


# Mapping Cassell Cave, WV

## A survey trip with the Gangsta Mappers

September 16, 2000 (part 1)

"Boy you're tall! You must be a climber..." -- Miles Drake

 I've been caving recreationally for some time now and it was with great excitement that I geared up for my first serious caving venture. Caving with a purpose, if you will. The [Gangsta Mappers](#) had again turned out in force to continue the mapping of Windy-Cassell Cave in Pocahontas County, WV. Cassell is a large cave at least 6.6 miles in length (according to a rough survey from the mid-60's) with at least four entrances of assorted flavors. Prior to this, the fourth survey trip into the cave, 2.43 miles of passage had been mapped in beautiful, glowing, computer-aided detail. But there were still probably five miles to go, much of it deep in the interior beyond tight crawls or vertical work.

Friday night, during the requisite [milling about](#) and map meditations, the GH survey team had been established consisting of Devin Kouts, Rafi Reyes, Mark Kochte and myself, the rookie of the group. The other three had worked together before and I know Rafi and Mark well from the climbing community. Apparently, cavers come in three types; mud-puppies, lizards, and monkey-boys. Being a trio of monkey boys, we were to concentrate on sections requiring climbing and vertical work, which was fine with me. Our mission was to connect the G and H surveys and replace the rope on the Window Climb. While it's a pretty short piece of cave, this ties together two large sections of the survey and connects the entrances to each other.

By 10:30 the next morning, we had suited up and slid through the Windy entrance. By some stroke of luck or maybe because I was the new guy, I got to carry the new rope and the cable ladder as well as my overstuffed cave pack. Oh joy! Right off the bat, we rigged a 15' climb with the cable ladder (thus lightening my baggage count by one) for other, less vertically inclined parties to follow on. Then, at great speed, we traversed narrow passage. 450 feet in, we dug up another cable ladder from under some stones and I chimneyed my way out to rig it from a bolt. We sashayed down the wide Times Square under and over massive blocks and natural bridges. From there on, the passages became lower and much crawling ensued. We slithered around a tight ledge on the edge of a pit complete with loud waterfall and emerged on the other side near the Shazam Chute. Then more canyon walking and scrambling down a few more drops, some with webbing or ropes, some without, none requiring gear.

