

BIRMINGHAM GROTTO

NEWSLETTER

NOVEMBER 2009

VOLUME 39

NUMBER 10



BGN Calendar

NOV 5	The Birmingham Grotto Meeting begins at 7:00 PM, at the Home-wood Library, 1721 Oxmoor Road.
NOV 6 NOV 8	NSS Board of Governors Meeting at Birmingham Zoo Lodge. See Scott Fee or Scott Parvin for more information.
DEC 3	The Birmingham Grotto Meeting begins at 7:00 PM, at the Home-wood Library, 1721 Oxmoor Road.
JAN 7	The Birmingham Grotto Meeting begins at 7:00 PM, at the Home-wood Library, 1721 Oxmoor Road.

Thanks to Scott Fee for assistance in maintaining the BGN Calendar.



Dave McRae outside Big Laurel Creek Cave.



Alan Cook on the catwalk at Bridge Day 2009.

Disclaimer

Caving trips posted are led by volunteers. No grotto committee reviews any trip leaders' qualifications. New cavers should inquire about the nature of the trip and the experience of the leader in advance. Those participating in the trips should be aware of their limits. On vertical trips all participants are expected to supply their own gear and be knowledgeable about rigging and safe practices.

The *Birmingham Grotto Newsletter* is published twelve times a year by the Birmingham Grotto, Inc. of the National Speleological Society, Inc. Other NSS Internal Organizations may reprint material provided credit is given to this publication and the author.

Annual dues are \$15.00 per individual and \$20.00 per family which is payable on October 1st. Dues are prorated for anyone joining during the year. The subscription rate is \$15.00 per year. The Birmingham Grotto will exchange publications with other NSS Grottos. Exchange newsletters should be sent to:

Birmingham Grotto
PO Box 55102
Birmingham, AL 35255

Articles, Trip Reports, Graphics, Poetry, and any other speleo-related material should be sent to the Editor via email at the address noted below. Naturally, the Editor will accept typed text in practically any form; however, electronic submission reduces the risk of typographical errors. Submissions via e-mail should be directed to: editor@bhamgrotto.org. The deadline for publication is the 20th of the month; however, the Newsletter is limited to 12 pages and often fills up quickly.



On the cover...

Big Laurel Creek Cave.
(Dave McRae)

Birmingham Grotto Meeting Minutes
October 1, 2009

Birmingham Grotto Officers
President: Scott Parvin, NSS 29279 RL, FE scott@scottparvin.com (205) 568-1612
Vice President: David McRae, NSS 51358 RE (205) 616-1490 dirtydaves@bellsouth.net
Secretary: Scott Fee, NSS 19797 LF scottfee@bellsouth.net
Treasurer: Daniel Wood, NSS 57671 RE fdw@kullmanlaw.com (205) 249-4632

Newsletter Staff
Editor: Toby B. Kemp, NSS 37091 editor@bhamgrotto.org (205) 903-1211
Publisher and Membership List: Valerie Howell, NSS 18128 FR vdshowell@yahoo.com
Proofreaders: Julie Fee, NSS 47637 caverjules@bellsouth.net Scott Fee, NSS 19797 LF scottfee@bellsouth.net Valerie Howell, NSS 18128 FR vdshowell@yahoo.com
Archivist: Dave Caudle, NSS 13995 cavers@bellsouth.net
Conservation: Deirdra Hahn conservation@bhamgrotto.org
Webmaster: Jeff Harrod, NSS 37101 webmaster@bhamgrotto.org

Chairman Scott Parvin called the meeting to order at 7:05 PM. We were joined by visitors: Peter "Mudpuppy" Michaud, Brandon Fowler, Jason Weeks, Johnnie Shaneyfelt, Resa Pense (formerly of Little Egypt Grotto), and Celeste Yang who met Resa at TR. Dan Wood was out of town on business so Scott Fee reported that our treasury stands at \$6,609 of which \$209 is pre-registrations for the NSS BOG Meeting.

