COMPASS & TAPE

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Survey and Cartography Section - 1993

Chair:	Carol Vesely 818-357-6927
	817 Wildrose Ave. Monrovia, CA 91016
Vice Chair:	Roger Bartholomew 315-336-6551
	910 Laurel St., Rome, NY 134 4 0
Treasurer:	Bob Hoke 301-725-5877
	6304 Kaybro St. Laurel, MD 20707
Secretary:	George Dasher 304-776-8048
-	5096 Washington St. W. #101 Cross Lanes, WV 25313
Editor:	Tom Kaye 703-379-8794
	3245 Rio Dr. #804 Falls Church, VA 22041

Send Dues, Subscriptions, Send Articles, Photos, Letters, Address Changes to: Comments, Tips, Maps to: Bob Hoke Bob Lewis (See note inside)

Cover: Part of the working map of Paxtons Cave drawn by Tom Spina

Printed by members of the DC Grotto and the Potomac Speleological Club

SOME LESSONS IN RUNNING A SUCCESSFUL CAVE SURVEY PROJECT by Bob Hoke

Every now and then Murphy's Law is violated, and everything seems to go right. This paper describes a cave survey project that ran exceptionally smoothly and avoided most of the pitfalls that seem to snag most large cave surveys.

Paxtons Cave is a popular maze cave in Allegheny County, Virginia. The cave was mapped in the 1970's, but the map was incomplete, inaccurate, and generally in need of a major update. An informal group of cavers from the Washington D.C. area and eastern Virginia decided to remap the cave. Tom Kaye agreed to do the data processing (using Bob Thrun's CMAP program) and Tom Spina agreed to do the drafting (using the traditional pen-on-paper technology). The project was not associated with any specific caving organization, but instead was genuinely open to anyone who wanted to participate.

The Paxtons Project started in August 1988, and the final survey trip was made in February 1990. Prior to the project, the cave was reported to contain 3.2 miles. The new map showed the cave as having grown to 7.2 miles. (Our secret dream of discovering tons of virgin passage was never realized). There were a total of 2,675 shots in the survey.

The following is a list of some of the things that seemed to contribute to the success of the Paxtons Cave Project. The list is in random order. Of course, most items may not apply to every cave, but the list should provide some insight into things that have worked.

Pick a cave that is interesting and an "appropriate" size

Paxtons is a 7-mile maze cave with a reasonable number of formations. It is large enough to be challenging, but small enough to be completed in a finite time. When the project started we estimated that it would take about 2-3 years to finish if we surveyed once a month. Our time estimate was correct, but only because we had lots more participation than we anticipated and we were able to put multiple survey teams into the cave on virtually every project weekend. The moderate duration of the project meant that it was long enough to have continuity and attract new participants, but short enough that the folks who started the project were still around at the end.

We had some 32 project weekends, with a total of 90 different participants. We managed to put six survey teams, with over 25 surveyors, into the cave on a couple weekends. Several people were on only one trip, and one person was there on all 32 weekends. There was a "hard core" of about 12-15 people that participated in more than 2/3 of the trips.

Set and maintain high survey quality standards

We surveyed EVERY passage, closed EVERY loop, did compass and clinometer backsights for (almost) EVERY shot, and promptly resolved EVERY loop closure or sketching problem. We tried to have our front and back readings agree within 2-3 degrees. This consistent level of quality probably scared a few sloppy surveyors away, but there was a general agreement among the participants that we wanted an accurate survey. The standards were set and maintained by consensus, not by edict.

Do high quality in-cave sketches to a consistent scale

We generally used clipboards and 8"x10" sheets of Mylar for all sketches. In-cave sketches were at 20 feet/inch and the final map was at 30 feet/inch. (We are not sure where the scales of 20 and 30 feet/inch came from, but Tom Spina was doing the final map and he insisted on those scales). The sketcher used a compass and protractor to plot the survey data on the Mylar, so the resulting sketches were essentially complete, accurate sections of the map that required relatively little conversion when they were added to the master map.

One well known eastern caver was used to doing "schematic" sketches in the cave and then tuning them into award winning maps in the privacy of his own home. He found it impossible to do a "real" sketch in the cave and made only token appearances at Project weekends. (His method is fine as long as he is doing both the in-cave sketches and the final maps. His shorthand technique does not work when someone else is doing the final map).

