HOOSIER SURVEYOR

QUARTERLY PUBLICATION OF THE
INDIANA SOCIETY OF
PROFESSIONAL LAND SURVEYORS, INC.

VOLUME 37
NUMBER 1
SUMMER 2010

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Posing with K and E slide rules and slide rule instruction books and a demonstration K and E Mannheim Polyphase Slide Rule No. 4053-3 in the Hoboken, New Jersey, Historical Museum are Dr. Deborah G. Douglas, Ph.D., curator of the MIT Museum, and David Best, LS, editor of the ISPLS Hoosier Surveyor.

(See pages 12-15) (Photo by Melanie Best)

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HOOSIER SURVEYOR

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EDITORS NOTE

Deadlines for copy for various planned issues of the Hoosier Surveyor are as follows: Winter - December 31; Spring - March 31; Summer - June 30; Fall - September 30.

The Hoosier Surveyor is published quarterly by the Indiana Society of Professional Land Surveyors to inform land surveyors and related professions, government officials, educational institutions, libraries, contractors, suppliers and associated businesses and industries about land surveying affairs.

Articles and columns appearing in this publication do not necessarily reflect the viewpoints of ISPLS or the Hoosier Surveyor staff, but are published as a service to its members, the general public and for the betterment of the surveying profession. No responsibility is assumed for errors, misquotes or deletions as to its contents.

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PRESIDENT'S THOUGHTS

by James C. Tibbett, P.L.S., Linton, Indiana

As we move into the second half of the ISPLS year it's appropriate that we focus on the ISPLS Mission Statement for a moment. Are we achieving its stated goals? Do we embrace its philosophy? During my five years as a member of the Board of Directors the Mission goals and its philosophy were always important agenda items. Board members passionately expressed their concern for our profession and its future.

The ISPLS Mission Statement reads as follows: "As a not-for-profit service organization, we seek for the growth and development of our profession. Our primary mission is to provide our membership with a professional identity, professional guidelines and direction, and educational services and to promote the interests of the profession. The philosophy of ISPLS is to encourage all who are in the surveying profession to value professional ethics in thought and deed, to maintain competency in performance of duties, to insure trustworthiness, to provide quality in work, and to constantly protect the public interest."

Are we accomplishing the mission goals? Let's consider them one by one:

- Promote Professional Identity: As a Society we represent Indiana land surveyors. As licensed land surveyors we are charged with the protection of public health, safety, and welfare. Our efforts to fulfill this charge relate to our work in establishing land boundaries.

- Augment Professional Guidelines and Direction: Do we continue to enhance our status as professionals by embracing technical innovations? Laser scanning is one example.

- Provide Educational Services: We are required to meet continuing education requirements (CEUs). How else can we become better informed as professionals? One way is by thoroughly perusing the surveying publications we receive monthly. On line seminars offer another opportunity.

- Advance the Interests of the Profession: Have you ever volunteered to present a program about our profession to a service club as a means of informing laymen of what a surveyor's responsibilities include? What efforts are made by ISPLS to establish liaison with other professional societies in surveying-related activities such as GIS and IGIC?

Our profession continues to change and adapt. Just consider the impact of the computer age as our profession has emerged from the horse and buggy days when we used 100-foot steel tapes and a set of chaining pins for measurement. Commonplace today are EDMs, GPS, robotic equipment, electronic letters, and the personal computer. What does the future hold for land surveyors? Consider the following:

- Downsized firms will be doing more with fewer employees, observing abbreviated schedules, and collaborating with greater flexibility with other firms.

- Licensed surveyors will be responsible for the work of more employees, including technicians, field crews and staff.

- A typical field crew will consist of one person using GPS, a laser scanner, and a robotic total station.

- An owner/operator of a surveying firm will be more involved in the business aspects of the firm, its management, marketing, and financial operations, and less in the land surveying operation of the firm.

- Data management will be a key to the operation of a successful surveying firm. Clients will expect more and better data.

We foresee that location reports, mortgage surveys, and much of construction staking will no longer be required or will be done by contractors. Today much of surveying work such as GIS, GPS, machine control, mapping and scanning is being done by others who lack the expertise of professional land surveyors.

We view ISPLS as a business in itself operating under the direction of its Board of Directors. At year's end the Board must balance the books and ask if it met the goals set for ISPLS members. The Board will continue to work hard for its members. We need to define more precisely our direction as a professional society. On a personal note in the 19 years I've been in business I've witnessed the ups and downs of the surveying profession. I have a son who is now enrolled in the land surveying program at Vincennes University. I'm tempted to encourage him to consider a career in GIS data management instead of land surveying. His inclination continues to be the latter career.

We solicit your thoughts and comments on the direction of both ISPLS and our profession in general. E-mails received will be passed on to the ISPLS Board for consideration. You may reach me at jtibbett@cbmsurveys.com.

ISPLS BOARD OF DIRECTORS MEETING HIGHLIGHTS

by Dianne Bennett, Executive Director

April 17, 2010

The ISPLS Board of Directors met on Saturday, April 17, 2010 at ISPLS headquarters. President Tibbett called the meeting to order at 9:06 a.m. The minutes and treasurer's report were reviewed and approved.

Scholarships - A report was presented on the Vincennes and Purdue scholarships. The Scholarship committee recommended $3300 for the V.U. scholarship to Erich M.Bauer and $10,000 to the Purdue scholarship to Skyler A. Potts. A motion was made and seconded to accept the committee recommendation.

Office Relocation - After board discussion there was a motion to vacate the 55 Monument Circle, Suite 719 location and move to the 8325 S. Emerson location.

ISPLS Insurance - Tod Walgren, Connolly Ford Leppert Inc. presented a "Letter of Engagement" for the ISPLS Insurance Program.

ISPLS 2010 Convention - The Northwest chapter's share of the ISPLS profits was $5936.79. A report was presented on the 2011 ISPLS convention program. A motion was made and passed to hold the member rate for 2011 at $340.

Great Lakes Height Mod. Workshop - ISPLS received a profit of $479.52 from the workshop.

Membership Classification - ISPLS membership classification was discussed and the committee recommendations were presented. The committee's classification recommendations were forwarded to the By-Laws committee.

Membership Roster - Web/Roster business card advertising was discussed.

Past Presidents Council - A written report was presented.

2010/2011 Preliminary Budget - A preliminary budget will be emailed to all board members.

2011 Minimum Standard Detail Requirements for ALTA/ACSM- Draft version was submitted.

Manuals - There was discussion on the Manual updates and the Indiana Case Law for Boundary Issues manual.

Next BOD meeting is May 22, 2010 at the ISPLS office, Indianapolis.

May 22, 2010

The ISPLS Board of Directors met on Saturday, May 22, 2010 at ISPLS headquarters. President Tibbett called the meeting to order at 9:03 a.m. The minutes and treasurer's report were reviewed and approved.

An executive session is scheduled for July 10th at the new office location. There was board discussion on the budget and the long term goals/finances for the society.

