

# Cornerpost

**Journal of the Vermont Society of Land Surveyors** 

Volume 50, Number 2 Summer 2019







#### The Cornerpost

Volume 50, No. 2 • Summer 2019

Published by the Vermont Society of Land Surveyors, a professional society dedicated to the advancement of the science of surveying and mapping. 802.229.6358 | www.vsls.org

#### **EXECUTIVE COMMITTEE**

Mark Day, President Nate Yager, Vice President Lisa Ginett, Secretary Keith Van Iderstine, Treasurer Gayle Burchard, Director Becky Gilson, Director Paul Hannan, Director

#### **GRAPHIC DESIGNER**

Kelly Collar VSLS Administrator

#### **SUBMITTING MATERIALS**

Send any materials to: **Vermont Society of Land Surveyors** P.O. Box 248 Montpelier, VT 05601 Email: kelly@vsls.org

#### **ADVERTISING RATES**

Ad Size	Member/Non-member
Full page	\$300 yr/\$400 yr
Half page	\$150 yr/\$225 yr
Quarter page	\$120 yr/\$160 yr
Business card	\$40 yr/\$75/yr

- Ad subscriptions are for one full year (three issues).
- · Ads must be print-ready.

Material taken from other publications must have permission to copy. Please include the publication editor's name and email address so we can request permission.

**CONTRIBUTE AN ARTICLE** Send it to kelly@vsls.org

## Contents









#### Feature Articles

President's Corner	4
Just Another Day in the Field	6
Vermont Board Needs Input	7
What's New With NSPS?	8
Spring Seminar Photos	9
Vermont Survey Library	10
Hello from UMaine!	12
Survey Markers	14
Survey Equipment Over the Years	16
Random Notes	21
Meeting Minutes	22
Register for Fall Conference	26

#### **Our Advertisers**

Keystone Precision Instruments	2
Maine Technical Source	5
Murphy Sullivan Kronk	13
John Grady, L.S	13
Eastern Topographics	20

#### Send In Your News

The success of The Cornerpost depends on all of our members. Please consider making a contribution to an upcoming issue. Send your articles, news and photos to kelly@vsls.org.

#### On the Cover

Richard Lunna, L.S., sent in this photo and an article about an unusual survey he completed in July. Read more about his adventure on page 6. Rich receives a \$50 gift certificate to the restaurant of his choice for having his image selected for the cover. Send *your* photo for the next issue to kelly@vsls.org.

NSPS AWARDS: Each year, the National Society of Professional Surveyors holds a journalism competition to recognize the best projects from around the country. This year, VSLS was recognized with three awards in the categories shown here. Thanks to everyone who gave their time and energy to these projects!

#### • Best Public Relations Project:

"Land Surveying in Vermont" video, coordinated and written by Brad Holden, featuring Becky Gilson, Jake Keasbey, Brad Holden, and Mark Day

#### • Best State Society Magazine:

The Cornerpost, Fall 2018. Contributors: Dan Rexford (cover photo), Mark Day, Gayle Burchard, Knud Hermansen, Harris Abbott, Dick Bohlen, Jay Doody, David Fox, Paul Hannan, Wendy Nelson, Lisa Ginett, Seth Kittredge, Tricia Kules, Andy Dussault. Designer: Kelly Collar

#### • Best Feature Article:

"Cowan on Parol (Parol Evidence, That Is)," Written by Tim Cowan

# President's Corner



We need more voices on our Listserv. To join, go to: vsls.org/join-the-vsls-listserv



am sure that we can all agree that it was a tough spring trying to stay dry and get our work done, but it seems that Mother Nature has been blessing us with a bit more favorable conditions. I hope you're all managing the heat without too much difficulty.

We had our Spring Seminar back in April at Castleton University. The venue was excellent, as were the presenters. Dan Martin did a fantastic job educating the crowd on the upcoming Datum changes that WILL AFFECT ALL OF US, so that alone made the trip worthwhile. In the afternoon Richard Hosking educated/refreshed us on the proper signage and safety procedures for working in a right of way. If you haven't reviewed your work practices for working in a right of way, you probably should. The fines can outweigh any profit you stand to make on a job.

In other news, the VSLS has launched a ListServ which members can join through our website. Once you've joined the Listsery, you can simply send an email to vsls@googlegroups.com, and the other Listserv members will receive it in their inbox. It's been pretty quiet so far, so I encourage members to put up topics so we can get some well-intended group discussions flowing.

Finally, I would like to congratulate Kelly and the VSLS for an amazing trifecta in the NSPS Journalism awards. We are proud winners of the Best PR Project for the recently-completed VSLS video, Best State Society Magazine for *The Cornerpost*, and Best Feature Article for Tim Cowan's article on parol evidence. This goes to show how much talent we have working for us, so thanks to all who have contributed and a special thanks to Kelly for keeping her foot on the accelerator. Well done!

I look forward to seeing you at the Fall Conference on Sept. 5 and 6. We'll be at the Hampton Inn in Colchester, right off I-89, and we have a great program planned for you. There are also plans to meet after the first day of the conference for a bonfire, hosted by our NSPS Director Gayle Burchard. More details will follow. Until then, stay cool!

Mark Day VSLS PRESIDENT

See more photos from the Spring Seminar on page 9.

# The source for Leica Captivate series is:









For over 35 years, engineers, architects, surveyors and contractors have come to rely on MTS as their number-one source for the latest generation of precision measurement technology products...at a captivating price...backed by an experienced team with the smarts to train your people right.

The next generation of Leica Nova and Viva measuring instruments are the world's first self-learning total stations and MultiStations with Leica Captivate. Transforming the Leica Viva GNSS experience, this engaging software joins the ultimate GNSS receivers innovation with an industry-first 3D user immersion. Leica Captivate modernizes the Leica Nova scanning experience, for the first time merging the overlay of measured points, 3D models and point clouds into a single view.

For more information about the one SOURCE that can meet all your measurement technology needs, from field to finish, call MTS today at 800-322-5003.

Wappingers Falls, NY

# Just Another Day In The Field

A missing corner, an ancient Ford tractor and a watchful neighbor present a creative challenge.

OME CORNERS ARE NEVER FORGOTTEN. Such as the one we encountered in July on a survey project in Stockbridge. We were working on a 10-acre parcel located between Route 100 and the Tweed River that adjoined a half-acre parcel

I had surveyed back in January of 1976. During the initial reconnaissance survey, five of the six corners of the smaller parcel were recovered without too much trouble, but the last, northwest corner was a problem, being an iron rod that was set flush with the pavement well over forty years ago. Now the corner was buried under at least two additional pavings.

Normally, searching for the missing corner would not have been a problem, but Murphy was ready and waiting for this one. The suspected location was near, or under the front end of an old Ford tractor with attached bucket loader on the neighbor's land. Schonstedt detectors work great, but as you know their usage is limited around large amounts of steel and iron.

The tractor hadn't been started or moved in years, with flat rear tires and a seized hydraulic system. I advised the owner of the problem and he promised to move the tractor or raise the

bucket by the time we arrived two days later. Didn't happen. That Ford was content to stay where it was and stood its ground when we arrived. We tried to push it forward. We tried to push it back. We pried on it from side to side with an iron bar. Didn't budge. But alas, it was no match for the treachery of an ol' surveyor.

As an afterthought before leaving the office that morning, we brought along an old bumper jack (now how many of you remember what those were?). We were able to place the jack under a gusset plate at the forward end of the bucket arm and raise the bucket and front end of the tractor about a foot and a half off the ground - just enough to get a faint signal from the detector at the lowest setting when it was held nearly level and away from the surrounding steel.

We made a series of pin-cushion holes in the pavement with a Ryobi drill while working around the frame of the loader. We had to constantly adjust our position to avoid the cross arm and braces, making it difficult to work the hole directly. Chunks of pavement were beaten from the suspected location with the iron bar, then more drilling was done. This was repeated for an hour or so until we finally broke through the pavement.

We pawed at the hole with a small shovel and our hands, nervous as to whether we had just gnawed a good sized hole in the neighbor's driveway (who was watching) or were really onto something. And there it was, peeking up from the bottom of the hole, a ½" iron rod about 5 inches deep, the one set over 43 years ago!



Unfortunately, the corner was located under the bucket loader cross arm so we couldn't use a prism pole to shoot it in. We tried again with the iron bar to move the tractor. No luck. We finally decided to set up a



tripod on the loader frame to see if that would work. After some effort it was perched atop the arms and braces. The tribrach was leveled and focused and the iron rod came into view, just missing the east edge of the cross arm.

