

May 2020

# SIDE SHOTS

Professional Land Surveyors of Colorado

Volume 51, Issue 2



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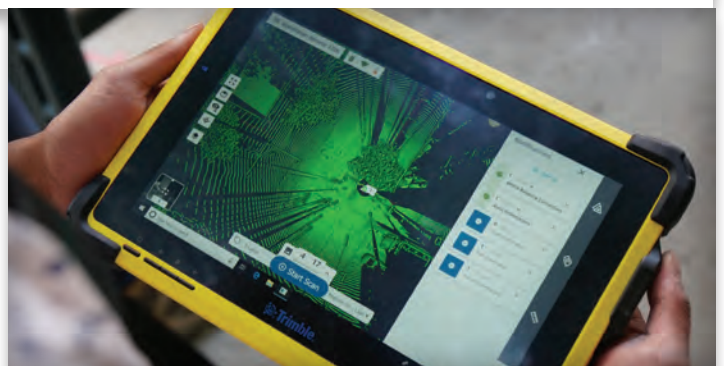
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**STEVE PARKER**  
*President*  
land\_surveyist@hotmail.com  
O: 719-590-9194

**DON HULSEY**  
*Vice President*  
don@csamlc.com  
M: 719-209-2029

**SHAUN LEE**  
*Secretary/Treasurer*  
sdl051@yahoo.com  
O: 570-499-8073

**BECKY ROLAND**  
*Executive Director*  
PO Box 441069, Aurora, CO 80044 • broland@plsc.net  
Phoenix AMC O: (303) 551-3266 F: (720) 230-4846

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# SIDE SHOTS

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*Side Shots is the official publication of the Professional Land Surveyors of Colorado, Inc.  
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**Steve Parker**  
*President*

**Don Hulsey**  
*Vice President*

*For Editorial Correspondence, contact:*

**Chris Power**

*Editor: Side Shots*

3825 Iris Ave., Suite 395, Boulder, CO 80303  
303-443-7001 • cpower@flatironsinc.com

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DON HULSEY  
VICE PRESIDENT  
M: (720) 209-2029  
don@csamllc.com

TODD BEERS  
PAST PRESIDENT  
O: (303) 353-3528  
todd.beers@merrick.com

STEVE PARKER  
PRESIDENT  
O: (719) 590-9194  
land\_surveyist@hotmail.com

BECKY ROLAND  
EXECUTIVE DIRECTOR  
O: (303) 551-3266  
broland@plsc.net

SHAUN LEE  
SECRETARY-  
TREASURER  
O: (570) 499-8073  
sdl051@yahoo.com

### DIRECTORS (2017-2020)

BRIAN DENNIS  
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LEIF JOY  
O: (970) 878-5292

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O: (970) 255-7386

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Hello PLSC,

Seemingly out of the blue we are all now in a challenging time. The current global concern, the Coronavirus, was generally not anticipated, and the situation seemingly changes daily. Health orders have made all of us realize what a big deal this is, how fragile life is, and has given each of us a perspective for what is really important to us. Some have lost loved ones, and some have had to make life changing decisions. The PLSC is proud of our members and their contributions during this unprecedented time. My hope is that by the time you receive this issue of Side Shots, life and business will be returning to a more predictable routine and we can shake hands and meet face-to-face again.



By some reports, disruptions have minimally affected our respective professions and the clients we serve. Many have transitioned to telecommuting, and many survey crews are still running at full throttle. In many ways business as usual, we have not been hit very hard. At least not yet. However, we should be prepared for further disruptions, especially downstream from business sectors that will likely impact our profession and respective markets. For example, many geo-professional events have been postponed or cancelled, access to public records offices may have been limited or temporarily closed. Schools with surveying curriculums are temporarily closed, many have made the transition to online learning. The field aspects of our work are done in relative social isolation, but much office work has moved to telecommuting and all the challenges that brings.

Looking at the bigger picture, there may be a resulting economic downturn that could cause a decline in many of our client industries, which is likely to impact nearly everyone. Presently most are experiencing plenty of project backlog, struggling to find enough staff, and most have cash to modernize trucks, equipment and technology. That could end, and soon. Consider market sectors upstream from us, some of the growth engines of our economy are the real estate, hospitality, and transportation sectors. They are all taking a big hit, and it won't be long before we begin to experience postponed or cancelled projects. The great recession, in 2007, hurt our land development market. This hit could potentially impact numerous markets simultaneously. Many surveyors dropped out of the profession to survive, but most adapted and diversified their client base, increased their scope of services, and began to compete in markets they had never considered.

That being said, do not fritter away this lead time we have to prepare for these changes with business as usual, instead watch to see what earlier-hit companies are experiencing and consider what you can do to be ready for whatever the new normal will be.

Please take care of yourself, your families, your friends and your co-workers during this strange time.

Sincerely,  
Steven Parker, PLS CFM CFedS  
PLSC President

# FROM THE EDITOR



*Side Shots* has been continuously in print, without interruption, for over 50 years. I couldn't let something like a worldwide viral pandemic derail that record. Fortunately, with technology allowing all of the contributors to this issue to work from home, it was still possible to get this into your hands and maintain this one

element of normalcy when most routines have been turned upside down.

The Rocky Mountain Surveyors Summit in late February was popular and well attended. The cover photo shows former PLSC President and *Side Shots* Editor, John B. Guyton, accepting a Lifetime Achievement Award from President Steve Parker at the conference. JB told me that moment was a high point in his career, and that it meant so much coming from such a great group of colleagues. He extends his thanks, and best wishes to everyone.

This issue features a photo collage from the Surveyors Summit, with photos by Mike Greer and composition by Kacey Keane. Tom Sylvester has an article about how the Land Surveying and Geomatics program at Western Colorado Community College/Mesa is continuing on via remote learning methods. Gaby Neunzert has given us another excellent piece about time.

Our feature article is "Research: What it's good for" by Wayne Hancock, BLM Cadastral Surveyor, and includes an extensive list of research sources for land surveying. I hope to have the many links from that list active in the web version of this issue, when posted on the PLSC website. Earl Henderson gave an article about his encounters with bees and wasps, to which many will relate.

We have a list of winners of the first Map/Plat Contest held during the Surveyor's Summit, submitted by Robert Boehm. And the PLSC Board of Directors minutes from their February 10th meeting, followed by the Treasurer's report. Then we have news from all of the chapters to round out this issue.

The problem with a quarterly magazine is that, as I write this in mid-April, I realize that most of you won't be reading this issue until sometime in May, or later. Perhaps the COVID-19 news won't be as dire as it seems right now, or perhaps it will be worse. And the longer term impact on surveyors around Colorado is a total unknown at this point. Let's hope that further damage and disruption in all aspects of our lives is minimal, and that things are looking up in time for the next issue.

— Chris J. Power  
Editor

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Published by the Colorado Professional Land Surveyors Educational Foundation, Inc., a non-profit foundation, *Initial Points of the Rectangular Survey System* is undertaken in the spirit of, and dedication to, Mr. White's remarkable contributions to his field. Net proceeds from its sale will be returned to the Professional Land Surveyors of Colorado Inc. Scholarship Fund.