The September minutes were passed as corrected (Deirdra's name was misspelled). Score: Secretary =6 and Secretary sit-in = 1, Nitpickers who don't read the minutes on the e-group = 2.

Announcements:

- 1) TAG Fall Cave-in will be October 8-11. Alan Cook has volunteered (or perhaps arm twisted?) to cook for the Saturday TAG Meal. Attendees should bring a side dish and expect to pay \$5 per adult. Motion was passed to allocate \$100 for meat procurement.
- 2) Grotto Halloween party will be at Alabama Caverns. Jason Wall volunteered to cook for the evening meal. Attendees should bring a side dish and expect to pay \$5 per adult. Motion was passed to allocate \$100 for meat procurement.
- 3) Guntersville Getaway is the weekend of February 19/20.
- 4) Dale Douglas mentioned that Red Mountain Park has guided hikes monthly.
- 5) Deirdra announced that she had been voted on the SERA Karst Task Force as a Director representing the Birmingham Grotto. The SKTF is a resource organization that can help with clean-ups. Requirements for enlisting their help can be found on their webpage: sktfi.org.

Old Business:

- 1) Scott Fee discussed what was entailed with the upcoming NSS Board of Governors Meeting the weekend of November 6/7. Motion was made and passed to allocate \$300 for the weekend.
- 2) Scott then presented the ICS Cover Salon Awards that were previously reported in the newsletter.
- 3) We were reminded that December is election month.

New Business:

- 1) Dues are now due.
- 2) Haunted House trips will be announced on the grotto e-mail group.
- 3) Jason Wall volunteered to handle the beverages for the Getaway.

Trip Reports:

Dave Caudle got underground in Utah while going down the Green River with Larry Mullins and crew. Dave Howell led the grotto trip of 17 to Dan Morton and Fruit Cellar Cave; a few members of the group experienced Shoemaker Cave. Dave McRae led a crew to Water Well with Alan Cook, Daniel Wood, and Jonathan Gladden. Dale Douglas went to Whiteside Mountain to rappel with the Bridge Day crew and left due to rain before heading to bounce Moses Tomb. NickY and TinY went to OTR and Whiteside Mountain. Frank Ray and family along with Deirdra took a group of 23 to Bryant Mountain Cave.

Meeting adjourned at 7:55 pm followed by Mudpuppy's well attended Lechuguilla Cave program.

Respectfully submitted,
Scott Fee, Secretary at Large

A Table for Estimating TAG "Pit Stops"

Revised and updated from an article originally published in the
Birmingham Grotto Newsletter - April 1992

Robert Sims NSS 30239

While the Sims trio was exploring the upper levels of Old Blowing Cave this past November, experience became the mother of invention. Finding the lower spring entrance flooded, we had dropped a rope at the #3 hillside entrance at the southern end of the cave (see map). After a short rappel, we found the immediate area quite spacious. I couldn't help thinking how different this area was from expectations based on studying the map. I was particularly intrigued by several places where openings dropped down to a lower level. The map showed a number of spots where the lower level crossed under, but no indication of a pit connection. Not having brought a second rope, it was a moot point for this trip. We pressed on to the 30 foot vertical crawl indicated on the map. On the way in, I kept wondering if perhaps these pits could provide a bypass to the lower level junction.

Arriving at the vertical crawl, we found it wet and narrow. This looked like a good place to take a break while deciding what to do next. Jimmy was taking photos, and at one point, went to hand me the flash unit. I still don't know exactly how it happened, but the next thing we knew, the flash was tumbling over the edge of a vertical slit. Hearing several thunk sounds, it proceeded to the 30 foot bottom even quicker than Mike Gross could have made it. Maybe it was just as well because that flash was just too cheap for a photographer of Jimmy's caliber. Besides, Jimmy had been slow' in down the trip the whole damn way in. Mike would have never put up with it. But I swear that I didn't do it on purpose! I decided to chimney down one of the vertical slits to see if there was an alternate way to the bottom of the vertical crawl. Finding the passage at the bottom blocked, my effort was rewarded never the less when I spotted the main part of the flash unit. Amazingly, it appeared basically intact, minus the batteries and cover which were located nearby. Topside, I presented Jimmy with the parts, but in hindsight, I should have kept one of the batteries. He cleaned the parts, put it back together, and presto... let there be light.