The neighbor owned a river tubing business. By now it was late morning, getting hot, and the "tubers" were arriving in droves and were parking wherever space was available. While we were concentrating on the digging, a large truck pulled into the space between our instrument and the tripod and blocked the sight. We were able to adjust the instrument tripod height upwards just enough to squeak a shot through a small hole between the top of the cab and the bottom and side of the headboard. Finally.

As mentioned before, I won't be forgetting this one right off. ®

# The Vermont Board of Land Surveying Needs Your Input



Dear VSLS Members, Officers and Friends:

One of the duties of the Vermont Board of Land Surveying is to periodically review our rules and regulations. We have kept a log of possible deficiencies since the last rule update, and we are in the process of formulating possible changes and/ or revisions. Two important topics we're reviewing are:

- What role does georeferenced data have for the surveying profession?
- What, if any, collegiate requirements should be considered for licensure?

Our neighboring states have very similar rules and regulations to Vermont's current rules on these issues.

At this point, we would like to solicit input from any and all concerned with rules and regulations relating to the surveying profession. Please send comments or suggestions to Board Secretary Kara Shangraw at the address shown here. We appreciate your help and look forward to hearing from you.

## Tim

Timothy Short, L.S., BOARD CHAIR

What changes should be made to surveying rules and regulations?

**Members of the Vermont** Board of Land Surveying, from left to right:

- John Diebold, L.S.
- Daniel Coane. **Public Member**
- Timothy Short, L.S.
- Joseph (Skip) Nalette, L.S.
- Joseph Flynn, L.S.
- Seth Kittredge, L.S.
- Evelyn Wetzel, **Public Member**

Please send your feedback about these questions to:

Kara Shangraw Licensing Administrator Office of Professional Regulation City Center Building 89 Main Street, 3rd Floor Montpelier, VT 05620-3402

EMAIL:

kara.shangraw@ sec.state.vt.us



## What's New with NSPS?



he spring NSPS Meeting was held in Arlington, Virginia, in conjunction with Lobby Day on Capitol Hill. I had never attended Lobby Day before and didn't know what to expect.



JB Byrd, the NSPS lobbyist, did a great job of informing us of the proper protocol when meeting with our congressmen and senators. I met with the staff members for Senators Sanders and Leahy and Congressman Welch, and I was totally impressed with how professional and informed these young people are. We were asking them to sign the letter requesting \$146 million for 3DEP in FY20. Senator Leahy is on the Fiscal Committee, so he didn't need to sign the letter, and Senator Sanders agreed to sign it. Getting this money will help with updating FEMA maps and data, among other infrastructure improvements that are needed at both the state and federal level.

#### **New Committee Better Serves Regional Interests**

The next day we had committee meetings. Vermont in the past has attended the Great Lakes Council meeting, but last fall in Maryland, a group got together to form a North East Council. I have attended the North East meeting and plan to continue to do so.

The idea behind the new council is that there are so many states attending the Great Lakes meeting, that it is no longer an effective way to inform other states of what's happening in our state and move motions forward to the full board. The new council is open to any state at or above the Mason-Dixon line on the Atlantic coast and not

touching a Great Lake. At the spring meeting, the colonial states talked about possible regional licensing.

#### Your PR Ideas Are Needed

I also attended the Public Relations Committee meeting. President Van Horn was the committee chair for the meeting. After the meeting, she asked me to become the chair since she has more than enough to keep her busy. We are trying to come up with new ideas to get the surveying profession noticed. The use of social media to attract young people was discussed – short TV ads was one idea. Anyone with any ideas, please contact me. I need all the help I can get.

#### **Program for Certified** Floodplain Surveyor

The other Committee that I attended is the Certified Floodplain Surveyor. We are talking about making this a national certification with regional testing areas. Currently only North Carolina has a FEMA approved program. Tennessee surveyors have gone to North Carolina to take the four-day course/exam. How many Vermont surveyors are interested in becoming certified?

This does not mean that if you aren't certified you can't fill out Elevation Certs and LOMAS. We are still in the development phase of how to administer the exam and who will administer it. Anyone who is interested in the program or has any ideas, please contact me.

The NSPS Fall Meeting will be held at the Hilton Bonnet Creek in Orlando, Fla., September 26–28. If you have any ideas or concerns that you would like to share with NSPS, please let me know.



To give Gayle feedback about these and other NSPS initiatives: gburchard21@gmail.com | 603-547-0590





Thanks to everyone who came to the VSLS Spring Seminar on April 12 at Castleton University!









# **New Rules and Tools** The Vermont Survey Library

n May 28, 2019, Governor Phil Scott signed Act 38 (House bill H.526). While generally concerned with setting town clerks' recording fees and practices, this bill also creates a digital Survey Library, with the mandate that any change in a Vermont property boundary, either through a boundary line adjustment or subdivision, be documented with a survey plat that is submitted to a digital library that is publicly accessible. This library will be built and maintained by the Vermont Center for Geographic Information (VCGI), and the new requirements go into effect on January 1, 2020.

#### Where Did this Bill Come From?

This bill is part of a concerted effort across the state to modernize the maintenance of, and access to, Vermont's property and ownership data. As most members of the Society know, we have been working on a multi-year project to develop statewide electronic parcel mapping for all 255 towns in Vermont. This has been a multi-million-dollar effort involving the work of several state agencies, mapping contractors, town officials and many members of the surveying community who have helped the towns develop their tax maps. This effort will be complete at the end of this calendar year.

This data is publicly available through a number of avenues, including a VCGI Parcel Viewer (maps.vcgi.vermont.gov/ ParcelViewer), where the data can also be downloaded, and the ANR Atlas (anrmaps.vermont.gov/websites/anra5Lite). While this is a milestone for property records in Vermont, we realize that our work is only just beginning. Even with Vermont's relatively low pace of development, parcel lines are changing all the time with boundary line adjustments and subdivisions. The Survey Library will play a critical role in providing the kind of documentation that keeps this valuable dataset up to date and viable.

#### What Does it Mean for Surveyors?

As we all know, parcel data is not perfect, and the Survey Library will also represent an important resource in allowing us as a community to improve this data to the benefit of all Vermonters. We hope that towns, mapping vendors, surveyors, and the general public will all use and see the importance of open access to surveys as a foundation of property records. We know that many of you travel extensively across the state for your work, and find widely varying records conditions in each town. We believe the library will ease the burden of the initial research required for completing field work. Our goal is to make property records easier to access for everyone by providing the kind of centralized searching and indexing that

just is not feasible for individual towns to provide. In a similar way that parcel data is just an index to property ownership, records in the survey library will only be copies of the records held by town clerks – authoritative, sealed copies of surveys will still reside in the town office.

This bill requires that surveyors submit to the Survey Library a plat for any changes to property lines. We discussed extensively who should submit the surveys to the Library. In the end, we – and our surveyor advisors – felt that the surveying community has the best technical expertise to provide clear documentation of their work, and the best understanding of when a survey is changing a property line. This legislation does not require that the entire property be surveyed, only the changed line. We felt that surveyors' professional judgment should be used to determine how much of a property needs to be surveyed to adequately document a changed property line.

We also realize there can be some ambiguity in whether or not a survey will be entered into the municipal records once handed off to a client. Again, we felt that this conversation was best left to surveyors and their clients. We don't expect that all surveys you conduct will end up in the Library - only those that are entered into the land records are required.

#### What does the new legislation require?

Any change in a Vermont property boundary, either through a boundary line adjustment or subdivision, must be documented with a survey plat. The surveyor is responsible for submitting the plat as a PDF to the digital Survey Library.

When does the law go into effect? January 1, 2020

#### Who has access to the data?

This survey data will be publicly available through a number of avenues, including easy-to-use map interfaces similar to the VCGI Parcel Viewer. Parcel data is currently available at these links:



**PARCEL VIEWER** maps.vcgi.vermont.gov/ParcelViewer



anrmaps.vermont.gov/websites/anra5Lite

When VCGI polled the surveying community, we found overwhelming support for the idea of a survey library: 89% of respondents said a survey library would have high or very high value to them. VCGI is committed to working with the surveying community to make the Survey Library a useful resource for your work.

The legislation requires only a PDF copy of the survey to be submitted to the Library. The PDF format has been a very durable standard and free viewers are available to the public. Any surveyor making a mylar of a survey for recording in a clerk's office can produce a PDF. No printer is required, and we can avoid taking in scans or reproductions of surveys that may have legibility issues. We don't think this format is going anywhere, but the legislation does allow the Board of Land Surveyors to make changes to the submission format if that becomes necessary or helpful.

