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Mission Statement

“To protect and promote the Land Surveying Profession by setting high standards and providing education for the members and general public.”

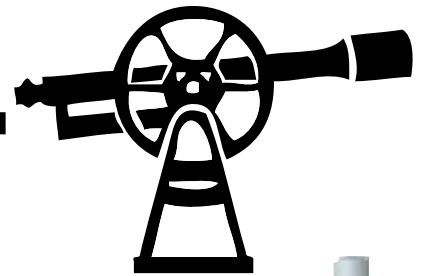


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# Chairman's Message

BY JERRY ALLRED



Hi all,

First of all I would like to begin by saying thank you to all the members of UCLS who give of their time and resources to increase the image of our profession. To all of you who take the time to serve as chapter officers, on committees, participate in the conventions, act as merit badge councilors, and take an active role in advancing the public awareness of what we do. In the last few months we have been involved in several very successful events and programs. The fall forum last fall and the annual convention in St George were both very well supported and were great gatherings for renewing associations and broadening our horizons. It might be interesting to know how many survey monuments have been blessed since these two events. Several of the committees have been involved in the communities advancing the Trigstar program, teaching survey history to history teachers, working on college degree programs, developing a program for construction surveyors, etc. A lot of good work goes on behind the scenes that does not usually get much credit. Thanks to all of you.

We are finding that efforts needed for record research is improving all the time with additional counties in the state putting more of the public records, including record of survey plats, and monument recordation tie sheets online. As technology advances and more information becomes available at our desk or while we move about we have the opportunity to become better surveyors. We can gather more evidence in less time and study relationships between what we find in the field and what the records show. This will also cause a greater need for caution that we do not let the vast array of information

gathering technology entice us away from the field work. This brings to mind the story of the "Concho Monument".

In the early 80s we had been hired to subdivide the Northwest Quarter of a section in the county near Roosevelt. The client instructed us to lay the development out with as many five acre lots, as we could get. A few of the lots in the northeast corner were increased in size to accommodate a low area with ground water to high to allow individual waste water disposal systems. The county subdivision ordinance allowed the roads to be included in the five acres so the lot lines were also the road centerlines with 25 feet road and utility easements along each side of the centerlines. Over the years several of the lots had been amended and reduced in size, some to as small as 1 acre.

Last summer we were contacted by a long time client who had purchased one of the amended 2 acre parcels in the development. He had been unable to find any of the original rebar we had set at the time of subdivision and so he was requesting a boundary survey to set his corners. His lot was well defined on the ground on the east and south by fences built by the adjoining. The north line being in the center of the street with the west line be in the middle of a hay field. We knew from other recent work in the area that the west quarter corner, northwest section corner, and north quarter corner were still in, even though they had been paved over and subsequently recovered. We had originally used a Wild T2 theodolite with a DI3S Distomat back in the day when the subdivision

**CHAIRMAN** *continued on page 6*

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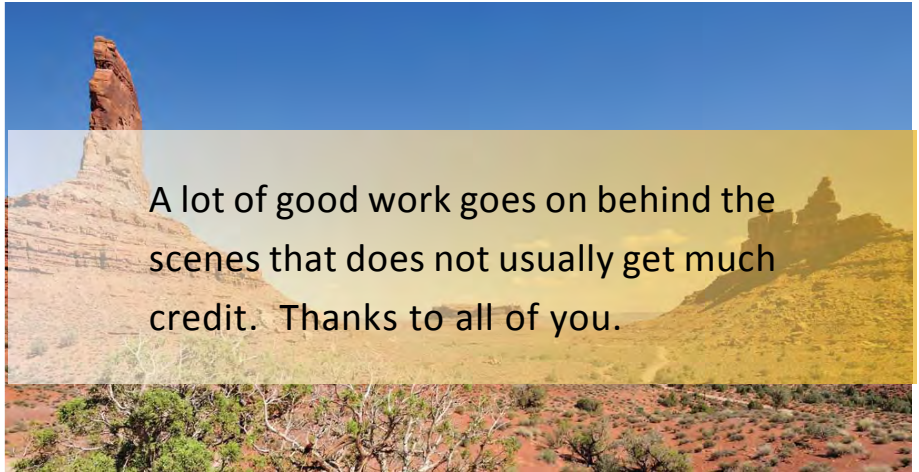