After checking out the vertical crawl and a short distance beyond, we decided to start heading back out. It was still early in the evening by Sims standards, but we were planning to visit Tumbling Rock the next day. Not far from the entrance, me and Mark stopped to look at one of the holes spotted on the way in. I was guessing that it was maybe a 50 foot free drop to the bottom, but to my untrained eye, it was hard to judge. Remembering the chart in the book "On Rope" (by Smith and Padgett) for figuring the depth of a pit by dropping a rock, we decided to time it for future reference. My watch had a built-in stopwatch function with a tenth of a second readout, so as Mark dropped the rocks, I took the readings. Five out of seven readings came up 2.3 seconds. Later, when I looked up the chart on page 86 (page 92 in the new revised edition), it appeared that it would be a little awkward to pick off a depth number from the curve to the nearest

Birmingham Grotto Newsletter

tenth of a second. Instead, I plugged the 2.3 seconds into the given equation for the lower curve which is stated as $Depth = 11*t^2 + 8.9*t - 7.7$ where t is the time in seconds. The result was a depth of 71 feet which ain't bad for a little hole not indicated on the map.

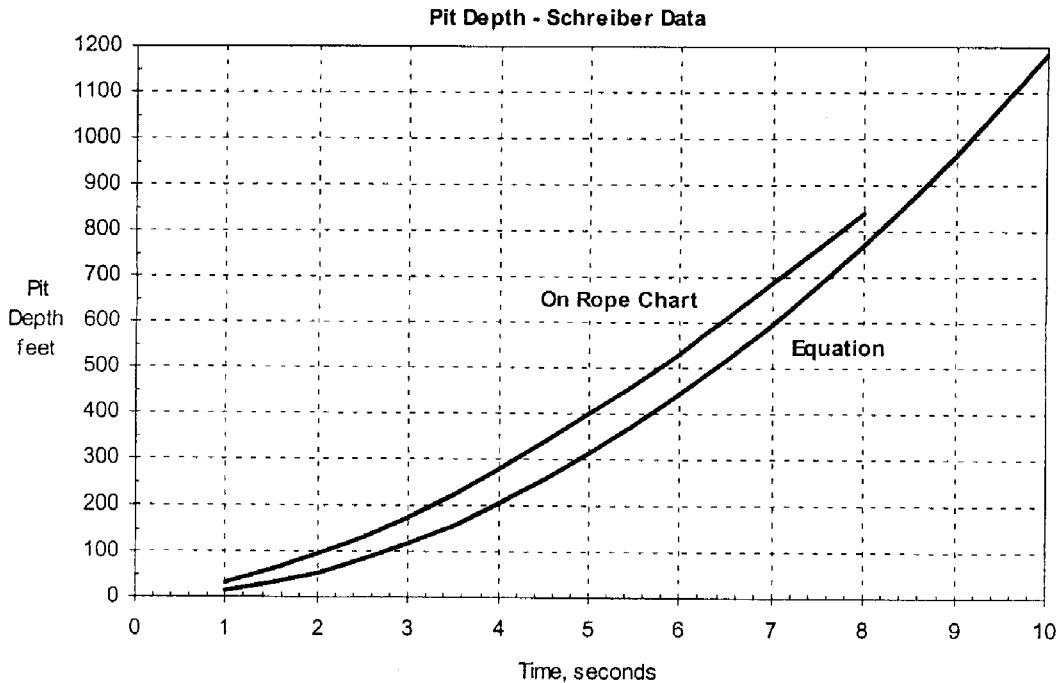
The obvious next step was to make up a little table with the depths figured out every tenth of a second over a reasonable range. If made compact, it would be something easy to carry, along with a map and note cards, on future trips. The resulting table, shown below, took about 15 minutes to generate using a spreadsheet program on the personal computer. The table is sized to be smaller than an index card and covers a timing range from 1.0 to 9.9 seconds. The corresponding depths range from 12 to 1159 feet. This should cover most TAG pits unless you should make the find of the century. Whole seconds are listed down the far left column and tenths of a second across the top row. For example, the pit we would all like to find would time out at 7.2 seconds. Down to 7 and across to 0.2 gives a depth of 627 feet.