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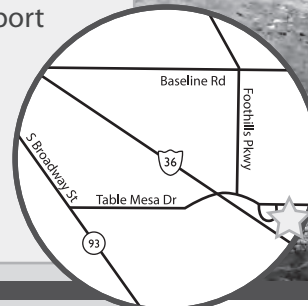
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March 18, 2020

Mr. John B. Guyton, Editor  
Side Shots  
3825 Iris Ave.  
Boulder, Colorado 80301

Dear Mr. Guyton:

This letter informs you of official BLM cadastral surveys in Colorado that have been accepted from October 10, 2019, through January 8, 2020, officially filed, and are now available in the Public Room, Bureau of Land Management, Colorado State Office, 2850 Youngfield Street, Lakewood, Colorado 80215. The surveys will also be available at <https://glorerecords.blm.gov>.

The accepted surveys are listed below by township, range, meridian, group number, type, approval date and number of plats.

<u>Township</u>	<u>Range</u>	<u>Meridian</u>	<u>Group No.</u>	<u>Type</u>	<u>Approved</u>	<u>Plats</u>
T. 7 S.	R. 77 W.	Sixth	1696	Plat Only	10/10/19	1
T. 32 S.	R. 69 W.	Sixth	1691	Plat Only	11/04/19	3
T. 1 S.	R. 76 W.	Sixth	1686	Plat Only	11/21/19	2
T. 15 S.	R. 67 W.	Sixth	1715	Suppl. Plat	01/08/20	1

As other surveys are completed, I will advise you of their acceptance. You may circulate this letter among the membership of the Professional Land Surveyors of Colorado.

Sincerely yours,

Randy Bloom  
Chief Cadastral Surveyor for Colorado



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# Rocky Mountain Surveyors Summit

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## Memories Made at Rocky Mountain Surveyors Summit 2020



**Land Surveying and Geomatics Degree Program at Western Colorado Community College,  
a subdivision of Colorado Mesa University Grand Junction, Colorado**

## **We Are Persevering Through The Corona Virus Crisis And Are Still Open For Business**

**By Thomas W. Sylvester, P. E. and P.L.S.**

As *Side Shots* goes to press, our Land Surveying and Geomatics programs are persevering through the current Coronavirus crisis facing the world as a whole.

In order to keep serving our students, Colorado Mesa University and Western Colorado Community College have been able to continue to offer our education opportunities to our students. All campus direct participation classes have been converted to distance learning classes. The entire faculty and staff have done a tremendous job in making the sharp turn to accommodate the change. Their imagination and ingenuity are something to behold.

For those students involved in our Land Surveying and Geomatics programs, the transition was not nearly as harsh for our core surveying courses. We have been offering all eight of these core courses as both campus classes and as distance learning classes. We also have a ninth class for the Internship/Capstone final course

in the Post Baccalaureate Certificate program that is normally taught by distance learning. We set this up to accommodate the approximately 80% of our surveying students who are working in the profession full time, many on the Front Range.

Two of the technical types of classes and two of the law types of classes are taught on campus in the fall while the other two technical types of classes and other two law types of classes are taught distance learning in the fall. In the spring, the courses reverse, i.e. those taught on campus in the fall are taught distance learning in the spring and those taught distance learning in the fall are taught on campus in the spring. We also teach the Surveying Ethics class (one of the law types of classes) as a distance learning class in the summer. The Internship/Capstone course for the Post Baccalaureate Certificate program is offered as distance learning either the fall or spring semester as those students reach that stage.



Our transition to make all of these courses distance learning after Spring Break this spring was to just revamp those courses taught on campus to the distance learning format. We didn't need to reinvent the wheel. We have had to make some modifications to the field labs. The campus lab had to transition to the distance learning format and the distance learning labs had to ensure their established lab arrangements could be modified to meet the social distances and stay at home orders per our Governors orders.

Some of the other classes required in our program such as the general education classes, additional math classes, cartography, GIS, etc. have not all been traditionally taught as distance learning, but all of them have made the transition to distance learning for the rest of this semester. I am only speculating, but I believe this effort will offer the reward in that many of these classes will have a distance learning option in the future. For those few that our distance learning students have not been able to get in the distance learning format, we encourage them to look to a local community college, college, or university near them for evening classes to meet those requirements.



For potential students needing assistance in registration, financial aid, general questions about the programs or school and other such assistance, the entire University and Community College staff have switched to phone conferences, Go to Meeting, Zoom, and/or Microsoft teams for their appointments. Many staff members have even made arrangements to handle these critical functions from their homes as they telecommute during this crisis.

Please know and please pass on to any employees or others you know interested in our education opportunities that **WE ARE STILL OPEN FOR BUSINESS!**



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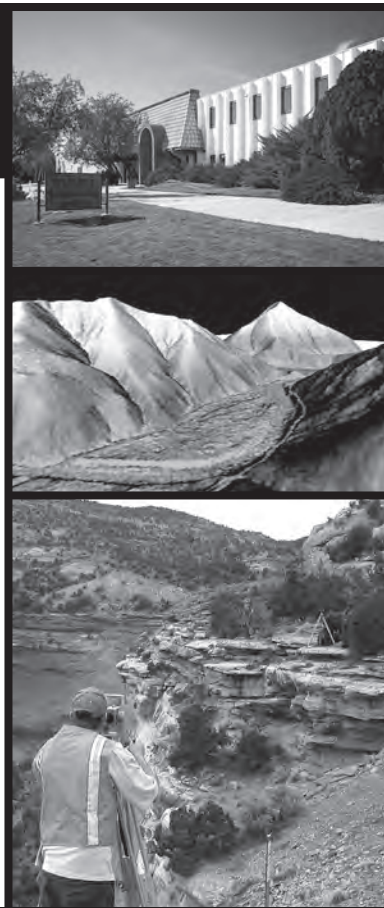
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Learn more at [coloradomesa.edu/wccc/programs/land-surveying-geomatics](https://coloradomesa.edu/wccc/programs/land-surveying-geomatics)



Contact WCCC Students Services at 970.255.2600 for admissions, registration and financial aid information.





# It's About Time

By Gaby Neunzert, PLS

Time and timing in its many forms is absolutely essential to modern surveying, from timing of an electromagnetic signal with any electronic instrument and together with our calendar, to a time stamp on a legal document. Time is a fleeting parameter which runs only forward and cannot be turned back or recreated.

This presentation is used to illustrate possibly the first physical steps taken to establish a time standard from an astronomer/surveyor's perspective and the tools available at the time. It is also used to show the ever smaller incrementations of a measurement standard with age. In this case from the original determination of a year to the present nearly unimaginable fraction of a second.

With but very few documentations and only conceptual parts, it is nearly impossible to establish the history of reckoning time from its roots, mostly from Egypt and Mesopotamia. The modern time standard, Coordinated Universal Time (UTC), is determined from the frequency generated by the oscillations of the caesium atom. The atomic clock is kept in sync with the astronomically determined "Mean Solar Day" and hence with the rotation of the earth, by adding or subtracting leap seconds from UTC. The "International Rotation and Reference System Service" (IERS) is located in Paris, France. It is responsible for maintaining global time standards for UTC, GPS and Galileo, etc. time.

For most time determinations, it is necessary to have the alignment of a local meridian in order to visually tie the "fixed" earth to the apparent movement of the stars. Then and now the meridian can be determined by bisecting the equal length sun's shadow (rough at best) or by bisecting the angle between a rising and setting circumpolar star above an artificial horizon. With stars the equal altitude method certainly establishes a very good first approximation of the local meridian.

Year – Both ancient Egyptians and Babylonians, as well as many others, were excellent observers of sky phenomena. At least 5,000 years ago, they determined that the stars complete a full (360°) circle in roughly a full year. The star Sirius was of special significance because of its rising as a morning star heralded the completion of a year (actual period 365.25 days) with the annual flood of the Nile River and the onset of the growing season.