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**CHAIRMAN** *continued from page 4*

had been platted. (How many of us does that date?) We found as we calibrated our GPS unit on the section corner and staked out the record coordinates of the quarter corners we were less than 0.03 feet in both directions for both monuments. We then calculated the coordinate values for the amended lot from the plat. As we staked out the corners we found that the fences had been built substantially on the property lines—digging up the rebar monuments to set the corner posts. However out in the street at the Northeast corner we found what looked like the head of a carriage bolt driven in the asphalt for a property corner. It was roughly seven feet mostly south and a little east of the calculated position. What? How can this be? Has someone been in here surveying the adjoiner, set this pin, and not filed a plat? Our point was directly in line with the fence between the lots. The position of this bolt was not too bad east and west but way off north and south. Well, the first step was to check



A lot of good work goes on behind the scenes that does not usually get much credit. Thanks to all of you.

all the calculations to make sure we had not made a mathematical error. They were all correct. The next step was to measure in some additional fences and street intersections to see if this bolt head matched anything else. We could not find anything out of bounds by that magnitude. We also could not find any other corners around the adjoiner. The next step was to see if anyone was at home who might be able to let us know who had performed the survey. But, you know how a bottle cap looks

pushed down into the pavement during the hot months of summer? What if this “monument” was like that? Maybe I had better check. I wedged the point of the prospectors pick under the “bolt head” and the concho popped up out of the pavement. You know, a concho, a shiny metal button set in the leather of a saddle for decoration. Phew.

Work safe this summer.

Jerry

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## Uintah Special Meridian

# Remonumentation

The Uintah Special Meridian dedication last fall proved to be a “monumental” event with more than 135 people in attendance. The September 18<sup>th</sup> dedication marked the rehabilitation of the initial point, and the construction of a historical roadside landmark.

Book Cliffs Representative and Board Member John Slaugh, suggested the idea for marking the Initial point of the Uintah Special Meridian during a Utah Council of Land Surveyors board meeting in March of 2009. John said surveyors working in the Basin felt the initial point was in need of improvement.

According to John Stahl, “the initial point was marked by a 16-penny nail in the rural intersection of two roads. Research of the point’s history revealed that its position had been marked in 1953 by a brass cap, which lay 3 feet below the surface of the roadway.”

John Stahl noted that there 38 Initial points established throughout the United States.

The history of the Uintah Point can be traced to back to Aug 30, 1875, John Stahl, Salt Lake Chapter Representative explained. “Deputy Surveyor Charles L. DuBois stood on an open plateau above the Uintah River Valley. His instructions were to “select the most available point within the reserve for an initial point” from which the survey of the Uintah Valley Reservation would commence.”

According to John Stahl, of the 38 such meridians set in the 1800’s for designating U.S. Public lands: the only other in Utah is at the southeastern corner of Temple Square in Salt Lake City. Only six of the meridians were specifically designated to survey Indian lands. Most of the 38 monuments had been monumented with historical monuments. The Special Meridian remonumentation project involved the cooperative efforts of the Bureau of Land Management, the Uintah County commissioners and the Ute tribe. The project blossomed into a community project that would not only rehabilitate the monument but included a historical marker.

**UINTAH** *continued on page 8*



A beautifully designed highway marker with narrative now sits north of the initial point.



Surveyors and the BLM met at the intersection of highway 121 and 3500 East about 5 miles from Enola Utah to recover the position of the initial point. “The group excavated to a depth of 3 feet below the highway surface recovering the last – known relic witnessing its official position – a 4 inch diameter brass cap set by cadastral surveyor Andrew Nelson in June 1953,” said John Stahl.

Directly above the 1953 monument a new brass cap was installed under a specially constructed cover cast with the words “Initial Point” making the position more accessible for future land boundary surveys.

