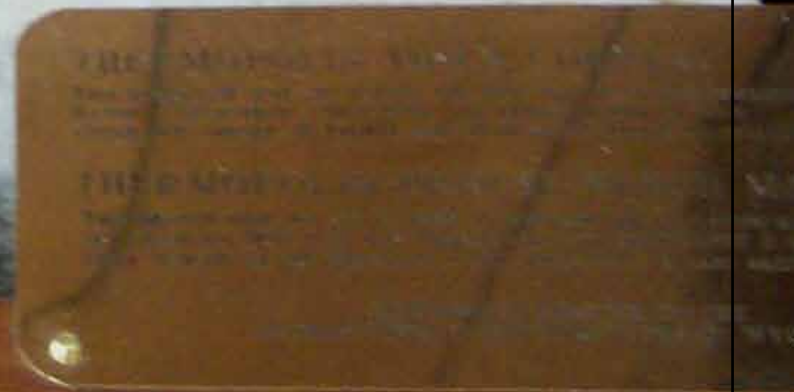


Volume 28: Issue 3  
July, 2017



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PLSW (Professional Land Surveyors of Wyoming; PO Box 8, Cheyenne, WY 82003) is a statewide organization of Land Surveyors registered to practice in the Equality State of Wyoming. PLSW is dedicated to improving the technical, legal, and business aspects of surveying in the State of Wyoming. PLSW is affiliated with the National Society of Professional Surveyors (NSPS) and the Western Federation of Professional Land Surveyors (WestFed).

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On The Cover

THERMOPOLIS TOWN CORNER  
 AND BENCHMARK DISPLAY AT  
 HOT SPRINGS COUNTY MUSEUM  
 (PHOTO BY NW Chapter)

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For more information please contact Jack Studley.

## PRESIDENT'S MESSAGE



The fable of stone soup is found in just about every country and culture. The general story line centers on a hungry traveler who finds himself in a village at the end of a long day. He wanders from house to house in search of a meal, but finds the locals to be not very open to strangers. Instead of food, they tell him they have none to spare or simply shut the door on him. Not being easily discouraged, he goes to the town square and announces that because the villagers are so destitute, he will make them a delicious and nutritious soup, made only from stones. He requests a pot and some water, which the curious villagers are only too happy to supply. After building a fire under the pot, he puts in some stones. When the water is boiling, the traveler takes a taste test, declaring the soup to be delicious, but only if it had a little salt and pepper. At this, a villager darts to his home and returns with not only salt and pepper, but some other spices as well. Another taste test reveals that some carrots and potatoes would only enhance the flavor, and another villager thinks he may have some "extra" vegetables he could bring. And so

the pattern continues until, finally, with everyone pitching in, the soup is thick with chunks of meat, vegetables and a nice broth, a meal fit for a king. And to think it was made entirely from stones.

The moral we obtain from this classic tale is that when we all give a little, we can achieve a lot. Thank you, members of PLSW, for each contributing in your own way to further the aims of our society. The responsibility for our collective success as a society lies in each individual member to be willing to bring their strengths, and even weaknesses, to the pot.

Our future lies in the youth of today. As we work alongside, coach, and mentor the professionals of tomorrow, may we remember the words of Mahatma Gandhi, who said "it is easier to build a boy than to mend a man", and Frederik Douglas, who remarked "it is easier to build strong children than to repair broken men".

Karl Scherbel, P.L.S.  
President, Professional Land Surveyors of Wyoming



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# ANNOUNCEMENTS



Please submit your resume and letter of interest to WWC Engineering, 611 Skyline Rd., Laramie, WY, 82070 or via email to [infolar@wwcengineering.com](mailto:infolar@wwcengineering.com).

## **Land Surveyor - HR File 6336**

WWC Engineering has an opening for a Professional Land Surveyor responsible for overseeing and performing boundary surveys, ROW surveys, staking of oil and gas well locations, plat preparation, topographic surveys, construction staking, and preparation of CAD drawings. The candidate will have a WY PLS, a WY LSIT or ability to obtain licensure and a strong background in GPS surveying techniques and computer applications. Special consideration will be given for knowledge of and experience with CAD software. Will be responsible for oversight and coordination of multiple survey technicians as well as performing independent surveying activities. Some travel is required and must have a valid driver's license. This position is available immediately.

In return for very competitive compensation, including health insurance, paid comp time, paid vacation, 401(k), and profit sharing, we will provide an opportunity for rewarding technical and managerial career growth. WWC Engineering operates in the Rocky Mountain area from five locations in Wyoming and Montana. Since 1980, we have served families, private industry and all levels of government.

## **Survey Technician -HR File 6337**

WWC Engineering has an opening for a survey technician to collect survey data using GPS, total station and digital level. Data collection is to support civil engineering design, land development design, municipal engineering, oil and gas industry survey platting and infrastructure design, and highway design. The technician will work under the direct supervision of licensed engineers and surveyors.

The ideal candidate will have surveying work experience and educational coursework in surveying, and a career goal of obtaining Wyoming LSIT/PLS certification.

Travel is extensive but primarily limited to Wyoming and surrounding states. Work conditions are demanding, but rewarding. This position is available immediately.

WWC provides competitive compensation, including health insurance, vacation, 401(k), paid overtime and profit sharing. WWC Engineering operates in the Rocky Mountain area from five locations in Wyoming and Montana. Since 1980, we have served families, private industry and all levels of government.