Wallington Quarterly Report - The board reviewed the quarterly report.

Office Relocation Update - The lease for the new office has been signed and the Notice of Intent to Vacate Lease was sent to Winthrop Management, LP.

Foundation - There was discussion regarding the letter to Purdue.

ISPLS 2010/2011 Budget - The working preliminary budget was presented. A motion was made and passed to approve a temporary 2010/2011 budget of $338,602 by reducing line item I-45 to $0 and reducing line item G-110 to $130,000 in the working preliminary budget.

Law Manual #3 - A motion was made and passed to direct Tom Dinwiddie to update Manual 3 at a cost of $4,500. The manual will be distributed "free" to all members through the ISPLS web page.

Indiana Case Law for Boundary Issues - After discussion a motion was made and passed to defer a decision on the manual to the board's July 10th Executive Session.

ISPLS Membership Roster - After discussion the board authorized that the roster be printed as per the motion of a prior board meeting.

Office Copier Lease - Proposals were presented and discussed. A motion was made and passed to lease a Konica C208 Color Copier/Printer/Scanner.

ISPLS Seminar - An update was given on the June 28th seminar by Gary Kent.

ISPLS PAC - Update given.

NSPS Governor - It was noted that NSPS voted to move out of ACSM.

ISPLS Insurance Provider - A motion was made and passed to endorse Tod Walgren as ISPLS Insurance provider for one year.

INDOT - A report was presented on INDOT payment plan for the ISPLS convention.

Membership Classification - A motion was made and passed to accept the membership committee's recommendation.

Other activities reported were IGIC, Boy Scout Merit Badge activities, Scott County Cartographer, NE Chapter, NW Chapter and CIC Chapter.

Next Board of Directors meeting (Executive Session) is July 10, 2010.

July 10, 2010

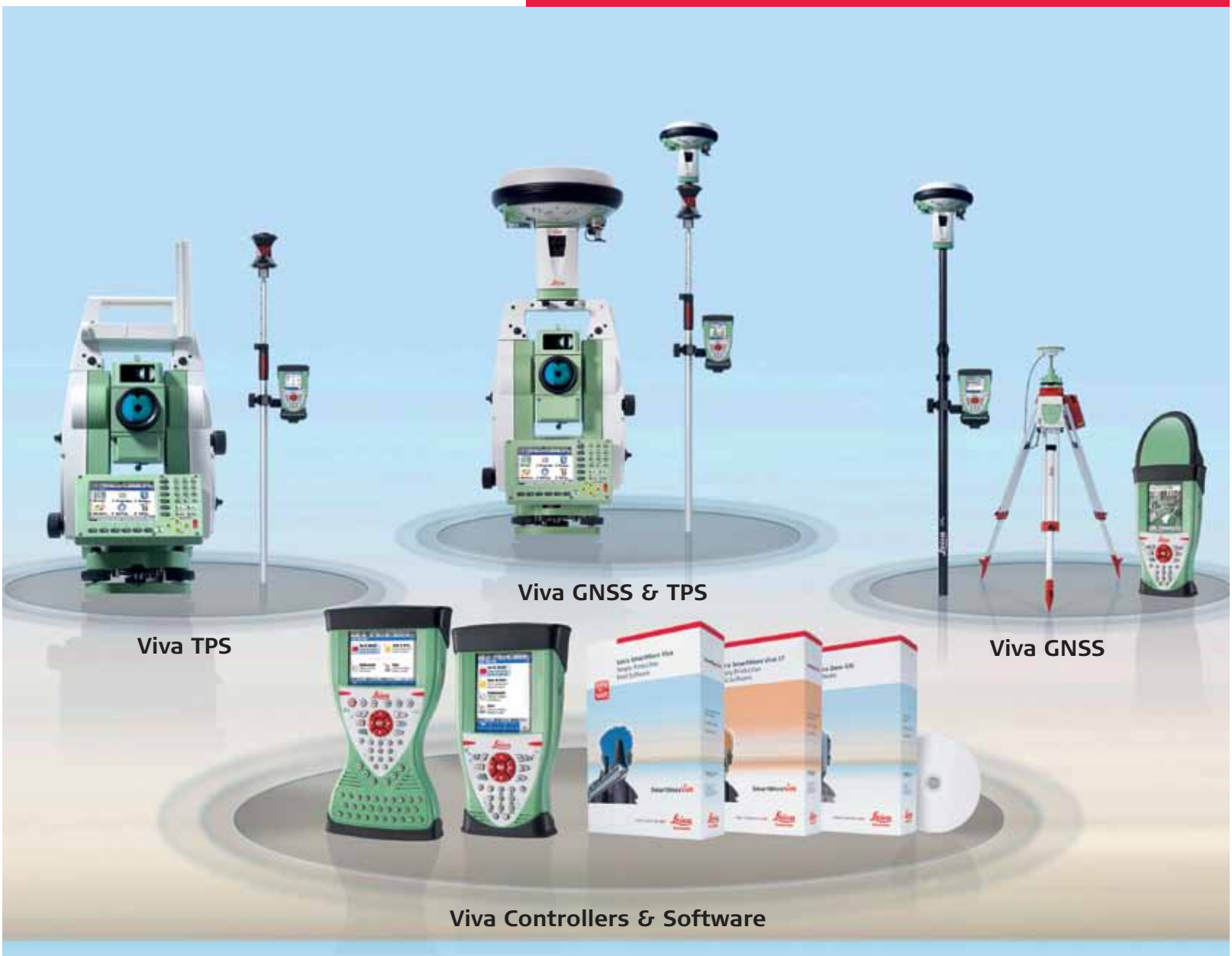
The ISPLS Board of Directors met on Saturday, July 10, 2010 at the new ISPLS headquarters. President Tibbett called the meeting to order at 12:07p.m. The minutes and treasurer's report were reviewed and approved.

Quarterly Reporting System - After board discussion a motion was made and passed to have the Executive Director provide the BOD a written monthly report on the financial status of the organization, including income, disbursements, cash flow projections, and projected shortfalls that would require disbursements from investments for BOD review and authorization.

Treasurer's Report - A motion was made and passed to have the treasurer's report presented with the three following categories: Fixed Operation, Capital Projects and Member Services.

Staff - A motion was made and passed to prepare an employee policy manual that addresses general business operations and employee benefits.

Staff Benefits - There was a motion that all ISPLS employee benefits and compensation be approved by the BOD and be included in the employee policy manual.



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Completed Career
Steve Murray, 57, PLS

ISPLS member and past ISPLS Board member, Steve Murray, 57, formerly of Battleground, passed away June 29, 2010.

The Tippecanoe County surveyor lost his battle with cancer. Steve Murray, had served as surveyor for 10 years and before that as the county's highway director. He will be remembered by friends and co-workers as a dedicated public servant and creative leader.

"He was a very progressive thinker and always wanted to do what's right for this county," commissioner Tom Martaugh said.

"We were truly lucky to have him serve in this capacity."