Month – The month interval was probably derived from the 12 lunar cycles (modern  $\approx 29.531$  days) per year.

Day - Again, with only barren eye astronomical observations, a local meridian was determined with the sun or star and most certainly by an equal altitude method. The meridian then in turn was used to determine the length of a solar or celestial day by the meridian passage, hence the modern term AM and PM designation. Later, it was discovered that "solar time" is rather uneven and hence it is now averaged as "mean solar time". Sidereal time is about 4 minutes behind mean solar time, which accounts for the apparent shift of the star constellations in the sky. For the casual user there are 3 "different" days.

- Apparent solar day = time interval between 2 successive meridian passages of the real sun over 2 days.
- Mean solar day = apparent solar time averaged mathematically over an entire year
- Sidereal day (star day) = 23h 56m 04s mean solar time = time interval between 2 successive meridian passages of a star over 2 days.

Hour - Abdul, a contemporary of Ramses II (about 1200 BC), was possibly charged with subdividing the day into segments, later called hours. The choice was to either divide the day randomly, or to subdivide it into 24 units by using a physical measure. The Egyptian calendar calls for 10 daylight working segments plus 1 each on either end, i.e. a total of 12, plus the same for the night, i.e. 24 per day. Physically subdividing with a water clock, the day into 24 equal time segments is difficult or nearly impossible at best.

Geometry to the rescue. Since antiquity, subdividing an angle into halves with a compass but without a protractor, has been a preoccupation of the ancient mathematicians; specifically, 60, 30, 15,  $7\frac{1}{2}$ , etc. degrees. Amazingly dividing 360 by 15 is 24, or the desired interval of the calendar.

All that needs to be done is to physically measure "an hour of time". It is comparatively easy to make a "sundial" on a palm leaf, with two legs  $15^\circ$  apart, with the meridian alignment down the middle and a gnomon at the apex. The shadow of the sun will sweep from leg

to leg in roughly one hour, provided the sundial is first aligned with the local meridian.

Minute and seconds - First suggested by Al-Biruni (973-1048). Not made physically possible until invention of mechanical clocks, about mid 14<sup>th</sup> century. Modern value: 1 second = 86,400 part of mean solar day, determined electronically. A second is the base unit of time in the SI system.

Fraction of second – First made possible by electronic clocks. Now used as a nearly unimaginably small fraction in EDM's and GPS, together with the speed of light.

The subject of time inevitably raises the topics of calendars; for the record, there is a solar based calendar developed by the Egyptians and Babylonians and is now used by the western world and a lunar based calendar used by the Chinese, Hebrews and Muslims and others. Pope Gregory XIII introduced the present (Gregorian) calendar to Europe in October 1582. All calendars are ultimately controlled by astronomical observations, whereas the “new year” is strictly man-made and is an event mandated by decree only. A mean solar year is 365<sup>d</sup>5<sup>h</sup>48<sup>m</sup>45<sup>s</sup>, hence with the extra time the necessity of a leap year.

Since 1978, the concept of GPS time and Julian Date for GPS archiving has to be added to the list of topics. In order to synchronize GPS and UTM, a correction is subtracted periodically from GPS time. At present it is 18 seconds, subject to increase at random intervals. The (astronomical) Julian Calendar is a “continuous” calendar with a starting date of noon, January 1, 4713 BC. Each GPS record is dated with a Julian Date to permit retrieval of past satellite data.

And yes, there are other time frames, past and present.

#### References:

Howse, Derek, 1980; Greenwich time; Oxford University Press; Oxford, UK

Jespersen, James and Fitz-Randolph, Jane, 1982; From sundials to atomic clocks; Dover Publishing, Inc, New York, N.Y.

Wikipedia – several articles on time.



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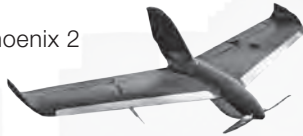
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7.31\_GS\_AOLS\_Ad\_Denver



## Research: What It's Good For

## Wayne Hancock, BLM Cadastral Surveyor

You land surveyors and survey technicians may suppose you'll be the last word in the area you are working, but I mean to tell you that it is not necessarily so. More and more, there are official resurveys of resurveys, not to mention local surveys. You don't want the next surveyor to find a corner you missed, do you? It falls on you to do a thorough job researching your project, so you don't miss anything such as this.

We found this stone, the corner of sections 1, 6, 7, and 12, while resurveying a 1970s dependent resurvey that had proportioned the north two miles of a range line. The first inkling came from this Master Title Plat (MTP) indicating some unpatented mineral claims in section 1; my supervisor, Tony Mule' picked up on it.



*Photo by Wayne Hancock. Background, Jeff Wahlgren is scribing a near bearing tree.*

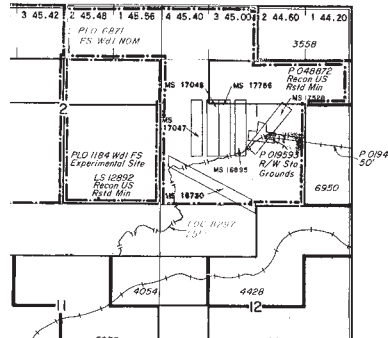
## THE 6th PRINCIPAL MERIDIAN, COLORADO

STATUS OF PUBLIC DO  
LAND AND MINERAL TI

## MT PLAT

[illegible]

FOR ORDERS EFFECTING DISPOSAL  
UNIDENTIFIED LANDS WITHDRAWN FROM  
MINERALS, WATER AND/OR OTHER,  
REFER TO INDEX OF MISCELLANEOUS



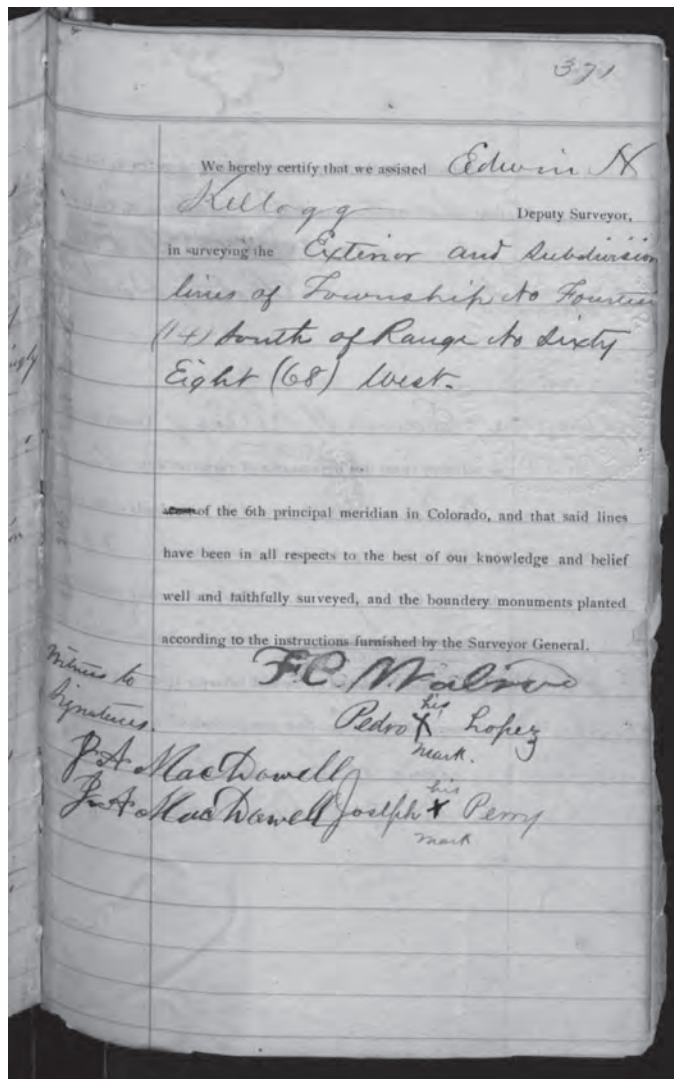
It turned out the mineral claims were tied not only to each other, but also to corners such as the section corner above. We already had seen one of the mineral corners, which led to another mineral corner and another, eventually leading to the above corner and a corrective resurvey of the range line.

