
Ohio Cave Survey, Inc.

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## Mission Statement

The purposes of this organization shall be to maintain a collective and current survey database of caves within the state of Ohio, and to further the exploration, research, and conservation of our state's caves.

# SURVEYING OHIO CAVES

BY CURT HARLER

Survey work is in the Ohio Cave Survey's DNA – it's part of our name. To be a good survey, members know they must record as much data as possible, as accurately as possible.

So I became interested in figuring out how many points past the decimal we should go when recording cave lengths. At the moment, most Ohio surveyors (and their equipment) work in feet. However, it is important to know that a fair number of surveys, especially those overseen by Horton H. Hobbs III around 2005-2010 were based on metric measurements.

Does recording an Ohio cave's length with no digits past the decimal, with one digit past or two digits past the decimal make a real difference? With today's optical measurement devices – the Disto and other laser tools – getting accurate measurements to two decimal points is easier than it was with the traditional tape-and-eyeball technique.

Here's the way it works out, given the inch as a basic unit of comparison: a typical Ohio 60-foot cave is 720 inches long (60 x 12). A cave that we record to one decimal point as 60.4-feet long is 724.8 or almost 725 inches long...so we gain about five inches to the cave's overall length. A cave that we record to two decimal points as 60.48-feet long goes into the notebook as 725.6 inches long. The result of recording to two decimal points adds just over a half-inch more. That figures to 0.008 percent of the cave's length. For those who worry about significant figures - well, it isn't.

Let's take a look at a similar situation in Ohio using metric measurements. A cave that we record in meters (let's say another Ohio cave roughly the same size as above), might measure 20 meters.

## Dues Information

Membership is open to all persons and similar-minded organizations interested in speleology and caving.

**Regular (18+):** $15/yr
**Associate (18-):** $5/yr
**Organization:** $30/yr

Dues are prorated (half price) if new and joining between July - November.

Paypal, credit card, or mailed check are accepted. Follow the link below to become a member today!

**Ohio Cave Survey Membership**

## Meeting Minutes

Miss a meeting? The minutes are available here:
**OCS Minutes**

## Links

Central Ohio Grotto

Dayton Underground Grotto

Greater Cincinnati Grotto

Wittenburg University Speleological Society

Cleveland Grotto

National Speleological Society

There are 39.37 inches (to two decimal points) in a meter. So, for comparison's sake, that cave would start out in the notebook as being 20 meters or 787.4 inches long. However, if we record it to one decimal place as 20.4 meters long, it would be 803 inches long - adding a foot and a half to the cave's length. That's something by Ohio standards – but not a lot. Going to two decimal points with metric and calling it 20.48 meters long would give us a cave of 806.3 inches. Going to two decimal points with metric hardly adds anything (3 inches) to the known length of cave.

The story is different with a cave that is 600 feet or 200 meters long (and there are several in Ohio)...but only by about 2.5 feet or about 0.3 percent (three one-thousandths of the length). I think we can live with losing 33 inches of a 600-foot cave, especially given the chance of measurement error by the humans doing the survey. In a 20-station survey (optimistic in Ohio conditions for a 600-foot cave), that is an error of about 1.5 inches per station…or about half the length of my pinky finger.

If we were surveying caves in Tennessee or Kentucky, where cave lengths frequently are in the tens of kilometers – as opposed to our tens of meters -- my argument would be different. Two inches per station on a 1000-station survey is almost 167 feet (or 51 meters) of error. That's a lot…too much error. Ohioans don't have that worry…although we can always hope for that 10-mile cave system!

For now, I'll suggest that we continue to survey and record cave data in feet, and record to two decimal points where practical. That will keep reporting today consistent and will allow future generations the pleasure of dividing our numbers by 3.28 to translate our data from feet to meters.

Vic Fowler strives for total accuracy while surveying in Fern Cave

# CAVE DEVELOPMENT AT THOMPSON LEDGES, GEAUGA COUNTY

BY FRANK VLCHEK


While searching for some caves at Thompson Ledges in Geauga County, I discovered some undocumented caves as well as the ones I was looking for. In the process of recording GPS coordinates and cave length, I was struck by and became curious about the different ways this group of caves had developed. Thompson Ledges is typical of the remnant outcrops of Sharon Conglomerate sandstone at the higher elevations in northeast Ohio. Many of these outcrops contain small caves. Thompson Ledges has its share of these caves.