Murray was responsible for supervising construction, maintenance and drainage in the county. He first took office in 2000 after a special election to fill the surveyor's seat, and he ran unopposed in 2004 and 2008.

During his tenure, Murray received the outstanding County Surveyor award in 2002 from the Association of Indiana Counties. He also was awarded the Outstanding County Engineer in 1999. Murray was a Purdue graduate and a registered land surveyor.

Zach Beasley, project manager in the surveyor's office, who worked with Murray for more than seven years, said he was a very good boss and surveyor.

"He always told me when we looked at projects and we're designing projects, The money we spent on those, I classify that as my own Beasley said. Murray said that we want to get the most bang for our buck.

Over the years, Beasley said Murray saved hundreds of thousands of dollars for taxpayers by negotiating good agreements on regional detention facilities. For example, the surveyor would arrange for nearby property owners to take the dirt for fill, rather than the county having to pay for the removal.

"The bottom line is he was very good at negotiating deals to benefit numerous parties, " Beasley said.

"He would work out agreements where everybody basically won."

Bob Hicks, chairman of the Tippecanoe County Republican Party, said Murray was a great public servant and a friend.

"My thoughts go out to his family," Hicks said.

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NSPS Moves to Separate from ACSM

by David B. H. Best, R.L.S.

At its meeting in Phoenix, AZ recently the National Society of Professional Surveyors (NSPS) Board of Directors by a motion passed on a vote of 11 yea and 5 no votes initiated the process of separation from the American Congress of Surveying and Mapping (ACSM), the umbrella organization of the NSPS. Included in the motion to initiate the process of separation is the charge to a committee to study the financial and membership impacts of the proposal. The study committee will submit a report by September 15, 2010.

Currently NSPS has an agreement with ACSM requiring a two-year term of separation by any of the member organizations (MOs). At any point in a two-year period initiated by an MO, the MO can reverse its proposal to separate. In an article titled "The Evolution of a National Voice: The Future of the National Society of Professional Surveyors" by NSPS President Wayne Harrison, NSPS Executive Director Curt Sumner, and NSPS Immediate Past President John Matonich, they state ". . . The motion that passed holds a lot of wisdom and keeps all options open for NSPS . . . and provides a two-year window to work on the future of NSPS and its relationship to ACSM. . . ."

ACSM and all MOs previously commissioned a marketing report. The report's objective was to improve the well being of ACSM and its MOs. An ACSM committee composed of members from all MOs reviewed the report. Information in the report came from many sources "including association leaders, current and past members, various government agency heads, related association executives, and publishing-oriented contacts." Online surveys were "conducted with over 4100 current and former MO members and state affiliated members." Though the results of the report did not contain new revelations, the results were of great significance. Current perception of the surveying profession included the following:

- Lack of awareness
- Lack of perceived value
- Perception of ACSM and MOs as an outdated group behind the times
- Negative stereotype of the term "surveyor"
- High levels of competition amongst state affiliates, MOs, and other associations

Recommended in the report was "the formation of a single industry-wide membership organization that would include all of the MOs as well as state and local affiliates of NSPS." The suggestion by the committee of a single industry-wide membership organization was addressed by the ACSM Congress which charged a committee to study this proposal and issue a report by September 1, 2010.

Authors of the article noted above conclude with the following observations: "Given the state of membership, the current financial situation, and the findings of the commissioned report, NSPS and the other MOs have reached a critical juncture and there is no luxury of extra time to move this in the right direction whatever that direction may be. The work that will be done by both the NSPS and ACSM committees will be extremely valuable in the discussions about the future. The two-year time frame keeps the importance of this issue where it belongs. . . at the top of the list.

"What is needed is everyone's input on the possible scenarios. If you have a doubt about whether there needs to be a national voice for the surveying profession, you need to think again. Just as state issues do, national issues touch all surveyors. Public, private, topographic, boundary, layout and many others all have national tones. ALTA standards, Qualification Based Selection, academic accreditations, real estate settlement survey issues, GPS height modernization, letters of map amendments, real estate settlement survey issues, GPS height modernization, letters of map amendments (LOMAs), and many more issues are all dealt with at the national, not the state or local level.

"These issues won't go away and some organization will deal with them nationally for the surveying community. The question is which one? The American Society of Civil Engineers, the American Council of Engineering Companies, the American Society of Photogrammetry and Remote Sensing, the Management Association of Private Photogrammetric Surveyors or a true national voice of the Surveying Profession. This is the question being dealt with today and over the next several months. There will be many opportunities for input and when they present themselves, take the time to share your input and counsel. Together, the result will be the best option possible for the entire surveying profession."

This is an issue of salient importance to all surveyors. We urge all ISPLS members to become involved in the discussion and consequently become a part of the solution.

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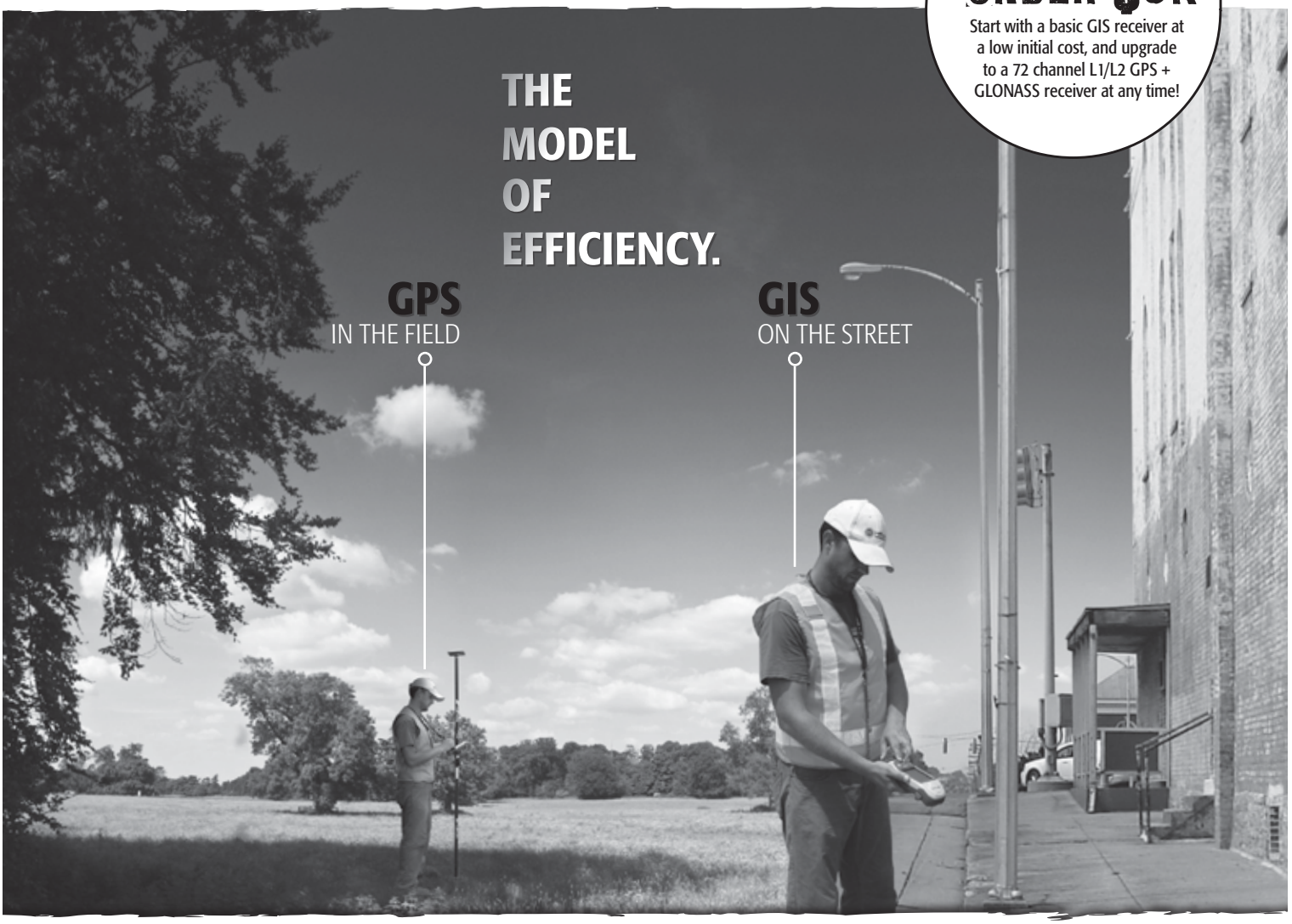