Research may not put you on a monument, but maybe the next best thing—something you can use to put the corner position in. This is more desirable than an out-and-out calculated position. Section 6-11 of the Manual of Instructions for Surveyors (2009) tells us, “Later marks or records that tied to the original monument or its accessories when still present, may identify the position of an obliterated corner.” I point out that is “marks or **records.**”

You should realize that you are not finished with research until your survey is complete. Interviews with landowners or found field conditions may prompt you to revisit the well. You may need to take testimony (parol evidence) from a landowner; don't neglect your landowner contacts.

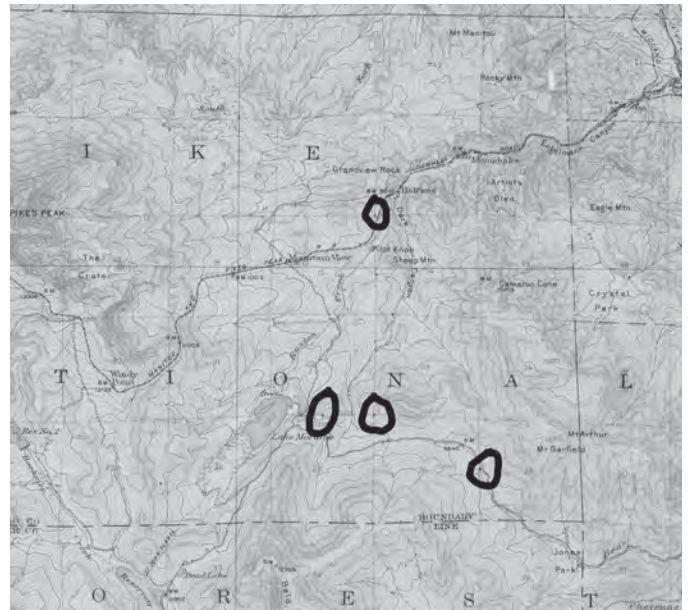
*continued on next page*

Ofentimes you must know how to use your research to follow in the footsteps of the original surveyor. For example,



This “cert” at the end of a set of original field notes might be an indicator of the reliability of corner descriptions and topographic calls. Two of the crew couldn’t write their own names; how do you suppose they noted stone sizes or anything else? Consider that the moundman who set the monument probably did so after the surveyor and chainmen had moved on and that the chainmen likely did not report their topographic calls until later on. But sometimes the calls are spot on.

Old topographic maps can be invaluable. This 1909 map shows pluses for corners not shown on modern versions. USGS had a golden era in the early 1900s and monuments were found at all the pluses.



I could cite many other examples of how research saved the day, but time is short. With my cautionary tales in mind, I present you with a research resource list. You will see that it is really four lists, depending on the type or difficulty of the project. I hope my list will stand you in good stead.

## RESEARCH SOURCES

### MINIMAL BASIC RESEARCH

Official (BLM/GLO) notes from microfiche or GLO records. <http://www.glorerecords.blm.gov>

Official (BLM/GLO) Plats from GLO Records or microfiche

Master Title Plat (MTP) from GLO Records

- Is gov’t land acquired? Anything else going on?

Monument Records from DORA <http://www.dora.state.co.us/oraimages/>

- (KML/KMZ on google earth may be incomplete)
- Will alert you to local surveys, additional accessories at corners, and maybe general location.

**Local plats** from county courthouse/Clerk's Office or direct from surveyor (cultivate your contacts)

- Every county seems to have a unique system (and think that is the only way).
  - should be deposited after 1987, but may be difficult to locate due to filing system
  - Baca, Cheyenne, Dolores, Huerfano, Kiowa, Lincoln, Ouray, San Juan, San Miguel, Sedgewick, Teller, and Washington counties in Colorado use (free): <https://www.thecountyrecorder.com/default.aspx?AspxAutoDetectCookieSupport=1&jsEnabled=1>
- Depending on county, images may be available.

**Ownership records** from county assessor

- landowner notification letters will need to be sent AND you should try to make contact directly as well-by phone and/or in person; always ask about landowner knowledge of surveys/corners. They will probably at least be interested in the history and maybe know of an authority for the area.

**Topo and other maps**

- Find out 7.5' and 15' quad names from index: <https://www.usgs.gov/faqs/where-can-i-find-indexes-usgs-topographic-maps>
- Avenza app is on your phone and pretty good; ONxHunt gives landowners.

**Patents** from GLO records, either the patent tab or the CDI, but may have to go to the BLM office library.

**GCDB coordinates**; I downloaded CADNSDI points to my GIS from Download Public Land Survey System (PLSS) Data

- note reliability of coords, if not so good-try to come up with reality based coords from nearby surveys.

## **NATIONAL FOREST BASIC-all the above plus**

**Corner Cards**

- district offices and/or supervisor's office for the forest.

**Contract surveys for the National Forest**

- should have been deposited with county, but this is not always the case: others probably at district or supervisor's office.

**While you're at the NF district office** looking for corner cards and plats, keep an eye out for old ranger field books; the old school rangers were at least line riders if not traversing surveyors.

**ALP online database** at <https://www.fs.fed.us/land/ALPLandStatusandEncumbrance/>

- Really a map-the NF official word on land status much like the MTP for the BLM; note road layers.

**National Forest Permits** in your area: may have located corners.

- Communication sites, roads, and other uses on National Forest land should have a "special use" permit associated which may have survey information; SUDS is a database not accessible to public, but district ranger stations or forest supervisor office should be able to look up the special use permit file.

## **MINERAL RESURVEYS BASIC-all the above plus**

**Mineral survey plats and notes**

- get adjoining claims and any that are tied to claims of interest.

**Connecting sheets/segregation diagrams**; connecting sheets are on GLO records.

**USLM/USMM**

- usually established by first claim in unsurveyed area.
- in lieu of tie to rectangular corner

**Is there a town site platted in the area** (eg.: Ward, Leadville, Jamestown, Fremont (Cripple Creek)?

**Talk to BLM surveyor** who has worked in the area [maybe not a survey, but abandoned mineral lands (AML) work]; they probably have a drawing to get you started.