We will be happy to take surveys have been georeferenced (or have geographic coordinates noted on the plat) but did not think it was necessary to require georeferencing at this point. As part of the intake process, we will ask for some basic information associated with the plat to facilitate searching and appropriately crediting the plat, but do not intend for the upload process to burdensome or time consuming.

While this new requirement is focused on keeping property data up to date moving forward, we know the surveying community has a wealth of historically important work that in some cases resides in boxes or personal files. We hope the Survey Library can also serve as a home for these important historical surveys and welcome thoughts from the community on what records should be considered for loading into the Library.

We are currently working through development of the two key components of the Survey Library: the intake of surveys from your community, and the public access for that data. We're committed to building a simple, intuitive interface that easily allows you to submit surveys to the Library, and userfriendly, searchable, public access to those records.

#### Who helped craft the legislation?

We've coordinated closely with the VSLS Executive Committee and the Vermont Board of Land Surveying throughout the development of the Survey Library. While the effort to pass this legislation was spearheaded by staff at VCGI, we take direction from a Parcel Advisory Board, which has four state agency representatives, but also representation from the regional planning commissions, Vermont League of Cities and Towns, and a licensed surveyor. We also worked with a technical committee of surveyors to lay out the idea and mechanics of the survey library. When VCGI polled the surveying community, we found overwhelming support for the idea of a survey library: 89% of respondents said a survey library would have high or very high value to them (The Cornerpost, Spring 2018). VCGI is committed to working with the surveying community to make the Survey Library a useful resource for your work. We consider surveys to be the cornerstone of the property records in Vermont, and we want to make these valuable resources readily accessible to the broader community.

We welcome your thoughts and ideas on the design and use of the Library (feel free to contact David Fox at david.n.fox@ vermont.gov). We will be at a number of municipal events throughout the fall to discuss the Library with town officials. VCGI staff will also be at the September VSLS meeting, where we plan to demonstrate a preliminary version of the Survey Library and get feedback from the surveying community.

We look forward to working together on this new chapter for Vermont's land records.





Thank you for all your support in the past getting the word out regarding the University of Maine's online surveying education opportunities. While we recognize the wonderful nature of live surveying education, we also realize that there are people out there who benefit from online surveying education. Apply now to be a #BlackBearFromAnywhere.

#### We have 3 options for online surveying degrees:

- B.S. in Surveying Engineering Technology (ABET ETAC accredited)
- Professional Science Masters in Engineering and Business Surveying Engineering Concentration
- Graduate Certificate in Surveying Engineering

We currently have 80+ students in the B.S. degree and 30+ students in the graduate programs from all over the United States. Those enrolled in one of our online programs from out-of-state qualify for the e-tuition rate, cheaper than conventional out-of-state tuition. Visit online.umaine.edu/surveying/ to find more information regarding courses, costs, applying, etc.

#### Feel free to contact Tiffany, Dagmar, or me with any questions.

- For general undergraduate information, contact Tiffany Peterson at tiffany.peterson@maine.edu.
- For general graduate information, contact Dagmar Moravec at dagmar.moravec@maine.edu.
- For surveying information, contact me at ray.hintz@maine.edu.

Thanks for your help in getting the word out!



Raymond Hintz SVT Program Coordinator, UMaine 207.581.2189



Attorneys with extensive experience in survey related issues including land and water boundaries, rights of way, easements, lakeshore protection and other land ownership and use issues.

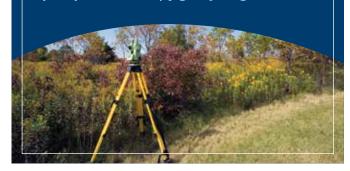
EXPERIENCE · FOCUS · JUDGMENT WWW.MSKVT.COM

BURLINGTON, VERMONT 05406-4485

## **Business for sale.** Just over the border!

**Upstate New York land surveying practice in** Whitehall for sale by a Vermont and New York land surveyor. Over 40 years of records for Washington, Warren, and Essex counties, and some of western Vermont. Turnkey operation includes office and field equipment. Office building also available. Available to assist with transition for as long as necessary.

To learn more, please contact John Grady, L.S. (518) 499-2642 | jfgradyls@gmail.com





VELCO asks surveyors to please...

- Confirm Right of Way widths by calling (802) 770-6357 or visiting webgis.velco.com/infonet.
- Use safe work practices when working in or near transmission Rights of Way.
- Remember that permanent structures are not permitted within VELCO's Rights of Way.

Nervous land surveyor settles dispute between angry neighbors in the Northeast Kingdom. AL BURROUGHS WAS A FRIEND OF MINE, and we both attended the Grace Methodist Church in St. Johnsbury. Al was also the county sheriff. It was after a service at the Church that Al came to me and said that he had a problem up at Newark Pond.

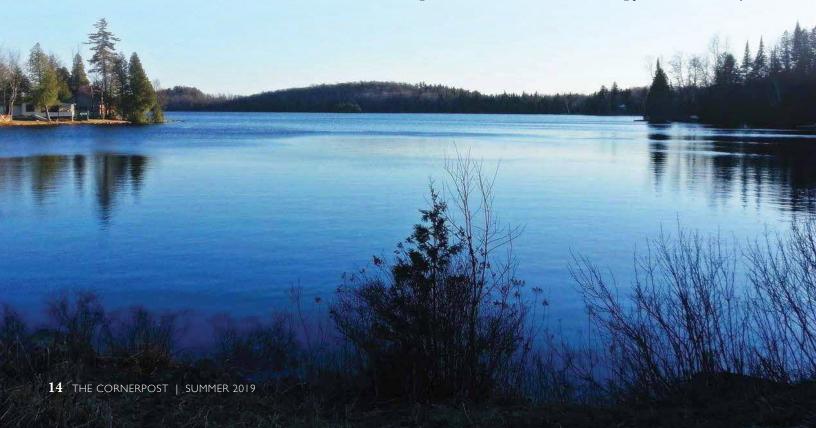
He said that he had been called up there to keep the peace three times, the last time being last week. Seems that two parties were arguing (I should say fighting!) about the location of their common boundary. At the conclusion of his last trip up there, he had gotten them to agree that they would accept my judgement as to the location of that disputed boundary line, and that they would split the cost of my services. "Would you agree to undertake the challenge of the project?" asked Al.

# Trouble at Newark Pond

BY DICK BOHLEN, L.S. #7, retired

Well, I was young and foolish at that time, and besides, I needed the work. So, I said that I would do the job, but with one condition. That being that Al would be there...with his sidearm! It was agreed, the date set for us to go, and for us to meet at Al's home on Prospect Street in St. "J".

Bob Hovey was my helper at the time, so I picked him up and we went to Al's. It was then a two-car caravan that started for Newark and the office of the town clerk. This office was at the home of the town clerk, as was common in those days. The office was on U.S. Route 5A, some five miles from the pond. Al had given me the names of the two warring parties, so I carefully



researched the Land Records until I found and copied the original descriptions of the two properties involved. No copy machines then, so I copied the descriptions in long-hand as was common back then, and, in some cases, used my personal short hand.

On to the pond we went, and Hovey and I set about measuring, searching, and trying to put the deed descriptions on the ground. I have no memory of the descriptions or of what we found or did, but I do remember that we found some iron pipe markers and were able to satisfactorily establish that common boundary that was in question. We were not without spectators, however. Al had gotten the two parties, let us call them Party A and Party B, to agree not to bother us while we were doing the survey, and to stay in their respective houses. This they did, but we were well aware of people, many people, watching us from the windows, and from on their porches. They appeared, sometimes, to even trip over each other while running to the next "observation window"! They watched our every action, moving from window to window and talking among themselves.

I did have one question, however, and that was whether I had copied one course or direction correctly. I had copied something like Southwest, and was wondering if it could have This was met with cheers, hoots and sighs of relief.

Could I collect my fee now and go home? Wishful thinking – there was still Party B. Slowly strolling to their car, I went to the window of the driver and said that after all of my reading of the deeds and working on the ground, it was my professional opinion that the bound in

question was really where Party A believed it to be. This was met with much moaning, cursing and unkind words! The driver of the car held up a paper in his shaking hands, and with blue lips and trembling voice, he pointed his finger at a point on the paper and said something like "Then, how do you explain this?"

The tendency here would have been to end it all and tell him that this was my opinion and this was final! End of discussion! No, the Lord must have spoken to me, and I actually looked to where his finger was pointing and read the paper which was, in fact, his original deed that I had

copied in the town clerk's office! Lo and behold, I was reading something that I had not seen before. "Let me see that," I said, and I took the deed into my hands.