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Valuable Lessons of Childhood Become Surveying Tenets

by Kevin Sumner, P.L.S.

My childhood recollections of growing up in a trailer on my grandpa's country property in a small southern Indiana town are vivid memories today. Those memories have a great deal to do with my chosen profession of land surveying. Though our family was poor, we never thought of ourselves in that light. We simply were like so many of the other families I knew. I was too busy playing with my trucks in a ditch or fighting in a war with the bumper jacks from the old cars rusting away on my grandpa's property to give any thought as to whether we were rich or poor. However, one day my third grade teacher asked the class who had microwave ovens in their homes. I was the only one who did not raise his hand. This was in the early 1980s, not during the Great Depression.

My mother raised my brother and sister and myself in that trailer. We grew up without Wii's, a cell phone, cable TV, or a personal computer. Instead, my family instilled in me values that are integral in my life as a surveyor. These values include:

- Respecting the property of others. A surveyor is constantly dealing with the property of others. He leaves it the way he finds it. Respecting other's property as if it is your own is of great importance.
- Being good to your word. In dealing with people a surveyor must be precise in his choice of words. His word must be his bond!
- Understanding the value of hard work. Surveying can be difficult work in all kinds of weather and under tough circumstances. The general public seldom understands the physical challenges a surveyor can face. When a surveyor's hard day's work is done he can be proud of what he has accomplished.
- Learning from your mistakes. Surveying poses a multitude of problems including the deadlines to be met and the need to stay within a projected budget. Mistakes can occur. By learning from his mistakes a surveyor develops confidence that the next project will be tackled with greater resolve.

It's important for us as surveyors to instill in the younger generation the core values that we were taught. They must learn to respect the property of others; to understand that their word must be their bond; to recognize the value of hard work; and, finally, to learn from their mistakes.

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TRIG-STAR IN INDIANA - 2010

By Tony Gregory, PLS – Indiana Trig-Star State Coordinator

Year 2010 was very good for Trig-Star in Indiana, as record highs in participation were recorded in both the number of schools participating and number of students taking the test. Forty-four schools and 1,074 students participated, in comparison with 23 schools and approximately 540 students in 2009. Thirty of the schools participating were sponsored by the Wabash Valley Chapter. Additional ISPLS chapter participation included 10 schools from the Northwest Chapter, 3 schools from the Southwest Chapter, and 1 school from the St. Joseph Valley Chapter (sponsored by Northwest Chapter). Awards provided by the local chapters to the individual school winners totaled thirty-nine $100 savings bonds and $700 in cash.

The first place winner was Jacob Pruitt of Chesterton High School in Chesterton, IN. Jake scored a perfect 100 points in 29 minutes and 13 seconds. Jake's math teacher was Ms. Clare Pokorny. The test was sponsored by Rich Hudson, PLS of Bonar Group in Valparaiso (Northwest Chapter). As state winner, Jake was invited to participate in the second testing phase, the national test. He completed the national test in mid-June and placed favorably among other state winners. Additionally, ISPLS provided a $1,000 savings bond to the student, and a $500 cash award to the teacher.

The second place winner was Eli Miller, also from Chesterton High School. Eli scored 95 points in 50 minutes and 53 seconds. Eli received a $500 savings bond, and his teacher, Mr. Stan Zeck, received a $250 cash award from ISPLS. Third place went to David Zaccaria of Culver Academies in Culver (sponsored by Tony Gregory, PLS of Northwest Chapter .) The school is located within the St. Joseph Valley Chapter area. David's score was 94 points in 23 minutes and 50 seconds. He received a $250 savings bond, and his teacher, Ms. Jill Paolini, received a $125 cash award from ISPLS.

The goal for Trig-Star in Indiana will be to sustain the growth achieved over the past year. We view the efforts of the Wabash Valley Chapter as the model to be followed by other ISPLS chapters. Trig-Star remains as one of the most salient means to expose high-school age students to the land surveying profession. In order for the program to grow, and to sustain growth, more ISPLS members need to become involved in this program. A long standing goal of the program is participation by every ISPLS chapter. We have not achieved this goal. However, we must strive to attain it.

Presented at last years ISPLS convention was an informal session on the Trig-Star program. Plans are in place for a similar session to be included in the program at the 2011 ISPLS convention. Please note the time and location once the convention program is released. Plan to attend the session.

Minutes
...continued from Page 3

Goals & Finance - A meeting will be held October 9, 2010 at ISPLS headquarters.

Executive Staff - Yearly evaluation of performance to be held at the May BOD meeting.

Revise 2010/2011 Budget - A motion was made and passed to approve the 2010/2011 budget as adjusted by reducing the convention expense forecast, decrease the lobbyist expenses and add the adjustment to the investment income forecast.

Indiana Case Law for Land Boundary Issues - A motion was made and passed to forego the printing of the Indiana Case Law for Land Boundary Issues due to the current budgetary restraints.

Membership - A motion was made and passed to approve the membership applications as presented.

A letter was received from an Affiliate member. After discussion a motion was made and passed to table board action on the matter.

A life membership application was requested. A motion was made and passed to accept the request for Life membership.

Next BOD meeting will be August 7, 2010 at ISPLS office.

INTERESTING FACT

Question:
How many square feet are there in an acre?

Answer: 43,560

But here's something that you probably didn't know:

Write down any 3 different numbers (none being zero). Reverse their order. Subtract the smaller from the larger. Take this remainder and reverse their order. Add the numbers. Multiply the sum times 40. The result will ALWAYS be 43,560 - the number of square feet in an acre!