## **LINE AND POINTS ARTICLE ROTATION SUBMISSION SCHEDULE BY CHAPTER**

<b>Responsible Chapter</b>	<b>First Call Date</b>	<b>Last Call Date</b>	<b>Publication Date</b>
Northwest Chapter	THANK YOU!!	(SEE "1901 THERMOPOLIS TOWN CORNERS" IN THIS ISSUE)	
West Chapter	September 1	September 15	October 1, 2017
Central Chapter	December 1	December 15, 2017	January 1, 2018
South Central Chapter	March 1	March 15	April 1, 2018
Southeast Chapter	June 1	June 15	July 1, 2018
Laramie Valley Chapter	September 1	September 15	October 1, 2018



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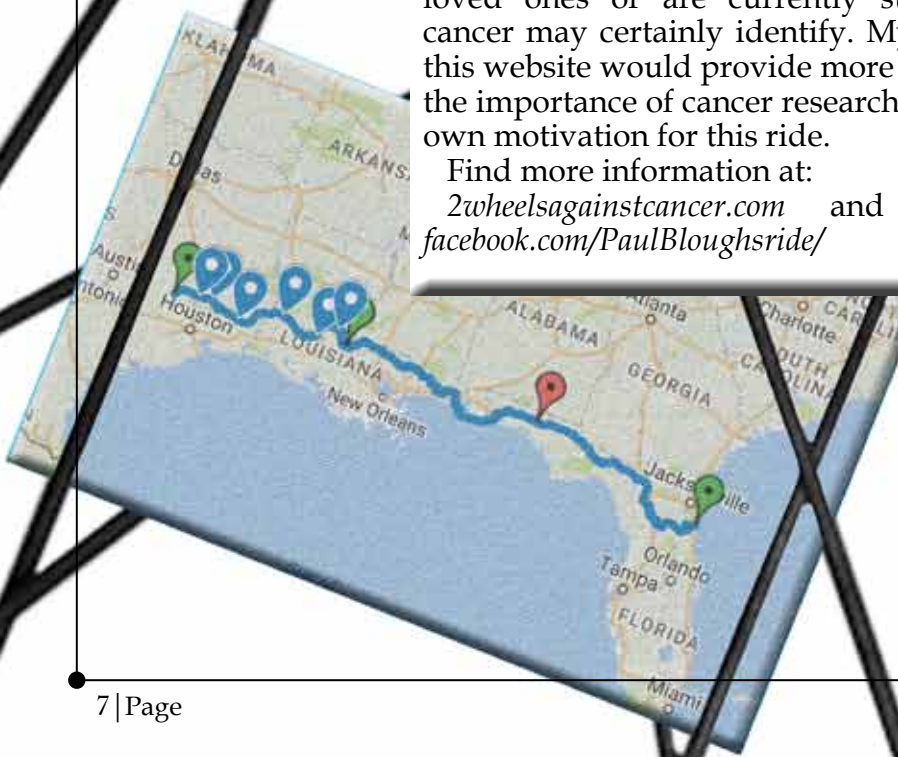
# 2 Wheels Against Cancer

## Paul's Ride

My name is Paul Blough, and I am bicycling approximately 2,100 miles in honor of my late wife, Shelia, who passed away October 19, 2016 from pancreatic cancer. I depart for my "Ride Against Cancer" on April 14th - Good Friday. I will begin pedaling from The University of Texas MD Anderson Cancer Center in Houston, Texas, with a final destination of Johns Hopkins Cancer Center in Baltimore, Maryland. The websites of MD Anderson and Johns Hopkins are available for donations online by clicking the "donate" button. If you prefer to donate by check, you can pay to the order of one of the two cancer research centers and mail directly to them. Please do make reference to "2 Wheels Against Cancer" in the memo of the check.

Our personal story is available by clicking on the "Our Story" button. I realize that ours is not unique, but many of you who have lost loved ones or are currently suffering from cancer may certainly identify. My hope is that this website would provide more awareness for the importance of cancer research as well as my own motivation for this ride.

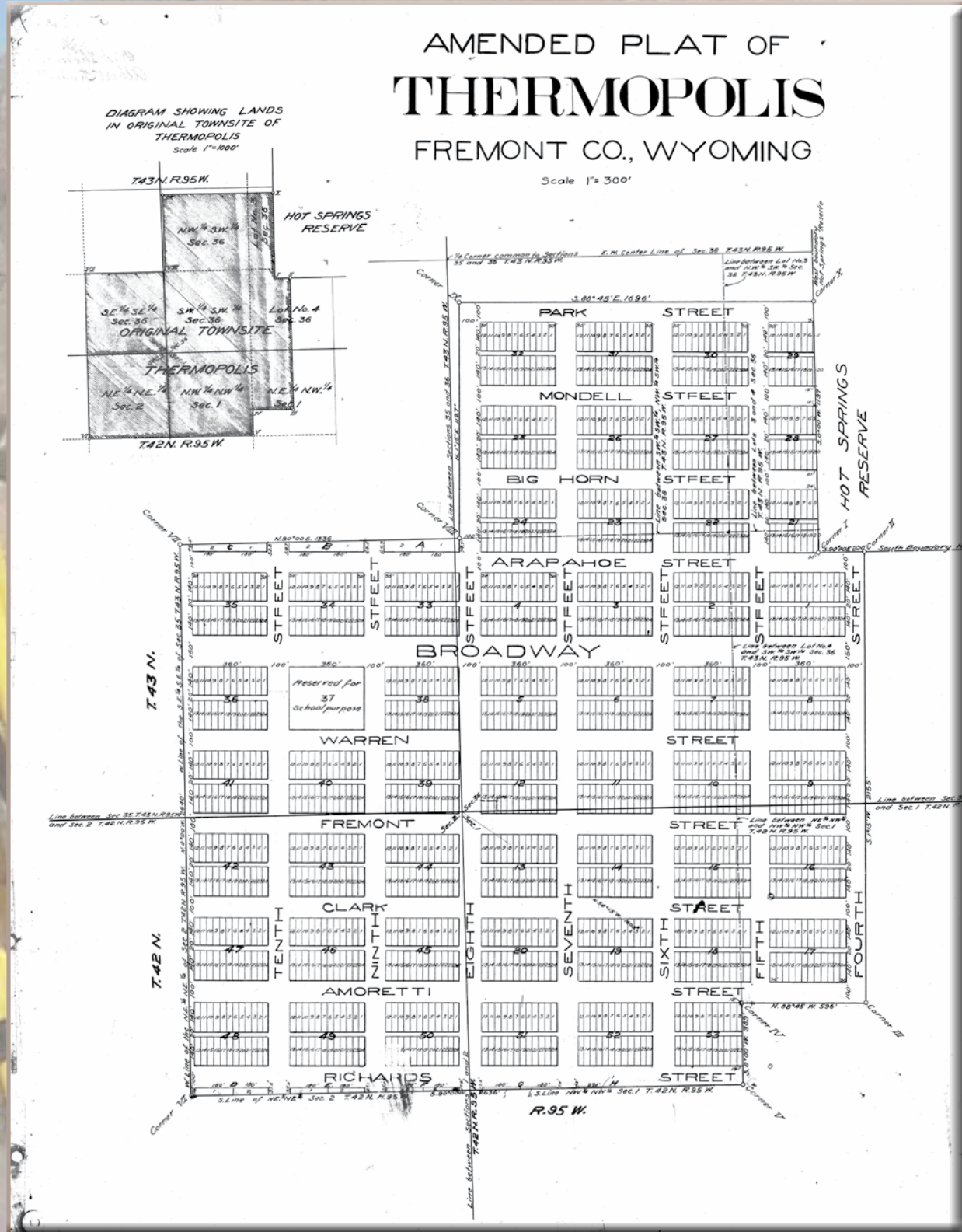
Find more information at:  
[2wheelsagainstanccancer.com](http://2wheelsagainstanccancer.com) and <https://www.facebook.com/PaulBloughsride/>