I was young and foolish at that time, and besides, I needed the work. So I said that I would do the job, but with one condition. That being that Al would be there...with his sidearm!

been Southeast, which would have made a big difference in the location of the disputed bound. I had no option but to return to the office of the town clerk and check my copying.

It was then a four-car caravan that left the pond and traveled to the town clerk. Believe me, the autos of Party A and Party B looked like armored tanks going into battle! I could picture guns and cannons bristling out of every window. These folks were truly at war and certainly hated each other. Not a good thing for neighbors!

Finally, back at the office of the town clerk, I went back into the Land Records and did verify that my copying of the course in question was indeed correct.

On I went to Al, who was pacing back and forth beside the parked caravan. I told him that I firmly believed that Party A was right in the location of the disputed bound, and that Party B was wrong. I had hoped that he would do the informing of the parties, but he, to my terror, said "well, you better tell them." Wow! Part of the responsibility of a Land Surveyor.

I, naturally, took the easy road first and went to the car of Party A and told them that I believed that they were right, and that the bound was truly where they believed it to be!

Comparing it with what I had copied, it was very clear that the town clerk had LEFT OUT A LINE when she had copied the deed! Wow, what a difference that made! No further question: Party B was right and Party A was wrong! Let there be peace here. Like Jesus said to the storm and the waves, "Peace, be still!"

So, with Al in tow, I went to the folks in the car of party A, and explained to them what had happened. This was hard for them to understand, but they did! What could they really dispute?

We returned into the office of the town clerk, where I pointed out to the clerk where the line was omitted. She promised to correct this oversight immediately, and I collected my fee that was somewhere around \$30 from the two parties, and off we went to the peace of home.

In retrospect, they were both right, and they were both wrong. They were right to use the deed descriptions that they had and those at the town clerk. They were both wrong not to have talked about it and shared their information.

So, this battlefield was calmed and peace prevailed. I surely hope that from that day forward, those folks lived beside each other in friendly relations and at peace!

# Revisiting Surveying Equipment From Over the Years INSTRUSUPPLY.COM

BY KNUD E. HERMANSEN, P.L.S., P.E., PH.D., ESQ.

his is the third and last article on surveying equipment and procedures that are now relegated to history. I have been surveying for around half a century. I started before electronic distance measuring was common. Transits and steel tapes were the prevailing equipment found in a survey firm. Metal detectors were rare. As a result, I have had experience with surveying equipment that will never be used again by the modern surveyor.

My two previous articles have discussed taping, the compass, and the transit. I shall now delve into other procedures and equipment known and used in historical surveys of which I often took part.

#### Plane Table

In the early mapping surveys I often participated in, we used the plane table and alidade to prepare a site map and topographic map while in the field. In the days before computers, the plane table (shown above) was an excellent tool to prepare an accurate map in a hasty manner. I have been told that almost all the soil maps prepared in the 1920s and 1930s were done using the plane table and alidade. I had not made my debut on the surveying field at this time so I have no first-hand knowledge of the accuracy of this information.

The plane table was a large board, the dimensions of which I can no longer remember. It was the size of a typical drawing board that engineering and surveying students once had to purchase when studying in their major. This board was mounted on a tripod. The board came with the tripod mounting ring fastened to the underside of the board. The mounting ring was of a size that was equivalent to the transit mounting ring. The board, once mounted on the tripod, was set up at waist level. There was no attempt to plumb this over a known station though I suppose there were situations when this should be done. It was possible to do so.

A large sheet of paper was fastened to lay flat on the top of this board using tape or tacks. The alidade was then placed on the board, atop the paper. I

suppose an alidade could be described as a transit scope fastened to a flat scale the scope being above and parallel to the long length of the scale. Somewhere on the scale was a bubble that was used to level the drafting board or plane table.

With the plane table leveled, a long shanked pin was inserted through the paper into the board. The represented the observer's position. The mapping of the area could now begin.

The rodman, armed with a stadia board, would hold the stadia board at a point to be located by the person at the plane table. Using the stadia hairs apparent when viewing through the scope in the alidade, the distance from the alidade to the stadia board would be determined. On the plane table, the scaled distance would be measured from the long-shanked pin along the edge of the alidade where a point would be marked and labeled on the paper. The orientation of the scale's edge on the alidade being the same direction as the scope is pointing. This procedure was repeated numerous times until the surveyor was satisfied the paper fastened to the plane table was complete with the information necessary for the map being produced on the plane table.

Elevations could be obtained by the simple expediency of setting the alidade level using a scope bubble for this purpose. Most alidades had a plate and Vernier to read a vertical angle that would allow the elevation to be determined by trigonometry.

Many alidades had what is known as a Beaman scale that would allow calculations without having to look up trig values. I will omit discussing the Beaman scale and how it was used. In truth, I would be rather rusty in remembering how to use it after more than four decades without practice.

The end result is that the survey crew returned to the office with a completed map of the area often including contour lines. The only consistent fault I found with the plane table was the fact that survey work on a hot summer day using a graphite pencil often left the map sheet covered with smudges.

#### Stadia Board

I have mentioned the stadia board when speaking of using the plane table. The stadia board can be visualized as a level rod with much larger graduations. The stadia board was somewhat wider than a level rod in order to accommodate the larger graduations. The larger graduations allowed for seeing the rod at longer distances.

I suppose reading stadia distances is a lost art. It was a rather simple procedure unless there was trig involved. The difference in the rod readings between the upper stadia wire or hair and lower stadia hair was obtained and multiplied by 100 giving the distance in feet, assuming the stadia board was so marked in feet and decimal parts of a foot. I will confess to reading the stadia rod at ranges that I could only read half of the stadia rod – that is using only the center wire and top wire or bottom wire. In such cases the interval between the middle and upper or lower stadia hair was multiplied by two before multiplying by 100.

In theory if the stadia rod could be read to the nearest 0.01 of a foot, the horizontal distance could be calculated to the nearest foot. Conversely, if the instrument operator made an error reading of 0.01 of a foot, the horizontal distance would be in error by a foot. This precision was acceptable for most mapping projects.

I will say that I met more than one old surveyor that laid off subdivision lots using stadia to the annoyance of the modern surveyor who finds the distances between corner monuments varying by as I was always impressed that when standing at the instrument, I could see the bright light reflected by mirror on the heliotrope for up to 30 miles away in some cases.



much as two feet with no consistency in the error that would allow a dependable deficiency or an overage to be applied when retracing the lot boundaries. Perhaps I have solved a mystery involving some old subdivisions and corners found.

#### Heliotrope

I will comment briefly about the heliotrope though it's use in private practice was very limited. The heliotrope was an elongated target, fasted to a tripod, and plumbed over a point. The heliotrope I used was composed of two rings along the elongated board with a mirror at the end farthest from the instrument observing the heliotrope.

One heliotrope I used actually had two mirrors that allowed the sun's light to be bounced from the sun using the first mirror of the heliotrope to the mirror

in the back of the heliotrope that then reflected the sun's beam through the two rings to the observer. The double mirrors was required if the sun was behind the heliotrope as it was pointed toward the instrument. The rings in the heliotrope were aimed at an observer standing behind an instrument that was being used to measure angles. The mirror at the rear was adjusted to reflect the sunlight down through the rings toward the instrument operator producing a bright light for the observer to aim upon. Given the sun's apparent movement, the person at the heliotrope had to continuously adjust the mirror. I was always impressed that when standing at the instrument, I could see the bright light reflected by mirror on the heliotrope for up to 30 miles away in some cases.

#### Subtense Bar

I suppose the subtense bar I used from time to time was more common than a heliotrope in private practice, but not by much. The subtense bar appears as a much shortened level rod rotated from the vertical to be horizontal or roughly parallel to the ground. The subtense bar was mounted in its center on to the top of a tripod. The tripod was centered over a traverse station or control point. From one end of the bar to the other was a known distance. The subtense bar that I used had a sight tube in the center. The bar was rotated about



the tripod top until the sight tube was centered on the instrument operator. This would put the length of the subtense bar perpendicular to a line between the subtense bar and instrument.

The instrument operator would measure the angle between the ends of the subtense bar. Using trigonometry, the distance between the instrument and subtense bar could be calculated. The accuracy of the distance was a direct function of the accuracy in measuring the angle. The subtense bar was a very useful tool in measuring those distances that could not be taped. I would often use the subtense bar in measuring distances across water bodies. I also used it from time to time when I did not have an extra person to help me tape the distance.