Here's an example:

674 - 476 = 198
198 +891 = 1089
1089 x 40 = 43,560!

Reprinted from TBM - The NHLSA Newsletter, April, 2007, reprinted Nebraska Surveyor, Winter 2008/2009.

The Slide Rule: an Inscrutable Instrument

By David B. H. Best, L.S.

Until the 1970s there was an instrument critical to the work of surveyors, engineers, and scientists. It was, of course, the slide rule (S.R.), an instrument that is unknown to many of the younger generation today. Webster's dictionary defines the S.R. as "a manual device used for calculation that consists in its simplest form of a ruler and a movable middle piece which are graduated with similar logarithmic scales." Not since the early 1960s have I used my circular slide rule to reduce and plot stadia survey shots. Recently my curiosity was piqued when my wife and I visited our daughter living in Hoboken, New Jersey. In reading the May 21, 2010 issue of the Hoboken Press my eye caught an article about a program to be presented at the Hoboken Historical Museum two days hence. I announced, "We've got to go because it's about slide rules!"

Making our way to the museum at 1301 Hudson Street we found ourselves in a large, high-ceilinged room at the south end of the north portion of an imposing brick building. Displayed on the walls, in cabinets and free-standing were artifacts of the many items manufactured by the Hoboken-based Keuffel and Esser Company (K and E). The display will continue throughout the year. For a surveyor it was like being in "hog heaven." There were levels and transits, level rods, steel tapes, cabinets with drawers of LeRoy lettering sets, and, of course, a cabinet with drawers of K and E slide rules. I was transported back in time remembering the days when I dragged a 100-foot steel tape along a county road with a large steel ring looped through my belt holding a set of eleven chaining pins.

In the middle of the narrow confines of the room were some 30 to 40 folding chairs slowly being occupied by S.R. aficionados who were there to hear Dr. Deborah G. Douglas, Ph.D., curator of the Massachusetts Institute of Technology (MIT) Museum in Cambridge, present a power point program not only about MIT's acquisition of a collection of some 600 K and E S.R.s but also about the S.R.'s fascinating history.

The first image displayed by Dr. Douglas was of students in a 1980 trigonometry class being introduced to the S.R. The students called the S.R. a "green" portable calculator. She pointed out that there was a slide rule of sorts aboard the Mayflower when it docked at Plymouth, MA and that Neil Armstrong had with him a S.R. when he took his "Moon Walk." Dr. Douglas emphasized that in the 150 years preceding the 1970s every technical and engineering advancement involved the use of the S.R.

MIT's acquisition of the S.R. collection began in 2003 in a South Hadley, MA factory where the drawers of flat file cabinets were crammed full of slide rules. The factory had offered the collection to Harvard and the Smithsonian. These institutions were interested only in selected S.R.s. The offer was to take them all or take none of them. When a representative of the factory contacted MIT the response was, "We will take them all." The transfer was completed in the spring of 2004. The collection was stored in solid oak cabinets in a total of 48 drawers. There were more than 1000 S.R.s with most being of K and E manufacture.

The first task facing Dr, Douglas was to call in experts to appraise the collection. Whom did she call? None other than members of the illustrious S.R. society: The Oughtred Society (OS). Founded in 1991 the OS's objective is "to promote an understanding and appreciation of the slide rule as a calculating instrument and to explore its history." The OS is named after William Oughtred (1574-1660), the inventor of the S.R.

Wearing white gloves as she spread out the collection Dr. Douglas was advised by OS members that a museum was the worst place for a S.R. collection because it would remain hidden away from the public. She said, "I've got to be different. I will attend OS meetings. I will take good care of the collection, guarantee its safekeeping, and make it available to museum visitors."

Attending the initial meeting at the South Hadley factory were Kurt Keuffel, great grandson of the K and E co-founder, and Robert Otnes, the foremost expert on S.R.s and a member of OS. Dr. Douglas said that the first thing she had to do was find out what the 48 drawers contained. She did not want to lose the order of items. Immediately apparent was the mixing up of the items in the collection as the S.R.s were removed from the drawers. Each S.R. was photographed. One drawer contained only circular S.R.s. To house the collection the MIT Museum received a $5000 foundation grant for the purchase of appropriate flat file cabinets. Each item is reproduced on a separate slide for viewing purposes. In her presentation Dr. Douglas noted that in the 1940s and 1950s when college tuition was about $1000 the cost of a S.R. ranged from $100 to $200, an impressive investment at the time.

Upon first viewing the collection in the South Hadley factory Dr. Douglas said that she knew she had a great collection and that it would be safe at MIT. She was faced with particular concerns. What did this mean to her? Why should she care? She had to answer these questions. She conducted two experiments. First she ran workshops and then she held focus groups with teachers and young students. She asked participants: "Why are programs about S.R.s so dull? This is about math, about sines, cosines, square roots, logarithms – it's a foreign language to these students!"

Proceeding from the MIT S.R. collection Dr. Douglas flashed remarkable images on the screen. William Oughtred's S.R. was used to calculate the tax on the alcoholic content of liquor.

Dr. Deborah G. Douglas, Ph.D., curator of the MIT Museum, chats with slide rule aficionados after her power point presentation of MIT's K and E slide rule collection on May 23, 2010 at the Hoboken, New Jersey, Historical Museum. Included in the group is David Best, LS, (third from left) editor of the ISPLS Hoosier Surveyor. (Photo by Melanie Best)

Displayed in a cabinet drawer in the Hoboken, New Jersey, Historical Museum is a sampling of slide rules manufactured by K and E in its Hoboken factory. K and E discontinued its manufacture of slide rules in 1975. (Photo by Melanie Best)

Mounted on the wall of the Hoboken, New Jersey, Historical Museum is an illustrated tribute to the co-founders of the now defunct Keuffel and Esser Company, Wilhelm J. D. Keuffel and Hermann Esser. The display of K and E manufactured items will continue at the museum throughout 2010. (Photo by Melanie Best)

The problem tax collectors faced was the lack of a standard gallon. The tax collector needed to know something about the circumference of a barrel and its depth. We learned that Thomas Paine of "Common Sense" fame used a S.R. and that S.R.s were used to determine tide tables. During the English Industrial Revolution James Watt developed a custom S.R. that enabled his technicians to precisely calculate the construction of the steam engine. In the 1850s the first linear S.R., the Mannheim S.R., was created to calculate the trajectory of a shell aimed at a target. The 1850s represented the explosion of technology. MIT was founded in the 1860s. This was the period when S.R.s were introduced into the United States. The first application in the U.S. was to calculate insurance actuarial tables. We viewed another image of a 1900 S.R. used to calculate the general details of sewer pipe. Then we viewed the Beatly I.Q. S.R. that combines mental age and chronological age to determine intelligence quotient. This is one of Dr. Douglas's favorite S.R.s.