For you mathematicians and engineers, it should be noted that the equation is a second order fit to field data collected by Schreiber and company. This equation produces smaller depths than the theoretical equation (the upper curve on page 86) presumably because it accounts for the buildup in air resistance as the rock accelerates and the extra time it takes for the sound to travel back up the pit. The drag is proportional to the velocity squared and the air density which could vary from cave to cave. The accuracy and consistency of timing the drop could also create scatter in the data. The actual data points used to derive the equation were not shown on the figure, so the data scatter and thus any estimate of the equation accuracy cannot be made. However, for deep dark pits, the table is bound to be more reliable than an eyeball guess. For actual field use, a few suggestions can be offered. Xerox the table and cut it out so you don't mutilate your original newsletter. At the bottom or on the back, rescue numbers or info for notification in case of a mishap could be written down and then the card could be laminated for protection. The next time you stumble ~~into~~ onto a pit in virgin cave, or one not marked on a map, the table may provide an educated estimate of where the "pit stops".

TAG "Pit Stops" (Depth of drop based on timing rock)										
$d \text{ (feet)} = 11*t^2 + 8.9*t - 7.7$ (t in sec) from "On Rope" p.86										
t	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	12	15	19	22	26	30	35	39	44	49
2	54	60	65	71	77	83	90	97	103	111
3	118	126	133	141	150	158	167	176	185	194
4	204	214	224	234	244	255	266	277	288	300
5	312	324	336	348	361	374	387	400	414	428
6	442	456	470	485	500	515	530	546	561	577
7	594	610	627	643	661	678	695	713	731	749
8	768	786	805	824	843	863	882	902	922	943
9	963	984	1005	1026	1048	1070	1092	1114	1136	1159
Robert Sims NSS 30239 1991										

Since this article was written back in 1992, the writer obtained the new revised edition of On Rope. In reviewing the new edition and this article for potential revisions or additions,

