

# Cleveland Surveying News

May 2004

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Affiliated with:



The **General Membership Meeting** was held on April 1<sup>st</sup>, 2004 at Demetrio's Restaurant in Parma.

**Officers In Attendance:** Mark Yeager, John Hoy, Bob Hoy, Jack Hoy, John Bischof, Sean Boland, Joe O'Donnell, Louise Veverka, and Neil Juhnke. *Also Attending:* Eric Short, Virgil Landis, John Dailey, Ken Hejduk, Dave Bruckner, Carl Gula, Colin Fletcher, Barbara Lackovic.

**Guest Speaker:** Joe Lynch, Program Manager, Cuyahoga County Health Department. Joe Lynch gave a presentation on the West Nile Virus & Lime Disease as it relates to us in northeast Ohio.

**Highlights:** The State Executive Committee has decided to have Bimonthly meetings rather than monthly. The Cleveland Chapter may consider this also. There was no Executive Committee meeting this month.

Louise Veverka has sent our comments on the definition of a Surveyor to the State Executive Committee.

The Surveyor Course will wrap up with finals in May. Graduation will be in June.

Bob Hoy is looking into the purchase of old survey plats from a retired surveyor. The decision on whether or not to purchase these plats will be made at the next Executive Meeting.

The Cleveland Chapter picnic will be on August 5, 2004 and will include our Old Timers celebration that is normally held in September.

The **Executive Committee Meeting** was not held in April.

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By Robert G. Hoy

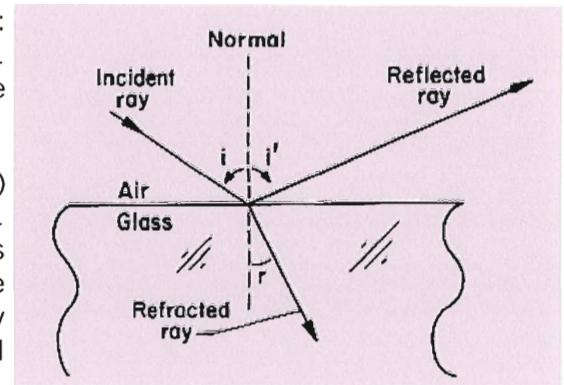
Traditional: Glass Refraction

When light enters glass, and other objects, it refracts or is redirected as a function of the angle of entry. This effect is why a pole looks bent when placed in a swimming pool. The best instance to sight through glass would be at level line. This is similar affect in stealth aircraft. Their stealth ability is part energy absorbing shell and partly that the angles formed on the craft's exterior do not bounce light/energy because it is bounced at an angle that remains into the aircraft.

Snell's Law:  $R_i * \sin(A_i) = R_r * \sin(A_r)$  governs light passing through objects with different refractive properties;  $R_i$  is refractive index light is leaving (air),  $A_i$  is angle from perpendicular at entry to the other next medium;  $R_f$  is refractive index the light is entering;  $A_r$  is refracted angle through the entered medium.

Let's look at a  $A_i$  of  $0^\circ$  (level line) of light from air to glass:  $1.0002926 * \sin(0) = 1.51714 * \sin(A_r)$ ; solving for  $A_r$ :  $A_r = \sin^{-1}([1.0002926 * 0] / 1.51714)$ ;  $A_r = 0^\circ$  or no refraction (what you are seeing is undistorted).

Now a zenith angle of  $80^\circ$  or an  $A_i$  of  $10^\circ$ :  $1.0002926 * \sin(10) = 1.51714 * \sin(A_r)$ ; solving for  $A_r$ :  $A_r = \sin^{-1}([1.0002926 * 0.173648177] / 1.51714)$ ;  $A_r = 6^\circ 34'27''$  which is how much the objects you are seeing through the glass are distorted by. Where you are seeing things are not where they truly are. Long story short: avoid sighting through glass at all costs.



Illustrated example of refraction.