## **SURVEYS THAT ARE NOT SO BASIC-all the above plus some of these**

**Historic Topo maps** (Early maps often have more corners shown than later maps)

- some available at <https://ngmdb.usgs.gov/topoview/>
- Use your library card to order earliest maps through prospector; school of mines has most everything.
- Plus on map is possible corner according to USGS

**Land Entry File**

- \$50 from NARA at <http://www.archives.gov/research/land/index.html>
- sometimes have useful information

*continued on next page*



### Group File

- more recent (back to about 1943) in BLM COSO, earlier at NARA in Broomfield
- may contain local plats obtained from local surveyor or landowner (not at clerk's office)
- correspondence may show dealing with problems

### National Archives (NARA) <https://www.archives.gov/research>

- triplicate (dirty) plat-used by land offices before MTPs
- Record Group 49 inventory for Colorado at <https://archive.org/details/preliminaryinven00wilt>
- List of Cartographic records of GLO at <https://www.archives.gov/files/publications/lists/special-list19.pdf>

### Highway Sheets from CDOT

- OTIS interactive search at <http://dtdapps.coloradodot.info/otis/>
- Older sheets will maybe not show up on OTIS-find out regional contact; region map here: <https://www.codot.gov/images/global/new-region-boundary-map/view>

Region 5 contact: Todd Johnston - [todd.johnston@state.co.us](mailto:todd.johnston@state.co.us)

### Railroad plat if there is or was a railroad nearby

- Book: "Tracking Ghost Railroads in Colorado" by Robert Ormes.
- Original sheets are the most detailed and useful; sheets from the railroad today usually lack corners
- Railroad museum in Golden: <https://coloradorailroadmuseum.org/library/>
- County Clerk may have some squirreled away
- Figure stationing by proportioning bet. culverts (railroad: bridge abbreviated BR); mileposts inaccurate.

### Water Departments (if there is water near project site, someone has maybe surveyed/claimed)

- Colorado Springs Utilities has reservoir plats and had some old field books.
- Denver Water has a room full of field books.

### Historical Index on GLO Records

- case files (or portions, if large) can be copied from BLM COSO public room library.
- entries in each section including unperfected entries

### Tract Books -Public Room at Colorado State Office or at NARA

- Show entries into each section including unperfected entries

### State Department of Natural Resources

- Water map viewers at <http://water.state.co.us/DATAMAPS/GISANDMAPS/MAPVIEWER/Pages/FAQ.aspx>
- Mining map and records at <https://mining.state.co.us/Pages/Home.aspx> under reports and data

### Museums and Libraries

- Local and/or Denver Public Library Western History Dept.

### Aerial Photos from USGS or other agencies/entities

- USGS used to have photos with annotations on the back but may be hard to locate.

### Duplicate (WO) plats

- Micro-fiche at COSO. Each version of the old plats may be slightly different as they were hand drafted.

### Colorado Geological Survey at <http://coloradogeologicalsurvey.org/>

- they close old mining shafts and tunnels and set project markers

### Annual Report of the Commissioner of the GLO

- Full searchable text here: <https://catalog.hathitrust.org/Record/001719265>
- If you know year and something to search for

### Federal Register at govinfo <https://www.govinfo.gov/app/collection/fr>

- Use date of action/order to search back to 1936

### Federal Repository Libraries: some are partial.



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# Bees

## A Work of Fiction

by Earl F. Henderson, PLS

The first sting I felt was on my lower left jaw. I was at the top of my third swing of a 3-lb hammer driving a stake to use as a stack site. I couldn't even consider trying to abort my swing because I wasn't yet aware of what was happening to me. I finally realized it after the second or third sting when the hammer head was about two inches from the top of the stake. There was absolutely no aborting at that point.

The whole experience worked out that way. It seemed as though my mind was working a few steps behind my body. Did you ever have that feeling that your body was doing something before your brain could consider the options and make a decision? My body was probably acting from some sort of instinct. It was starting into action without any prior input from my brain. By the time my brain could catch up it was realizing that my body was doing the absolutely wrong thing. Then my brain would tell my body to stop. But each time it did it was too late. I would have been better off to stop thinking altogether and just let my body do what it was doing. The end result was that both body and mind found themselves in a state of total confusion resulting in lack of action or totally inappropriate action.

Years ago I had an instrument operator who would react excessively whenever he'd encounter bees while cutting line. It was a sight to behold. His brush axe would go flying in the air as he turned to run. Then his voice would reach operatic levels screaming "Ahhhh! Beeeeee!". He wasn't even allergic. As many times as I told him that rule No. 1 when attacked by bees was don't run toward the Party Chief, for some reason he always headed straight at me. Maybe he was unconsciously seeking some sort of rescue. I can remember observing him after an incident like that was over. He would have to sit and rest so his head could catch up to what his body had already done. It was visible in his eyes. I was always grateful that he was never hit by that axe after having launched it so high.

Three full swings of a 3-lb hammer driving a stake into the ground within 6 inches of a nest of ground bees tends to wake them up. Unfortunately, I woke up to it a few seconds later than the bees did.

My confusion was replaced by a strong sense of awe. It's an amazing site to see bees swarm out of their nest en masse right in front of your face. That sight froze me for an instant with a need to continue to watch. It was fascinating! Like a live fluid. In a way, freezing in place

may have actually saved me from the salt that would have been poured on my wound. The wound turned out to be bad enough as it was.

The act, or inaction, of freezing in place was quickly replaced by an inescapable need to take off running. Again, my head knew it was the wrong thing to do but my body was already in motion and off I went. Several strides away I felt myself take a sharp, 90 degree turn. I remember my mind congratulating my body with a quick "Attaboy!" I then found myself remembering, again after the fact, another instrument operator I had that had told me a story about being chased by bees while in a boat. Sounds odd to me too. But they were in a large Bass boat on a lake with a 10 horsepower limit so they couldn't go very fast. Obviously the fishing wasn't any good that day so as boys will be boys they began to try to swamp a nest hanging low over the water. They succeeded before considering any escape plans and as they were attempting a get away in that slow boat to China they made a 90 degree turn and the bees flew right on by. Ever since I had heard that story I had hoped to remember it when I needed it. Turns out my body has a better memory than my mind.

By that time the bees that had landed on me and held on through the turn began to do what bees are meant to do. My reaction was to start flailing my arms about. Wrong move again. And I knew it too. As soon as my mind could catch up to that maneuver, I quickly removed my shirt and left it in my wake. I figured it couldn't hurt anything so I took another 90 degree turn and by this time I was getting tired and beginning to hurt so I slowed down and eventually stopped.

It was at about this time that I realized that this was going to be a new record for me for bee stings in one incident. My previous record had held for almost 9 years. It had happened through another fluke. My crew and I had been cutting a traverse line in relatively thick vegetation and, unbeknownst to any of the three of us, we had disturbed a ground bees' nest. The cut vegetation had covered the nest over so it wasn't immediately recognizable. We had started back to the equipment hiking the line with me in the back. Apparently the first one through reawakened the bees when he passed over it. The next cleared away the vegetation and invigorated them. Then I happened to step directly on the nest and they flew right up my pants leg. Eighteen stings on one leg.



After coming to a full stop, I began what seemed like an absurd video game. I would wait with senses on full alert. As soon as I felt a sting beginning, I would assess the location and extricate the attacker. It was a fast-paced game at first but eventually it began to subside. Good thing for me because by the time I got the last one my head was feeling a bit dizzy and I had to sit down for a while to recover. You know how your adrenalin gets going during something like this. Well, it's compounded by the effect of the venom, which stimulates adrenalin flow too. As if the sheer excitement of the attack isn't enough, right? It all combined to make me feel a bit "out of sorts" in the head.