# 1901 THERMOPOLIS TOWN CORNERS

By PLSW Northwest Chapter

## THE EVENTS FROM 1897 TO 1901

With the ceding of that portion of the Shoshone Indian Reservation, to be known as the Ten Mile Square, early in 1897, the Thermopolis Town Site Company retained the services of A.T. Seymour to survey Thermopolis, in then Fremont County. Two yet to be completed procedures would render the survey invalid and the deeding of lots premature.

As Dorothy Milek states in her book *Hot Springs: A Wyoming County History*; "Residents originally thought an official survey was the first step. It wasn't. Incorporation was. On January 21, 1899, an election was held with 89 out of 299 residents for incorporation and four against . . . It was 1901 before the patent was issued."

Secondly, the land later known as the Ten Mile Square, and the within State Reserve / One Mile Square, had not yet been surveyed by the General Land Office. Thus there were no Public Land Survey System corners adjoining, or even in the general vicinity of, the proposed town site; the nearest corner being about two and one-half miles to the east.

The east boundary of the Shoshone Indian Reservation had been surveyed by Frank S. Wood, Deputy Surveyor, per Contract No. 230 dated December 15, 1886, extending south from the confluence of Owl Creek and the Big Horn River. The public land lying north and east of the reservation was surveyed by Howard B. Carpenter, D.S., per Contract No. 241 dated April 1, 1891. Although lands to the south and east of the reservation had been surveyed by Edward F. Stahle, D.S., in 1897, land within the Ten Mile Square and the One Mile Square would not be surveyed by him until Contract No. 276 dated June 23, 1899.

The original plat, titled "Thermopolis", contains a detailed description by Mr. Seymour of how he attempted, undoubtedly motivated by his client's impatience, to extend the PLSS prior to the official government survey. On August 22, 1897, he begins at the sandstone closing corner set in 1891, projects by backsight, a line "West" (later found to be about 1°15' north of west), crosses the Big Horn River, and at 13,900 feet, sets a sandstone and "commenced the boundary of the Town site of Thermopolis . . ." He then surveys north 842

### DEDICATION

KNOW ALL MEN BY THESE PRESENTS: that we, IRA E. JONES, G.B. CHASE, H.S. COVER, and J.W. CALLOWAY jointly, being the corporate authorities of the TOWN OF THERMOPOLIS, and holding the lands hereinafter described, in trust, under an act of Congress approved March 2nd 1867, and having entered as a Government townsite in the TOWN OF THERMOPOLIS, have caused the land in the above described plat to be surveyed and plotted and known as the townsite of THERMOPOLIS, and the Streets and Alleys as shown in the said plat are hereby dedicated to the Public with the free consent and in accordance with the desires of the undersigned trustees and proprietors. Said lands being described as follows, to-wit:

Beginning at Corner No. I, identical with the S.W. Corner of the BIG HORN HOT SPRINGS RESERVE, thence S. 90° 00' E. 220 Ft. to Corner No. II, a sandstone set in the ground and marked T.C. II, thence S. 1° 15' W. 2165 Ft. to Corner No. III, a sandstone set in the ground and marked T.C. III, thence N. 86° 45' W. 536 Ft. to Corner No. IV, a sandstone set in the ground and marked T.C. IV, thence the Corner common to Sections I and 2 T. 42 N. R. 95 W. and to Sections 35 and 36 T. 43 N. R. 95 W. bears N. 54° 15' W. 1638 feet, thence S. 0° 00' W. 383 ft. to corner No. V, a sandstone set in the ground and marked T.C. V, thence S. 90° 00' W. 2636 Ft. to Corner No. VI, a sandstone set in the ground and marked T.C. VI, thence N. 0° 00' W. 2640 Ft. to Corner No. VII, a sandstone set in the ground and marked T.C. VII, thence N. 90° 00' E. 1336 Ft. to Corner No. VIII, a sandstone set in the ground and marked T.C. VIII, thence N. 1° 15' E. 1127 Ft. to Corner No. IX, a sandstone set in the ground and marked T.C. IX, thence S. 86° 45' E. 1696 Ft. to Corner No. X, a sandstone set in the ground and marked T.C. X, thence S. 0° 00' W. 1197 Ft. to Corner No. I, place of beginning and comprising the following described lands, to-wit:

The SE  $\frac{1}{4}$  SE  $\frac{1}{4}$  of Section 35, the SW  $\frac{1}{4}$  SW  $\frac{1}{4}$ , a part of the NW  $\frac{1}{4}$  SW  $\frac{1}{4}$ , a part of Lot No. 3, and a part of Lot No. 4 of Section 36, T. 43 N. of R. 95 W. of the 6th Principal Meridian, and the NE  $\frac{1}{4}$  NE  $\frac{1}{4}$  of Section 2, the NW  $\frac{1}{4}$  NW  $\frac{1}{4}$  and a part of the NE  $\frac{1}{4}$  NW  $\frac{1}{4}$  of Section 1 of T. 42 N. of R. 95 W. of the 6th Principal Meridian.

THIS AMENDED PLAT and DEDICATION is made and filed for the purpose of correcting errors in description of the legal subdivisions embraced in said townsite in a certificate and description made by one D.V. Bayne, A.D. 1900, and duly recorded in the office of the County Clerk of the County of FREMONT, State of WYOMING, on page 24 of TOWN PLATS, on the 18th day of September A.D. 1901.