John Stahl recalled the darker part of Meridian history that he discovered when researching language for the marker. He learned how President Teddy Roosevelt took from the tribes half of what President Abe Lincoln had given in the original two-million acre reservation. With a push from congress, the president in 1905 by a presidential proclamation Roosevelt declared that all of the 1,004,000 acres of unallotted lands in the reservation be opened up to white settlement.

On the day of the ceremony, most attendees were not aware of its troubling significance. To the Ute tribe this monument represented the encroaching of white people into a land long used by native people. But with grace and dignity this same native people embraced the future. It was an honor to be in the presence of Jerry Tapoof whose family dedicated a portion of their allotted land for the construction of a highway turnout and marker.

It was with tears that those present listened to the traditional Ute prayer offered by Larry Cesspooch (translated whitebelly), As he waved an eagle wing across a smoldering rope of sweet grass those in attendance were captivated. “What comes through the eagle feathers comes from the Makers. The sweet grass smoke can change negative to positive. You all have souls” he said “Pray for the same thing”

This monument while used as a survey point holds a greater significance to those historical residents of the great Uintah Basin. With grace and dignity they put aside their sadness to embrace a marker that really represents a day of sadness for them. We thank them.



# Statute of Frauds

BY WARREN ANDREWS, PLS

In Surveying legal books and in surveying seminars the term, "Statute of Frauds" is mentioned. But what is it?

The original English Statute of Frauds is basic to English and American law on the subject of written contracts including deeds for transfer of real estate. It was passed by the English Parliament and became law on the 24th of June, 1677 during the reign of Charles II and is cited as 29 Car. II, Cap. 3. It states in English (the original is probably in Latin) in part:

An Act for Prevention of Frauds and Perjuries

I. For prevention of many fraudulent practices which are commonly endeavored to be upheld by perjury and subornation of perjury; be it enacted by the King's most excellent Majesty, and by and with the advice and consent of the lords spiritual and temporal, and the commons, in this present parliament assembled, and by the authority of the same, That from and after the four and twentieth day of June, which shall be in the year of our Lord on thousand six hundred seventy and seven, all leases, estates, or any uncertain interest of, in, to or out of any messuages, manors, land, tenements or hereditaments, made or created by livery and seisin only, or by parol, and not put in writing, and signed by the parties so making or creating the same, or their agents thereunto authorized by writing shall have the force and effect of leases or estates at will only, and shall not either in law or equity be deemed or taken to have any other or greater force or effect any consideration for making any such parol leases

or estates, or any former law or usage, to the contrary notwithstanding.

VII. And it be further enacted by the authority aforesaid, that from and after the said four and twentieth day of June all declarations of trusts or confidences of any lands, tenements or hereditaments, shall be manifested and proved by some writing signed by the party who is by law enabled to declare such trust, or by his last will in writing, or else they shall be utterly void and of none effect.

All US State laws on fraud in contracts derive from this. There is a very thick law book commonly called Smith on the Law of Fraud for anyone who wants to read further. It is actually entitled, A Treatise on the Law of Frauds also containing the English and the American Statutes of Frauds Annotated by John W. Smith, Bobbs-Merrill Company, Indianapolis, 1907, 1212 pages. It is exhaustingly comprehensive up to that date.

Reprinted from Colorado Side Shots, Nov. 2009.



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# Survey Technicians

## Who Uses Them, And How Do You Train Them?

BY BRAD T. MORTENSEN, PE, PLS

**O**ver the past two years your company has probably laid off more Surveying Technicians than they have hired, but that will not always be the case. What are your plans as we start rising out of this slump in the economy? Will you be hiring new Technicians? Will the ones you employed before still be around? Will you need to train new ones to replace the ones who will not be returning?

These technicians, who gather and process the data and evidence on which we the professional surveyors base our opinions, are the significant segment of the surveying profession being overlooked by the emphasis placed on opportunities in our community college and four-year university programs. It is important that we plan for the career opportunities and advancement of those who, for whatever reason, will not work towards the degree requirement for licensure. A clear career path is the only incentive we will have to keep and prepare invaluable technicians in the business. Such a career path or process can be achieved by use of a uniformly recognized method of documenting one's progress and achievements throughout their career.