#### **Plumb Bob**

I will repeat my statement from my first article and say that I don't believe a plumb bob can be found among the equipment of the modern surveyor. The plumb bob was necessary for taping. It was necessary to hang the plumb bob under the tripod in order to place the instrument over the point, there being no optical plummets on survey equipment at the time. Finally, the plumb bob was required to give back sights and fore sights over marks and monuments in the field. I have heard of more than one employer that docked the pay of an employee that forgot to bring their plumb bob to the field.

The use of the plumb bob would seem rather easy, but it was not. Consider my previous explanation on the use of the plumb bob when taping. Hanging the plumb bob under the tripod to allow the instrument to be centered over a mark required the person to have mastered the art of a slip knot. A slip knot allowed the plumb bob to be raised or lowered depending on the adjustment of the tripod legs and how close over the mark was

I spent many hours using a Leroy set. Probably a quarter of that time was spent getting the ink to flow smoothly out of the pen. Getting ink to flow was an art that usually involved ink on the tongue and lips, not to mention scattered across the vellum or mylar.



necessary to aim the point of the plumb bob. To use other than a slip knot caused a knot to be left in the string. A knot in a plumb bob string was a crime commensurate with wanton destruction of property.

The person had to be adept at wrapping the string around the head of the plumb bob. The wrapped string was fastened in such a manner that a tug would unwind the string without leaving a knot. Many surveyors purchased gammon reels that alleviated this task.

#### **Leroy Set**

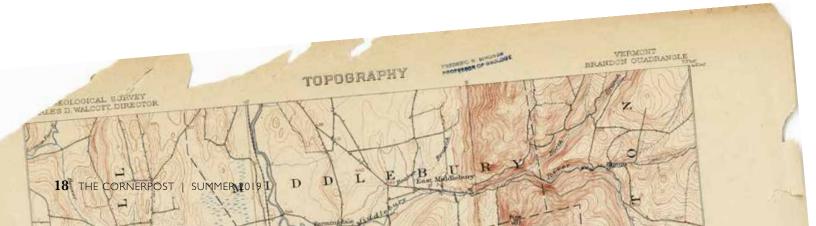
I will depart from surveying equipment in this one instance to speak of the LeRoy set. While it may not be classified as surveying equipment, almost every surveying firm had a LeRoy set unless the firm had a person gifted with beautiful handwriting.

The LeRoy set was a lettering set using lettering templates and a scriber. The scriber had three arms. One arm went into a long slot on the lettering template. A second arm went to a pin that followed the indent of the letter or number in the lettering template. The third arm held a pen that would ink the letter or number on the paper, mylar, or vellum. The letter templates came in different sizes, fonts, and styles. I spent many hours using a Leroy set. Probably a quarter of that time was spent getting the ink to flow smoothly out of the pen. I may have exaggerated this time a

little. Getting ink to flow was an art that usually involved ink on the tongue and lips not to mention scattered across the vellum or mylar. This reminds me that another quarter of the time was spent removing ink that did flow out of the pen but in the wrong location or too copiously on locations without enough pounce. Enough said on that topic as it brings back many frustrating moments.

#### Chain

I will admit to only using a chain one time. I would be perceived as really ancient had I admitted to frequent use of the chain - so I won't do so. For those surveyors that have never seen a surveyor's chain, the surveyor's chain does not appear like the chain an individual would find in a hardware store. The links in the surveyor's chain are approximately 7.92 inches. Each link is a length of wire with a loop at each end of the wire shank that connects to a ring loop that connects to the loop on another similar link for the chain. A four rod chain will have four brass tags with one to four fingers. One finger is found at the one rod length along the chain. Two fingers are found at the two rod length and so on. When measuring, a surveyor would count the number of rods plus the number of links to the object measured - although many a rural surveyors simply gave the number of rods and perhaps half rods without



bothering to count individual links.

While there is sag in a steel tape, it hardly compares to the large sag found when holding the chain above the ground. Furthermore, every loop in that damn chain seemed to catch and clog with sticks, grass, mud, and other debris gathered when dragging the chain along the ground. To further agitate the temperament of the user - in one case being me - the debris would somehow snag and hold two link loops together thereby doubling the chain back upon itself involving some length of the chain. If there is a log with some small appendage sticking from the log you can count on the link loop snagging that appendage. There were always some vegetation protruding from the ground that would snag the chain. Links soon stretched or even broke. Of course, these problems were all relayed to me since I can't be that old to have personally experienced the agitation caused by measuring with the chain.

#### Dip Needle



Metal detectors were around since World War II but their widespread use in surveying firms seemed to occur in the mid to late 1970s. Surveying without a metal detector resulted in many pin cushion corners since an existing pin or pipe that was buried to mark the corner was not always found before a new monument was set.

One trick I often employed before owning a metal detector was to hold a compass and slowly float the compass just above the ground and look for twitches in the compass needle. This technique allowed me to find many metal corners just below the ground surface. In the

1960s up to the widespread use of metal detectors, dip needles were commonly used to find the buried metal corners. Dip needles were composed of a box with a long, looped strap. The box contained a magnetized needle and had a window allowing observation of the needle.

Using the long strap to allow the surveyor to stand up, the box was hovered over the ground while the needled was observed. The sensitive, magnetized needle dipped when influenced by nearby metal. By this means, the surveyor could discover if there was a metal pin, pipe, or bar below the ground surface. The dip needle was not as sensitive to buried metal as modern metal detectors. I don't believe I ever found a pin or pipe that was buried more than half a foot below the ground surface using a dip needle.

#### **EDME**

Early electronic distance measuring equipment, known as an EDME or EDM, using shortened initials, were a separate item of equipment from the transit or theodolite. Often the operator would have to remove the angle measuring equipment and mount the EDM directly on the tripod. Later, the EDM and angle measuring equipment were configured so the EDM was mounted on the standards of the angle measuring instrument.

The first EDM I used was a tellurometer or cubic tape. A tellurometer was set up on both stations and pointed toward the other station using a null needle to find the optimum pointing. Each tellurometer would determine the distance between the opposing tellurometers. The two distances were averaged. The tellurometer used microwaves to determine a distance. You could switch between speaking to the other operator and measuring a distance. Distances were calculated using a paper form that I shall mention again with the next item of distance measuring equipment.

Later I used a Hewlett Packard laser EDM. With this instrument, you knew you were pointing at the reflector because you would see a bright red light as the laser light was reflected back to the instrument. That probably did not do my eyes any good. Not that standing in the

path of microwaves was healthy.

Both items of equipment, the tellurometer and laser EDM, required a needle be nulled, numbers read, frequencies shifted, and an entire sheet of a paper form employed were various readings were made, entered, and manipulated. I believe the form was published by an IRS agent who first invented the 1040 long form.

Temperature and atmospheric corrections had to be hand calculated. Prism corrections were applied to every measurement of the laser EDM. It was a complicated and time consuming process to determine a distance. Yet, it was far faster and more accurate than obtaining long distances by taping.

If my memory serves me, the Guppy was the first instrument I possessed that gave a distance directly without a lot of data entry on to a form and intermediate calculations. I will not further describe this popular EDM. After the Guppy, the angle measuring and distance measuring were combined into one instrument known as the total station.

These early EDMs were powered by twelve volt batteries. I often used the battery in my car or hauled around a heavy twelve volt battery to power the EDMs. To save weight I later used a motorcycle, 12 volt battery. If my memory serves me correctly, the batteries never seemed to last an entire day. They seemed to always be drained at the farthest point from the road.

I will end discussing the early EDMs with the statement that the horizontal distance always had to be calculated using the zenith or vertical angle. If the EDM was mounted on the standards of the angle measuring equipment, the offset had to be taken into account. Long distances often required numerous prisms stacked upon each other in order to get sufficient light reflected back to the EDM to effectuate a measurement.

#### **GPS**

I suppose someone seeing this heading will exclaim that the GPS is not an old piece of equipment relegated to history. If you had seen the equipment I first used,

When I first started surveying, there were no calculators. I used logarithm tables and had to look up trig functions in a book.



you would admit that it was historical.

The early GPS equipment was large and cumbersome. Several twelvevolt car batteries were often required to operate the equipment and obtain sufficient satellite data. The GPS receiver couldn't be used at just any time or for that matter any day. There weren't sufficient satellite constellations to allow for 24-7 operation of the GPS.

Depending on the satellite constellation configuration for that day, data could only be collected during a limited time window. I often occupied a station in the darkest hours of the night in order to comply with a predetermined window of opportunity for receiving satellite data. I met more than one police officer who was suspicious of my activities.

Spending hours on a station to obtain sufficient data was common. In fact, multiple observation windows (think days) of observation were often required. In the earliest GPS, the timing of when the GPS was to be turned on was important. When I speak of timing, I mean down to the odd minute.