We viewed a circular S.R. used to calculate nuclear bomb effects. After World War II the computer began to make inroads into the use of S.R.s. However, the use of S.R.s for a variety of uses continued apace. There were S.R.s used to calculate the size of cardboard boxes or to calculate your own secret code by using the "Lawrence Secret Code Maker." There was a moon walk astronaut with a S.R. in his pocket. Ross Perot and Werner Van braun pose together at the Space Race Exhibit in the Smithson-

...continued Page 15

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...continued from Page 13

ian Museum with each holding a S.R. A S.R. was developed for members of Weight Watchers. The key to the use of the S.R. was its mathematical uniformity.

At the conclusion of the power point presentation Dr. Douglas conducted an informal Q and A session. What is the most valuable S.R.? Answer: The 1700s dipping stick. What is the value of S.R.s today? Answer: From one dollar to several thousand dollars. Actually the value of the average S.R. today is very minimal because there are so many of them. What technical literature is available on the mathematical background of S.R.s? Answer: There is no one good book on the subject. What is a great feature of the S.R.? Answer: Its portability. What was the basic objective of the S.R.? Answer: To eliminate the tedium of lengthy mathematical calculations.

Arriving home after the Hoboken Historical Museum S.R. and K and E experience I had to type in "Slide Rule" on my computer. I urge all to do the same. The information available about S.R.s is incredible. I cite several examples. Go to "International Slide Rule Museum." On 24 pages you will view a collection of 500 images of photos, cartoons, advertisements, etc. Each image includes a S.R. I list the following eleven to pique your curiosity: 1) A S.R. 351 feet in length listed in the Guinness Book of Records; 2) A copy of the MIT publication Tech Talk with a photo of Dr. Douglas surrounded by a portion of the MIT Museum S.R. collection; 3) A 1988 Bloom County cartoon drawn by Berkley Breathed depicting the demise of the S.R.; 4) A 1992 photo of Hewlett-Packard co-founder Bill Hewlett seated at his desk holding a S.R. with a HP-35 Electronic S.R. on the desk (the introduction of the HP-35 in 1972 led to the demise of the S.R.); 5) A photo of the Dalai Lama and the Duke of Edinburgh comparing S.R.s; 6) A Mr. Tweedy cartoon of a S.R. store displaying signs declaring "Bankruptcy Sale!", "Up to 90% Off!", and "Everything Must Go!"; 7) A photo of a lear jet captain showing his flight officer how to use a S.R.; 8) A S.R. on the cover of the April 1959 issue of Playboy magazine; 9) A sculpture titled "Death of the S.R." by Werner Rudowski 1989; 10) The Star Trek crew with S.R.s; and 11) A frame from the movie "Memphis Belle" showing the plane's navigator using a circular S.R. for navigation.

A brief history of K and E is on the internet. It was founded in 1867 by German immigrants Wilhelm J. D. Keuffel and Hermann Esser. They originally sold drawing materials and drafting supplies in their New York City store. In 1876 they added surveying instruments. They relocated to Hoboken, NJ in 1880 in a new four-story factory they had built. Incorporating in 1889 as the Keuffel and Esser Company they added a new line of surveying instruments based on the design of John Paoli, an Italian immigrant living in Hoboken.

K and E began manufacturing S.R.s in the 1920s. The sale of S.R.s was never a profitable venture for K and E. As S.R.s became obsolete in the 1970s with the advent of electronic, transistorized calculators, it was not a problem for K and E to discontinue the line. K and E shut down its S.R. engraving machines in 1975. K and E was acquired by AZON Corp in 1987. A 28-page listing of all K and E S.R.s is available on the internet.

Information from the OS brochure about the Society is available on the internet. "OS began in 1991 with eleven charter members. It now has over 400 members worldwide. . . . Members of OS receive the following: 1) Two issues of the OS Journal (Spring and Fall); 2) Free listings in the annual swapsheet; 3) Two issues of the swapsheet (Winter and Summer); 4) The current directory of OS members; 5) An invitation to the Society's annual meeting; and 6) Notice of other meetings of S.R. collectors, both in the U.S. and abroad.

The following Dr. Douglas bio is excerpted from the MIT World Speakers publication: "Deborah G. Douglas oversees the MIT museum's extensive science and technology collections. Prior to joining the museum's staff in 1999, she worked as an independent scholar specializing in the history of technology and science. From 1994 through 1999, she served as the Visiting Historian for the NASA Langley Research Center in Hampton, Virginia and as adjunct assistant professor of History at Old Dominion University in Norfolk, VA. Her subjects include the history of technology, gender and technology, and U.S. history. Dr. Douglas is the author of American Women and Flight since 1940. Douglas received her AB in history from Wellesley College and holds AM and Ph.D. degrees in the History and Sociology of Science from the University of Pennsylvania. Her exhibit, Hub of the Air Universe: A Century of Flight in Massachusetts, opened at the MIT Museum in November 2003."

To all except the initiated the S.R. remains an inscrutable instrument, difficult for the mathematically impaired to fathom. It is important that the historical impact of these instruments be preserved for posterity. The S.R.'s direct bearing on the advancement of science and technology deserves an admired place in history. We applaud the leadership of Dr. Deborah G. Douglas at the MIT Museum for her efforts to achieve this end.

Editor's note: We solicit comments from ISPLS members regarding their recollections of S.R.s and the application of S.R.s to the surveying profession. Comments may be addressed to ISPLS@aol.com.

Parol Testimony

by Knud E. Hermansen, P.L.S., P.E., Ph.D., Esq.

Parol testimony or verbal testimony is an important source of information for retracing boundaries. Few surveyors would ignore a landowner who describes how to find the corner monument or the elderly resident who shows where the corner tree once stood. Yet, not all parol testimony should be considered. There are four hurdles to be considered before relying on parol testimony.

Useful

The first hurdle is that the parol testimony be useful. The testimony should advance the surveyor's efforts at arriving at an opinion.

Of course, there is often parol information that is not useful. All surveyors are familiar with landowners who want to talk but do not provide useful information. Most surveyors have experienced a landowner who tags along with the survey crew and maintains a constant flow of questions and gossip about the neighborhood. This later parol testimony is not useful and not helpful.

Acceptable

The second hurdle is that the parol testimony be acceptable. The parol testimony must be of a source and circumstance that the testimony would more likely than not be used by other competent surveyors in the same or similar situation. This hurdle is codified in the Federal and many state rules of evidence as the following sample illustrates:

The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence in order for the opinion or inference to be admitted. Facts or data that are otherwise inadmissible shall not be disclosed to the jury by the proponent of the opinion or inference unless the court determines that their probative value in assisting the jury to evaluate the expert's opinion substantially outweighs their prejudicial effect. (Underline mine) Federal Rules of Evidence, Rule 703.

It is important for the surveyor to understand that the standard for acceptance is measured against what other reasonable surveyors would do, not what one particular surveyor would do. Put in other words, if most surveyors would readily use the testimony, it is acceptable to use. If only a few (minority) of surveyors would use the testimony, it is not acceptable to use under the rules of evidence.