And this amended plat and certificate are intended to relate back to said original plat and dedication and to protect and secure the rights of all parties having obtained rights under the said dedication.

SIGNED, SEALED and DEDICATED  
in the presence of

Erwin G. Dwyer  
Edward E. Waltman

*Handwritten signatures:*  
G.B. Chase  
H.S. Cover  
J.W. Calloway

State of Wyoming ss.  
County of Fremont

I, Edward E. Waltman, a Notary Public, in and for the County and State aforesaid, do hereby certify that IRA E. JONES, G.B. CHASE, H.S. COVER, and J.W. CALLOWAY personally known to me as the corporate authorities of the Town of Thermopolis, at the time when the said plat was originally filed, and who now hold the title to the public townsite lands of the Town of Thermopolis, in trust, appeared before me this day in person and acknowledged the above and foregoing certificate and dedication to be their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and seal this 3rd day of June A.D. 1910

My commission expires August 26 - 1911

*Handwritten signature:*  
Edward E. Waltman

Notary Public

OFFICE OF  
O.J. AND THUR  
THERMOPOLIS




feet and west 301 feet " . . . to the S.W. cor. of Hot Springs Reservation where I set a Pine stake in the ground with nail drove in top . . . " He then describes the balance of the town site boundary survey and " . . . then proceeded to subdivide the tract into Blocks, Lots, Streets and Alleys as per Plat above putting exactly 4200 ft into each lot . . . "; completing the survey on September 20, 1897. The plat was then executed by Benj F. Lowe on October 8, 1897. That accomplished, the town site company began offering Thermopolis town lots for sale.

As previously mentioned, the GLO original survey was not even contracted until mid-1899, and was not marked on the ground until July. Deputy Surveyor Stahle's notes state his survey commenced on July 21, at the same closing corner monument used by Seymour two years earlier. He too ran West, but by "solar", setting quarter and section corner stones at 40.00 chain intervals, then the township corner at 38.62 chains (accounting for convergence of meridians, per written instructions) for a total distance of 10,469 feet. He then ran North 1,205 feet and West 3,551 feet to the southwest corner (Cor. No. 3) of the One Mile Square, which was the marked sandstone only very recently planted by him. Although this survey did not coincide with the 1897 original town site survey, the final field notes and plat avoid any reference to a "discrepancy", lest the premature survey be mentioned in the official record. This General Land Office original survey was approved (became "official") on April 28, 1900, legally allowing the town site to be subsequently patented and, unfortunately, from the town site company's viewpoint, necessitating another survey on the ground and a new plat.

#### THE TOWN SITE RESURVEY AND AMENDED PLATS

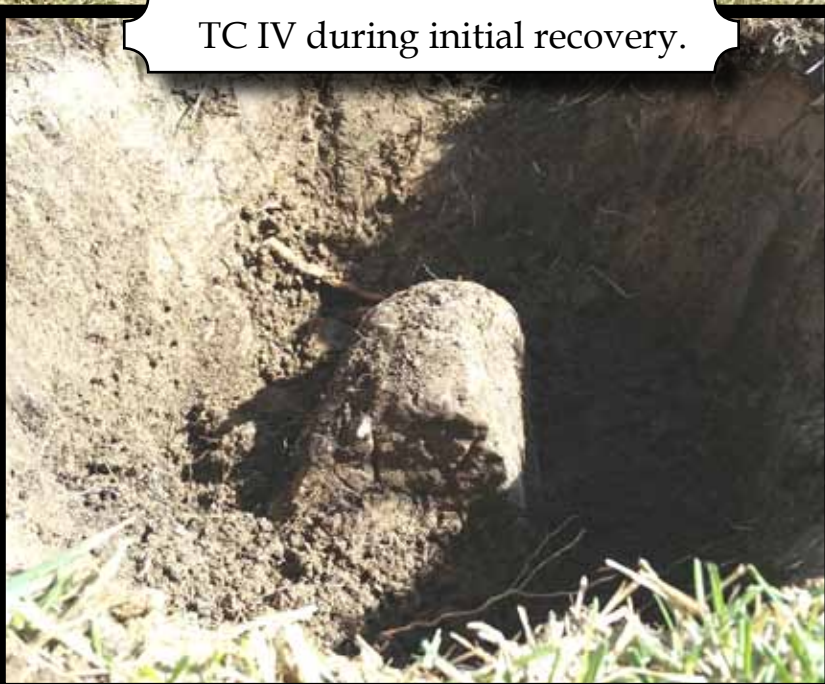
A resurvey and plat of the "corrected" town site, by local surveyor D.V. "Dan" Bayne (reportedly a blacksmith but ultimately also an accomplished 'veyor) during the summer of 1901, calls for stones at the ten "Town Corners", labeled TC I through X. This survey commenced at the southwest corner of the One Mile Square, also known as Corner No. 3 of the Big Horn Hot Springs Reserve, as set by D.S. Stahle in 1899, which is also designated Town Corner No. I, and which 1901 survey adjoins a short portion of the south, and a substantial portion of the west boundaries of said reserve, what is now known as Hot Springs State Park. The plat, with the "Corrected Survey Bill" describing the perimeter of the town site, was executed on



Inset: TC IV being remonumented by Anthony Barnett, Tamping, and Lyle Casciato, plumbing.



TC IV during initial recovery.



TC IV stone reposing on lawn surface.



TC IV remonumentation "brass cap".







TC VIII stone prior to extraction.



Top of hole in lawn at TC VIII.



Inset: Cleaned TC VIII stone, with subsurface memorial and new monument



the 5th day of September, 1901, and recorded on the 18th instant, at Lander. A third plat, by O.J. "Od" Midthun, dated 1910, appears to be a redrafted version of the Bayne survey, although there is no specific mention of Mr. Bayne's survey and plat accomplishments. All three plats were subsequently transferred to Thermopolis and are now on file at the office of the Hot Springs County Clerk and Ex-Officio Register of Deeds. Scanned images of them are available on the county website, [www.hscounty.com](http://www.hscounty.com).