Believe it or not, I actually started counting my blessings before counting the stings. Have you ever heard of "Bell Hornets"? Well they look similar to what I call Yellow Jackets which are the ground nesting bees that had been stinging me but they're about ten times as large. No kidding. We once measured the length of a stinger at 5/8 of an inch. Get a tape out and look at that distance and imagine something that long injecting venom into you. I once had a crew member get stung on the shoulder by one of those giants. He immediately dropped to his knees and started vomiting. I had one fly by my head once while approaching an old snag which was a property corner but which was also a nest site for Bell Hornets. It sounded like I'd been buzzed by a WWII dive bomber. So what I'm saying is it could have been a lot worse.

It wasn't long before I started to recuperate and I realized that I probably looked a lot like that old instrument operator I mentioned earlier. I got it together enough to start counting 'em up. Conveniently, my shirt was already off so my current instrument operator could easily count the ones on my back while I assessed the rest of my body. Just as we were finalizing on the number 32, 6 on my head, 8 on my front torso, 4 on one arm, 3 on the other arm, and 11 on my back, a new record, I felt that last one.

It always happens that way doesn't it? And I have yet to remember to anticipate that last one. Maybe it's because I'm in recovery mode and thinking isn't exactly clear yet. Maybe next time my body will remember for me. It was on my leg under my pants again. How did it get there? Who knows and who cares. There's always that last one that has been waiting for just the right moment to give you that last reminder to keep clear of their territory. And they mean it too.

I won't soon forget.

Be safe out there.

*(This article first appeared in American Surveyor in January, 2005)*

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# PLSC/RMSS Plat Contest

By Robert Boehm, PLS

The RMSS planning committee decided to try holding a plat competition this year and the turnout exceeded our expectations. There were many great submissions which made the judging even more of a challenge. The first place prize was \$100 and second place received an RMSS travel mug. We would like to thank everyone who entered, the judges and everyone that helped to display the entries at the conference. The contest winners by category were:

## ALTA

- 1st – Wray School District – Kayce Keane
- 2nd – Shanahan Property – Kayce Keane
- 3rd – The Village at Belmar – Shaun Lee

## Boundary

- 1st – Lot Consolidation Plat of Seven Patented and Contiguous Lode Mining Claims – Gene Kooper
- 2nd – LSP Mineral Claims in Boulder County – Kayce Keane
- 3rd – ISP North Lyons – Kayce Keane

## Topo

- 1st – NCAR/UCAR Vacuum Tunnel – Kayce Keane
- 2nd – Brule Dam Topo – Greg Gilbert
- 3rd – Lafayette Curling Club – Julie Neel

## Misc

- 1st – Vehicle Vault Village – Julie Neel
- 2nd – CDOT ROW Plan Set – Kayce Keane
- 3rd – Sawhill Property Private Drive – Kayce Keane

Given the interest in this year's contest we are planning on doing it again next year. Be on the lookout for a call for submittals sometime late summer or early fall.



*Bob Rickard observing the contest entries.*

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# Board of Directors Meeting Minutes

February 10, 2020 • 4:30PM

## 1. Call to Order: Parker

Name	Position	Chapter	Attending?
Steve Parker	President	Southern	x
Don Hulsey	Vice President	Southern	x
Shaun Lee	Secretary/Treasurer	Central	x
Becky Roland	Executive Director	n/a	x
Eric Carson	Director	Central	x
Brian Dennis	Director	Southern	
Mike Greer	Director	Central	x
Leif Joy	Director	NW ¼	x
Eric White	Director	Southern	
Tom Sylvester	Director	Western	
Scott Thompson	Director	Western	
Todd Beers	Ex-Officio	Central, NSPS Rep.	x
Parker Newby	Non-Voting	Southwest	
Roger Nelson	Non-Voting	WFPS Delegate	

## Guests:

John Hunter	Geo-Coordinator	x
Peggy Streicher	GIS in the Rockies	
Heather Lassner	TrigStar	x
Todd Johnston		x

## 2. Determination of Quorum (6 voting): Lee

- Paul Bacus is no longer a Director – Heather Lassner is willing to serve the remainder of his term – vote on this next meeting

## 3. Any changes to the Agenda? none

## 4. Approve Minutes: Parker

MOTION: To approve the January 2020 Meeting Minutes as presented. (Lee/Joy)

Approved unanimously

## 5. Financial Items: Parker/Lee/Roland

- Financials
- Investment Update from Key Bank (Savings, Earnings, Performance)
  - \$88,708 in Checking
  - \$62,828 in Savings
  - Awaiting login information for Investment
- NSPS Foundation – still pending
  - Will approve at the April NSPS Meeting
  - Provides PLSC with a 501c3 option
    - Question on Directors having credit cards
  - Advise against to avoid abuse and add a layer of approval

## 6. GIS in the Rockies: Streicher

- Steve Parker met with Adam Young, who is our representative for PLSC on the GIS in the Rockies Planning Committee – looking for more volunteers

## 7. Colorado Coordinator Activities: Hunter

- Preparing for presentation at the Summit
- Stakeholder Agreement is moving through signatures
- LDP Design Presentation to come at a later date

## 8. WCCC Update/Scholarship Committee: Sylvester

## 9. Summit Update: Lee

- Website running – rockymountainsummit.net
- Plat Contest to be promoted – need sponsors
- Socials in the evening are open to anyone to attend
- Planning Meeting tomorrow
- Young Surveyors Network meeting at the Summit
- Awards ordered
- Prizes being framed
- Summit Agenda in progress/Notes taken care of

## 10. NSPS Update: Beers/Parker

- Congressional Visit Day – April 1
- NSPS Meetings – April 2-4
- NSPS Travel request for Summit
  - Is there a benefit for attendance of NSPS vs. PLSC NSPS Director?
  - Good to hear from them – maybe every 3 years or so for one or two days of Summit

## 11. QBS Update: White

- No new information

## 12. Reports

- Executive Director: Roland
  - Sandbox Training – stay tuned
  - Email issue – hired admin support who will be at the Summit
- Lobbyist/Legislative Committee: Thompson
  - SB20-157 – Introduced and PLSC will provide testimony
  - Railroad Abandonment
  - Fixed Fee
  - Iron Mountain estimate for storing maps from City and County of Denver \$300 plus \$175/month – Todd Beers will contact Archivist of Colorado for input/estimate (Mike Greer noted there are issues in getting information out of Archivist.) Address at next PLSC Board Meeting.
- Membership Committee: Carson
  - Becky Roland to send new member names to Eric Carson to welcome to PLSC
  - Becky has updated Eric's access to the website/database access

- c.iii. Still need to finalize how to get attendees at the Summit to update their information at the event – printed form with checkbox to request login information to be sent (Steve Parker is willing to print these)
- d. Outreach Committee: Dennis
  - d.i. Not on call – Steve Parker will follow up
- e. Education Committee: Hulsey
  - e.i. WCCC needs to update the website with Tom Sylvester's contact information
- f. Trig Star Committee: Lassner
  - f.i. Received fewer applications for this year
- g. CST Committee: Parker
  - g.i. Eight CSTs in the Pipeline in the Springs
  - g.ii. Have several in Denver
- h. Side Shots Report: Roland
  - h.i. Still need to look into the process for review/submissions
- i. WSPS Delegates' Report: Beers/Nelson
  - i.i. Becky Roland to send membership information to Todd Beers to complete State report
  - i.ii. Next meeting is at the same time of NSPS