Set trip dates well in advance and stick with them

We generally had one trip per month and the dates were published in club newsletters in plenty of time for people to know what was coming up.

Have open trips and willingly train novices

It is tempting to make a survey project the exclusive domain of experienced surveyors. However, we were willing to train new people, even though it frequently meant that the team doing the training was not as productive as the other teams that day. This policy resulted in one new surveyor becoming one of the most active members of the project, and a number of others made valuable contributions to it.

Promptly reduce the survey data to detect blunders

Our trips were always held on Saturday, and Tom Kaye spent Sunday evening reducing the new data. He was able to resolve any problems while the trip was fresh in everyone's mind, and this meant that we had very little need to field check the data on subsequent trips. Tom was normally able to debug the new data, integrate it into the computer data base, and have updated line plots in the mail to Tom Spina (the project's cartographer) by Monday morning.

Have updated maps segments and raw survey data available to EVERY survey team

Prior to entering the cave each survey team was normally given a current map segment with all leads marked and a computer print with the raw survey data for the area the team was going to. This allowed the team to easily find its tie-in stations and quickly get their sketch started. This also let the people from the previous month's trip see what there data ended up looking like. People like the feedback of seeing their effort getting onto the master working map.

Maintain interest in the project by writing interesting trip reports

It is not easy to write a trip report for 32 trips to the same cave, but doing so will help maintain awareness of the project and encourage participation. We probably wrote some sort of article for about 2/3 of the "official" project weekends. Reports are especially easy to write if something interesting or humorous happened, or if some significant milestone was reached.

Near the end of the project we had a "final" trip to finish the survey, and this naturally was written up in the newsletters. However, we subsequently had several more "final" trips to finish up a few areas. The constant notice of upcoming "next final" trips actually generated additional interest in the project because everyone was wondering when the final "final" trip would occur. All this foolishness made it relatively easy to write newsletter articles near the end of the project.

Avoid booty scooping

We were quite successful in using peer pressure to enforce the rule that you always survey the passage closest to the entrance. This means that each team eventually got its share of both borehole and mud crawl. Our success with this policy meant that when an area was surveyed it was unlikely that any leads were left that would never make it onto the final map.

Figure 1 shows the progression of the survey at various points in the project. The important thing to see in the progression of maps is that the cave grew rather smoothly instead than having a lot of trunk passages surveyed early in the project and all the sleazy passages left for last. We saw just as much trunk passage on the last survey weekend as we saw on the first (well, almost as much).

Avoid a dominate personality who becomes a dictator

It is important to have one or more people who serve as the focal point of a project, but the project will die if someone assumes the role of dictator and turns everyone else off. We had 3-4 people who seemed to serve as co-leaders of the Project at various times. Somehow, there were virtually no personality conflicts and everyone is still on speaking terms now that the project is completed.

Keep track of all data and sketches

After each Project day, the survey teams met at a local pizza joint for dinner. Tom Spina took the Mylar sketches with him, and Tom Kaye took the books with the day's data. Kaye then processed the data, and sent Spina line plots and xerox copies of the data from the survey books. The actual books were given back to their owners as soon as Spina received the copies. Spina kept the Mylar sketches. This systematic approach seemed to eliminate the usual problems of lost data or sketches.

Have fun

Overall, the Paxtons Cave Project was a medium duration mapping effort that seemed to run exceptionally smoothly. The points discussed in this article certainly contributed to the project's success and smooth operation. However, perhaps the most important overall contributor was the fact the participants realized the project for what it really was: a hobby. The trips were rather low key and people seemed to enjoy participating. Caving is a hobby for most people, and the project's combination of low pressure and reasonable quality standards seemed to encourage participants to "go with the flow" rather than fight the system.





These stick maps show the progression of the Paxtons Cave survey at various stages in the project. Note that the surveyed cave grew in a systematic way, and that there was no "booty scooping". All project participants agreed to complete the work in each survey area before progressing farther into the cave. This discipline meant that everyone had a chance to survey easy passage as well as the sleazy stuff, and it was a major factor in the success of the project. ______

Surveying Efficiently Tricks of the Trade by Carol Vesely

Many articles have outlined the basics of surveying but few have listed the many tricks of the trade that come with experience. I recently had the good fortune to survey with an extremely experienced and efficient team consisting of Ron Bridgemon, John McLane and Chuck Pease. We started at the cave entrance and surveyed over a mile in under seven hours. (Of course, the cave cooperated too, by providing mostly comfortable walking passage). Perhaps the thing that impressed me the most about the team was that everyone was always ready to do their job. There was no waiting. As soon as Chuck heard John give the backsight reading, he was ready to tape the next shot. As sketcher I had trouble keeping up, but it was a pleasure to survey with such a competent team.

