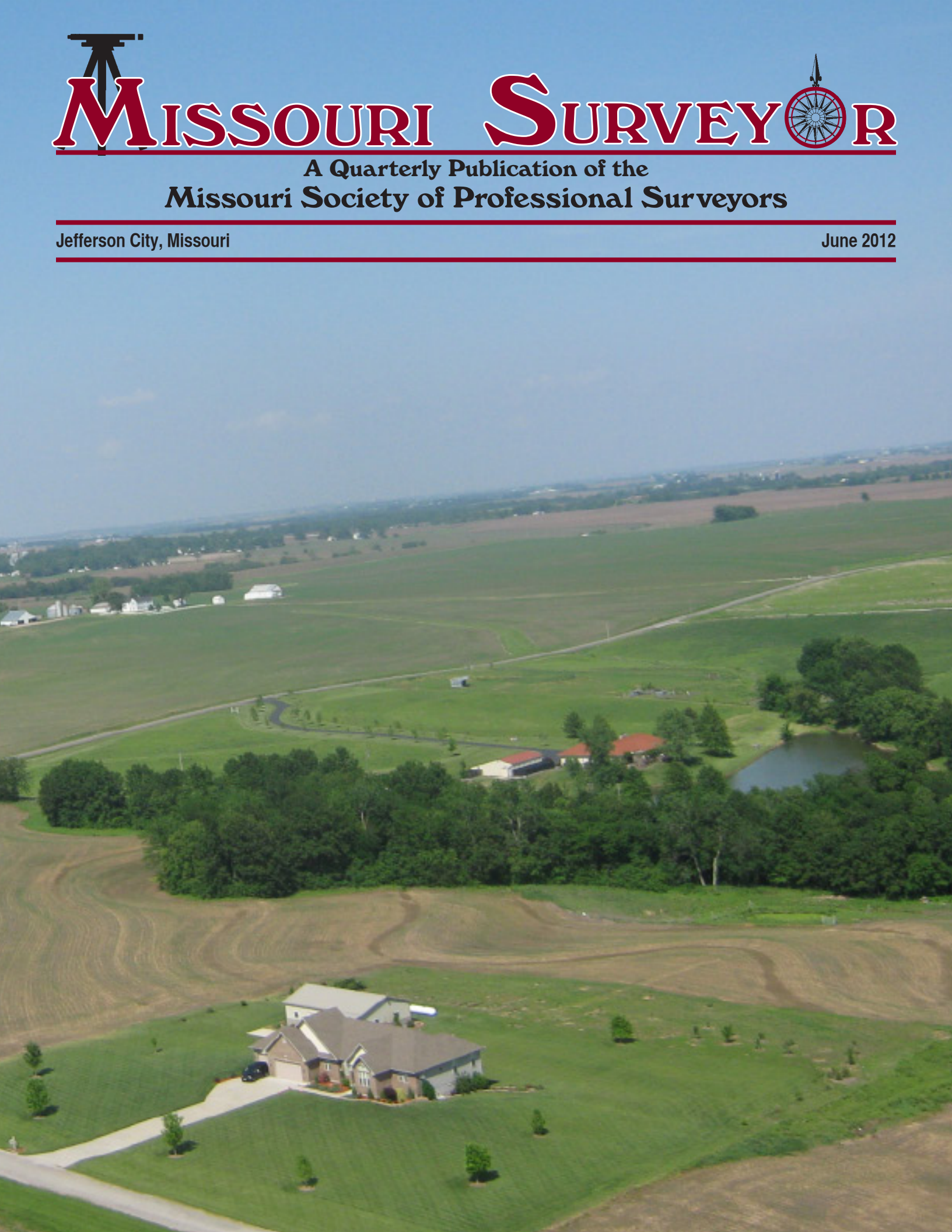
Missouri Surveyor

A Quarterly Publication of the
Missouri Society of Professional Surveyors

Jefferson City, Missouri June 2012



MISSOURI SURVEYOR

CALENDAR OF EVENTS

2011-2012

July 13-14, 2012
Board Meeting and
Golf Tournament
Minimum Standards Workshop
Lodge of Four Seasons
Lake Ozark, MO

August 15-17, 2012
Land Surveyor's Review Course
Best Western Hotel
Jefferson City, MO

October 11-13, 2012
55th Annual Meeting
and Convention
Hilton Frontenac Hotel
St. Louis, MO

December 1, 2012
Board of Directors Meeting
MSPS Office
Jefferson City, MO

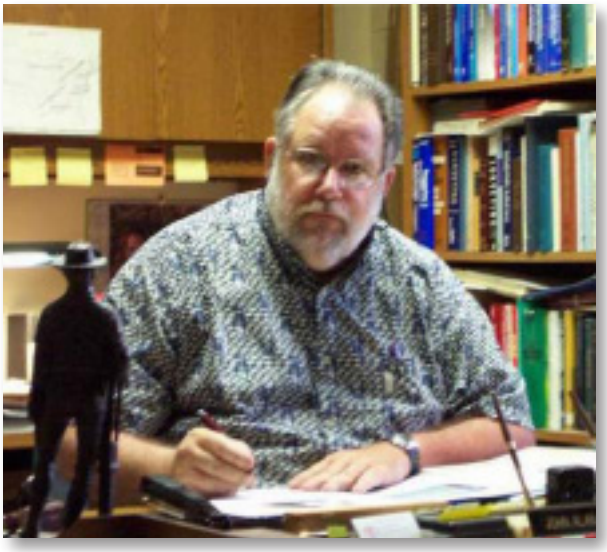
October 10-12, 2013
56th Annual Meeting
and Convention
Tan-Tar-A Resort
Golf Club, Marina
and Indoor Waterpark
Osage Beach, MO