When I was a young surveyor the training system was easy. The company I worked for put me on a three man crew, and I ran

the dumb end of the chain and a sledge hammer. Eventually I was working on a two man crew as the rod man/chain man and from time to time the party chief would trade places with me and I would stand behind the instrument while he pounded hubs. Then after a few years I had the opportunity of running a crew myself. As the years passed I would always train my crew members to run the instrument as quickly as possible. First I would teach them, how to set up a back site, when they were proficient at that I would have them setting up the instrument while I was doing computations in the truck. In no time at all we were taking turns pounding throughout the day. I did the same thing with teaching them to do computations. The work went quick and I always had someone to check my work as we worked together on the different tasks given us.

Sadly today this old system of training has fallen by the wayside. How many of your firms run a three man crew? How many still run two man crews? It is kind of difficult to pass along experience on a one man crew. In my opinion there are more reasons today to have training than before, simply because there are fewer technicians out there on your crew, with less experience, and more potential work that can be performed in the wrong spot, or at wrong vertical datum.

So what can we do about this problem? Fortunately there are some people that have already thought about this situation. The National Society of Professional Surveyors (NSPS) have set up a program they call the NSPS Certified Surveyor Technician Program (CST).

You might ask why we need a certification program. Certification, through testing, is what many organizations have used to acknowledge that someone has met the required training and has the specific understanding needed to perform particular activities. Certification is not the same as licensure. However, it does provide credibility for the person holding the certificate. Certification is also a tool that can be used to evaluate the level of services provided in a subjective field. One who is certified should conduct his efforts in a manor of professionalism and provide a quality service.

The NSPS created the CST Program to provide both a credential and an evaluation tool for technician level employees. Even though the program has been in existence for several years, lately it has generated a great deal of interest from employers, clients, and employees of surveying companies across the country. Using the CST Program a company owner now has a better tool to gauge an applicant's capabilities than is typically possible from a written resume. Those

seeking employment also have a better tool to show that they have achieved recognition for a certain level of competence. These and many other factors are what make the CST Program beneficial to the surveying profession.

The CST Program can also serve as the basis for a career track for the technician level employees who may not have the opportunity or the desire to achieve the professional surveyor level. Our company has used the CST Program as an integral part of our job descriptions, and we encourage certification as stepping stones for progression in the technician track. Members of NSPS should promote the CST Program to their employees as an opportunity at a reduced rate. Building a career track for technicians is critical to the future of the surveying profession because people need to have documentation that they have reached a particular level of competence. Without that documentation, the incentive to not only progress, but also just to stay in the profession may not exist.

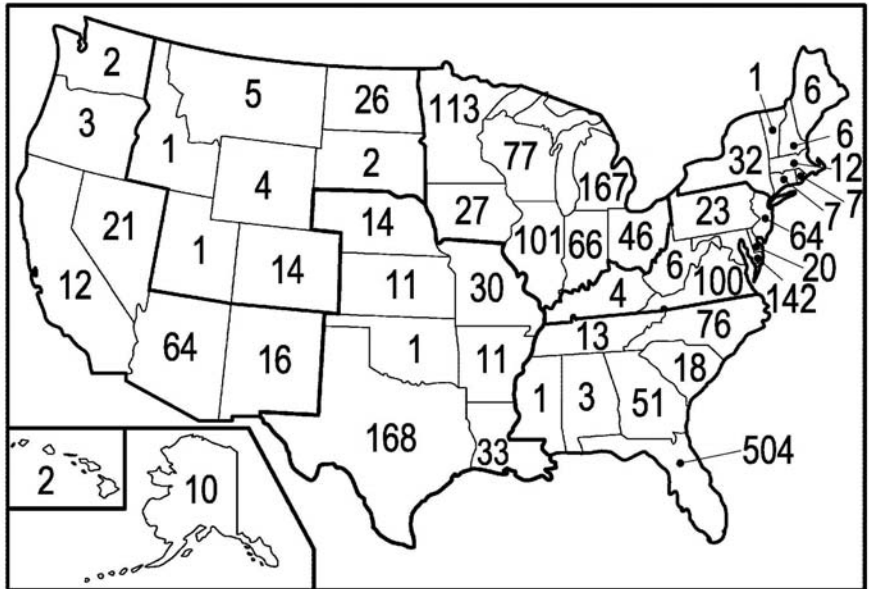
Some uses of the CST Program across the country are as follows:

- Recognized by the U.S. Department of Labor as a part of the National Apprenticeship Program.
- Registered state apprenticeship program in our area of the profession by private industry or state society.
- Validation Exam by educational programs just prior to student's graduation.
- Memoranda of Agreement with DANTES (Defense Activity for Non-Traditional Educational Support).
- Allows members of the military to prepare for civilian certifications prior to leaving the service.

Some of the Public Entities who use the CST Program are as follows:

- Virginia State Board of Registration - FLS exam.
- Washington Metro Area Transit Authority, Washington, DC

## NATIONAL SOCIETY OF PROFESSIONAL SURVEYORS CST POPULATION BY STATE AS OF JANUARY, 2009



The CST Program can also serve as the basis for a career track for the technician level employees who may not have the opportunity or the desire to achieve the professional surveyor level.

- City of Orlando, FL
- City of Virginia Beach, VA
- AZDOT, Phoenix, AZ
- Florida Surveying And Mapping Society, Tallahassee, FL
- Michigan Society of Professional Surveyors Survey Technician Council, Lansing, MI
- Texas Society of Professional Surveyors
- Department of Public Works, Las Vegas, NV
- New Hampshire Land Surveyors Association (pays 1/2 cost of exam if employer matches)

As you can see survey managers and business owners all over the country use the CST Program to help survey technicians with their career development. Certification also provides employers with credentials to offer clients and a means to evaluate and promote personnel. Because of the training and development conducted by organizations in preparing their technicians for the exam the CST Program becomes more than just a test. While studying the surveying technician becomes familiar with the academic knowledge behind the field procedures they follow every day. As a technician advances through the program he will move progressively into more responsible positions, will

**SURVEY** *continued on page 12*

## SURVEY *continued from page 11*

gain confidence in his abilities, and become an invaluable employee for your company. Who knows, perhaps after gaining confidence in the CST Program some technicians will hit the books even harder and go after the Fundamentals of Land Surveying Exam.

Some of the benefits for your company of having CST trained technicians are shown below:

- Sets a standard for your Technical staff
- Can be used as a hiring requirement
- Can be used as a marketing tool - incorporated in your QA/QC Program
- Can be used as a marketing tool – “CST’s On Duty”
- Can be used as a career ladder which creates a promotional tool within your firm or agency
- Can be used in conjunction with training

- Raises the bar and creates healthy competition
- Better qualified staff – more production - more profit – you can pay your staff more – you can attract better staff – your job becomes easier
- Better qualified staff – less mistakes – reputation improves – more business

With the help of many Volunteers the CST Program has made great strides over the past few years. This is a program that

deserves to be encouraged and utilized here in the surveying community of Utah.

If you would like more information about the CST Program you can contact the UCLS Education Committee, the UCLS Public Relations Committee, or look online at the following link: [http://www.nspsmo.org/cst/get\\_certified.shtml](http://www.nspsmo.org/cst/get_certified.shtml)

*Brad T. Mortensen is a member of the UCLS Education Committee, and the Chairman of the UCLS Public Relations Committee.*

Perhaps after gaining confidence in the CST Program some technicians will hit the books even harder and go after the Fundamentals of Land Surveying Exam.

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The advertisement includes illustrations of various surveying equipment: a tall monument, a rebar cap, a bench mark, and several different styles of survey markers. At the bottom, there is a historical illustration of a group of surveyors in a field, some holding surveying instruments like theodolites and tripods.



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

# Parol Testimony

**P**arol 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

**PAROL** *continued on page 14*

## PAROL *continued from page 13*

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

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

Parol testimony can be used to show elements of equitable claims or defenses such as acquiescence, practical location, and adverse possession.

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.

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 Lincolntonville.

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



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.