Now I ask, does this GPS I have just explained remind you of what a person now uses as they run around with that lightweight GPS receiver on a prism pole, collecting numerous locations in a day?

#### Other Equipment

My colleague, Carlton Brown, has written several articles about slide rules and early calculation machines, so I won't mention those. I will say that when I first started surveying there were no calculators. I used logarithm tables and had to look up trig functions in a book. Unless you've tried to look up log and trig values in a book of tables, you have no idea of the errors that often resulted from trying to interpolate values using the tables in the book.

I'm sure there were other items of equipment used by past surveyors that I haven't mentioned, for the simple reason that I've never used the equipment or forgotten I used it. Forgetting is easier and more common as I get older. I am sure surveyors of my age can add their thoughts and should do so before we pass into history.

# **www.e-topo.com Eastern Topographics**

Digital Planimetric and Topographic Mapping - Ground Control Services Lidar Acquisition and Mapping - Aerial Imagery Research (1920's-Present)

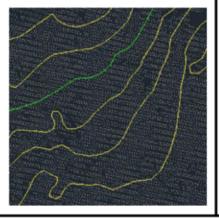
#### CUSTOM FLOWN LIDAR PROCESSED WITH YOUR GROUND CONTROL

1.5 POINTS PER SQUARE FOOT GROUND SHOTS

< 0.3' RMSE 90% NVA VERTICAL ACCURACY

< 0.8' RMSE 90% HORIZONTAL ACCURACY

WE CAN ACHIEVE **FAR SUPERIOR** RESULTS THAN PUBLIC LIDAR



#### HIGH RESOLUTION COLOR IMAGERY

Capable of Producing Accurate 1" = 20' Scale Plan with 1' Contours including DTM Surface

#### LIBRARY IMAGERY

Recently acquired new collection of aerial imagery. Growing collection now over 250,000 photos.

#### ENGINEERING GRADE COLOR ORTHOPHOTOS

0.1' Ground Pixel Resolution and Higher

MAPPING EXPERTS MANY PROJECT TYPES HIGHEST ACCURACY **FASTEST DELIVERY** 

















MALSCE

# Random Notes



his 80th birthday party. Pete became an octogenarian on June 19, and his friends, family, former classmates, and colleagues gathered to celebrate in July at the Christian School in Rutland. Sporting a new "Made in 1939" t-shirt, Pete made the rounds and greeted a number of VSLS members, including Gerry Kittle, L.S., shown above with Pete. Tricia Kules, L.S., took the photos.



#### **WORKING ON WATER**

Andy Dussault, L.S., sent in this 1982 photo that was taken while he and his colleagues conducted a "river survey" in Coventry, Vermont. From left to right, Robert W. Smith, L.S., Andy, and William Evans, technician.



#### EDUCATING THE NEXT GENERATION

Gayle Burchard, L.S., and Becky Gilson, L.S., spent a morning this spring talking with students in Waterbury at the Crossett Brook Middle School career fair. Kids took a challenge estimating the distance to a target across the gym, and then they used the instrument to see how close they came.



#### WHAT'S WRONG **WITH THIS** PICTURE?

Jack Milbank spotted some creative numbering while examining a new prism pole. Thanks to Tim Cowan, L.S., for sending it in.

#### A response to the idea of holding regular Surveyors Breakfasts around the state...

"Surveyors in Windham County, VT, and Cheshire County, NH, have been meeting for breakfast on the first Thursday of every month for at least a dozen years. We value the tradition and believe the benefits are many: professional, social, nutritional(?), community building, fun, etc. I think you have a good idea and we support your effort by our example."

-Eric Morse, L.S.

Organize a surveyors breakfast in your area! Email kelly@vsls.org to get local names and email addresses.



#### FEBRUARY 21, 2019 • 6 P.M. • AIV BUILDING, MONTPELIER

This meeting was called to order at 6:00 P.M. In attendance were Mark Day, Nate Yager, Lisa Ginett, Keith Van Iderstine, Gayle Burchard, Becky Gilson, Paul Hannan and our Administrator, Kelly Collar. Also attending were John Adams and David Fox from VCGI and Joe Flynn from the Vermont Board of Land Surveying.

#### **BILL H.208**

Bill H.208, the State of Vermont State Wide Parcel Mapping program legislation was recently introduced in the Vermont Legislature. The VSLS Executive Committee reviewed the wording of the bill. The language of the bill was provided by the Technical Working Group which consisted of (among many others) three licensed surveyors: Paul Hannan, Randy Otis and Ryan Cloutier. If the Bill passes as is, a digital copy of any surveys recorded must be submitted to VCGI by the surveyor that prepared the plat. These copies will be (for now) in a PDF format and will not be signed or sealed. VCGI will document who submitted each plan. The Bill will add the requirement that any Boundary Line Adjustments or Subdivisions, regardless of local Zoning Regulations, must be surveyed. The official copy of record will still be filed in the local Town Clerk's office. Authority to revise any parcel boundaries will continue to rest with each Town. Site plans would not be considered to be able to revise any boundaries. VCGI will maintain the repository (or library) of the digital copies of record plats which will be made available to the public at no cost. There is currently no requirement for the plats to be georeferenced.

Joe Flynn discussed that the Vermont Board of Land Surveying has had no resolutions or discussions to review or comment on the Bill. The Board of Land Surveyors is now working to revamp their rules. Joe suggested that the final bill wait until that process is complete, perhaps another year. The VCGI representatives pointed out that the bill does not put any onus on the Board of Land Surveyors. Joe states that the Board wants to be careful that there is no revision to the definition of a survey plat inherent in the bill. David Fox prefers to have the bill introduced this year because VCGI would have all parcels in the state collected by the end of 2019 and funding will end at that time. Given that the bill will be voted on this legislative session, Joe suggested that it might be best to delete the words "The Board of Land Surveyors" from line 16 on page 2 of the bill.

#### SECRETARY'S MINUTES

Minutes for the Executive Committee meeting dated January 17, 2019 were reviewed. Several revisions were made to the last paragraph of page 1; with those revisions and upon motion duly made and seconded, it was unanimously RESOLVED: to approve the minutes of the January 17, 2019 Executive Committee meeting.

#### TREASURER'S REPORT

Total income for the period Jan. 1 through Feb. 19 is \$18,664.00, total expenses were \$7,887.53, for a net income of \$10,786.47. Bank account total = \$66,573.49. Keith reports that about 74% of dues have been collected to date, which is the same as last year at this time.

#### **ADMINISTRATOR'S REPORT**

Kelly is working on the next "Cornerpost," which comes out in early March, and she still needs a cover photo. The spring seminar will be on April 12 at Castleton University, with Dan Martin presenting the morning session on new datums and Dick Hoskins presenting the afternoon session on surveying in the highway right-of-way. We will have our fall meeting at Hampton Inn in Colchester, and the Program Committee is still working on the program for that event.

Kelly notes that we already have five new members this year, which is higher than normal.

#### **DEVELOPING A LISTSERV**

Paul asked the group whether there might be any interest in starting a VSLS listserve, where members can join if they're interested and post questions or comments at any time. Kelly mentioned that she could moderate the listserv to make sure the language and tone are appropriate. Kelly will look at different options for setting this up.

#### **SCAN UPDATE**

Mark spoke to Brad again about the scans. VSLS owns two empty hard drives at Brad's house. Brad promised that he would put all of the scans on one of the hard drives and drop it off at Mark's office.

#### **OTHER BUSINESS**

We discussed the possibility of hosting a Test Prep at the conference, but the person who wanted us to sponsor the program had very poor reviews and the VSLS representative who attended the meeting in Maine said she wouldn't recommend him. We discussed that VSLS had no good resources for people wanting study material for taking the test to become licensed. Joe mentioned that the Board of Land Surveying has a list of materials that candidates can use to prepare for the exam. NCEES will also provide study materials upon request, or we can refer anyone to Joe for information. The group asked Joe about how many people took the test. He said about 12 per year on average and that about 60% pass the PS and FS tests and pretty much the same for the State of Vermont test. Kelly asked about adding the NCEES materials list to our site for test prep and reference materials cited by the Board of LS. Joe will try to put our request on the Board agenda for discussion.

Joe Flynn is also now chair of the VSLS Program Committee and is looking for directives both in terms of how far out planning for seminars should be and also on subject matter. The group mentioned that we think that a seminar on business practices would be useful for our membership,

(continued on next page)

#### **EXECUTIVE COMMITTEE MEETING MINUTES**



many of whom are self-employed. When we had previously asked the Board of LS to give continuing education credits for a business practices seminar they turned it down. Joe said to try again.