#### PREVIOUS TOWN CORNER RECOVERIES AND PERPETUATION

Prior to corner recoveries by members of our chapter, publicly-recorded documentation of previous recoveries, reestablishments and perpetuations is largely non-existent. Town Corner I, also being One Mile Square Cor. No. 3, has been marked by a "brass cap" embedded in the sidewalk set by the Town Engineer circa 1962, and occupied during the 1983 retracement survey of Hot Springs State Park by Martin A. Pedersen. Town Corner VI, originally set forth as a PLSS aliquot corner (NE 1/16 section corner) by the 1901 survey, is marked by a similar monument, also set by the Town Engineer circa 1962, and documented by a chapter member's State of Wyoming Corner Record report in 1998. Town Corner VII, also originally set forth as a PLSS aliquot corner (SE 1/16 section corner), was perpetuated and documented by a chapter member's State of Wyoming Corner Record report in 1996. While other town corners are depicted on various plats, no specific monumentation or other documentation was stated - a characteristic of the era of "hold record" and "secret corners" of the late 19th and early to mid 20th century maintained by many, perhaps even most, local surveyors nationwide.

It was not until 2014 that "Thermopolians" were rewarded with another town corner recovery by a local surveyor; when the original, undisturbed stone marking Town Corner VIII was recovered and documented with a State of Wyoming Corner Record. According to that report - the top of the 3 in. by 7 in. sandstone was "clunked" by steel tile probe 29 ins. below the lawn surface in "wet, reddish gumbo".



Tile probe,  
essential tool in  
stone country.

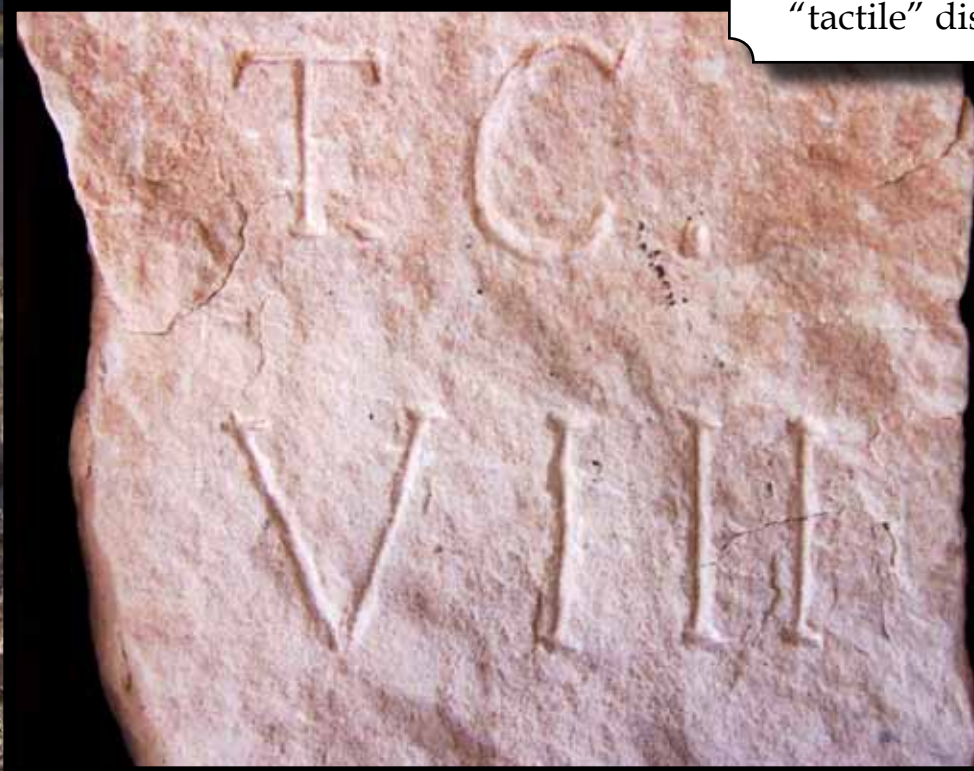




GPS receiver at TC VII during 2015 control survey.



TC VIII stone close-up in "tactile" display case.







Inset: GPS receiver at NGS station D 330, being set up by Lyle Casciato.

Long story made short – the stone was straddled and extracted, with four muddy hands caressing the “ TC VIII ” classically chiseled upon the original east face. Local historian Dorothy Milek arrived and proclaimed the now scrubbed gray sandstone worthy of display at the Hot Springs County Museum and Cultural Center. The wooden-boxed stone, along with the 1938 USGS disk representing the town’s “primal bench mark”, are now a tactile / intended to be touched / display at the museum. Obviously, both the town corner and the bench mark have been perpetuated by appropriate remonumentation and documentation.

#### THE ONGOING CHAPTER PROJECT

As a local observance of National Surveyors Week; in 2015 our Northwest Chapter performed an eleven-station, static GPS, control survey in and around Thermopolis. The primary purpose was to densify local geodetic control by utilizing the “Thermopolis 2012 Low Distortion Projection” with origin at NGS station D 330, PID OW0202. Aside from the camaraderie of unified effort during, and the pleasure of imbibing malt beverages afterward, was the shared professional satisfaction gained by the recovery, remonumentation and perpetuation of Town Corner IV; wherein the original 1901 sandstone was located in the front yard lawn of a very cooperative resident. The corner is now marked by an iconic iron post, concrete-filled, with brass cap bearing the corner identification, date, and “PLS 12600”. A permissive State of Wyoming Corner Record, documenting the perpetuation, is being prepared and will be filed with the office of the Hot Springs County Clerk and Ex-Officio Register of Deeds.

Also during the aforementioned 2015 “field day” we reoccupied TC I and VII and recovered a monument representing TC II. Subsequently a member has confirmed the monumented evidence of the position of TC III and we have searched, yet without recovery but not yet without possibility, of TC V; leaving only TC IX and X to be, with true ‘veyor optimism, for recovery, remonumentation, documentation, and perpetuation of the 1901 Thermopolis Town Corners.

Although our 2017 field day was rained out on April 22nd, our tile probes stand ready to search the red and gray gumbo of Thermopolis for Dan Bayne’s corner stones.