In the interest of improving survey efficiency I have made the following list of suggestions. Those of you who are experienced surveyors probably know most of these things and could add a few of hints of your own. For beginners, nothing can take the place of experience, but here are a few pointers to guide you in improving efficiency without compromising quality.

Rule One: Always be ready. Keep focussed on the survey and not on taking pictures or other things. Do "solo" tasks while other people are busy - and be ready to do the jobs that require other team members as soon as they are ready.

For example: If you are lead tape, take the distance measurement *first* before you write a tag for the station. Then, while the instrument person is getting the compass out you can write the tag (a "solo" task).

Rule Two: Never be idle. No matter what your survey position, there is always something you can be doing to facilitate the survey besides staring at the formations. If you are the lead tape person, check a lead, write the next few station lables on flagging tape, scout briefly ahead, or estimate the distances to the ceiling, floor and walls for the sketcher.

If you are the instrument person, get the instruments out and ready, even if you haven't taken the tape measurement yet. Or if you are waiting on the sketcher, help the tape person take a width shot if the passage is large.

If you are the sketcher and for some reason you are waiting for the others (I know this is a rareity, but it does happen), draw a cross section, write the next several station numbers in your book or draw a north arrow and scale on the next page.

However, don't get so carried away filling up time that you are not ready when the other team members are. (see Rule One).

Rule Three: Fill in for others. Whenever someone needs to take a break, try to keep "the survey going by having someone else do their job. The survey may go slower with less peop'e, but at least its still moving. (Of course, this requires that team members be capable o performing more than one task).

Now, a few hints for each person on the team.

Lead Tape

1) Determine where the instrument person's eye level is on your body (e.g. your chin, or the top of your head). Pick shots at this level whenever possible. And try to never pick points higher than this.

2) Put some colored celophane or a piece of flagging tape over a small flashlight for a station light. Then the instrument person knows to always sight on the "pink" light and not your helmet light. This is especially useful for backsights in large rooms.

3) Den't deliberate over the optimal station placement for a half hour. (I've

seen beginners do this). Just pick a reasonable spot and take the shot.

4) Take a short vertical shot rather than a longer high angle one. It's more accurate and better for the instrument person.

5) Dangle the tape below the station with a weight (e.g. carabiner) on it to assist the instrument person in reading high angle shots.

6) Check with the sketcher to confirm the station number every so often.

7) Always begin reeling in the tape before the instrument person leaves the last station, so that he or she can unsnag it if necessary. Don't ask the sketcher to do it.

8) If you are ready to move to the next station and the instrument person has not reached you yet, tie the tape to a projection or a rock and begin scouting for the next station.

9) Don't worry about going too fast for the sketcher. Just go as fast as possible. It is the sketcher's job to tell you to slow down.

10) Don't run off for a long time checking a lead. And most importantly of all, never take the survey equipment with you.

11) If you are on a two-person survey team, try to pick stations where the sketcher can either sit a flashlight on the station or lean his or her helmet light against the station while still sketching.

Instrument Person

1) Know some standard distances that can be measured with your body and ask the tape person to move the station that distance to make the shot easier to read..

Example: shoot a "head width" from the wall or a "hand span" above the station. Make certain that both of you have coordinated these measurements in advance.

2) Keep the order of your readings consistent, as this avoids confusion. Ask the sketcher what order he or she prefers.

3) Hang a string with a weight on it in front of the compass for severely descending shots.

4) Sight along the survey tape for really high angle shots.

5) Let the sketcher know when the reading is difficult or awkward so he or she can mark this as a better reading in the

book. Take the same reading in the same direction twice instead of doing a backsight on very awkward shots.

Sketcher

1) If possible select survey designations with the minimum number of characters. It is a lot faster to write station "C1" than "ACF1A". But don't just list the survey letter designation for the first station and simply number the rest. This is false economy. If the pages get separated you will not know what survey it is.

2) Whenever possible, try to position north so that you are drawing from the bottom of the page towards the top. This way left and right in the cave correspond to left and right on the paper.