October 2014
Joint Annual Meeting
with Kansas Society of
Land Surveyors

John Alan Holleck, Editor

Notes from the Editor's Desk

John Alan Holleck



Happy Spring, everyone, I hope the good weather has been beneficial for your businesses. I was sailing right along until I got some bad news the other day. A good friend of mine lost his battle with cancer. Doug Farrar, ever stoic, said nothing about his ailment except to those in his extended family. Doug will be sorely missed by all those who knew him. Well, the time has come to preview the June issue of the Missouri Surveyor.

My "Notes" and Joe Carrow's President's Message open this issue in their normal positions. First up is a taste of Dick Elgin's upcoming book with an article entitled "The Fifth Principle Meridian: Its Initial Point, Surveyors and errors." I wish Dick had more time to write, as he is a fine writer. Next is an article by Norman Bowers and Steven Brosemer, both of Kansas, "2009 Manuel of Surveying Instruction a Move Away from Lost Corners." As you might suspect their focus is on their native state. However, the discussion will benefit the reader. Knud E. Hermansen follows with one of my favorite topics, "What to do with Fences." This is the first of two articles by Dr. Hermansen. The last article in the front half of the journal is by North Carolina surveyor, Ken Mills. In "Once Upon a Time" Ken reminisces over his past career.

The back half opens with the second article by Knud Hermansen and his co-author, Donald R. Richards entitled "The Use of Extrinsic Evidence as an aid to the Interpretation of Deeds and Their Descriptions." This, of course, is a discussion of evidence outside the writings of the deed. Next up is "MSPS & The Missouri State Fair We're b-a-a-a-ck," which explains the set-up and the need for volunteer help. Dan Govero, long time Chairman of the Education Committee, offers a, short synopses of the Spring Workshop in "Spring Workshop 2012 Report." Our final article was written by Mark Nolte and Dennis Stewart, entitled "Surveying the Edge of Space." This involves a balloon (the flying type) and a cell phone and a camera taking pictures of the earth as the balloon ascends. The stuff of legends, Mark, way to go as you realized a dream. As always, it is a pleasure being your editor.

THE MISSOURI SURVEYOR

Published quarterly by the
Missouri Society of Professional Surveyors

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EDITOR

John Alan Holleck
8510 E. 59th St.
Kansas City, MO 64129
Phone or Fax (816) 353-1782
E-mail: editor@missourisurveyor.org

PUBLISHER

Sandra Boeckman
P.O. Box 1342
Jefferson City, MO 65102
(573) 635-9446 FAX (573) 635-7823
E-mail: msps@missourisurveyor.org

President's Message

Joe Carrow, PLS

As we approach the end of May it appears by the pending weather trend we are going to have 60 days of July and completely skip June. The lack of rain is becoming a problem, the only good effect is less time spent mowing the grass. Maybe mother nature will provide some relief soon. I hope your business has enjoyed the growth of the springtime and has less resemblance to the withering vegetation resulting from too much heat and too little rain.

We had a great Spring Workshop topic that was very educational. The speakers from the real estate industry, title companies, county recorders, and presentations on client relations were interesting. If you have been following the situation with the Federal Energy Regulatory Commission (FERC), Ameren Electric, and The Lake of The Ozarks, the discussions were alarming and the source for insomnia for many. If you were not there, the time doing some on-line research will be eye opening and may cause some to believe FERC is a dirty word. Thanks to Dan Govero and to all the Speakers for a job well done.

On the legislative front, we had success passing the bills concerning the Land Survey Program(HB1251) and peer review(HB1280). We appreciate all the hard work Mo McCullough, Rep. Bart Korman, Senator Dan Brown, and the MSPS legislative committee have put into this effort. More details are included in this issue of The Missouri Surveyor.

Upcoming events include the Minimum Standards Workshop in July and the Annual Meeting in October, at which we will have new standards to review. Hope to see everyone there.

It is regretable that MSPS board members Paul Dopuch and Bryan Ferguson have resigned. They have been valuable assets to the organization and we thank them for their time and participation. The nomination committee has suggested to place Jim Mathis on the ballot unopposed for secretary-treasurer at the annual meeting, and to appoint Joe Clayton to the board. Both were approved by the board.

May 7, 2012

Missouri Society of Professional Surveyors
722 E. Capitol Avenue
PO Box 1342
Jefferson City, MO 65102

With regret, I am resigning from the Board as a Director effective immediately. Personal issues necessitate my resignation.