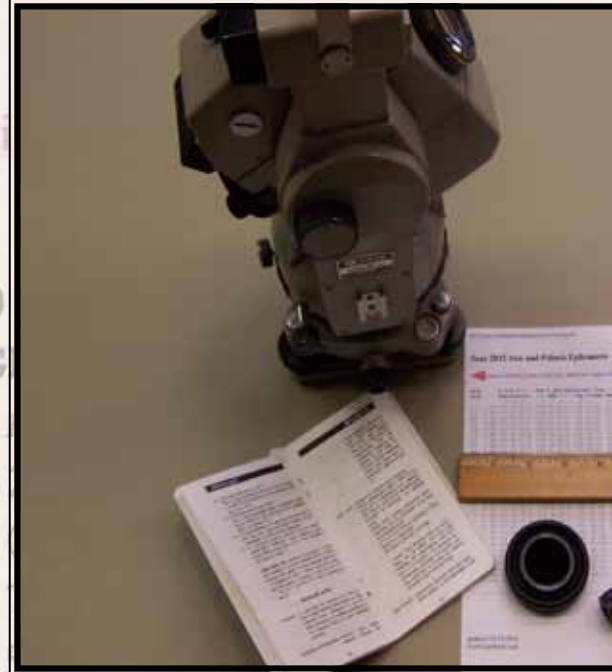


# June 2012 Sun and Polaris Ephemeris

## ONCE IN A LIFETIME

While the media coverage of the total eclipse of the Sun, to occur on Monday, August 21, 2017, across Wyoming from Jackson, over Casper and past Glendo, has been widespread; the transit of Venus, on June 5, 2012, was not without media attention. The article in the Casper Star Tribune alerted me of my last opportunity to observe this event, which last occurred on June 8, 2004, but which will not return for over a century.

While having performed scores of "astro" observations, both solar and pole star, during the past half century the heritage of field astronomy in classic land surveying beckoned me to attempt an hour angle solar for azimuth during this spectacular event. To observe the black speck of our sister planet pass across the center of our solar system through the 25 power telescope of the total station became the top priority of that day in 2012.



Jun	5	TU	+22	33	50.1	180	22	51.7	+01	31.45
Jun	6	WE	+22	40	08.8	180	20	11.2	+01	20.75
Jun	7	TH	+22	46	03.6	180	17	26.1	+01	09.74

## June 2012 Sun and Polaris Ephemeris

January | February | March | April | May | **June** | July | August | September | October | November | December

2012	S U N ----- For 0 hrs Universal Time -----> <----- Polaris ----- 0 hrs UT -----																		
Date	Declination			--- GHA ---			Eq o Time		Semi-Di  Declination			--- GHA ---			-- TUC ---				
	d	m	s	d	m	s	m	s	m	s	d	m	s	d	m	s	h	m	s
Jun 1 FR	+22	04	39.9	180	32	42.9	+02	10.86	15	48.0	89	18	53.1	208	25	05.9	10	04	40.3
Jun 2 SA	+22	12	32.5	180	30	23.1	+02	01.54	15	47.8	89	18	52.8	209	23	54.1	10	00	45.7
Jun 3 SU	+22	20	01.8	180	27	57.8	+01	51.85	15	47.7	89	18	52.6	210	22	40.3	9	56	51.3
Jun 4 MO	+22	27	07.7	180	25	27.3	+01	41.82	15	47.6	89	18	52.3	211	21	25.6	9	52	56.9
Jun 5 TU	+22	33	50.1	180	22	51.7	+01	31.45	15	47.4	89	18	52.1	212	20	11.2	9	49	02.5
Jun 6 WE	+22	40	08.8	180	20	11.2	+01	20.75	15	47.3	89	18	51.9	213	18	58.1	9	45	08.0
Jun 7 TH	+22	46	03.6	180	17	26.1	+01	09.74	15	47.2	89	18	51.8	214	17	46.8	9	41	13.4
Jun 8 FR	+22	51	34.5	180	14	36.5	+00	58.44	15	47.1	89	18	51.6	215	16	37.1	9	37	18.7
Jun 9 SA	+22	56	41.3	180	11	42.8	+00	46.85	15	46.9	89	18	51.4	216	15	28.3	9	33	23.9



Jun 19 TU  
Jun 20 WE  
Jun 21 TH  
Jun 22 FR  
Jun 23 SA  
Jun 24 SU  
Jun 25 MO  
Jun 26 TU

### PROGRAMS

12. Calculator will prompt "FS ?"  
Key in the clockwise horizontal circle reading in D.M.S for the pointing on the celestial body and press R/S.

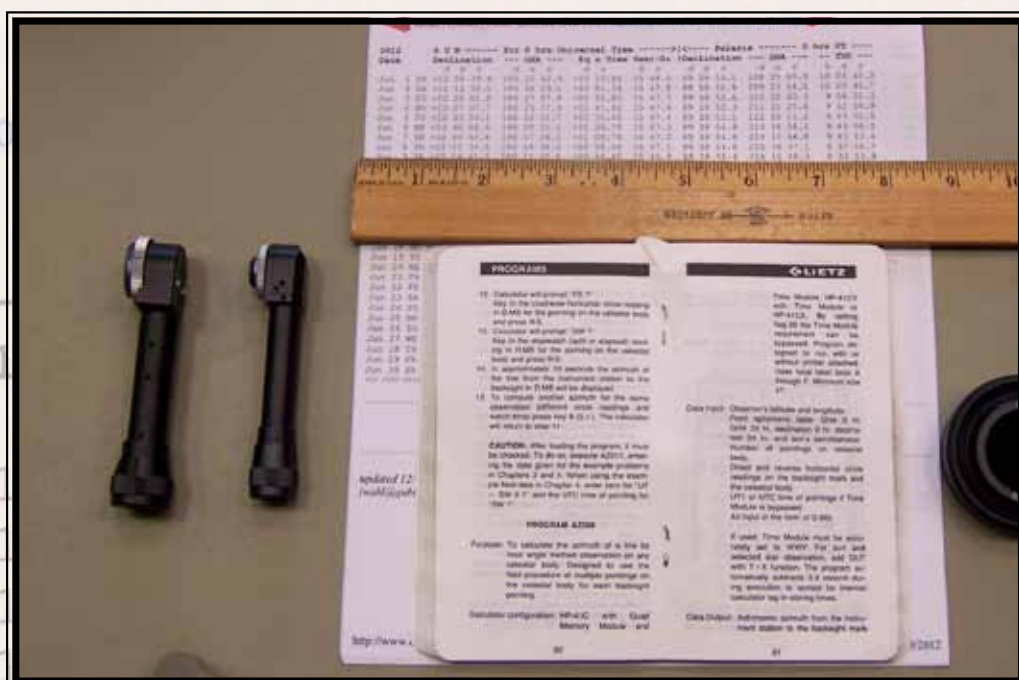
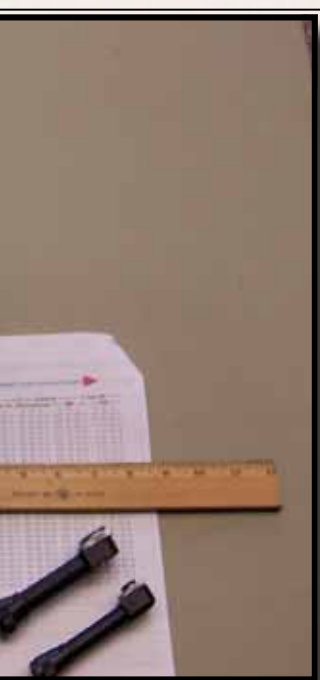
### LIETZ