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# Four-Year Degree

## Becoming The Standard For Surveying Licensure

BY DAVE GIBSON, PH.D., L.S. EMERITUS MEMBER,  
FLORIDA BOARD OF PROFESSIONAL SURVEYING AND MAPPING

Reprinted with permission from the April 2010 NCEES magazine.

**S**urveying education leading to a four-year degree is increasingly being used in definitions of the surveying profession. Some states have adopted the four-year standard into their practice laws, while others have not.

In 1992, the Florida Supreme Court ruled in a case that surveying was not a profession because it lacked a four-year degree standard. In 2003, a Kentucky court applied the same standard, stating that surveying did not meet the definition of a profession. The U.S. Department of Labor, in administering the Fair Labor Standards Act, recently decided that Maine surveyors were not part of a “learned profession” because of the lack of a four-year standard for entry.

### Surveying education: a history

Civil Engineering departments began to drop surveying coursework from their offerings 50 years ago. After the “Grinter Report,” which said that engineering education should drop hands-on practical subjects, was published in 1955, civil engineering department chairs voted to implement the report’s recommendations. During the 1960s and ‘70s, retiring surveying professors were not replaced. Today, the washout is complete, it is usually taught by a graduate student or a part-time adjunct. The American Society of Civil Engineering’s 2007 Body of Knowledge does not reference surveying.

The surveying profession then proceeded to establish itself as a freestanding academic discipline through the creation of four-year academic programs, national ABET accreditation, and uniform national exams through NCEES; creation of separate licensing boards for surveying; and establishment of legislation requiring four-year degrees to practice surveying.

### Accredited degrees and education requirements

In the late 1970s, the American Congress on Surveying and Mapping (ACSM) was named the ABET lead society for surveying programs and published accreditation criteria. In 1979, the program at California State University-Fresno became the first surveying program to be nationally accredited by ABET. A school must choose accreditation under one of four commissions; ABET has accreditation commissions for engineering, engineering technology, applied science, and computing programs.

The first dedicated four-year surveying programs were established in the 1960s and ‘70s. Currently, we have a total of 21 accredited surveying programs in the U.S., spread between the engineering,

**DEGREE** *continued on page 20*

## DEGREE *continued from page 19*

engineering technology, and applied science commissions. About 10 four-year surveying programs are currently developing and moving toward ABET accreditation. States without large populations have trouble supporting surveying degree programs at state universities. In such cases some licensing boards, including Illinois, Kentucky, and Louisiana, have incorporated language that does not specifically require a four-year surveying degree. Instead, the degree can be in any major, provided the applicant completes a certain number of credits (usually 24-30) in surveying or related topics. The surveying coursework can be delivered locally or by distance education.

### Licensing exams and legislative approaches

In 1973, NCEES administered the first national FS exam; it was followed by the PS exam the following year. Early exams were task-based to match the hands-on nature of experience-only candidates. In 1999, the FS exam moved to a knowledge-based exam, attempting to test underlying knowledge of surveying concepts. Future exams may move more toward a curriculum base.

In 1972, Michigan became the first state to require a four-year degree for surveying licensure. As of now, more than half of U.S. licensing jurisdictions have removed the experience-only path to surveying licensure. Nineteen boards require a four-year degree at a minimum, seven require at least a two-year degree, while one requires 20 hours of surveying coursework but no degree.

Before the 1970s, most state statutes defined land surveying as boundaries

only, an important but small part of the total surveying discipline. Many state practice acts now contain a greatly expanded definition that includes something to the effect of “a surveyor determines and displays the facts of size, shape, topography, etc.” Many state societies changed their names from “society of land surveyors” to “society of surveyors.” ACSM created the National Society of Professional Surveyors from the previous Land Surveys Division. In 1995, NCEES adopted language in its Model Law that reflects a broader practice, including photogrammetry. In 2005, NCEES removed the “land” from “land surveyor” in its Model Law and Model Rules.