I am grateful for the opportunity to serve.

Sincerely,
Paul G. Dopuch, P.L.S.

Front Cover: The cover photo is one of the initial pictures taken from the balloon photography project. The balloon reached an estimated 75,000 feet snapping photos every 5 seconds until it returned to Earth. This view looks to the northeast with Corder Missouri on the horizon.

The 5th Principal Meridian: Its Initial Point, Surveyors and Errors

by Dr. Dick Elgin, L.S., P.E., Archer-Elgin Surveying and Engineering, LLC, Rolla, MO

Beginnings

The cornerstone (pun intended) of our U.S. Public Land Survey System is the Initial Point. At that point, for the region referenced to it, surveys were begun and the numbering scheme for Townships and Ranges commences. One could consider our nation's first Initial Point to be a post set by Andrew Ellicott located on the right bank of the Ohio River "due north" of the southwest corner of Pennsylvania. From that point on September 30, 1785 the surveys of the U.S. Public Land Survey System (USPLSS) commenced with the survey of the "Seven Ranges," Thomas Hutchins, Geographer of the United States in charge. In the years following, the surveys of the USPLSS spread westerly as portions of what are today Ohio, Mississippi, Indiana, Alabama, Illinois, Louisiana, and Michigan were surveyed. Various Meridians and Initial Points referenced these surveys, such as the First Principal Meridian being the line between Indiana and Ohio; the Second Principal Meridian which mostly "controls" Indiana; the St. Stephens Meridian in southwestern Alabama; the Michigan Meridian which runs through central Michigan; and the Third and Fourth Principal Meridians which reference most of Illinois. Each of these meridians has an associated base line, the Initial Point being at the intersection of the meridian and the base line where the numbering of Townships (North and South) and Ranges (East and West) begins.

The War of 1812 (June, 1812 - February, 1815) slowed the USPLSS surveys, but it created a need for military bounty lands, with war veterans pressuring the government to provide these grants in payment for their service. With the Louisiana Purchase of 1803, the United States acquired some 828,800 square miles of public land. As it had following the Revolutionary War, Congress looked to the public lands as a means of providing military bounties, but the land had to be surveyed and platted before it could be granted.

The Act of May 6, 1812 addressed this problem and directed the General Land Office (GLO) to survey "two millions [acres] in the territory of Louisiana, between the River St. Francis and River Arkansas…." The wording in this act calling for the St. Francis and Arkansas Rivers no doubt influenced the locations of the Fifth Principal Meridian (5th P.M.) and the corresponding base line. When the war ended in February, 1815, it was time to start the surveys of the public lands in the Louisiana Purchase.

Establishing the Initial Point to the 5th P.M.

On July 26, 1815, the GLO Surveyor General Edward Tiffin wrote William Rector, the Principal Deputy Surveyor (in St. Louis), directing him to survey two million acres of land between the St. Francis and Arkansas Rivers, and "let a standard line [Principal Meridian] be accurately run from the confluence of the Arkansas with the Mississippi due north according to the true meridian so far, that a base line run due west from the mouth of the River St. Francis to the Mississippi with intersect it.…" Thus the instructions were issued for the establishment of the location of the Initial Point for the 5th P.M.. Little did Surveyor General Edward Tiffin know that this arbitrary instruction of establishing one of the most important points of the nation's entire USPLSS would be in a swamp in eastern Arkansas.

On October 9, 1815, Principal Deputy Surveyor William Rector contracted with Prospect K. Robbins, as a deputy surveyor, to survey the 5th P.M. and with Joseph C. Brown, as a deputy surveyor, to survey the base line. Both Robbins and Brown were from the St. Louis area. In October, 1815 Robbins and Brown likely came by boat down the Mississippi River. Per their notes, on October 27, Brown commenced surveying the base line west from the mouth of the St. Francis River. On the same day, Robbins commenced surveying the 5th P.M. north from the mouth of the Arkansas River. Since the Initial Point was yet to be established at the intersection of these two lines, and since all townships were to be referenced to this point, both surveyors set temporary mile posts on their lines. These lines would later have to be resurveyed, south for the 5th P.M. and east for the base line, setting section and quarter corners, all referenced to the Initial Point, back to the rivers' mouths. Not knowing where the Initial Point was to be located, but assuming (correctly as it turned out) that the base line distance to this intersection would be less than the principal meridian distance, Brown reached the yet to be located point on November 2 and continued some 13 miles to the west. Robbins intersected Brown's base line survey on November 10 at a distance of 57 miles 60.50 chains north from the mouth of the Arkansas River and 26 miles 30 chains west from the mouth of the St. Francis River. His notes state that he set

> "…a Post corner of Sects 1, 6, 31 & 36 & Townships 1 & 1 N of Ranges 1 & 1 W from which a Gum 18 in dia bears N61E dist 44 lks & a do 18 in dia brs S70W dist 10 L."

This location, the Initial Point for the 5th P.M., was in the middle of a cypress swamp. What a historic event and place! All land parcels in Arkansas, Missouri, Iowa, North Dakota, and parts of South Dakota and Minnesota are referenced by township and range to this point and it references more land area than any other Initial Point in the USPLSS.