3) Instead of making only a north arrow on your page, include a rosette with 90, 180 and 270 labeled, and even 45, 135, 225, and 315 if you have time.

4) If you have a choice always use a scale that corresponds to the grid on your survey paper.

5) Put the profile at the bottom of the same page as the plan, so you don't waste time switching pages.

6) Ask another team member to provide left, right, ceiling, floor estimates. Make sure they always give them in ta consistent order.

7) When confirming backsights add 200 and subtract 20, instead of trying to mentally add 180. (Or the reverse is to sutract 200 and add 20, instread of subtracting 180.)

8) When you get near the edge of the page and the protractor no longer fits, flip it over 180 degrees or use the backsight reading.

9) Learn how long your pace is and walk off pace lengths to correctly locate features along the passage and establish wall widths.

10) If you are on a two-person survey team, tie the tape to something while the other person reals it out, so you are free to sketch.

11) If you are on a two-person team, try placing your helmet light on station in a way that allows you to sketch while the other person is taking the reading.

COMMENT ON LRCFs: MEASURE THEM! by George Veni

In Compass and Tape v. 10, no. 3-4, Dave Collings wrote a nice and needed report on LRCFs, or left-right-ceiling-floor distances. About a page of his article was subtitled "Estimating," providing insights on how to improve your accuracy at estimating LRCFs. The article states that LRCFs can be measured, but its tone is that estimation is the normal mode in surveying and that estimations are adequate representations of cave dimensions. However, if accuracy is truly the purpose of the survey (otherwise why write a page on improving estimation methods) then measuring LRCFs should be the norm and estimations should be reserved only for those instances where measurements are difficult, impossible, or impractical.

A couple of years ago during a Texas Speleological Association survey training seminar, Peter Sprouse and I co-taught the session on sketching. Peter is a meticulous and outstanding surveyor and cartographer, so I was surprised when he advocated estimating LRCFs over measuring. His thesis was that caves are 3-D irregular-shaped features so that measuring to any one point on a wall is arbitrary, and a minor change in the direction of measurement could produce a different value. Even where LRCFs are measured, he argued that most of the sketch consists of estimated location and dimensions of the intervening twists, turns, and other passage details.

Peter's points are valid. Nonetheless, LRCFs provide a precise scale that minimizes the potential for error in the portion of the sketch that is estimated. This degree of possible error becomes apparent if you compare sketches of the same passage or of a junction sketched by surveyors heading off into its branches. The sketches based on estimates often show great variations in both passage size and shape; sketches based on measurements generally have only minor differences.

The main "problem" many people perceive with measuring LRCFs is the time involved. Collings mentions to only measure LRCFs "if you won't be holding up your group." Unfortunately, many cavers treat surveying like taking bad-tasting medicine -- its something they don't want to do, but have to, so they do it quickly to get it over with. This attitude has resulted in the resurvey of many caves and passages to correct the inevitable errors of general low quality mapping. Surveying, like any other endeavor, is more efficient when the pace is slower and the work is done correctly the first time. The antiquated attitude that the sketcher is delaying the survey team needs to be replaced with the reality that the sketcher is ensuring the quality of the team's efforts.

I've never found measuring LRCFs to slow the survey, even when sketching quickly and passages were consistently 20-40 meters wide. I've always found measured LRCFs valuable both in speeding my sketch and later when drafting the maps. Practice and coordination are important in quickly measuring LRCFs. My survey teams nearly always have the measurements completed by the time I need them. Some measurements that are seemingly impossible without triangulation can also be quickly measured with a little forethought. For example, the elevations of level, high ceilings can be determined while surveying down pits ("passage ceiling 13.7 m above floor of pit") or down slopes into a passage ("passage ceiling elevation 1.4 m higher than station 4 on breakdown slope").

Collings wraps up his article stating that survey standards have improved over the years -- another reason why many caves have been resurveyed. I agree with him that a survey should be geared so that it won't have to be repeated for a long time (if ever). In that vein I encourage you to measure LRCFs to insure the quality and long-term utility of your survey efforts.

SURVEY CONTEST 1993 CONVENTION Conducted by: Hubert C. Crowell

The first survey contest for the Survey and Cartography Section was a success, we had five teams run the course with two running for fun only. This left three teams to judge from and we only gave out a first and second place. Not bad considering no one was aware of the contest ahead of time and survey gear had to be provided. Next year the contest will be held on a shady slope between the campground and the convention center along side the stream.