### 13. Chapter Reports

- a. Southern: Hulsey
  - a.i. Next meeting February 18
  - a.ii. Need to be proactive on Internet searches providing costs as low as \$200 (Home Adviser, Angie's List, Hande) – Todd Beers will raise this issue with NSPS
- b. Central: Boehm
  - b.i. Meeting last Thursday- will raffle a TV again this year, getting volunteers for Summit
  - b.ii. Reviewed budget to submit to PLSC
  - b.iii. Looking for new locations for meetings/speakers
  - b.iv. Considering updating logo
  - b.v. Discussed hosting website through PLSC
  - b.vi. Considering moving from Wells Fargo
  - b.vii. Next meeting is March
- c. Northern: Lassner
  - c.i. Met last week
  - c.ii. Earl Henderson volunteered to judge Plat Contest at Summit
  - c.iii. Need information on what GIS in the Rockies is looking for in presentations
  - c.iv. Next meeting will be April
  - c.v. Gave away free day at the Summit – Heather will work with Becky on registration
  - c.vi. Wally is willing to volunteer first day
- d. NW ¼: Joy
  - d.i. No additional report
- e. Western
  - e.i. No report
- f. Southwestern: Johnston
  - f.i. Met January 21 – Drone presentation

- f.ii. County Surveyor vs. County Survey Reviewer
- f.iii. Reviewed goals for after Summit – update website link
- f.iv. Next meeting April 21
- f.v. Need to review book mailing for members – Josh Castleberry will attend Summit and could take books back
- f.vi. Need updated contact list from PLSC
- g. Need to send notice to each Chapter on new members as they join – Becky to look at getting this automated
  - g.i. Need two people from each Chapter to train on accessing information from the database
  - g.ii. Becky will send latest rosters to each Chapter

### 14. Next Meeting Date and Location

- a. Meet monthly: 2nd Tuesday of each month – March 10
- b. BOD business work group: March 14 8AM at Aztec

### 15. Adjourned (Beers/Hulsey)

## Treasurer's Report

			Actual as of 12/31/19
<b>Income</b>			
	Scholarship		3,965.96
	Silent Auction		657.00
	Summit Income		84,125.00
	Publication (books)		0.00
	Refresher Course Income		9,075.00
	Refresher DVD		3,000.00
	GIS in the Rockies		2,500.00
	Membership Dues		
	NSPS Dues		7,280.00
	Membership Dues		
	Voting		22,550.00
	Associate		7,050.00
	Sustaining		4,830.00
	Student		120.00
	Retired		300.00
	Membership Dues Subtotal		34,850.00
	Total Membership Dues		42,130.00
	Miscellaneous		0.00
	Side Shots Ads		2,980.00
	<b>Total Income</b>		<b>155,712.96</b>
<b>Expense</b>			
	BOD/Chapter Summit Meetings		1,674.00
	Side Shots		13,261.51
	Awards		660.33
	Scholarship		<b>3,965.96</b>
	TwIST		0.00
	Endowment		0.00

Digital Terrain Models  
Digital Elevation Models  
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# CHAPTER NEWS

## CCPS

As I'm writing this from my new remote working setup I can't help but wonder what the future has in store for us. We're in uncharted territory and the safest bet at the moment is that we just don't know how long this will last or what things will look like once we return to a new normal. I hope that everyone and their loved ones are staying safe and healthy through this difficult time. For those that may be directly affected by the virus, you are in our thoughts and prayers. In light of the situation, the CCPS board held its first virtual meeting, at least it's the first one since I've been involved. Topics included moving our bank account to a new bank, a debrief of the RMSS and call for volunteers to start planning the next one, a call for volunteers to chair our various committees, replacing the chapter logo, planning the next general membership meeting and updating our website. By the time you read this the General Membership meeting will be in the past. We're going to try to do that virtually also and see how it goes. Fingers crossed. We may need to do a few more of them that way. We have some new options for a replacement logo that were done by professional graphic artists. The board liked the quality of the new logos and picked out a few of their favorites. The next step is to roll out a SurveyMonkey for the chapter members to vote for their favorites, if that hasn't happened already. Summer plans are still up in the air, but we would like to have another picnic/BBQ if possible. In the meantime, we could use more volunteers for next year's RMSS planning committee. They meet every couple of weeks by phone for about an hour. If you are interested in helping out, please reach out to Kayce Keane, Becky Roland or me. Stay safe and stay connected.

Robert Boehm, PLS  
President, CCPS

## NC PLSC

We began our new year with Laine Landau hosting a boundary discussion at Lamp Ryneason & Associates in Fort Collins. Laine walked us through the challenges that can come up while researching deeds and monument records that date back into the early 1900's and late 1800's. This class helped show the importance of making sure that surveyors are doing their due diligence when retracing boundaries.

In February we had the honor of listening to Ron Jung present what it's like being a lawyer in the courtroom of boundary disputes. Mr. Jung and I met on a boundary case where he was representing our client. He was very vocal about how much he enjoys boundary law and the importance it has. I was excited to reach out

to him shortly after our interaction to ask if he would like to speak at one of our monthly meetings, which he enthusiastically accepted. He presented some of his more unique boundary cases at the Longmont Library in which we had one of our biggest turn outs thus far.

Our chapter agreed that the Summit Conference would be our March meeting. I think we were all impressed with the organization of this year's conference. The turnout was the biggest yet and the nightly gatherings were memorable. The conference committee can pat themselves on the back and should be proud of their accomplishments this year. Thanks for the hard work you all put in!

Future meetings for the Northern Chapter are a bit grey due to the global pandemic we are all enduring. We are going to try to do monthly online meetings to at least touch base and check in on each other. I am hoping to host a BBQ and happy hour when the weather is nicer, and the stay-at-home order is lifted.

Remember to always be compassionate and kind toward each other during these times. I wish everyone good health and safety.

Tony Fendick, PLS  
President, NC-PLSC

## NW 1/4 PLSC

The NW 1/4 met via Skype on April 9th. The COVID-19 pandemic has hit hard throughout northwestern Colorado, especially in the communities with ski resorts such as Steamboat Springs and Vail. Early reports from different surveyors in our community are that business is off 30-40%, as many of our surveys are considered non-essential. Real estate sales and second home construction have plummeted. Routt County is now doing building inspections remotely and counties and municipalities throughout our region are evaluating capital construction due to plummeting sales tax revenues.

The ski season was terminated early in mid- March and this is one of the prime revenue periods for the communities throughout the region.

It is yet too early to predict the long term impact of all this, but in a region heavily dependent on energy and tourism, it will not be good in the immediate future. The saving grace could be investment from outside sources as 2/3rds of Routt and Eagle Counties are owned by out of County residents. The future of a gyrating stock market is still uncertain and much of this money is used in the purchase of second homes in the mountain communities.

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More than anything, the pandemic has shown how tightly connected the world is. Even in remote Northwestern Colorado, the direct air traffic into Eagle and Routt Counties brings in not all tourists, but also COVID-19 that originated in Wuhan China but arrived in our communities via Australian tourists.

As surveyors, we feel fortunate that we have been able to work on some projects, but distressed that our fellow community members in the hospitality and tourism industries have been totally unemployed overnight. We got into this together and we will get out of it together.