According to the notes a few days later Brown returned to the now-monumented Initial Point and met with Robbins. On November 16 (some accounts incorrectly give December 6), Robbins continued the 5th P.M. north setting posts and calling for two bearing trees at the standard section and quarter section corners. He continued the meridian north into what is today Missouri, and on until he reached the Missouri River (west of St. Louis and just downstream from the present day town of Washington, Missouri) on December 28. Robbins had surveyed 317 miles 35 chains from the mouth of the Arkansas River in 63 days. Counting from the Initial Point, he has surveyed 259 miles at the rate of about 6.2 miles per day.

On November 28 Brown surveyed from the Initial Point west on the base line setting posts and calling for two bearing trees at the standard section and quarter section corners until he reached the Arkansas River (near present day Little Rock) on December 5. Other than setting temporary mile posts from the St. Francis to the Initial Point, this is the only portion of the base line surveyed by Brown. On November 26, Charles Lockhart, who had come down from St. Louis, surveyed the base line back east from the Initial Point reaching the St. Francis on December 4. On December 2, another deputy surveyor, Thomas Cox, began his survey from the Initial Point south, back down the 5th P.M. to the mouth of Arkansas River, setting a monument every 40 chains.

The Initial Point lay somewhat dormant and forgotten until 1921 when two surveyors, Tom Jacks and Eldridge Douglas from nearby Helena, Arkansas were hired to survey a county line which ran through this point. They claim to have found the original bearing trees standing in a swamp and marked by Robbins some 106 years earlier. This created interest in the historical point that had been unoccupied in over 100 years, and the L'Aguille Chapter of the Daughters of the American Revolution placed a granite monument at what they termed "The Louisiana Purchase Monument." On the face of the monument is inscribed:

Courtesy of Arkansas Society of Professional Surveyors

> THIS STONE MARKS THE BASE
> ESTABLISHED NOV. 10, 1815 FROM WHICH
> THE LANDS OF THE LOUISIANA PURCHASE
> WERE SURVEYED BY UNITED STATES
> ENGINEERS, THE FIRST SURVEY FROM
> THIS POINT WAS MADE TO SATISFY THE
> CLAIMS OF SOLIDERS OF THE WAR OF
> 1812 WITH LAND BOUNTIES. ERECTED
> BY THE DAUGHTERS OF THE AMERICAN
> REVOLUTION SPONSORED BY THE
> L'ANGUILLE CHAPTER

It is somewhat disappointing that the term "engineers" was used rather than "surveyors;" however, surveyors owe this organization a debt of gratitude for preserving such an important survey point.

Today the location is in the Louisiana Purchase State Park and has a boardwalk through the swamp so visitors can view this historic location. The Initial Point monument was designated a National Historic Landmark in 1993.

In 1945 the General Land Office had surveyors Oscar Walsh and Hugh Crawford determine, by traversing from established control, the geographic location of the monument. They determine the coordinates to be: Latitude 34° 38' 44.728" N and Longitude 91° 03' 06.847" W. The modern GPS-derived position for the Initial Point is Latitude 34° 38' 42.90" N and Longitude 91° 03' 07.95" W.

Deputy Surveyor Joseph C. Brown (1784-1849)

Joseph Cromwell Brown enjoyed a full and notable career as a surveyor. Born January 29, 1784 in Prince Edward County, Virginia, he arrived in St. Louis sometime during the War of 1812. His first notable survey was as deputy surveyor, surveying the 5th P.M.'s Base Line in late 1815. From August until October, 1816 Brown surveyed west line of the "Treaty of Fort Clark" signed in 1808 in which the Osage Indians ceded all land east of Ft. Clark (which became Ft. Osage and is today near Sibley, Missouri on the Missouri River) and north of the Arkansas River. Brown surveyed a meridian from what was by then called Ft. Osage south to the Arkansas River near what is today Ft. Smith. In the early 1820's Brown was in St. Louis where he surveyed and platted tracts and filed a "Survey of the Incorporated Limits of St. Louis." Missouri became a state in 1821, its boundaries described in an act of Congress, authorizing the admittance of Missouri into the Union. (See Chapter 7 in RSMo for the boundary description, written without benefit of survey, of course.) In 1823 Brown surveyed the west and south boundaries of the new state, beginning at the mouth of the Kansas River where it flows into the Missouri River (downtown Kansas City, today) and surveyed a "true" meridian south to the 36° 30' latitude line. [How did he know when he reached the line?] Then he turned east and surveyed that parallel of latitude to the St. Francis River. [How did he survey the line, staying exactly on 36° 30'?] In 1824 he returned to southeast Missouri to survey the south line of Missouri's "bootheel," surveying the 36° 00' line of latitude between the St. Francis and Mississippi Rivers.

In 1825-1826 he surveyed the Santa Fe Trail, being chosen as "preferred to all his competitors without a moment's hesitation, as being in the opinion of the Commissioners best qualified in all respects." At the time of his selection for this important task Brown was a member of the Missouri Legislature.