Gayle, our NSPS director, tells us that the third week of March is National Surveyors Week and that there are posters available from NSPS to get younger kids interested in surveying. They are available upon request for the cost of postage and suggested that we get some posters and put them up in schools. It was pointed out (by parents in the group) that older students would respond much better to some online format. Gayle says these posters are for the younger kids.

The group reviewed the second draft of a letter to the Vermont Board of Land Surveyors regarding recent rulings dealing with parol evidence. There was some discussion with Joe Flynn regarding the rulings and whether they set forth

expectations on how surveyors are expected to use parol evidence. Members of the Executive Committee pointed out that surveyors look to the rulings to make sure they're avoiding breaking the rules. Joe said that surveyors shouldn't necessarily look at individual cases as an interpretation of the rules, because there may be extenuating circumstances that aren't obvious in the ruling. VSLS will submit the letter to the Board and discuss the issue further at one of its upcoming meetings.

The next Executive Committee meeting will take place on March 21, 2019 at the AIV building in Montpelier. There being no further business, the meeting was adjourned at 7:46 p.m.

Respectfully submitted,

Lisa Ginett **VSLS Executive Committee Secretary** 

#### MARCH 21, 2019 • 6 P.M. • CONFERENCE CALL

The meeting was called to order at 6:01 PM. In attendance were Paul Hannan, Gayle Burchard, Becky Gilson, Lisa Ginett and our Administrator: Kelly Collar. Absent: Nate Yager, along with Mark Day and Keith Van Iderstine, both out sick.

#### **SECRETARY'S MINUTES**

Minutes for the Executive Committee Meeting dated February 21, 2019 were reviewed. Upon motion duly made and seconded it was unanimously RESOLVED: to approve the minutes of the Executive Committee Meeting dated February 21, 2019.

#### TREASURER'S REPORT

Gross profit for the period Jan. 1 to March 19, 2019 was \$21,922.93, total expenses were \$13,870.87, for a net income of \$8,052.06. Total assets were \$64,134.58. Kelly noted that we have 80% of membership dues returned, which is higher than the 75% from last year at this time.

#### **ADMINISTRATORS REPORT**

Kelly mailed out "The Cornerpost" this morning and mentions that there were so many good articles that she had to save two for the next publication. She reminded us that this week was National Surveyor's Week, and we wondered if we should attempt to have a more public event for this week next year. Paul Hannan suggested that we staff a table for a day during next year's National Surveyors week at the "card room" of the Legislature to have surveyors available to speak to any interested legislators.

Kelly will mark her calendar to call the sergeant at arms early enough to reserve space for the day next year. The Board of

Land Surveying will be putting forward some new legislation, and we could perhaps put out a small display about surveying and the legislation being promoted.

The spring seminar will be held on April 12 at Castleton State University, and Kelly reminded us that the early bird rate will expire soon. The fall conference will be held on Sept. 5 & 6 at the Hampton Inn at Colchester. The program for the seminar has not been set as of this date. The Annual Meeting will be held on Thursday, Dec. 12, as Kelly was unable to book the Capitol Plaza site for our normal Friday. Gayle suggested that Kelly try to book further out for this site so that we can go back to Friday for 2020.

There is an NSPS public relations contest this year and Kelly suggested that she submit both "The Cornerpost" and our new video to be judged in the contest.

Kelly checked into putting up a listserv on the VSLS website. She found that for \$79.00 per year we could set up the listserv through our website and the group agreed that she should go forward with the project. Kelly will act as moderator, reviewing the posts for courteousness before putting them on the listserv.

#### **VERMONT SURVEY LAW PUBLICATION UPDATE**

Paul Hannan reports that Paul Gillies is ready to work on updating the Vermont Survey Law Manual. At our last meeting Keith mentioned that he had some software that allowed him to scan the old publication and turn the scan

(continued on next page)

#### **EXECUTIVE COMMITTEE MEETING MINUTES**



→ into a useable Word document so that it can be worked with in that format. Hopefully this can get scanned and sent to Paul Gillies to assist his work on the project.

#### **SCAN UPDATE**

As Mark was absent there was not any discussion about the status of the old surveyors' plat and map scans. However, it was noted that Dibo, who did the original scanning, wrote an email to the group about the situation. He states that the Society retained and paid for his services to complete the scans and purchased a hard drive to put the scans on. Brad, when he was President of the Society, picked up the hard drive containing the scans and said that he was taking them to the VSLS office. Apparently that did not happen as Brad still has the hard drive containing the scans. Dibo suggested that the Executive Committee send Brad a letter and if that has no response, he will copy the scans and send them to VSLS directly.

#### **BILL H 526**

Becky Gilson had questions about Bill H 526, which was formerly known as Bill 208. This is the bill the Executive Committee reviewed at its last meeting with John Adams and David Fox, of VCGI, which put it forward in the Vermont Legislature. Becky was confused as to why the number of

the bill had changed. No one could answer her question. She felt that there were no revisions between Bill 208 and Bill 526. The group had agreed at the last meeting to remove the wording about the Board of Land Surveying being the group that establishes the file type to submit to VCGI if PDF files become obsolete. Joe Flynn, of the Board of Land Surveying, felt that the Board did not want to take responsibility for knowing what might be best file type if PDFs went out of usage. Lisa remembers that as the bill is already under consideration, there must be a process used to change the bill's wording.

Paul Hannan walked us through the process and mentioned that once the Bill is in committee, someone needs to go to a committee meeting to request any revisions to the original language of the Bill.

There being no further business the meeting was adjourned at 6:23 PM

Respectfully submitted,

Lisa Ginett **VSLS Executive Committee Secretary** 

#### MAY 14, 2019 • 6 P.M. • CONFERENCE CALL

The meeting was called to order at 6:03 PM. In attendance were Paul Hannan, Gayle Burchard, Becky Gilson, Mark Day, Nate Yager, Lisa Ginett, David Fox of VCGI and our Administrator, Kelly Collar. Absent: Keith Van Iderstine.

#### **UPDATE ON RECENT LEGISLATION — BILL H 526**

David Fox of VCGI attended to update us on this legislation. David informed us the bill change from H 208 to H 526 occurred when it was decided to roll it in with the Town Clerks bill. Some revisions were folded into the bill since our March meeting. It was felt that the Board of Land Surveyors verbiage does not mean that the Board has an obligation to decide on the file type to replace .pdf files for filing plats with the statewide parcel mapping program should that need occur, but it gives the Board of Land Surveyors the ability to chime in on the subject if they wish. At the time of this meeting, the bill had passed the Senate and was on the governor's desk to be signed. The town clerks seemed to be ascendant during the hearings regarding the bill, and there were no questions at all about the parcel mapping portion. If signed, the bill will go into effect on January 1, 2020. It was discussed that Kelly should put something into "The Cornerpost" regarding the new requirements for surveyors. The group wondered if the secretary of state is obligated or mandated to inform all licensed surveyors about the

bill, and David will contact them to find out. There are no penalties for surveyors' non-compliance with the bill. David asked if VCGI could possibly use the scans of surveys that Brad has as a test case to set up their mapping interface, but the group thought that Brad would not allow their use and it was noted that the scans were not meant to be available for the general public. VCGI will man a booth at the VSLS Fall Conference regarding the use of the mapping interface, which they are setting up now.

#### **SECRETARY'S MINUTES**

Minutes for the Executive Committee Meeting dated March 21, 2019 were reviewed and it was decided that the Secretary needs to revise line 4 in the Administrative Report to replace the word "man" with the word "staff." Upon motion duly made and seconded it was unanimously RESOLVED: to approve, with the above revision, the minutes of the Executive Committee Meeting dated March 21, 2019.

Treasurer's report for the period of Jan 1. to May 13, 2019:

As our Treasurer was unable to attend the meeting, Kelly read the report. Gross profit for the period was \$29,418.29, total expenses were \$ 23,708.63, for a net income of

(continued on next page)



→ \$5,709.76. Total assets = \$ 66,935.95. It was noted that membership dues were about 1% above last years at this time and that the VSLS made a bit over \$5,000.00 on the Spring Seminar even though it was poorly attended compared to the norm. It was discussed that the lower attendance was probably due to the location of the meeting.

#### ADMINISTRATOR'S REPORT

Kelly stated that the Fall Conference will be held at the Hampton Inn in Colchester on September 5 and 6, with a full 16 hours of credits. Thursday's seminar will include "The History of Geodetic Surveys and Datums in the United States," demos with exhibitors, "Surveying Methods of the Adirondak Surveys and NYS Land Survey from 1872 to 1900," and "The Creation and Expansion of Vermont's Geodetic Network." On Friday the seminar will be "Stone Walls in Land Surveying" and "The Vermont Stone Wall Mapping Project."