### Licensure does not guarantee professional status

It is important to remember that state regulation and licensure do not translate to professional status for surveying. Instead, they are a means of protecting the public. In the U.S., surveying has had



An apprenticeship system without education requirements is a roadblock to professional recognition.

a history of causing high-profile public damages – a few examples can be found in California’s 1890s mining claims and Florida’s 1920s swamp land plats. In the wake of such events regulatory practice acts were put into place to protect the public. However, each state regulates workers who are not members of professions, such as plumbers and barbers. Licensure by itself does not indicate professional recognition.

An apprenticeship system without education requirements is a roadblock to professional recognition. Learned professions do not elevate support staff



such as technicians to a professional rank. There must be two distinct sources of employees and two distinct paths to credentials. The professional tract recruits college-capable high school students who then receive a professional education. We should not think of our technicians as future professionals unless they are pursuing a degree.

A learned professional must have the ability to speak confidently, write authoritatively, research published information,

analyze issues, and apply math and science when needed. These things cannot be learned entirely on the job. Public protection also comes from completion of a college program – not only by passing an exam.

### Conclusion

In the last 60 years, the surveying profession has made great progress toward professional distinction and recognition. However, the lack of a national four-year degree entry standard is slowing the progress greatly. I believe getting past this phase will lead to greater public protection and recognition for professional surveyors.

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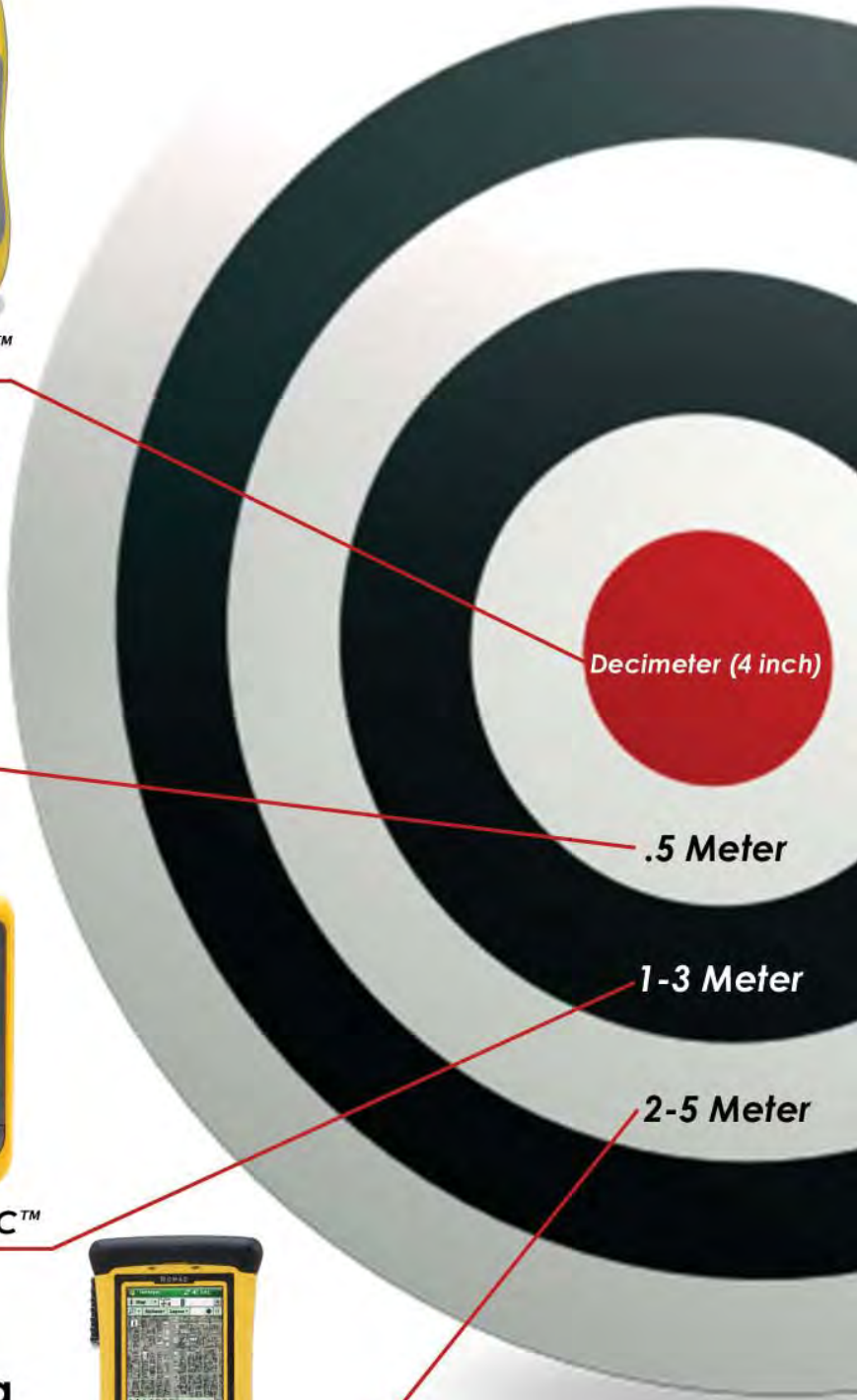
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# Managing Mobile Devices