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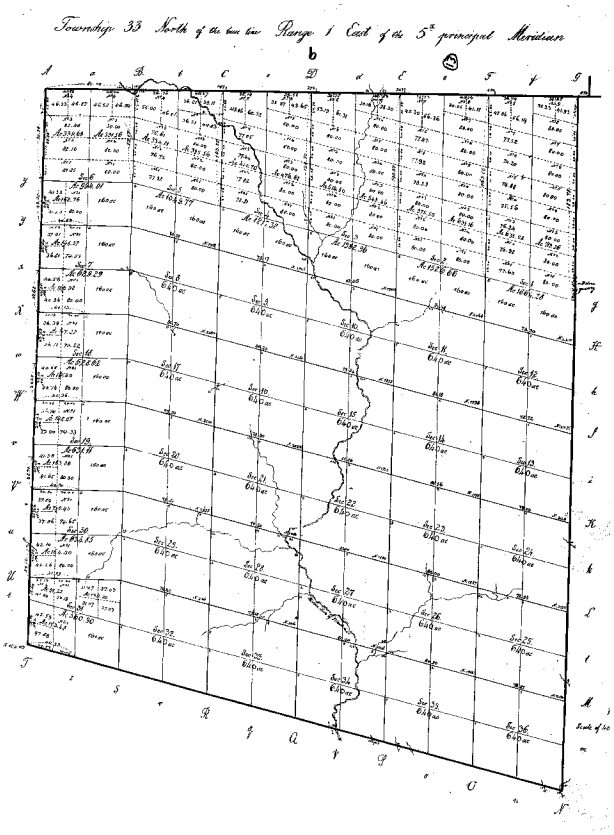
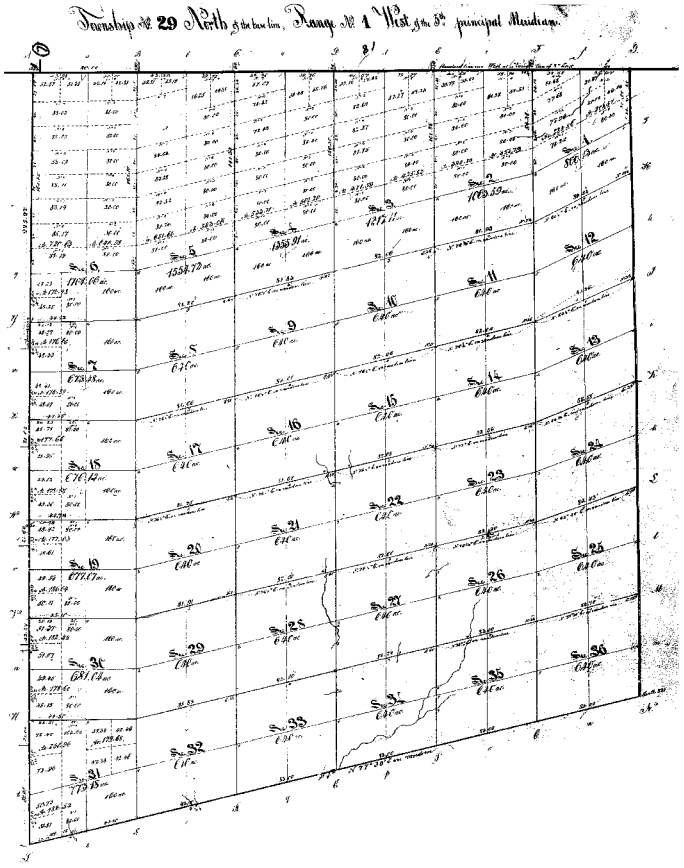
The 5th Principal Meridian. *(continued)*



GLO Plat of T33N, R1E, 5th P.M.. The odd shape is caused by the Principal Meridian being laid out at about 84 chains per mile from the next Standard Line to the south (6 townships, the north line of T27N). Therefore all T33N's will be "long" from the Principal Meridian east to the Mississippi River.



GLO Plat of T29N, R1W, 5th P.M.. The odd shape is caused by the Principal Meridian being laid out at about 84 chains per mile from the next Standard Line to the south (5 townships, the north line of T24N). Therefore all T29N's will be "long" from the Principal Meridian west to the border with Kansas.

In 1816 Deputy Surveyor John Sullivan was instructed by William Rector to survey the western and northern boundaries of a tract ceded to the United States by the Osage Indians, and being north of the Missouri River. Sullivan began at the mouth of the Kansas River where it flows into the Missouri River and ran north 100 miles, then he turned and surveyed east and was to survey to the Des Moines River. (The Platte Purchase, for lands west of the line would come later.) There was continued controversy over the line (which would become the Missouri-Iowa boundary), so in 1837 Joseph C. Brown was called upon to resurvey Sullivan's line. Brown's resurveyed position put the state boundary as much as 10 miles further north than Sullivan's line. Brown's resurvey of the line plus other interpretations for where the state boundary should be located became the basis for controversy between the states and precipitated the bloodless Honey War. Referred to the Supreme Court by the states, in 1849 the High Court rejected Brown's line (and others) and decreed Sullivan's line to be the boundary between states. (See 48 U.S. 660, 1849.) The Court ordered it resurveyed and Brown was appointed one of the surveyors to accomplish the resurvey and to mark the line. Brown died in 1849 before the resurvey began. (The resurvey was completed in 1851.) His obituary saying "an honest man and competent surveyor, he has no superior, if equal. His superior capacity caused nearly all important and complicated Government surveys to be confided to him."