The one comment was that the course was not challenging enough! The 1994 course will be a figure eight with the sides marked off with flagging tape and the teams can select any number of stations at any point within the tape. The contest will be held all day on Tuesday and I will be there to assist and take up the contest forms. I will also have my laptop computer so that the survey data can be entered as soon as the teams have completed the course.

First place went to the team of Steve Peerman and Jeff Lory, Team # NSS93_5 with only 0.33% error. Second place went to the team of Jean Krejca and Steve Taylor, Team # NSS93 3 with 4.01% error. Other teams consisted of Jane Pengergast and Greg Hanson, Team # NSS93_2. Bob Hoke and Barry Chute, Team #NSS93_1 (for fun only). Hubert Crowell and Buddy Davis, Team # NSS93_4 (for fun only). All used Suunto Compass and Clinometer with fiberglass tape.

Below are the printouts of the raw data and the loops for each team. Bring your survey gear to the 1994 NSS Convention and try your skill.

SURVEY and CARTOGRAPHY SECTION SURVEY CONTEST

DIST	DEG	VERTC	SURVEY TEAM NSS93 1
78.40	206.75	8.00	<u>-</u> -
29.78	112.00	-1.00	CLOSURE ERROR
35.55	54.75	7.50	
85.65	60.25	-4.50	1.10% OF LOOP DISTANCE OR (1 : 90).
9.88	201.00	7.50	
11.75	186.25	-1.00	N/S= 8.88 E/W= ~1.39 U/D= 5.16
10.35	112.50	Z3.75	
38.30	200.25	5.00	
30.40	230.00	-2.58	
30.80	230.00	0.50	
39.20	335.00	-0.75	
21.25	1.25	1.25	
65.75	338.25	0.25	X
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		SURVEY and	1 CARTOGI	RAPHY SECTION SURVEY CONTEST
	DIST	DEG	VERT<	SUBUEY TEAM NSS934
	76.80	212.00	3.00	
	27.50	105.00	0.00	CLOSURE ERROR
	34.00	65.00	8.90	
	94.50	63.00	-Z.80	1.25% OF LOOP DISTANCE OR (1 ; 80).
	10.00	221.00	0.00	
	11.70	205.00	0.00	N/S= 5.42 E/W= 8.25 U/D= 2.93
	10.00	185.00	0.00	
	11.40	112.00	25.00	
	37.30	203.00	~3.5 0	
	30.00	232.00	0.09	
	31.00	230.00	0.00	
	38.20	345.00	-0.50	,
	21.50	360.00	0.00	
	01.30	332.00	0.00	
		SURVEY and	l cartogi	APHY SECTION SURVEY CONTEST
	DIST	DEG	VERT<	SURVEY TEAM NSS935
	78.37	208.00	8.00	
	29.80	112.00	-1.00	CLOSURE ERROR
	35.56	55.58	-0.25	
	14 20	57.75	-3.50	0.332 OF LOOP DISTANCE OR (1 ; 304).
	9.25	200 00	0.00	N/S= 0.02 Fells 1.00 II/0= 1.00
	11 25	186 50	8.00	1/30.02 f/W= -1.30 U/D= 1.00
	10.50	114.50	24 98	
	38.30	201.50	4.50	
	38.40	230.00	0.00	
	30.82	230.50	8.58	a
	39.32	335.00	-1.09	
R.	21.28	2.00	1.00	\wedge
	ь5.8 8	339.80	8.50	$ \rangle \qquad \land$

SURVEY and CARTOGRAPHY SECTION SURVEY CONTEST

DIST	DEG	VERT <	SURVEY TEAM NSS93 2
78.7 8	205.50	9.50	-
29.70	80.50	0.00	CLOSURE ERROR
35.60	55.00	0.00	
94.60	56.30	4.00	5.54% OF LOOP DISTANCE OR (1 : 18)
10.60	234.50	4.99	
10.40	197.00	1.50	N∕S≈-15.88 E/W≈ 1.37 U/D≈ 23.86
12.60	187.00	-2.99	
12.60	108.00	25.00	
38.35	200.00	4.50	
30.40	238.89	8.89	
30.80	239.09	9.99	١
39.15	335.00	~1.00	
21.45	1.98	1.99	/ \
53.55	338 99	-5.88	
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SURVEY and CARTOGRAPHY SECTION SURVEY CONTEST

