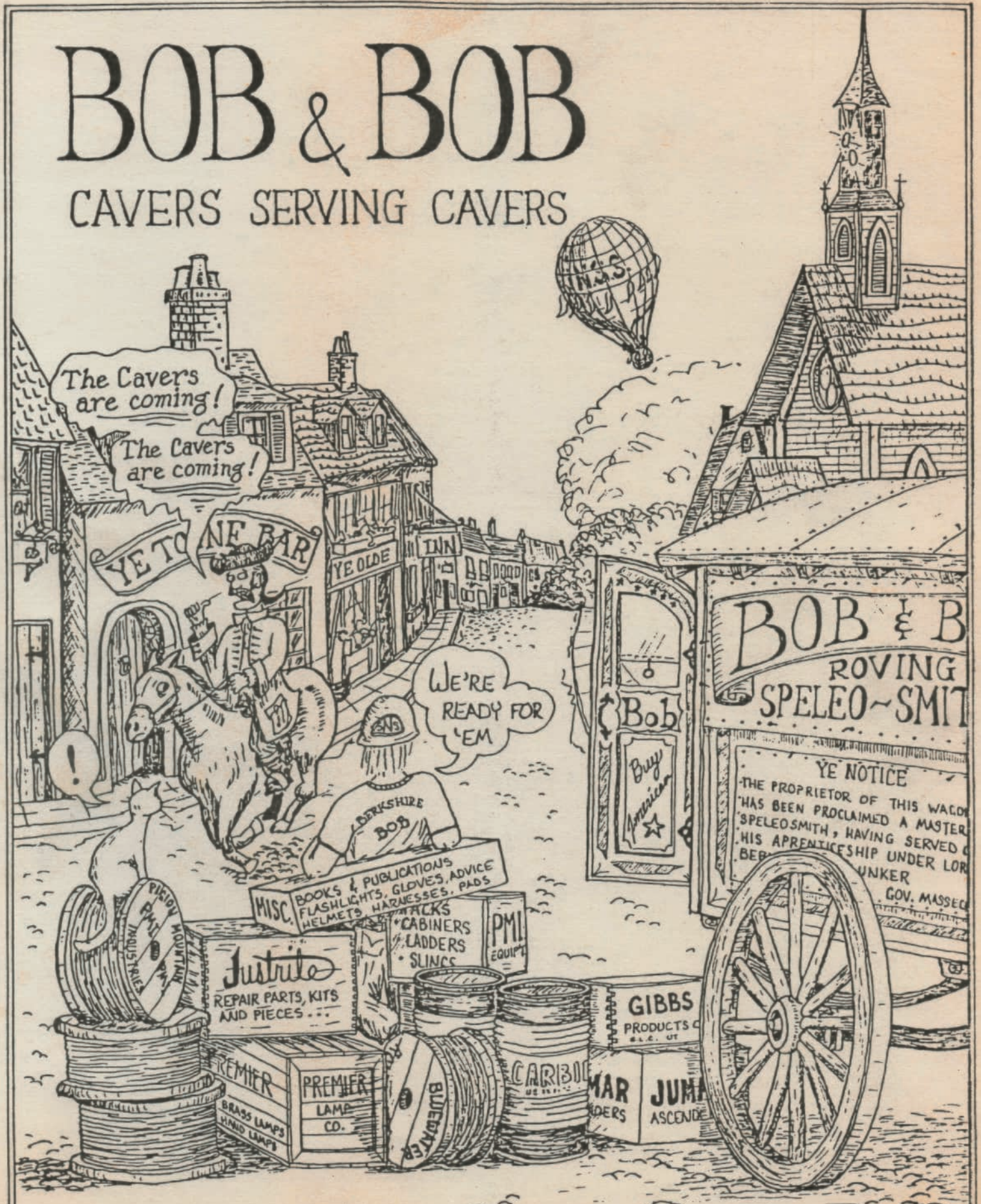
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