Prospect K. Robbins (1788-1847)

Prospect K. Robbins was born in Pittsfield, Massachusetts in 1788 and migrated to Monroe, Lincoln County, Missouri in 1810. He would live in the Lincoln County and St. Charles area for the next two decades. An educated man, he assumed roles in government and commerce. During the War of 1812 he served as an officer under Captain Nathan Boone (Daniel Boone's son) and Captain James Callaway. During the War, the future Surveyor General for the Missouri Territory, William Rector was a Brigadier General, serving in Illinois. No doubt Robbins and Rector knew each other through their military service during the War. In the spring of

1815, Robbins was appointed as surveyor in St. Charles County. He declined, not wishing to travel from Monroe. In late 1815 he surveyed the 5th Principal Meridian with brothers John and Alexander Baldridge and Hiram Scott. The four had served together in the St. Charles district militias during the war. Six months after completing the 5th Principal Meridian, Robbins married Elizabeth Evans in St. Charles. For the next 10 years he was a GLO deputy surveyor and taught school in St. Charles and in Lincoln County. He surveyed part of the standard line between Townships 50 and 51 North and he subdivided many townships across north-central Missouri. During this period he joined local leaders as signatory to a petition to incorporate the Town of St. Charles (1817), served as a Justice of the Peace in Monroe Township, was an overseer of roads, and served on its first grand jury. In 1821 he received a promotion to Brigadier General in the state militia and he was appointed St. Charles County Surveyor.

After about two decades in Lincoln and St. Charles Counties, at about forty years of age and presumably a widower, he and one of his sons, Jesse moved to Ste. Genevieve, Missouri. In 1834 Robbins married Harriet Neil. In May, 1847, the month before he died, he was baptized in the local Catholic Church. According to the burial records of the Memorial Cemetery in Ste. Genevieve, Prospect K. Robbins was buried in the cemetery in June, 1847. His son Jesse had a career as a businessman, served in the Missouri Legislature, and administered Robbins' modest estate. In an inventory of his estate, no surveying equipment is listed.

Although members of the Missouri Association of County Surveyors have made a search of Memorial Cemetery, no headstone for Robbins has been located. On November 18, 2006 members of the Association met at the cemetery to memorialize this great surveyor. Today there is a bench of native stone beside a pathway with a plaque dedicated to Robbins.

The 5th Principal Meridian and its Errors

Any Arkansas or Missouri surveyor who has surveyed in the north row of sections in Townships 4, 6, 12, 17, 22, 24, 29, 34, and 39 North in the west Ranges, can deduce that something was wrong with the distance measurements of the 5th Principal Meridian. In these townships the north-south dimension of the sections are all "long," and can be over 2.5 miles in length. The north line of these townships are Standard Lines. One of their purposes is to "take up" measurement errors in the USPLSS. They certainly were needed and served their purpose, isolating errors brought into the system by severe measurement inaccuracies on the most important line in the system, the Principal Meridian! Why are all sections south of these standard lines long? Because Prospect K. Robbins did a poor job of laying out the Meridian, placing the standard section corners along the line at consistently more than 80.00 chains. Also, it is known that the Meridian direction is not a "true meridian" as specified in the instructions. Its "true" bearing is about N1°15'E. Knowing of these measurement errors, the author undertook a study to perhaps discover what may have brought these errors into the survey of the 5th Principal Meridian, errors which manifest themselves in the townships listed above (and others).

As to the distance measurements, why did Robbins consistently lay out the sections at more than 80.00 chains? Did he "throw in a little" for good measure? His field notes of the Meridian offer no clues. As one would expect, they indicate a survey marker set each 40.00 chains along the whole length of the Meridian, from the Initial Point to the Missouri River (being the standard quarter and section corners, being set to mark the "standard" corners on the west side of the Meridian). Seeking an answer, the Meridian was divided into three classes of topography: flat, rolling and steep. Using USGS "topog" sheets, the length of each section was scaled for the full length of the Meridian, from the Initial Point to the Missouri River. Also from the field notes the dates of Robbins' progress along the Meridian were logged. The results are tabulated below.

Topography Type	Miles of Type	Average Chains Per Mile (scaled)	Standard Deviation (plus or minus, chains)	Rate of Survey (miles per day)
Flat	96	81.41	0.48	6.37
Rolling	54	82.44	1.15	4.87
Steep	109	83.83	1.31	6.72

An analysis of the data shows that topography affected Robbins' measurements. With "roughness" the measurements have more error and the standard deviation gets larger. The rate of the survey by topography seems odd. The rate for flat and steep are roughly the same (6.37 and 6.72 miles per day respectively) but for rolling topography, his progress slows to 4.87 miles per day. This analysis doesn't lead one to a firm conclusion as to why Robbins' "miles" on the 5th Principal Meridian were so long.