Time Module, HP-41CV  
with Time Module or  
HP-41CX. By setting  
flag 20 the Time Module

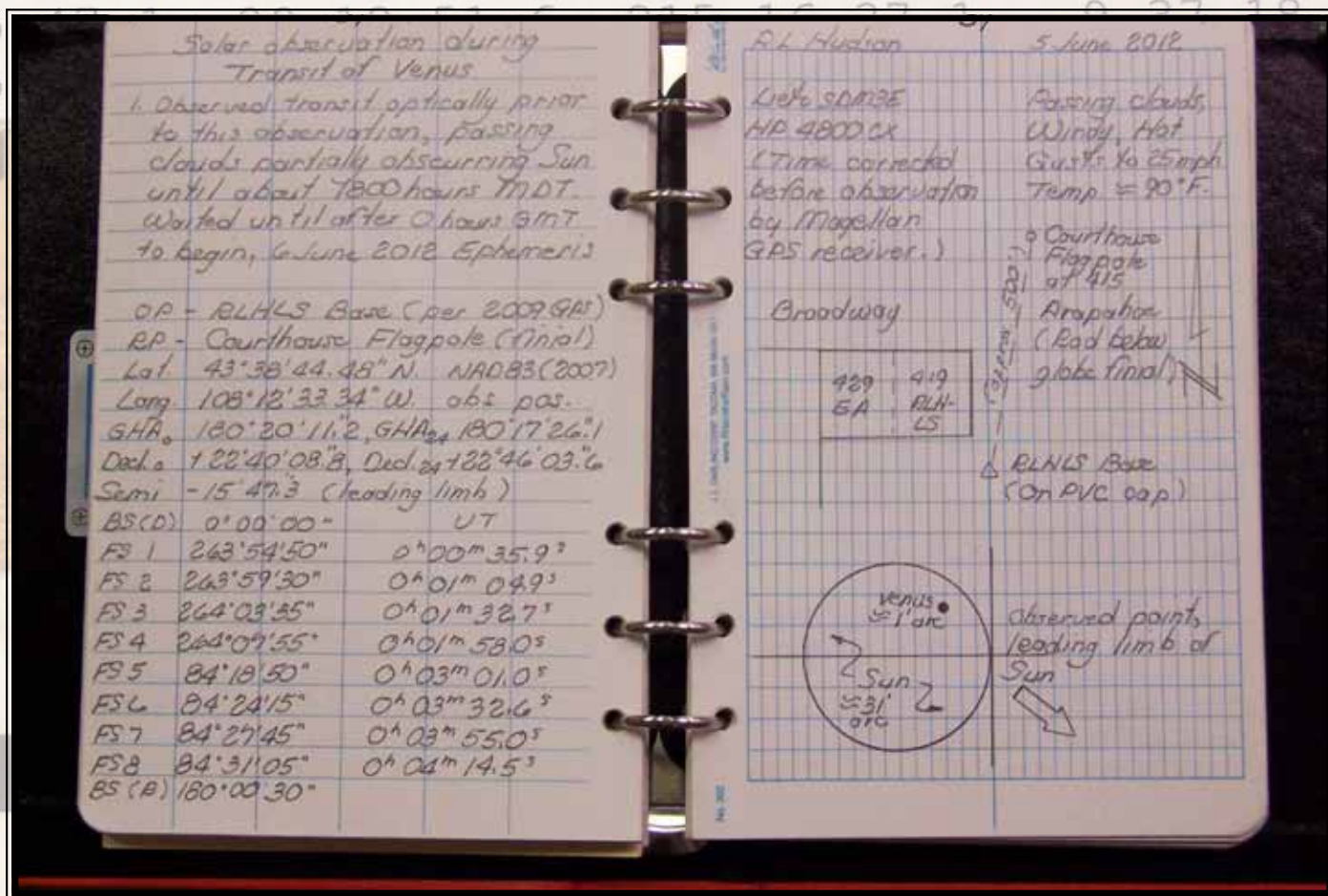


## A UNIQUE SOLAR OBSERVATION

By R.L. "Rick" Hudson, P.L.S.