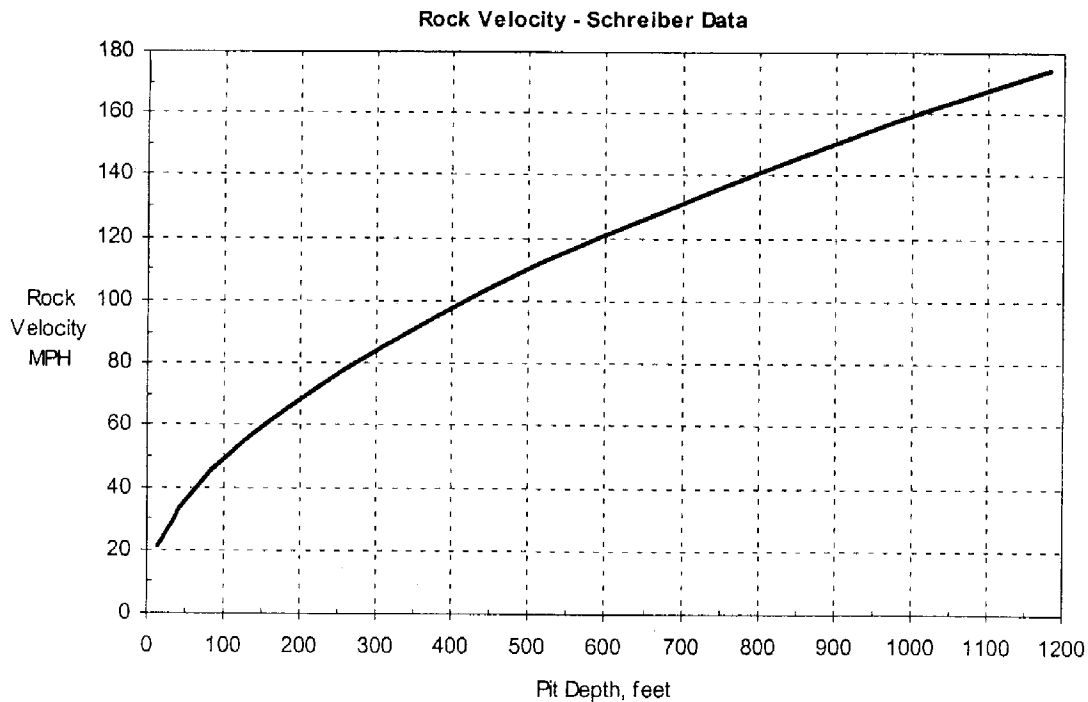
a significant discrepancy has been discovered between the pit depth values calculated with the equations versus those obtained by picking off values from the On Rope chart. This discrepancy is shown in the chart below for the Schreiber based equation over the time range covered by the table. Note that the chart data from On Rope stopped at 8 seconds. The difference between the two curves is not a constant increment or ratio. Across the higher time range, the difference is almost 100 feet, and in the lower time range, the percent difference is 40 percent or higher. For example, at 7 seconds the On Rope chart gives a value 91 feet higher or 15 percent. At 3 seconds (typical of a modest TAG pit) the difference is 57 feet or 48 percent. Although not shown, the discrepancy for the theoretical gravity equation in a vacuum is very similar. Values from both equations were double and triple checked, and no error found. The theoretical gravity equation is simply one half the gravitational constant (32.2 feet/sec squared) multiplied by the time squared, and its validity is not in question unless one wishes to re-write all the physics textbooks.



The writer contacted Alan Padgett to see if he was aware of the discrepancy or could shed any light on the problem. He graciously dug into the archives and retrieved some of the original data including the least squares equation derivation and the working graphs. All information supplied by Alan confirms the validity of the equations as presented in On Rope, but why the chart in On Rope does not represent those equations accurately is still a mystery as of this writing. Apparently, something went wrong in the generation of the artwork for the book. While the On Rope chart would give conservative results, it is considered incorrect. The most reliable results should come from the values presented in the table above or the lower curve in the chart below. The writer welcomes any feedback from anyone who has tried to put the equation or chart to use in the field (phone - 661-

823-1717 or email - eb2727@att.net). . Alan was not aware of any negative feedback or discussion of this topic within the Internet highway.

On a different but related topic, the thought occurred that the first derivative of the equation for depth versus time would produce a new equation for the velocity of a small rock as it accelerated down a pit. This equation is Velocity in feet per second = $22*t+8.9$ based on the Schreiber data. While it would account for the build-up in air resistance, it is contaminated by the extra time for the sound to travel back up the pit. This error is not large for short pits but worth correcting for over the full range of the figure above. At 10 seconds or a pit nearly 1200 feet, the error is around 11 percent lower than actual. A first order correction based on the standard speed of sound at sea level was applied to the equation, and the results converted to miles per hour. The chart below shows the calculated velocity of a rock as a function of the pit depth. For that modest 100 foot TAG pit, the velocity has reached about 50 MPH, and for Ellison's Fantastic at nearly 600 feet, the rock is up to 120 MPH. The shape of the curve bending over can be attributed to the build-up in air resistance, but over the range presented here, there is no indication that the rock is close to terminal velocity ! One last note – Based on the kinetic energy of even a paltry one pound rock, the highest industrial standards for helmet integrity will be rapidly exceeded even for that modest TAG pit. So don't count on that brain bucket to provide protection, and heed that "ROCK" call.