Source: <http://accept.la.asu.edu/PiN/rdg/refraction/refraction.shtml>Total Station: Curvature

Most often surveyors think of curvature in how it affects long horizontal distances. Another form is curvature of light around objects. What happens when we "squint" our eyes to see something we normally cannot? We are using the curvature of light around our eyelashes. I once sighted to the center of a prism which look out of focus at best. I focused closer to the instrument to see that I was about 1/4" into a light pole! Another instance I was occupying and backsighting control points in concrete on a construction site. I used the points often and my measured distance was always  $\pm 0.005'$  from record. This one time the distance was off by  $0.015'$ , measured with my 1' rod on the backsight point three times. A pile of forms lie under my line of sight looked close to line. After the forms were moved my distance was good at  $\pm 0.005'$ . When boundary traversing try to clear even the smallest branch or twig from your line of sight, and try and stay clear of tree trunks near your line.

Robotic: more next month

**Correction:** from the April newsletter (corrections are in italics)

Traditional: Steel Tape

Expansion and contraction of steel can be a formidable factor in measuring distances. For general purposes, steel deviates from its standard length by  $0.01'$  per 100' per  $15^\circ\text{F}$  of temperature away from standard temperature which is  $68^\circ\text{F}$ . Temperatures above  $68^\circ$  causes steel tape to expand and temperatures below  $68^\circ$  causes steel tape to contract.

Example: observing a 50.00' distance in  $20^\circ\text{F}$  conditions.

$[(68-20)/15] * 0.01' = 0.032'$  of shrinkage per 100' of tape.

$0.032'/2 = 0.016'$  of shrinkage per 50' of tape.

Our measured distance is corrected to 49.984'

# Cleveland Chapter PLSO

## GENERAL MEMBERSHIP DINNER MEETING

Thursday May 6, 2004

### Location

**Maria's Roman Room**  
**11822 Detroit Avenue**  
**Lakewood, Ohio**

Maria's Roman Room



Detroit Avenue

West 117 Street

I-90

### Menu

Choice of:

**Veal Parmesan**  
**Chicken Romano**  
**Salmon Tarragon**

**Served with: House salad, pasta, cucina bread, coffee, tea & iced tea, soft drinks and spumoni.**

**COST: \$24.00**

Includes tax & tip

### Reservations:

Call John R. Hoy at (440) 877-1434 by Wednesday May 5, 2004. Please call on time. Thank you.

### PROGRAM

## Building a Successful Investment Strategy

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### AGENDA

RELAXATION & DINNER	6:00
DINNER	7:00
SPEAKER	8:00
MEETING	8:30

### ITEMS FOR DISCUSSION INCLUDE:

New PLSO State Executive Committee Calendar  
 Cleveland Chapter Calendar  
 2004 Golf Outing  
 Summer Picnic & Old Timers Details

**THOSE NOT INTERESTED IN JOINING US FOR DINNER ARE ALWAYS WELCOME FOR THE PROGRAM AND MEETING**

At the last dinner meeting, there was a discussion about a proposed change to the definition of a surveyor that is being discussed by the State Board of Registration. Chapter Delegate Louise Veverka stated that she had received only two written responses regarding the proposal, one from Chapter President Mark Yeager and one from me.

A person at the meeting made a comment, hopefully in jest, that you had to be partially retired in order to take the time to write a response. The last time I checked, Yeager was still working full time, so I had to presume that the comment was directed at me and I thought that was an interesting statement.

Since PLSO was formed, there have been a lot of people who have worked full time and still have expended countless hours working for our profession and our professional society. These people have worked on their own time, volunteering their time and energy to make this Chapter, and the State PLSO, a success. This society was built by the volunteer workers who have gone far beyond the regular meetings to make things happen for all of us.

Almost all of our current officers are working full time and still volunteering their services. They do not just come to the meetings, then do nothing in between them. They are actively involved doing the "grunt" work of running the society, keeping the minutes, balancing the books, planning the meetings and publishing the newsletter. They are teaching the school, planning the golf outing and working on conventions. These are the people who are giving something back to their profession, not just a few dollars for dinner every month, but they are giving of themselves. These people are working hard to make a difference. They do not get paid for their services and they do not even get much recognition for their labors, but if not for them, this society would disappear.

I, for one, am very grateful for anyone who volunteers their time and talent, whether it is with a professional society, a church or a library. They make life better for us all and deserve our thanks.

To compound the situation for this person who made the comment, but on a personal note, I will be leaving Michael Benza & Associates on June 30, 2004. After 14 years with The East Ohio Gas Company, 25 years with Wheeler & Melena, Inc. and 12 years with Benza, (that is a total of 51 years in the profession) it is time to move on. As any actor or politician knows, there comes a time to get off the stage and for me, that time is now.