	JONITET UN	a crintoon	MINI SECTION SUNVEI CONTEST
DIST	DEG	VERT<	SURVEY TEAM NSS93 3
91.60	209.20	0.80	-
39.80	120.70	-1.00	CLOSURE ERROR
39.10	32.28	-0.10	
99.70	67.20	-0.50	4.81% OF LOOP DISTANCE OR (1:24).
19.30	Z51.30	-3.20	
17.60	149.90	3.50	N/S= 12.73 E/W=-20.11 U/D= -4.15
16.50	251.20	-4.80	
23.20	118.70	6.80	
33.40	225.80	-6.79	
37.10	204.90	-0.20	
35.10	234.30	0.00	
46.90	325.90	-1.10	
29.78	23.78	0.30	/
73.80	331.48	-0.30	\ /
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1993 NSS CARTOGRAPHIC SALON

george dasher

This year, at the 1993 Convention in Pendleton, Oregon, 43 maps were entered in the Cartographic Salon.

These maps were from three foreign counties; China, Guatemala, and Mexico; and eleven of the United States' states--Alaska, Arkansas, California, Kansas, Missouri, New Mexico, Tennessee, Utah, Washington, West Virginia, and Wyoming. Of special note, seven each of the cave maps were from Alaska, Missouri, and West Virginia. Seven green ribbon Honorable Mentions were awarded, 5 blue ribbon Merit Awards, and one overall Medal Award.

I was unable to attend this years convention because of family problems. Ernst Kastning, of Radford, Virginia, stood in for me as the Salon Chairman. Ernst was the original Chairman of the Cartographic Salon, and he served from 1978 to 1986.

This year's judges were:

Doug	Medville,	of	Reston, Virg	inia;		
Bill	Storage,	of	San Francisc	o, Cali	fornia;	and
Thom	Engel,	of	Voorheesvill	e, New	York.	

This year's Cartographic Salon winners were:

Honorable Mentions:	Timpanogos Cave "	Utah	Rodney Horrocks
(Green Ribbon)	Beaver Falls Cave	Alaska	Rodney Horrocks
	Caldwell Cave ,	West Virginia	Bill Balfour
	Clay Cave	Arkansas	Jean Krejca
	Parks Ranch Cave	New Mexico	Dave Belski
	Snow Hole	Alaska	Carlene Allred
	Kelly Hollow Cave	Missouri	Mick Sutton
Merit Awards:	Shoung Long Dong	China	Patricia Kambesis
(Blue Ribbon)	Chasm Cave	California	Carol Vesely
	Lower Hughes Cave	West Virginia	Carol Vesely
	Casteret Cave	West Virginia	George Da sh er
	Blowing in the Wind Cave	Alaska	Carlene Allred
Medal Award: (Best of Salon)	The Sinks of Gandy	West Virginia	George Dasher

1994 National Speleological Society Convention Brackettville, Texas, USA -- 20-24 June 1994

CALL FOR PAPERS

EQUIPMENT & TECHNIQUES SESSION

The technologies and techniques of cave exploration will be the focus of an all-day session that draws together many NSS Sections and other interested cavers. Before an interdisciplinary audience, both new developments and standard practices will be described, analyzed, and compared. Presentations by non-US cavers are especially welcome.

We solicit abstracts in the following areas:

Accident and Safety Analysis **Communications and Electronics** Computing Digging Diving

Lighting Photography and Video Survey & Cartography Rescue Vertical

There will be two formats for papers:

- **Oral**: a presentation before an audience, with time for questions (tentatively, between 15 and 25 minutes for each speaker)
- Poster: a 'show and tell' presentation in which each presenter is provided a booth with poster boards and a table. This format is ideal for demonstrating wearable and handheld equipment, computer applications, etc. The Poster session will not conflict with the Oral session, and should last 2 to 3 hours.

Please submit an abstract that includes title, name and address of the primary author, and a summary of the content of the presentation. The abstract should be self-contained and informative. For media, the order of preference is: (1) Clear laser-quality printing, left justified only, that can be scanned; (2) a DOS or Mac floppy disk with common word processing formats or text file; (3) dot-matrix printouts or other text.