Respectively submitted,  
Brian T. Kelly, PLS  
Vice President, NW1/4

## SC – PLSC

Our Annual Board of Directors meeting in January was held at the Academy Hotel in Colorado Springs to decide on the 2020 calendar of upcoming events and guest speakers. We had a great attendance of “all” Board Members. The food was awesome and, as always, we ended up telling stories of interesting and difficult surveys until the end of the meeting. Our February Members Meeting was held at the same place with a little different twist. Our guest speakers were Paul Paradis, the owner of Paradise Firearms in Colorado Springs & Paul’s longtime friend Aaron P. Gaddis, Attorney At Law. The topic was “Firearms & the Law” along with “Trespassing Laws in Colorado”. Many interesting questions were asked and answered about what to do when confronted with a life-threatening situation. Paul & Aaron kept the audience captivated! We ended up with a full house of 35 guests and members and enjoyed a full dinner buffet with lots of great food choices! We also picked up our completed “Sand Box” from the Rhino Lining shop last month, thanks to Brian Dennis and all of the many hours and craftsmanship he has donated. Our next task is to hook up all the electronics and be ready for the next College/Career Day in our area. Our March & April meetings have been canceled due to the “social distancing” requirements from COVID-19. Overall, our local surveying companies have dealt with the virus situation and have been able to maintain their current staff and workload. We are all hoping for a positive end to all this chaos in the State of Colorado. Everyone, stay safe and healthy in the field and office. Everyone is always welcome to join and participate in our monthly meetings. Feel free to login to our website calendar at [www.scpls.net](http://www.scpls.net).

Don R. Hulsey, PLS  
President, SC-PLSC

## SWC – PLSC

Because of the COVID-19 outbreak, the April 21st Southwest Chapter (SWC) meeting will be postponed until May 19th (third Tuesday in May). Depending on the state of the outbreak, that meeting date will be subject to change. We do not have a speaker or presentation planned for the May meeting and we will likely focus on old/new business. I will send updates to chapter members as things progress.

Our last meeting was held on January 21, 2020. Steve McCormack, PLS and Daryl Crites, PLS with Caddis Aerial gave a presentation on drone surveys. There was great discussion surrounding necessary control, flight lines and the differences between drone photogrammetry and drone lidar. Many thanks to Steve and Daryl for taking time out of their busy schedule to put that presentation together!

After the drone presentation we discussed regular Chapter business which included: Review of the December 2019 Surveyor’s Rendezvous, PLSC membership renewal, Treasurer report, 2019 ROW and easement books, SWC website and 2020 Summit attendance. Brian Boniface, PLS was elected SWC Secretary.

Vice President Josh Casselberry, PLS, attended the 2020 Rocky Mountain Surveyor’s Summit on behalf of the SWC. Josh wrote a great summary on the seminars/meetings he attended. I will share that summary at our next Chapter meeting.

On March 22, 2020, La Plata County Surveyor Steve McCormack shared proposed survey monumentation requirements as it pertains to the La Plata County Land Use Code. Surveyors that work with La Plata County Planning are encouraged to express their ideas, revisions and opinions on the requirements. Please contact Steve for more information.

Everyone stay safe and healthy!

Todd C. Johnston, PLS  
President - SW Chapter PLSC

## WCLS

I would like to start out this report from WCLS by thanking Alec Thomas, our past President. Alec gave his time to serve as President and kept our organization going. WCLS would like to present to you the plaque as pictured here. Thank you for keeping us going. Unfortunately, this position over the years has become more so a volunteer position, as have all the officer

# CHAPTER NEWS



positions. If people like Alec didn't do anything we would cease to exist. Those who founded the WCLS Chapter of PLSC understood the importance of a local chapter to help further the profession.

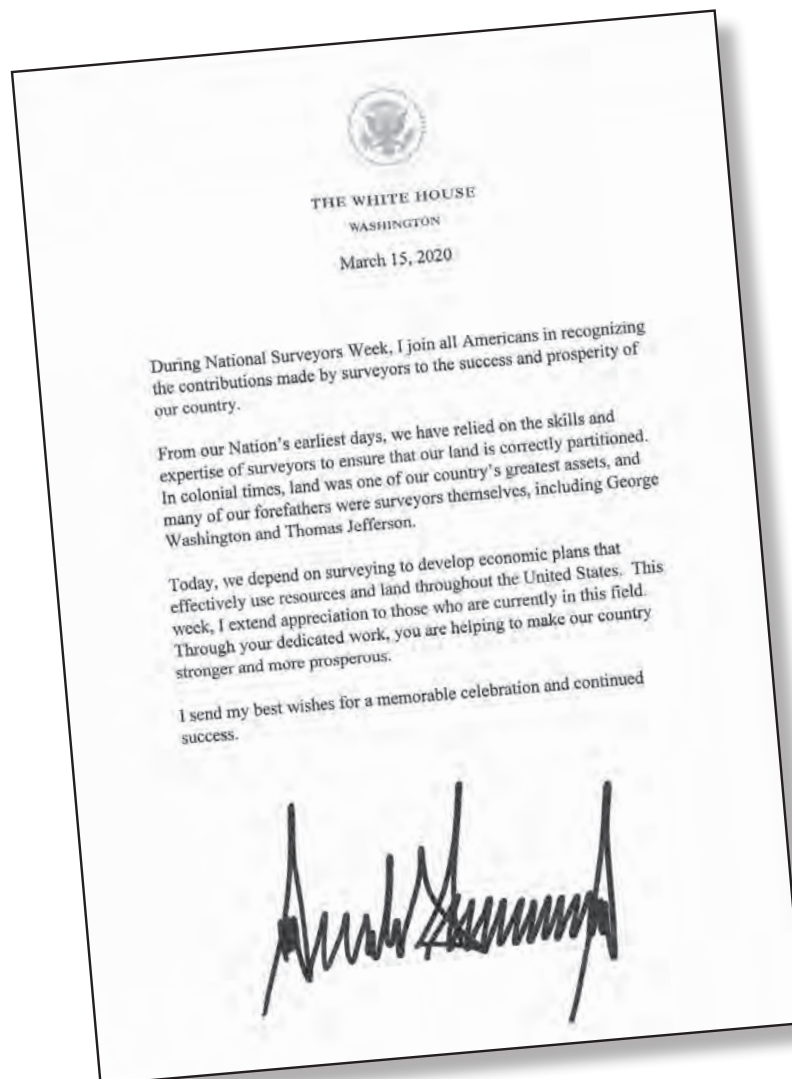
WCLS has decided to postpone our Spring Seminar to next year. Any checks that were sent in will be returned or refunded due to the Coronavirus situation.

Our last Chapter meeting was held in Montrose, Colorado at the DMEA public meeting room. I would like to thank our guest speaker Tim Woodmansee, the CDOT Region 3 R.O.W. Manager for his talk on CDOT right-

of-way and processes. Tim is retiring at the end of April and it is an understatement that he will be missed. Mesa County Surveyor Scott Thompson reported that the new Mesa County Code Book is out. Also Plat Deposits no longer need a Book and Page space to be filled out. All that is needed is a Deposit No. and date block. The City of Grand Junction was interviewing candidates for the City of Grand Junction Surveyor position. In the interim, Jody Grien with Rolland Engineering is reviewing documents for the City. Western Colorado Community College will have internships for students so any companies that are interested please contact WCCC. Sean Mullen with BLM reported GLO records are no longer downloadable as .pdf files. The new format is .sid files, with field notes still as .pdf files.

For the next WCLS meeting, we are looking into having some sort of phone meeting on the 13th of May at 6 p.m. We will keep you posted.

Brian K. Bowker, P.L.S.  
President, WCLS





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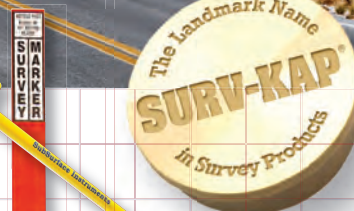
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