Admissible

As the last part in the underline portion of the previous quote states, not all parol testimony the surveyor finds useful and acceptable to aid in retracing a boundary will be admissible in court (nor does it need to be). However, parol testimony that is not admissible yet forms the basis of the surveyor's opinion could place the surveyor in a difficult position – the surveyor has an opinion but can't disclose how the opinion was reached. The result is the surveyor on the witness stand can provide an opinion but the foundation of the opinion is deemed inadmissible and therefore the surveyor's opinion is suspect.

As a general rule, parol testimony will not be admissible where parol testimony will contradict, vary or change the written terms of the contract, agreement, or deed (known as the parol evidence rule). Conversely, parol testimony is generally admissible to aid in the construction, clarification, or interpretation of an ambiguity in the deed or when a deed description is applied to the site. Parol testimony may be used to explain that which is not clear or a latent ambiguity such as the meaning of words and site conditions at the time of conveyance.

For example, parol testimony is not admissible to prove the corner tree is a maple contrary to the deed description that cites an oak to be a monument to the corner. On the other hand, parol testimony is acceptable to show which of two oaks is the one intended by the deed to mark the corner.

Therefore, parol testimony is generally admissible to identify the monument cited in the deed, explain its disappearance, show its former location, and show a replacement is in the position of the original, to name a few applications of parol testimony. Also, parol testimony can be used to show elements of equitable claims or defenses such as acquiescence, practical location, and adverse possession.

Credible

The final hurdle is that the parol testimony be credible. Credibility does not prevent the information from being accepted as evidence. The credibility affects how the information is perceived by the judge, jury, arbiter, etc.

The lack of credibility, I believe, is the most common deficiency of parol testimony used by surveyors. Many surveyors claim not to be an advocate for their client, yet accept, rely, and adopt parol statements from the client or the client's witnesses that lack credibility. Therefore the surveyor becomes an extension of the advocacy of their client or client's attorney.

There are three elements involved in determining the credibility of parol statements: 1) The person making a statement would be unaffected by the outcome of the decision. 2) The person would or has some basis for the knowledge sufficient to "sear" the knowledge into memory. 3) When the memory of the witness was formed or the memory recounted there was no actual or an appearance of bias at the time.

Unaffected: The first element of credibility requires that the person making a statement be unaffected by the outcome of the decision. This element would generally make any statements by the client or neighboring property owner suspect. Both the client and neighbor

stand to gain if their statements were accepted and relied upon. Even prior owners are suspect if they gave a warranty deed and may be called upon to defend their warranty should the boundaries not reside where they claim the boundaries reside.

There is one exception to this element of credibility. The exception is when the statement of the witness is against the interest of the witness. For example, if the client were to agree with the neighbor's assertions regarding the former location of a boundary stone, the client's testimony regarding the stone's location would be judged credible since it is a statement against their interest.

Basis for Knowledge: The second element affecting the credibility of a parol statement requires the witness have some basis for their knowledge sufficient to "burn the knowledge" into their memory. The basis for the knowledge must be such that logic and experience would compel a reasonable person to believe the witness would remember the facts they testify about. Was there something unique or noteworthy that would cause the witness to remember or retain the knowledge in their memory? In the instance of a corner location, it is often insufficient for a witness to merely state they remember there was a corner pin at a certain location. The witness must be able to relate their memory gained in the past to an existing location on the ground in a manner that is logical, reasonable, and trustworthy.

"*The pin was right at the top of the ditch and the ditch hasn't moved*." "*I watched my dad put a stone right on the old stump and after the stump decayed that stone was still there*."

Consider an 83 year old witness who insists that she remembers the location of a pin she saw in her cousin's yard when she was 12 years old. That statement without some other supporting information is not credible because logic and experience suggest that 12 year old children have trouble remembering to feed the dog that day, let alone the location of a corner pin the elderly witness saw 70 years earlier. However, it is believable that the 85 year old witness can remember the location of the corner pin if she recounts that the pin was under a tree branch she fell out of when playing in the tree at age 12 and the corner pin injured her very badly when she landed on it. The tree and severe injury is something that a reasonable person would believe someone could remember many decades later. Since the tree and the branch the witness climbed on still stands, the witness is able to accurately place where the pin stood 70 years previously.

Of course knowledge gained last week does not need the same intensity of experience (if any) in order to accurately recount the knowledge. On the other hand, knowledge gained a decade ago would require some extraordinary experience to retain a credible memory.

Impartial: The disposition, temperament, or bias of the person when the memory was created or the statement is made also forms an element of credibility. Statements by close friends and family of the client or neighbor are suspect. Also, witnesses who were angry or emotional to the extent their judgment may be impartial or biased against or for a party may hurt the credibility of the witness.

Documenting parol testimony using an affidavit should incorporate the criteria that was discussed previously.

Affidavit of Leroy Cameron

My name is Leroy F. Cameron. I am 62 years old. I reside at 3049 Ames Lane in the town of Lincolnville.

From the age of 9 until I was 18 years old and went into the service, I lived at what is known as the Wooster farm. The Wooster farm was owned by my grandparents during the time I lived there.

At the southeast corner of the farm there was a large oak tree with three blazes. I spent hours sitting in a tree stand that I built in this tree to hunt deer. I spent countless hours in this tree and shot several deer that came to eat acorns at this tree. From this tree I could see down a woods lane in one direction and along a fence-row in another direction.

Recently, I returned to the location of the oak tree. From the alignment of the woods lane and remains of a fence-row, I was able to determine the former location of the oak tree. A month ago, I placed a pile of six to 12 inch diameter stones at the location of the oak and indicated this location to Sarah Kener, a surveyor.

While I have often met the person who owns the Wooster farm and the neighboring property, I am not related or know them outside this occasional meeting that occurs while hunting. I continue to hunt on this farm and the neighboring property.

Dated the 3rd day of August 2010.

Leroy Cameron

Leroy Cameron

This article has focused on parol testimony, yet many of the criteria would also apply to other forms of extrinsic evidence. The age, loss of information over time, and unreliability of the surviving information often do not allow the surveyor to be very discriminating as to the information the surveyor uses. Yet, where there is conflicting information, including parol testimony, the surveyor must be prepared to critically examine the parol testimony before relying on it or making it superior to other possibly more reliable evidence.

[1] Knud is a professor in the Surveying Engineering Technology program at the University of Maine and operates a consulting firm specializing in boundaries, real estate title, easements, alternate dispute resolution, professional liability, and land development.