**Figure 1**

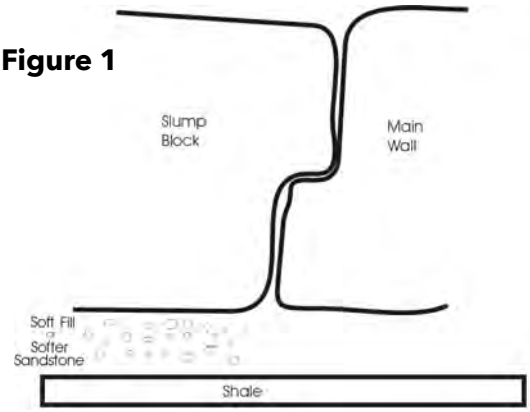
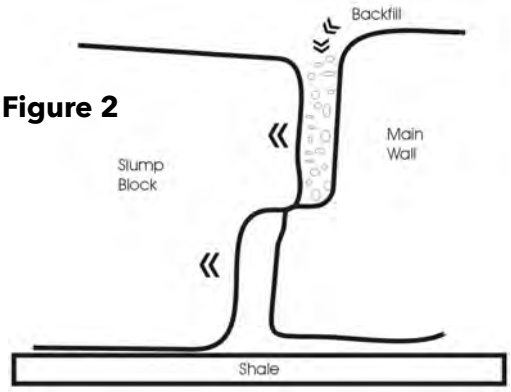



**Figure 2**

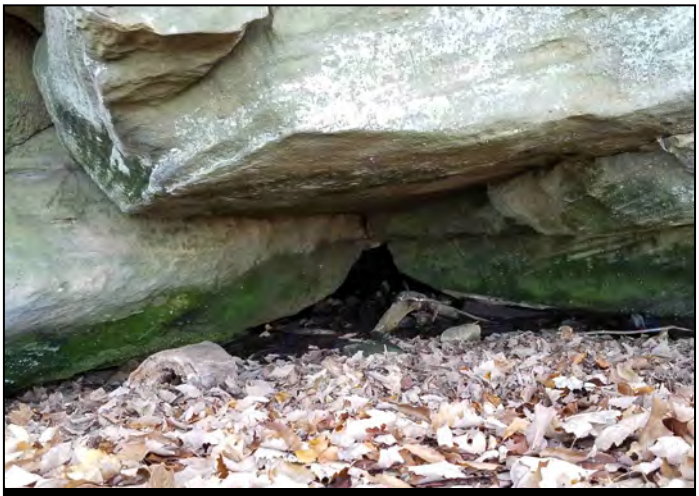



Thompson Ledges Cave

The first of these caves is named Thompson Ledges Cave (a.k.a. Dead Man's Cave). It is what is termed a fracture cave, meaning the cave is developed along a fracture in the rock formation. It is about 44 feet long and contains a large number of crickets and some Cave Orbweaver spiders and Daddy Longlegs. It's been theorized that it was formed during the last ice age. At that time, the weight of the glacier caused a section of the main rock outcrop to crack. The piece from the crack to the outside edge of the formation becomes what is termed a slump block. In this case, the fracture is not straight through the rock but zigzags (see figure 1). Below the conglomerate rock is a hard shale layer sometimes with a softer sandstone layer sandwiched in between. Over time, the large slump block moved away from the main formation, most likely from the movement of the glacier or from the softer sandstone layer eroding away from the melting of the glacier allowing the block to slide and settle downhill. Interestingly, with Thompson Ledge Cave, the zigzag crack formed the flat ceiling of the cave after the slump block moved (see figure 2). The part of the crack exposed to the surface above is eventually filled with debris.

Another nearby cave named Right Angle Cave is formed in a similar way. But in this case the slump block moved but the upper portion of the slump block stayed in contact leaning back against the main formation. Here, the ceiling is where this contact of the main outcrop and the slump block remains and forms a tall triangular shaped passage.

Right Angle Cave



Frank's Crawl

A third cave, dubbed Frank's Crawl, is a wide low rock shelter type cave 14 feet deep that continues along a fracture in the back wall for another 18 feet until pooled water meets the ceiling. This cave quite likely is an example of a softer layer of sandstone beneath the harder conglomerate eroding away. One would have to dig down through the loose floor debris to see if the shale layer is the true floor of the cave. Frank's Crawl is similar to the description of another nearby cave named Dead Dog Cave. A 1974 report by Larry Lynch describes Dead Dog as a wide rock shelter with Sharon Conglomerate ceiling three feet above a shale floor with a sandstone layer between and a small passage extending from the back too small to enter. I located Dead Dog but unfortunately it has suffered from a collapse and subsequent backfill.

Yet another differently developed cave found, I called Sidley's Talus Cave II. It was formed when the slump blocks totally broke away from the main formation and piled up on each other. In New England they call these caves purgatories. This example is 18 feet wide and twenty-one feet deep with a 6 foot wide entrance. Two other small entrances prevent this cave from having a zone of darkness although that may change seasonally when winter snows pile up and cover the two smaller entrances.

Although small, this group of caves is significant for the area providing an environment for a variety of biota. And the different ways these caves developed in a single outcrop of rock is quite interesting.

Sidley's Talus Cave II

**IN CASE YOU MISSED IT**

The last meeting of 2023 was an in person/virtual meeting held at Ohio Caverns in October and was a lively success. Even though it was lightly attended, we had some enthusiastic discussions following a great presentation by the ODNR's Erin Hazelton. We will try to hold another in person meeting in the near future.