By Stephanie Chaumont, Security

According to Fast Company magazine, a laptop is stolen every 53 seconds. To put that into perspective, around three and a half laptops will have been stolen while you're reading this article. Only 3% of all stolen laptops are ever returned.

If you're like the growing number of hyper-productive Americans today, you can see a great need for laptops and other mobile devices having access to your network. Reports are revised in the passenger seat of the car; research is done while waiting for a plane; emails are read and written while waiting in line for food. It is easy to see the value in such things, but how do you balance the risk associated with allowing these devices to access your confidential and valuable information, while also allowing them to leave the safety of your office? The cost of replacing a lost or stolen laptop or iPhone is really minimal compared to the loss of information or potential unauthorized access to information. There are both technical and nontechnical solutions available to help you maintain security while still enjoying the benefits of mobile devices.

On the technical side, there are several ways to secure laptops. As with all network equipment, setting a sufficient password on the laptop prior to access will go a long way in keeping the average person out of your system. More determined attackers can bypass this protection. This is where whole disk encryption enters the scene. Whole disk encryption software will encrypt your entire C: drive and make information inaccessible without a pre-determined key. Laptops, just like all other systems, are also vulnerable to viruses and other malware, especially while connecting to unknown wireless networks. Good patch management procedures and current antivirus software with up-to-date virus definitions will help protect your bank's laptops. Disabling Bluetooth discovery mode on your laptop will also provide great protection from Bluetooth hacking tools. These tools enable an attacker to view contacts or email and even enable file sharing from your laptop to theirs.

Other handheld devices and smart phones like iPhones and Blackberrys are also becoming more and more prominent, introducing vulnerabilities that did not exist a few years

ago. Knowing how to manage these devices from your Blackberry server or Exchange server can prevent unauthorized access to your bank information or email from a lost or stolen phone. Consider the following:

- Enabling a password after a period of inactivity
- Enabling remote data wipe
- Disabling Bluetooth discovery mode

Never underestimate the value of non-technical solutions like training, training, and training. It is said that the weakest link in any security program are the people. The reverse must then be true... that your employees can play a vital role in creating a secure network. This is especially true when managing mobile devices. Educate your users regarding the dangers of connecting to unknown wireless networks. They should never connect to an ad-hoc or peer-to-peer wireless network. On the physical side of security, train your users never to leave a laptop or handheld device unattended unless it is secured. You can use cable locks to attach your laptop to some large piece of furniture in a room. Thieves are much less likely to "sneak out" with a stolen laptop attached to an office chair. Train smart phone users to treat these phones with the care they would a laptop, taking care to not leave them lying around. This is a luxury left for those of us still using phones that are only capable of making phone calls.

Mobile devices like laptops and smart phones have greatly impacted the way we do business and the way we do life. We can continue to enjoy their convenience without sacrificing our privacy and confidentiality. We just need to be aware of the threats involved and be proactive about implementing mitigating controls.

*Stephanie Chaumont, Security+, is a Security & Compliance consultant for CoNetrix (www.conetrix.com), a provider of network consulting, security testing, and risk management and information security compliance software to financial institutions.*



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