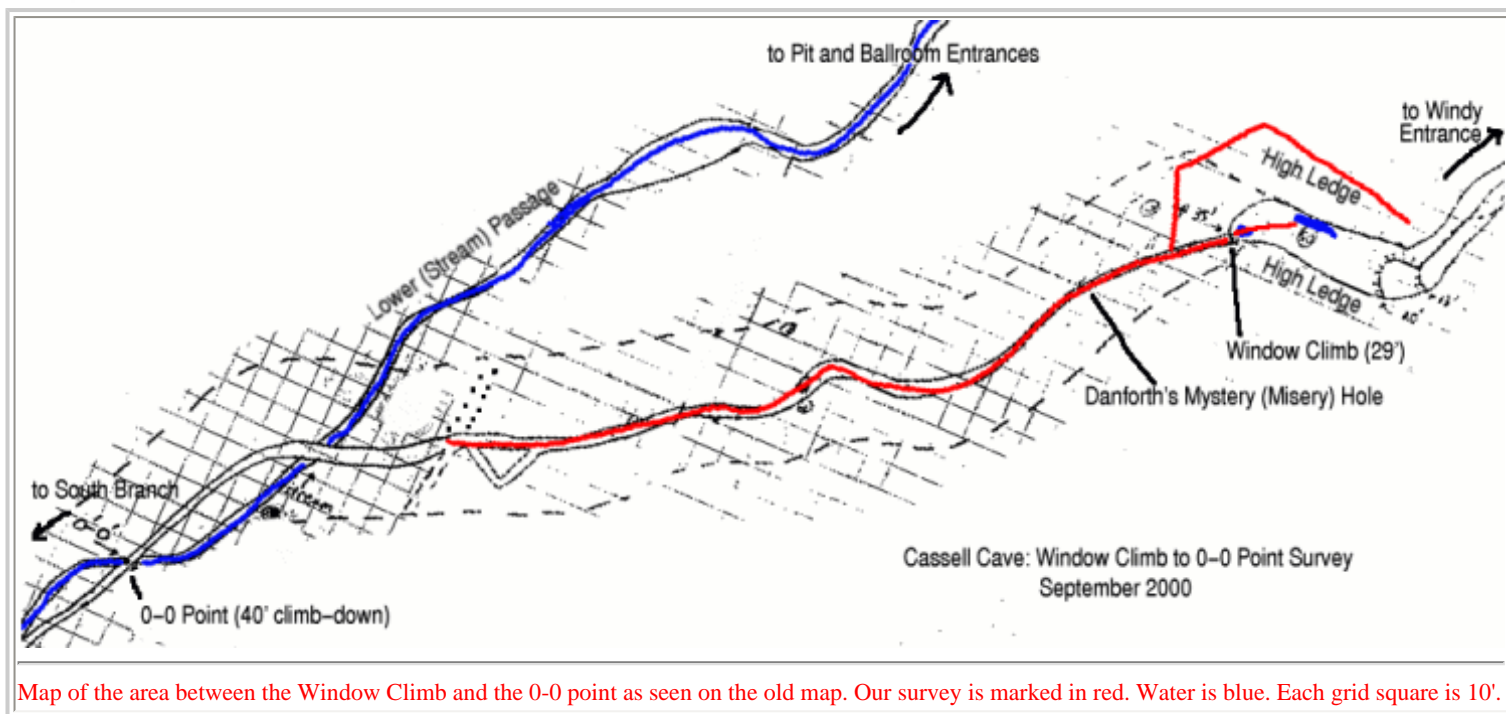


Gordon Birkhimer's photo of the Windy entrance. There are lots more pictures from previous trips and of surveying and general [here!](#)

At length, having broken a slight sweat, we descended a series of tricky chimneys into a large chamber perhaps ten feet wide and thirty high with a small waterfall and high ledges. At the far end was the Window Climb, the start of unsurveyed territory. A rope dangled down the far wall and disappeared up through a tight hole (the Window) to the passage above. Being a [rock climber](#), I usually rely on rope only as a safety and ascend with hands and feet. But being in a cave, faced with a potentially deadly fall, we donned harnesses and ascenders and climbed the rope. I had borrowed parts for a frog system from Rafi and had, as they say, a strong theoretical base. But some difficulty was had in applying this theory--I need to practice this a bit!

While the three of us settled down for a bit of lunch, Devin slithered out to the lip of the drop to install a new bolt. We had heard that people who know what they're doing can install a bolt in 15 minutes or less. However, amongst the four of us, we had installed zero bolts and even swapping out pounders to restore circulation to limbs, it ended up taking an hour and a half. Rafi took pictures of everything which, along with cooking sumptuous post-cave meals, is what he does best. Finally the bolt was in. The old rope turned out to be new, so we just re-rigged it from the new bolt so it hung free of the wall. I bundled up the rope I had hauled all

the way in to haul all the way back out again. Llllllovely!



Map of the area between the Window Climb and the 0-0 point as seen on the old map. Our survey is marked in red. Water is blue. Each grid square is 10'.

The surveying started a little ways further on near the 0,0 Point where the two sections of cave finally intersect. Our first station was in a series of multi-level canyons. Designated HZ15, it was the final survey station for survey HZ from August. Surveying tasks were assigned: Rafi and Mark would do the shots, I would sketch profiles and record the data, and Devin, elected as most artistic amongst us, would sketch.