John E. Dailey  
Past

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Currently they are conducting a confidential search to find a Professional Surveyor to help grow their new Solon, OH office servicing the greater Cleveland Market. We are looking for a Professional Surveyor (PS). Please call Michele Leonatti at (330) 676-9235



2004 Newsletter Advertising rates:

**One-sixth page:** 3" h. X 3.6" w. \$80.00 yr.  
**One-half page:** 4.5" h. X 7.5" w. \$200.00 yr.  
**Inserts:** 8.5" x 11" both sides \$100.00 each issue  
 (accepting only two per issue)  
 11" x 17" both sides \$150.00 each issue

**Help Wanted or Position Wanted** up to 1/2 page:  
 \$30.00 per issue

Contact: John G. Hoy, Newsletter Editor  
 216-476-3600  
 hoy7419@cs.com

### Sustaining Chapter Members

Individual members willing to support their newsletter can become a Sustaining Member by making a donation (minimum \$50.00).

Mark A. Yeager, P.S., KS Associates  
 John G. Hoy, P.S., John R. Hoy & Associates, Inc.

### PROFESSIONAL DEVELOPMENT

The Chapter DATA BANK is located at the offices of Garrett & Associates, Inc. at 2030 West 19th Street in Cleveland. Contact Robert Hoy 440-835-9400 or Richard T. Garrett 216-696-6080 for information concerning the records or to arrange access. When you see Dick Garrett be sure to thank him for his generosity.

- This summer's events are the Golf Outing and the Family Picnic. The Golf Outing flyer is on page 9. Many thanks to Colin Fletcher of Leica Geosystems who arranged for the Robotic Total Station as a hole in one prize. If anyone has a suggestions for new hole sponsors please contact John G. Hoy as soon as possible. The picnic is scheduled for August 5 at Albion Woods in Strongsville. Contact Jack Hoy with any suggestions or to volunteer to help make this a successful event.
- The PLSO State Executive Committee has reduced the number of meetings this year at the suggestion of our new President George Seymour. They will meet on odd numbered months. The other meetings will be held on an "if necessary" basis. See the calendar on page 12.
- Please take note of the advertisers who have chosen to support our chapter newsletter and thank them by utilizing them for your business needs.
- You have the opportunity to become a Sustaining Member of the Cleveland Surveying News by earmarking a donation to the chapter (minimum \$50.00).

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Our survey products, our maps, have changed rather dramatically over the past 15 years. Maybe not as noticeable in appearance compared to how the map resides in our offices: from tangible to intangible.

Before the introduction of the 486 personal computer in the early 1990's, most drawings existed in a paper format. Some surveyors created maps in pencil, but the majority used ink on vellum or mylar when required. These ink drawings could not easily be modified. Electronic erasers were needed in order to erase the permanent ink. At times within the surveying and construction community, labeled distances were erased and replaced with a new distance instead of changing how the lines appeared on the drawing. Looking back at this method now, map making by hand was at some times tedious but we took a lot of pride in them because we were like a painter creating a portrait. A portrait of land.

Fast forward to the 21ST century, and Autocad is the industry standard. Teamed with 3rd party surveying software, surveyors can have the picture of a topography survey "drawn" as the data is reduced into cad. Contours drawn with just a couple clicks of your mouse. Boundary calculations can be performed much faster and more iterations to decide which found monuments to hold. Lines can be drawn, moved, and rotated in just a few seconds where with a paper drawing you needed to be sure you wanted to redraw the line before you started erasing.

Most of the time we send our paper prints of our boundary surveys and topographic maps. More and more I'm seeing clients requesting our electronic version of what we issue in a paper format. You might email it or burn it to a compact disc and think nothing about it. But why did they want your cad version? For printing purposes? For engineering design? Or do they want it to be able to add to it in the future? If they want an electronic version for printing, suggest a file in TIF, JPG, or PDF format.