Abstract length is limited to 250 words Please indicate your preference for Oral or Poster format Deadline for Abstracts is 15 April 1994

The Equipment & Techniques Session will be co-chaired by John Ganter and Bill Storage. Please send your abstract to: John Ganter, 1408 Valencia NE, Albuquerque NM 87110 USA, H: 505-265-5007, O: 505-844-1304, FAX: 505-844-0244, Internet: jganter@ttd.sandia.gov

NSS Survey and Cartography Section Papers - Roger Bartholomew

The Survey and Cartography Section is calling for papers for the 1994 NSS Convention in Brackettville, Texas, 20-24 June, 1994.

Due to a shortage of rooms suitable for paper sessions, researchers are advised that this convention will have a single room for an all-day paper session of Equipment and Techniques during which survey and cartography papers will be scheduled among electronics and other papers. This arrangement will discourage fill-in papers and schedule conflicts and might result in larger numbers hearing your papers.

New Editor - Tom Kaye

We now have a new Editor of the Compass & Tape. Bob Lewis called me a couple of days ago and said he was very interested in becoming the next editor. He will start with the next issue. So, send your articles to Bob! His address is:

Bob Lewis P.O. Box 505 Dublin, VA 24084 His telephone number is: 703-674-8388 and he can be called till Midnight, Eastern Time.

I have enjoyed editing the Compass & Tape, but am anxious to see how it grows with the next editor! He plans to aggressive about getting articles. The printing will still be done in this area by Bob Hoke, who has been the printer since I became editor. Members of the DC Grotto and the Potomac Speleological Club will continue to assist with the printing, collating, stapling, folding, and mailing.

SACS memberships extended by Bob Hoke

At the SACS Annual Meeting in Pendleton, Oregon, the membership voted to change the way membership and subscriptions end. Previously, you joined SACS for a year and received that year's volume of Compass & Tape, even if the volume included one or more combined issues (as has been the case for the last two years). The new system will continue your membership until you have received four actual C&T issues (or more if you joined for multiple years).

If you check the mailing label on this issue, you will notice that it now says which C&T issue (instead of volume and number) will be your last, and that your expiration has been extended by two issues if you were a member for Volume 10 (last year).

This is Issue 36, so if your label shows an expiration issue prior to 36, you are overdue and need to renew. Please send a check soon, or you may lose out on the next issue of this fine publication. Remember, you can renew for up to 3 years for a paltry \$4.00 per year.

If your label says "sample", it means that your name has been selected from many millions of names to receive a free copy of this issue of C&T (based on your apparent interest in cave maps). If you like the issue, please send money to become a SACS member. If you don't like the issue, throw it away.

Available: NSS News and NSS Bulletin Back Issues - John Ganter

Between 1983 and 1992, the NSS Survey and Cartography Section received copies of the NSS News and NSS Bulletin. In the interest of reducing storage volume, I would like to pass these on to a Section member who will preserve and enjoy them.

Contact:

John Ganter, 1408 Valencia NE, Albuquerque, NM 87110 USA H: 505-265-5007 O: 505-844-1304

Minutes of the 1993 Annual Meeting of the Survey and Cartography Section of the NSS Pendleton, Oregon - Bob Hoke

The annual SACS meeting was held on Monday, August 2, 1993 at the NSS Convention in Pendleton Oregon. The meeting was chaired by Chairperson Carol Vesely and attended by 29 hearty souls. These notes were taken by Bob Hoke, who foolishly volunteered to sit in for George Dasher. George did not attend the Convention.

Chairperson's Report: Carol did not present a report.

Vice Chair Report: Doug Dotson was not present and there was no report.

Treasurer's Report: Bob Hoke passed put a 1992-92 financial report and reported that the Section was very well off. The bank account balance was \$2,657 and \$2,113 was available after prepaid subscriptions were subtracted out.

Secretary's Report: George Dasher reported (via a letter) that the minutes of the 1992 SACS meeting were in C&T and that no one complained about them. George reported that the NSS Office was confused about whose name to give out for queries about the Section. He told them so give either Carol's or his name out.

Editor's Report: Tom Kaye said the recent lack of articles was the reason only two issues were published in the last year. He asked everyone to provide articles or other material for future issues. Kaye volunteered to step down as Editor if anyone was interested in the job. The room was very quiet for a few minutes (and there were no takers).