As to the direction of the Meridian, it was broken into six segments and the "true" azimuth of each was computed. The average azimuth of these segments is 1°15'. The azimuths of the six segments computed are all less than 10 minutes from the average, so the Meridian is fairly straight.

What did Robbins use to obtain the direction of the Meridian? Did he observe Polaris and correct the observation to the "true" meridian? Why does the Meridian run N1° 15'E instead of "true" north as it was intended to be surveyed? Robbins' notes are no help in solving this puzzle. No mention is made in the field notes as to the method of obtaining north. No mention is made of any celestial observations. One would think had he observed Polaris, he would have noted such. Apparently none were made. The only mention of direction determination in all of his notes is on the last page where Robbins wrote: "Surveyed at a variation of 8 degrees East."

In the early evening hours of November, 1815, at the average latitude of the Meridian, Polaris would have been just west of eastern elongation. So, the bearing of Polaris would have been northeast, and, depending on the time of evening, N1°15'E could be obtained. As an explanation for the direction of the Meridian, this seems unreasonable. It would require an observation on Polaris (not

(continued on next page)

The 5th Principal Meridian: *(continued)*

mentioned in the notes), and, not corrected for polar distance.

Robbins' notes say he ran the Meridian at 8 degrees "East variation." According to current NOAA modeling, the declination for the area of the 5th Principal Meridian in 1815 was 8°25' East. NOAA advises this value to be accurate to about a half-degree. So, if Robbins ran the line at 8° east (consistent with current NOAA modeling), why is the "true" bearing of the line about N1°15'E? Most likely the reason is a systematic error in his compass or, 8° East declination is not correct. Remember that every compass does not read the same bearing on the same line. Each compass has errors of its own; hence, the term, "variation of the compass." Errors could be a faulty needle (not straight) or faulty pivot alignment problem or some magnetic influence in the compass itself. It is likely the 5th Principal Meridian does not closely follow the "true meridian" due to systematic error in his compass. And, remember, the Meridian's error is only slightly larger than the least count of the compass. (The solar compass would cure these ills, but its invention was 20 years in the future.)

This exercise is perhaps a bit academic (and moot). After all, by the system's design, measurement distance errors, the convergence of the meridians and even the Principal Meridian not being "true north" were accounted for with Standard Lines and placing each township's errors into the northern row and western column of sections. No worries, Mr. Robbins, good job!

Further Reading and Study

The history of the boundaries of Missouri is a fascinating subject for the surveyor. This is especially true for the boundary between Missouri and Iowa (east of Sullivan's old northwest corner of the Indian Treaty lands). This line was in controversy from when it was initially surveyed in 1816 until its (first) resurvey, ordered by the U.S. Supreme Court in 1851. The controversy included resurveys, at least four different positions, the Honey War and a U.S. Supreme Court decision. Any surveyor can read the boundary description for the north boundary of Missouri and easily understand how the description could result in 35 years of controversy. A learned study and publication would be welcome.

For additional reading, see below.

- For Missouri Statues related to state boundaries and the boundary description of the State and some explanatory notes, see RSMo Chapter 7.
- For more about Prospect K. Robbins "Google" Big Muddy Publications, Morrow, Robbins (for an online article that historian Lynn Morrow wrote about Robbins in 2009).
- For information about the Santa Fe Trail and Joseph C. Brown's survey of it, see "The Road to Santa Fe" edited by Kate L. Gregg and published in 1952.
- For information about the Missouri-Iowa boundary, see Chapter VII in "Original Instructions Governing Public Land Surveys of Iowa," J.S. Dodds, Editor-in-Chief, published by the Iowa Engineering Society in 1943.

Dick Elgin works for Archer-Elgin Surveying and Engineering, LLC (Rolla, Missouri). Along with David Knowles he wrote "Legal Principles of Boundary Location for Arkansas" and "The U.S. Public Land Survey System for Arkansas." They, along with Joe Senne codeveloped celestial observation software and coauthored the "Sokkia Ephemeris." He is an Adjunct Professor of Civil Engineering at Missouri S&T (Rolla). He drives a restored 1967 Morgan Plus 4 and enjoys touring by RV and bicycle. He can be reached at elgin@rollanet.org

In Memory of James Franklin Edmisson, Jr.

James Franklin Edmisson, Jr., of Springfield, passed away at approximately 1:00 a.m. in the Select Specialty Hospital on April 3, 2012. Jim was born in Springfield on March 6, 1937 to Frank and Irene Edmisson who preceded him in death.

He was also preceded in death by a brother, Jerry and wife JoAnn Edmisson; sisters, Patty Harrington and Mary Catherine; a grandson, Andrew Hilton; daughter, Debbie Collinge; and brother-in-law Robert Clouse.