15 47.4 89 18 52.1 212 20 11.2 9 49 02.5  
 15 47.3 89 18 51.9 213 18 58.1 9 45 08.0  
 15 47.2 89 18 51.8 214 17 46.8 9 41 13.4



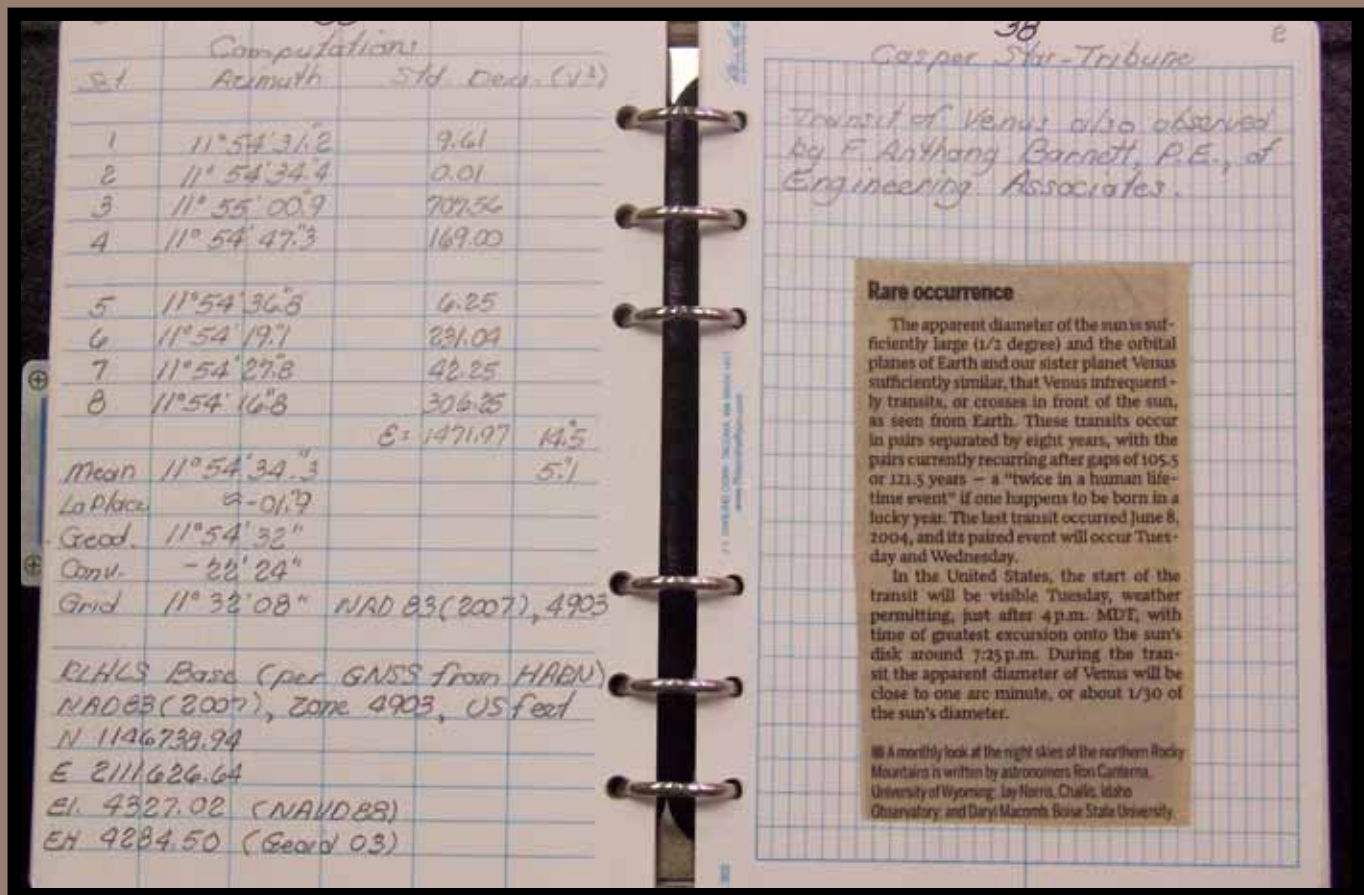


## CLOUDS - THE BANE OF ASTRONOMERS AND 'VEYORS

While a unique experience, the preparation and execution of the observation was routine; subject of course to the inevitable clouds which seem to materialize "out of thin air" immediately prior to the event. Having verified the instrument to be in proper adjustment and after carefully centering and leveling it over the station mark; the field notes discretely mention clouds, which evoked a tirade of expletives to the western sky but which finally dissipated to allow the observation. With the essential filter over the objective end of the telescope, and waiting until 0 hours Zulu / Greenwich, the observation was performed without incident. Documentation, consisting of two pages of field notes, is offered as "evidence" of the event.

## IN GRATITUDE

While GNSS methodology has almost (read completely) eliminated field astronomy from the practicing Land Surveyor's "toolbox", some events call out for pause, reflection, and observance. The transit of Venus, my unique solar observation, brought to mind the accomplishments of John Harrison, for the accurate determination of longitude by time, and to William Burt, for the practical solution of azimuth in the field for boundary surveys.



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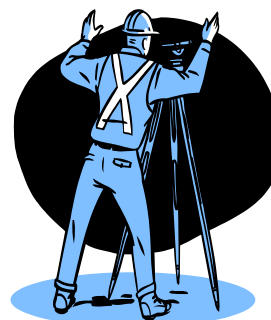
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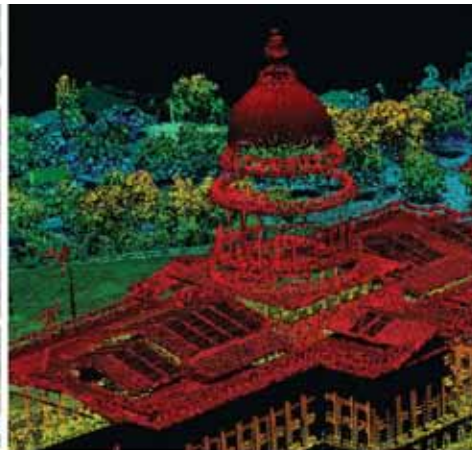
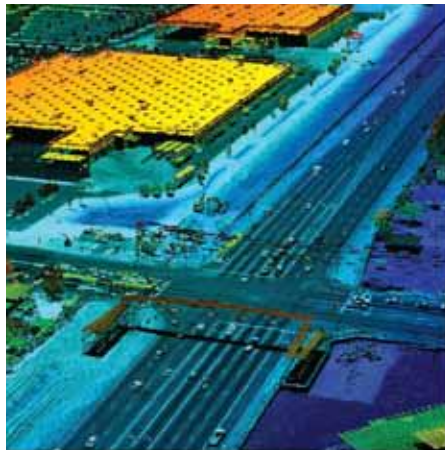


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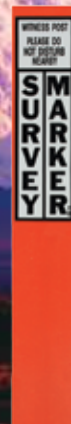
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