Cartography Salon Chairman's Report: Ernst Kastning chaired the 1993 Salon, but he was not at the meeting to present a report. George may not be able to attend the 1994 Convention, so another stand-in may be needed then.

Cartography Salon Medal Report: George's letter reported that he, Hope Uhl, Bob Hoke, and Barry Chute were supposed to have looked into making a spiffy new medal just for the Cartography Salon. This group did nothing, but George reported that he managed to find a medal in Charleston (WV) that is nicer looking than the current medal. Everyone was impressed with his efforts, but nobody at the meeting had seen the new medal. The consensus was to table the issue of redesigning the medal until the 1994 Convention since nobody had seen the new version.

Medal Renaming: George's letter said that the proposal to name the Salon medal after Bernie Smeltzer was brought up at the Fall 1992 NSS BOG meeting and that the BOG had decided to let SACS survey its members to see if there was a consensus. The issue was discussed in C&T and George asked that written opinions on the issue be sent to him. He received six letters, with five opposing renaming the medal and one in favor. George concluded that there was no great support for the proposal and he recommended that Wayne Marshall (the NSS Administrative VP) tell the BOG that SACS did not favor the proposed change. The people at the meeting apparently agreed with George's decision and there was no further discussion of the issue.

Beginners Cartography Award: There was a discussion of the concept of having a separate award for "first time" Map Salon entries. There was agreement that this was potentially good idea, but nobody could come up with a usable set of rules to govern the award. The proposal was suspended until someone comes up with a viable proposal.

Special Salon Category for Computer Maps: There was a discussion about whether computer generated maps should be placed in a separate category for Salon judging. Carol Vesely suggested that perhaps there should be a "special" category for any map not produced by "traditional" techniques. Someone finally observed that the discussion seemed to revolve around a solution in search of a problem. The consensus was to drop the issue until someone perceives a specific problem that needs to be solved.

On Station: George Dasher did not provide a report on the status of his forthcoming tome, but there were unconfirmed reports that it is in its final revision and is "almost ready" for the printer. Nobody at the meeting had seen the latest revision.

Printing Material from the Internet: People noted that there is a fair amount of good caving stuff on the Internet that should probably make its way into the C&T in some form. Tom Kaye suggested that someone should review the material and summarize the interesting things for C&T. Suddenly, very few people would admit that they could access the Internet. Finally, Mel Park said he would consider such a project.

Survey Processing Programs: Dick Sanford asked for a list of readily available programs for processing cave survey data. Lots of people mentioned specific programs, but nobody was aware of a list of them. Bob Hoke suggested that this would be a good topic for a C&T article, but nobody seemed interested.

Survey Contest at Future NSS Conventions: Hubert Crowell set a closed loop survey contest at the 1993 Convention. It was not publicized prior to the Convention, and only a few people ran it. Hubert moved that SACS sponsor a survey contest at each NSS Convention. The motion was seconded and passed unanimously after Hubert also volunteered to be in charge of the effort. There was then a discussion about what the winner should get and where the award should be given. Nothing was decided.

National Cave Files: Doug Medville questioned whether the Section should get involved in trying to organize a set of national cave files. The consensus was that such an effort would be very difficult and politically sensitive, and that the national cave files may be obsolete in a few years.

Cave Survey Data Base: Bob Thrun proposed that it would be useful to have a data base of cave survey data that was available to anyone. He volunteered to coordinate gathering the data and making it available.

Membership Based on Issues Printed: Bob Hoke noted that there were only two issues of C&T published in each of the last two years. He felt that SACS members were short-changed in those years since they paid for four issues. He then moved that the \$4.00 SACS membership cost cover the period of time required to receive four issues of C&T. The motion was seconded and passed. Hoke said he would add two issues to the expiration dates for all current members to reflect the two missing issues in C&T Volume 10. There was also a consensus that membership expiration on the C&T mailing label should state the last issue number, not the volume and issue. There was agreement that the C&T cover should continue to reflect both the issue number (a consecutive number that is currently at 35) as well as the volume and number. A single issue may contain multiple numbers (as has been done for the last four issues).

Election of Officers: Following an essentially uncontested election, the following slate of officers was elected for the 1993-94 fiscal year:

Chair:	Carol Vesely
Vice Chair	Roger Bartholomew
Secretary:	George Dasher
Treasurer:	Bob Hoke



Survey and Cartography Section NATIONAL SPELEOLOGICAL SOCIETY

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