In cad drawings I work in, there are many layers many which are unused. I have calculations, some good some bad. When I have received cad drawings from other surveyors, engineers, and architects I have often been confused on what layers represent what part of the map. If I am having difficulty with cad drawings that have come across my desk, presumably clients we've sent cad drawings to have had the same confusion. What if your client uses information on a layer that is bad? Are we opening ourselves up to liability? Are the lines we have drawn for boundaries and design correct to the degree they need to be or are the labeled distances, stations and offsets, and bearings correct? I have submitted a "working" cad drawing to a client, several time on a project, that were sent to another surveyor involved with the project who turned around and complained to the developer that our boundary did not close within minimum standards. When we formally submitted our map, the boundary met the standards.

We might consider eliminating parts of our cad drawings before sending them electronically to clients. Do we delete all layers that do not show up in a paper print so our client can have an exact electronic version of what we normally issue? Does our client have a right to our ground shots which were used to create the contours? Your contracts might have language regarding what is to be issued in an electronic format.

My last question to you is what might your client do with the electronic drawing aside from the project it was intended for? It could be passed on to a different engineer or surveyor in the future, or used for a different design project. I performed mapping for a roadway project which was also used for utility work near the roadway project. Furthermore I knew an electronic version of my mapping was passed about when I found my point number for a monument box painted in the field for construction staking. My point number was not common such as 1, 100 or 1000. It was 54. A coincidence? Unlikely.

Buy a computer from a store it comes with Windows XP installed. You are not given a windows install compact disc because Microsoft holds that the license of windows you bought with that computer is for that computer only. I wanted to buy a new data collector and trade in my unit because repairing it would be close to as much as the new price. The manufacturer would have required that new software be purchased for the new unit even though I would have given my old unit to them. Should our maps be similar to be used for only a designated project and that use for anything other in which it was not intended needs our permission and possible fee?

Yet this sword is double edged. I have had construction projects that would have required scaling off distances for a majority of the site if a cad drawing were not available. A wise man once told me new technologies in surveying allow us to make mistakes more quickly. Try not to let the easy passing of files through email bring trouble to you. We must come to our own conclusions.

**Robert G. Hoy, P.S.**

## USEFUL LINKS

<http://recorder.cuyahogacounty.us/general.cfm>

<http://www.lakecountyohio.org/auditor>

<http://www.loraincounty.com/auditor>

<http://scids.summitoh.net/gpaws2internet>

<http://www.ashtabulacountyauditor.org>

<http://www.co.ashtabula.oh.us/AshCtyWebR53.nsf/Recorder%20Frameset?OpenFrameSet>

<http://onlinedocs.andersonpublishing.com/revisedcode/>

Our meeting program last year covered county information available online. The following is a compiled list of links.

<http://auditor.cuyahoga.oh.us/auditor/rep/default.asp>

<http://www.lakecountyrecorder.org/recorders/search/index.asp>

<http://www.medinacountyauditor.org/>

<http://www.city.cleveland.oh.us/index1.html>

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## Calendar

May 6	General Membership Meeting	October 7-8	Fall Seminar (Kings Island Resort)
May 14	State Executive Committee Meeting	October 8	State Executive Committee Meeting (IF NEEDED)
May 17	Executive Committee Meeting	October 18	Executive Committee Meeting
May 21	Cleveland Surveying News Deadline	October 22	Cleveland Surveying News Deadline
June 3	General Membership Meeting	November 4	General Membership Meeting
June 25	<b>Golf Outing</b>	November 12	State Executive Committee Meeting
July 9	State Executive Committee Meeting	November 15	Executive Committee Meeting
August 5	<b>Picnic at Albion Woods</b>	November 19	Cleveland Surveying News Deadline
August 16	Executive Committee Meeting	December 10	State Executive Committee Meeting (IF NEEDED)
August 20	Cleveland Surveying News Deadline	December 7	Executive Committee Meeting (IF NEEDED)
September 2	General Membership Meeting	January 14 2005	State Executive Committee Meeting
September 10	State Executive Committee Meeting	January 17 2005	Executive Committee Meeting
September 17	Cleveland Surveying News Deadline	January 21 2005	Cleveland Surveying News Deadline
September 20	Executive Committee Meeting	February 10-12, 2005	PLSO Annual Conference, Dayton
September 30	General Membership Meeting (OCTOBER)	February 10 2005	State Executive Committee Meeting (IF NEEDED)

### This Month's Quote:

" If you watch a game, it's fun. If you play at it, it's recreation. If you work at it, it's golf."

**Bob Hope (1903 - 2003)**