News & Notes

Dave Howell

*** November, lurking for weeks now, has by the time you read this, pounced. The cooler temperatures will be leading to better visibility in the woods. Whether you're ridgewalking for new entrances or checking out already known ones, good luck to you! And now, a public service announcement from your favorite columnist: the cooler weather will also lead to zestier flavors in the Thanksgiving feast. Overindulgence on Thanksgiving Day can lead to difficulties in those tighter crawlways. My motto is all things in moderation... including moderation.

*** October brought us the 2009 TAG FALL CAVE-IN at its now-traditional location at Tag on the Mountain. For the first time in at least 10 years Valerie and I weren't there, we went instead to the old car show and flea market that weekend in Hershey, Pennsylvania. (Yeah, you're right, JOEL, I *am* a goober! At least SHAY made it to TAG.) However, I hear this year's TAG was as good as ever despite the less than dry weather. (It was rainy in Pennsylvania too.) I hear our own PELL CITY BOYS received recognition for the most entertaining campsite - their campsite is always unique, but any campsite that includes a zip line has got to be pretty darn special, right? The Saturday night bonfire went on in spite of the damp conditions, and even in the absence of a live band the party was, I'm told, kickass. The only Birmingham person winning a door prize was DAVID CAUDLE, but I hear that DAVID McRAE was one

of the winners in the SCCi raffle. Hope you guys enjoy your Ferrari and the chateau in the karst region of southern France! (Y'know, those door prizes get better every year!) Sounds like a fine time was had by all. Hey, maybe the next Grotto program could be my slides of old cars at Hershey...!

*** Did you notice who was in the Spelean Spotlight in the October issue of *NSS News*? MIKE McEACHERN, formerly of Birmingham, more recently our Grotto's Hamilton, Montana outpost and President of the Northern Rocky Mountain Grotto. I won't condense the interview here, that would be like revealing the plot of a movie I'm recommending, but I will offer one quote: "The Birmingham Grotto trip to Romania was the best grotto trip I have ever been on." Read the whole article. There is much in it of interest to TAG cavers, and Birmingham Grotto cavers in particular.

*** Also in the October *NSS News* is an excellent commentary by TODD WEBB on the upcoming decision by the Board of Governors regarding a new NSS OFFICE COMPLEX proposed for Huntsville, Alabama, Horse Cave, Kentucky, or Bloomington, Indiana. This is an issue we've been hearing about for some months now, and which is on the agenda for the BOG meeting to be held at the Birmingham Zoo Lodge on November 7 - this coming Saturday, if you're reading this at Grotto meeting. Todd's article, entitled "The 'Other'

Office Proposal or Why is the Tail Wagging the Dog?", presents a very interesting and thought-provoking perspective on the changes proposed for the NSS headquarters and for staffing of the national organization. (Thus far most discussion I've heard has focused on the location of the complex, but another part of this same issue is the proposal of having a full-time Executive Director of the NSS, whose annual salary would be paid from NSS funds, which means by you and me.) Whatever your opinion or position on these matters, I encourage you to read Todd's commentary *before* the BOG meeting. It will make you think.

*** An advance item for your 2010 calendar: don't forget the SERASUMMER CAVE CARNIVAL June 17-20, hosted by our colleagues in the Sewanee Mountain Grotto in Monteagle, Tennessee. Am I correct in thinking that this is the first time SMG has hosted SERA? I, for one, can't wait to see what our Tennessee friends have up their sleeves! Watch this space (and the *BGN* and *NSS News* calendars) for further details.

*** And speaking of Sewanee Mountain Grotto, special thanks and a tip of the Grotto helmet to our SMG colleague MUDPUPPY (aka Peter Michaud) for his dynamite program on LECHUGUILLA CAVE at the October Grotto meeting. Whatever superlative you can think of applies to Lechuguilla. Thanks again, Pup, for affording us a glimpse of its magnificence.

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P.O. Box 55102
Birmingham, AL 35255-5102

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