The process is entirely fascinating and worked something like this: Mark would find a prominent rock or protrusion to use as a survey mark and would set up the tape measure on it. Rafi, at the previous station, would pull the tape tight and measure the distance. Then, using accurate compasses and clinometers, Rafi would measure the azimuth and inclination from his station to a flashlight resting on the forward station. Mark would then measure the back azimuth and back inclination to a flashlight resting on Rafi's station. I would record the numbers and make sure that they matched to within 2-degrees, which they did about two thirds of the time. If they didn't, readings were repeated until they matched. Meanwhile, I would record the distance of each station from the floor, ceiling, left and right walls and draw a profile of the passage to scale in my notebook. This sounds pretty straight forward and it is provided you're in nice walking passage like



but most of the passages we were in looked like



in cross section, so my job was often challenging and was never boring. At the same time, Devin was scampering around sketching a detailed qualitative map of the area marking down survey points and salient features. When all the data is entered into the computer, a line in three dimensions traces out the passages of the cave with high accuracy. The sketches and profiles are then scanned in and morphed to fit the line. The result is a beautiful map, much more accurate than those of past decades.

What was shown as a five foot wide passage on the old map was, in fact, a bedding plane collapse with a five foot wide walking passage flanked by dozens of feet of 6-inch-tall space. However, the passage was largely straight and simple, so we did 9 "shots", some of them rather longer than the recommended 25' maximum (let's put it this way, our 50' tape wasn't always long enough). A couple side passages, including one almost-virgin passage Devin found, await surveying attention, but we stuck to the straight and... well... wide main corridor.

At the ninth station, almost back to our bolt and the end of the run, Devin appeared out of a crevice in the wall and announced he'd found a crawl that lead out to the ledges overlooking the large chamber below the climb. So we crawled into a 18" tall by very wide space and surveyed a few more stations out onto large balconies. Going back to station 9, we did one more shot to our new bolt, one straight down, and then one to the last GG station, thus tying the H and G surveys together and connecting the cave! I was the last

to rappell down from our new bolt (we all made Devin go first since he placed it!) and was shocked to see that my aluminum figure-8 rap device had aquired a noticable groove in it cut by the muddy rope. Yikes!

Feeling pretty tired but pleased at completing our mission, we worked our way back the 1100 feet past Times Square to the shorter cable ladder I had rigged on the way in. We dumped our baggage and kept going. Walking in large canyons brought us to the beautiful Pond area. Simply gorgeous! We laid some pink tape down on the floor to define a path through the largely untrammelled formations on the floor. Better to sacrifice one section than the whole. The walls were about ten feet apart and the ceiling thirty or more feet overhead. Great curtains of flowstone and stalactites hung above. Large rimstone pools sat on the right and filled with water so clear you can barely see it. Around a bend we found the largest pool of all backed by cascading flowstone and formations. Another party had waded through earlier that day, so the water was sadly clouded, but Rafi took some photos and headed back.

At length, we made it back to the entrance and emerged into the chilly West Virginia night ablaze with stars and a brace of meteors. The time was quarter to nine giving us over ten hours in the cave. We hurried back to Cass and to the crockpots of waiting Chicken Fricesees put up by Cat and Rafi earlier in the day. Pure heaven!

The process of surveying was completely fascinating to me and I can't wait to get out and do more; particularly the couple of interesting leads we turned up in section GH. Caving with such an accomplished crew was a great pleasure and definitely a step up in intensity and physical exertion--never mind time-in-cave--from my previous experiences. I seem to have passed everyone's criteria and was invited back for more in November by all and sundry. Look for another trip report then!

---

[| Next Survey Trip |](#)

---

Report from Bob Zimmerman 9-21-00:

Howdy all,

Just note to fill everyone in on some results from the past weekend's survey trip to Cassell. All the data has been entered, and we have now surveyed 3.29 miles!



[The Home Cave](#)



[Neithernor](#)

---

[Charles Danforth/ danforth@pha.jhu.edu/](#) Last Updated Feb 19, 2001