Kelly checked into putting up a listserv on the VSLS website. She found that it proved more difficult than first hoped. She is hoping for this group to test the listserv within the next week. She found a way to create the listserv for about \$100.00 a year, but it has been a struggle and she is not certain at this point if she will be able to see the posts before they're distributed.

The deadline for entry for "The Cornerpost" is July 1. In reference to the NSPS competitions for state societies, Kelly entered the VSLS video in the public relations contest, The Cornerpost in the publications contest, and Tim Cowan's article on parol evidence in the contest for best feature article.

#### VERMONT SURVEY LAW PUBLICATION UPDATE

Paul Hannan reports that Keith needs to do a bit more work to get a better format but is now on track to scan the existing document to create a Word document for Paul Gillies' use.

#### **SCAN UPDATE**

There is no real update on the scans, and Brad has not yet dropped off the copy. Scott Taylor has contacted Brad and he may be starting to work with him to begin to index the

scans. It was also noted that Tami Bass gave all of her survey records to Brad, but it is uncertain whether it is implied that the VSLS membership will have access to those records or whether they for Brad's use alone.

#### **OTHER BUSINESS**

Joe Flynn left a message in reference to the possibility of VSLS joining the colonial states on the Eastern Seacoast Board of Surveyors. There is a \$250.00 membership fee to become a member of this Board, which is an independent organization representing surveyors who practice in colonial states. When NSPS changed from the wording "governors" to "directors," Vermont was put into the Great Lakes region. Gayle commented that this region is too large and that there is a push to start a new region for colonial states. NCEES is also considering breaking out testing for colonial states and there is momentum growing for this concept in NSPS. As we are a colonial state, the group moved and approved that we join the Eastern Seacoast Board of Surveyors.

Gayle also spoke again about the NSPS program to certify flood plain surveying. North Carolina is the first state to enter this program, which includes education on flood plain delineation and a test to certify surveyors under the program. Tennessee is also considering the program statewide. The program includes two days of review on the subject and a one-day exam for certification. There is no expense involved in joining the program right now. Gayle says that the biggest benefit for the surveyor will be that, if certified, you would be on the fast track with FEMA for your FEMA-related projects and requests. Gayle committed to put up a Survey Monkey poll for the Vermont surveyors to see how much interest there might be in the program.

There being no further business, the meeting was adjourned at 6:54 PM. The next meeting of the VSLS Executive Committee will be June 20 at the AIV building or by conference call.

Respectfully submitted,

Lisa Ginett **VSLS Executive Committee Secretary** 

# **Attention Members** Executive Committee meetings are held on the third Thursday of every month, and all members are welcome to attend. Email kelly@vsls.org for info.



# 2019 Fall Conference

Thursday and Friday, September 5-6, 2019 Hampton Inn by Hilton • Colchester, Vermont

#### Conference Schedule

#### Thursday, September 5

Registration opens / Breakfast 7:15-8:00 AM

8:00-12:00 PM **History of Geodetic Surveying and Datums** 

of the United States, with David Doyle, Owner

of Base 9 Geodetic Consulting Services

10:00-10:20 PM Mid-morning Break / Exhibit Hall Opens

12:00-1:00 PM Buffet Lunch

1:00-2:00 PM **Tech Time: Demos with Exhibitors** 

2:00-3:30 PM **Surveying Methods of the Adirondack Survey and NYS** 

Land Survey 1872-1900, with Jim Vianna, PLS, Colvin Crew

3:30-5:00 PM **Creation and Expansion of Vermont's Geodetic** 

> Network — Its Current Uses and Success, with Dan Martin, Northeast Regional Geodetic Advisor

5:00-6:30 PM **Exhibitors Reception** 

**Evening** Dinner on your own

Bonfire hosted by Gayle Burchard, Vermont NSPS Director,

675 Holy Cross Road, Colchester (BYOB)

#### Friday, September 6

7:15-8:00 AM Registration opens / Breakfast

8:00-12:00 PM Stone Walls in Land Surveying, Part 1, with Robert

Thorson, Professor of Geology, University of Connecticut

12:00-1:00 PM Buffet Lunch and Business Meeting

1:00-4:00 PM Stone Walls in Land Surveying, Part 2

4:00-5:00 PM Stone Wall Mapping Project in Vermont, with

> Brendan Gauthier, Senior Archaeologist, VTrans, and Jess Robinson, PhD, Vermont State Archaeologist

5:00 PM Final Announcements



#### Hotel Information

Hampton Inn by Hilton 42 Lower Mountain View Drive Colchester, Vermont Special rate: \$139/night Reservations: 802-655-6177 Group Code: SMERF

### 16 PDH Approved

CONTINUING EDUCATION:

This event has been approved for 16 professional development hours by the Vermont Board of Land Surveyors. Hours are valid in New York as well.

REFUNDS: Payment will be refunded in full if cancellation is received at least 7 days before the event. Cancellations received after that will be refunded minus the cost of expenses for the event.

EXTRA MEALS: Contact Kelly Collar if you'd like to pay for meals for a spouse or friend.

QUESTIONS? Contact Kelly at 802-229-6358 or kelly@vsls.org

#### Conference Seminars

# History of Geodetic Surveying and Datums of the U.S. (4 PDH)

This presentation details the historical and contemporary developments of the horizontal and vertical geodetic datums of the United States. We will highlight changes in measurement and positioning technologies and their impact on the development of reference ellipsoids, geoid models and contemporary high accuracy reference frame enhancements. This session is a foundation for other seminars that focus on details, plans and programs of the 2022 reference system changes by the National Geodetic Survey.

## Creation and Expansion of VT's Geodetic Network (1.5 PDH)

The geodetic network in Vermont has a long, and interesting history. From early surveys designed to facilitate safe navigation and commerce to today's real-time GNSS network. In this presentation, we will trace the development of Vermont's geodetic network and highlight the underlying activities that promoted its expansion.

# Surveying Methods of the Adirondack Survey and NYS Land Survey: 1872-1900 (1.5 PDH)

This seminar will cover the surveying concepts, principles and techniques adapted by Verplanck Colvin to survey the Adirondack Wilderness. We will also discuss the geodetic origin for the Adirondack Survey (USCS) and learn how Colvin spread his triangulation network throughout the Adirondacks, its expected accuracy and relevance to today's time period. By the end of the seminar, participants will have a working knowledge of and the ability to distinguish between monuments of the Adirondack Survey, USCS and USGS.

#### Stone Walls in Land Surveying (7 PDH)

In our work we often run into fieldstone walls in the woods. By learning to see the details of such walls, a surveyor can understand the property more deeply, enhancing the work effort. There's also forensic information, which stands up in a court of law over boundary disputes. This workshop will begin with a general history of stone walls and their links to land boundaries. We'll cover geography at a regional to ultra-local scale and discuss the recognition and classification of walls and related features and what they mean. We'll also cover the forensics of stone walls, including age sequencing and function interpretation. The workshop will be part lecture, part shared experiences, and part hands-on.

#### **Stone Walls Mapping Project in Vermont (1 PDH)**

State Archaeologist Jess Robinson and VTrans Senior Archaeologist Brennan Gauthier, who has already mapped thousands of stone walls in Vermont, will discuss the importance of stone walls to the Vermont archaeological community and showcase a new online mapping tool that allows members of the general public and the surveying community to access and contribute to mapping stone walls across Vermont.

	Full Conference (includes all meals both days)	Thursday Only (includes Thursday meals and reception)	Friday Only (includes all meals on Friday)
Member in good standing of VSLS or kindred association	\$265.00	\$185.00	\$185.00
Non-member	\$365.00	\$235.00	\$235.00
Life Member	\$198.75	\$138.75	\$138.75
Non-member technical staff attending with member	\$225.25	\$157.25	\$157.25
Three attendees from same firm (one must be member)	\$225.25	_	_

\*RATES INCREASE ON AUGUST 27.

M	☐ Check enclosed (payable to VSLS) for \$
Name	☐ Credit card payment: ☐ VISA ☐ MC ☐ AMEX ☐ DISC
Address	Card Number
Email	Exp. Date Security Code
Dietary restrictions	Please return form with payment to: VSLS, P.O. Box 248,





# Special Thanks To Our Sustaining Members

When planning for your next purchase, please consider our Sustaining Members, who support the goals and mission of our society.