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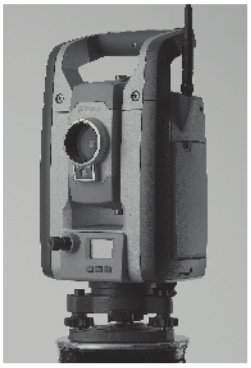

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NORTHWEST CHAPTER ANNUAL GOLF OUTING
JULY 10, 2010

The Northwest Chapter held its annual golf outing on July 16th, 2010, at the Course at Aberdeen in Valparaiso, Indiana. The golf outing is the primary scholarship fund-raiser for the Chapter and was attended by 48 golfers this year. The event raised approximately $600 from golfers and hole sponsorships. The Chapter used this event to raise scholarship money, and to formally recognize their two Ordell L. Gertsmeier Scholarship Grant recipients this year. Brian Murray (left) of Dyer, Indiana, was awarded $1000 and Juan Lopez of Portage, Indiana, was awarded $800. Both students attend Purdue University Calumet. The number of available awards given and amounts each year are based on the Chapter's fund-raising efforts from the prior year. The awards are given to students enrolled in undergraduate surveying related college level courses, and who reside in the Chapter's seven county area. These students are pursuing college education to ultimately achieve careers as land surveyors.

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Normans Island

By Ronald E. Koons, RoSaKo Safety

While on a recent business trip we had the opportunity to also visit Cape Cod. Whenever we are around water we will take a sightseeing excursion if one is available. At Hyannis Port we had the opportunity to go out on a boat for about an hour with a guide providing descriptions of everything we saw. There was the breakwater that had been under construction for years, the Kennedy Compound, and then a story about an island. Evidently this island had been nothing more than a bird sanctuary up until World War II. At that time an airfield was established locally to train pilots. As part of the training the pilots needed to drop bombs. Since no one lived on this small island it made a perfect target. As the tale goes there were so many unexploded bombs on the island after WWII that it wasn't safe for anyone. One of the descriptions says that the island is called Nomans Island after the description that *No Man* could set foot on the island without the chance of being blown to smithereens. While this certainly makes a good story I don't know how much validity there is to the tale. One thing that I do know for certain is that Permit Required Confined Spaces could quite often take on the title of "No Mans".

A recent event just a few miles away from our home made national news. A plumber had entered a 10 foot deep pit to work on a water well. As part of that work he used some type of acid on the well. He had someone helping him that day. He was the father of his daughters, soon to be born child just trying to make a few extra dollars. After just a short period of time the plumber went down. When the helper saw that this man was in trouble he went in to help. As I received the story the homeowner called 911 when he saw there was trouble. Two local volunteer firefighters were at a ball game just a short distance away. When the page came through instead of reporting to the station they both went directly to the accident site. The older of the two, who had many years of experience in fire fighting/rescue, went into the pit without protection. He went down and the second firefighter went in also without protection. When the firefighting equipment arrived there were four unconscious humans in the bottom of this pit!

This incident goes along with my Permit Required Confined Space training from OSHA that indicated over 65% of all fatalities in PRCS are to would be rescuers.

The outcome was very grim, but it could have been even worse. The plumber died quickly from the hazardous vapors or lack of oxygen. Final reports have not yet been published. The young helper died a few days later in the hospital. Both firefighters were hospitalized in serious condition. The only blessing in disguise was that both of these men eventually got out of the hospital. I have not yet heard if they may have any long term effects from the exposure.

This incident relates to my Permit Required Confined Space training from OSHA that indicated over 65% of all fatalities in PRCS are to would be rescuers. In this case one man died attempting rescue. If the rescue equipment had been delayed by a train or slowed down by a traffic jam both of those firefighters could also have perished. This is an important lesson for everyone to remember. Even if your company has a policy that no employees are to intentionally enter a Confined Space to retrieve data who knows what may occur when they are working? What if they came upon a similar situation in a manhole or other vessel? Would they know enough to stay out? If they see a human being in trouble would they attempt to save a person? I can't imagine seeing one, two, or more individuals in a PRCS unconscious and not be able to do anything except wait. It would have to be agonizing. However, with the statistics on those would be rescuers being fatally injured there are just too many things that can go wrong.

I always recommend at least Permit Required Confined Space awareness training for all field employees. In awareness training the employees should be taught the basics of why no one should enter without proper training and the required equipment present. Anytime someone enters a PRCS an attendant must also be present. In the case of the fatality mentioned above even if everything else went wrong had the worker been secured to a rescue system he could have been brought out without someone going into the pit.

I also explain constantly that just by opening the entrance to a Permit Required Confined Space can subject your employees to PRCS hazards. One of the potential hazards is escaping hazardous vapors. Let's say your employees only have to pull a manhole cover and insert a rod to get an invert. No portion of your employee's body will be entering the PRCS. What if the manhole has a lid liner to cut down on rainwater infiltration or doesn't have any vent holes? Could this also keep gas in until the lid or liner is removed? If your employee(s) are close enough could the venting of that gas create a hazardous situation? I know of one fatality case a number of years ago in California where just that occurred. A worker was pulling the lid off a pit and a high concentration of Hydrogen Sulfide escaped because the vents on the pit were accidentally blocked. The worker passed out and fell into the pit, sewage and all. In this case just as in measuring inverts there was no *intent* to enter the PRCS, but the PRCS caused a death. The company employing the worker in this case was cited by CalOSHA for Confined Space violations.

Please review your Confined Space program and the training that your employees receive. Make certain that all field workers receive at least awareness training. Anyone who must enter a PRCS or may be involved in an entry must have complete training and be able to identify the potential hazards in the PRCS they may be entering. If not, then instruct your employees to consider all Confined Spaces as a "Nomans Island".

CALENDAR

August 25, 2010
Tecumseh Chapter meeting - Contact Zach Beasley
zbeasley@tippecanoe.in.gov
September 9, 2010
Northwest Chapter Meeting, Contact Rich Hudson
rhudson@bonargroup.com
September 9, 2010
CIC meeting at 6:00 pm at Bub's Burgers, Carmel. For more information contact Jason Coyle jcoyle@Stoeppelwerth.com
September 18, 2010
ISPLS Board of Directors meeting, Indianapolis, Headquarters
September 24, 2010
CIC Gold outing will take place at Maple Grove Golf Club. Proceeds from the golf outing go towards scholarships for Purdue University and Vincennes University land surveying students. For more information contact Jason Coyle jcoyle@Stoeppelwerth.com
October 2, 2010
LS-SIT Review
October 8, 2010
The following meetings will begin at 8:30 and will be held in the Indiana Government Center South Building,
402 West Washington Street, Indianapolis, Indiana.
All board meetings are scheduled in the Conference Center Room 5 unless noted otherwise. Meeting dates are subject to cancellation or changes.
2010 Board Meeting Date - October 8, 2010
October 14, 2010
Northwest Chapter Meeting, Contact Rich Hudson
rhudson@bonargroup.com
November 6, 2010
ISPLS Board of Directors meeting, Indianapolis Headquarters

WELCOME NEW ISPLS MEMBERS

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Haldon Ashton - Life
Glenn Alkire - Affiliate
Don Bengel - Life
Philip Buehler - Professional
Butler Fairman & Seufert - Firm
Alex Cherchian - Affiliate
Joseph Couts - Professional
Thomas Daugherty - Life
Lisa Dobrawski -Professional
Tony Dormelle - Professional
Richard Durham - Professional
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Mark Hanna - Associate
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