Jim was married to Doris Jeanne Clouse, of the home, on June 12, 1970 who survives him in death. Other survivors are children, Bryon Edmisson, Marianne Wark, and Catherine Johnson; grandchildren, Lacie Collinge, who they are raising, and Makayla Edmisson, Justin Hilton, Jeremy Hilton, Ricky Hilton; and three great-grandchildren; brother-in-law. Jim Harrington; sister-in-law, Wylene Clouse; and many nieces and nephews.

He worked for the Missouri State Highway Department for approximately 11 years and retired from Hood and Rich Architect after 34 years as a Professional Surveyor. He also served in the United States Marine Reserves. Jim was a member of Boulevard Baptist Church for over 50 years. He was a children's Sunday School Teacher, an R.A. Director, and Sunday School Superintendent.

Funeral service was held on Saturday, April 7, 2012 in Greenlawn Funeral Home East.

RTI Drafting & Design Student Justin Protte awarded the O. Dan Lashley Memorial Scholarship

On March 6, 2012, Justin Protte was awarded the O. Dan Lashley Memorial Scholarship at Rolla Technical Institute (RTI) in Rolla. Presenting the scholarship to Justin are selection committee members Darrell Pratte, PLS and J. Michael Flowers, PLS. Justin is from Bourbon, MO and will graduate from the Rolla Technical Institute Drafting & Design Program in May 2012.

The annual $500 scholarship was commissioned by O. Dan Lashley, a long-time Department of Natural Resources surveyor, MSPS Past President and Rolla resident, specifically for an RTI Drafting & Design second year student interested in land surveying. Mr. Lashley had a love of surveying, educating young people about the profession, and encouraging them to consider a career as a Professional Land Surveyor.

Pictured from left: Darrell Pratte, PLS, Justin Protte, J. Michael Flowers, PLS

In Memory of James Robert Henderson Sept. 29, 1940 - March 25, 2012

James Robert Henderson of Yellville, Arkansas died Sunday, March 25 in Little Rock, Arkansas. James was a surveyor with Henderson Survey Company and Surveyor for Marion County for 30 years. James hardly ever missed any MSPS meeting in southern Missouri and was a constant figure at the Spring Workshop golf tournaments. James was 71 years young.

In Memory of Doug Farrer

Doug Farrar, 64, of Overland Park, Kansas passed away peacefully at the Kansas City Hospice House on Tuesday, May 29th surrounded by family. Doug was born on February 19, 1948 in Brooksfield, MO. Doug married Karon Smith on August 2, 1968. Doug was an outdoors kind of guy who loved fishing at the lake, vacationing in Gulf Shores, Alabama and watching K-State football. Doug was a proud member of the Kansas Society of Land Surveyors Association. He served as President from 1998-1999 and 2007-2008. He was also President of the Kansas City Metro Surveyors Association in 1990. He received many awards for his dedication to this association. Doug is preceded in death by his father, Carl Farrar, his mother, Mariam Haase, stepfather Jul Haase and his brother Carl Farrar. He is survived by his wife Karon, daughters, Staci (Randy) Sharp, Tammy (Rob) Shackelford and four grandchildren, Maddy, Nolan, Cameron and Jillian. The family would like to thank KC Hospice for taking such good care of us all in this time of sorrow. Memorial contributions may be made to: Doug Farrar Scholarship Fund, KSLS Foundation, P.O. Box 757, Andover, Kansas 67002.

2009 BLM Manual of Surveying Instruction a Move Away from Lost Corners

by Norman Bowers, L.S. & P.E. and Steven S. Brosemer, L.S., Reprinted from *Section Lines*, Kansas, November 2011

In 2009, the Bureau of Land Management (BLM) published a *Manual of Surveying Instructions* (herein referred to as the Manual). Prior to 2009, the last version was the 1973 Manual. There are major revisions in the 2009 Manual as it relates to recommendations on reestablishment of lost and obliterated corners. With this new Manual now available it is a good time to review the authority of the Manual in Kansas and the major changes in the 2009 Manual related to General Land Office (GLO) corner restoration.

The Manual is basically instructions to surveyors working for the BLM who are surveying federal lands that have never passed into private ownership. There have been a series of Manuals over the years with the first issued in 1851. Kansas was surveyed with instructions from the 1855 Manual. The Manual contains instructions to federal surveyors, but it is not a regulation. In situations where the federal government has authority to adopt regulations there is a specific process to follow which includes public notice and consideration of public comments in the final regulations. It is important to recognize that the Manual has not gone through the federal regulatory process, and so the Manual is not a government regulation. While a few states have adopted parts of the Manual by law or regulation, Kansas has not adopted any parts of the Manual. So for surveyors in Kansas, the Manual is just a text book or reference manual—it has no official authority in our state. While there is excellent information in the Manual, we must remember that, just like any other reference book on boundary law, it must yield to our state laws, regulations, and court decisions.

As surveyors in a public land survey state, it is important to understand the history and methods used to subdivide our state. The Manual is a fairly comprehensive reference source on the public land survey system. Most of us have the 1973 Manual and some have purchased the 2009 Manual. However, for specific information on the conduct of the General Land Office (GLO) surveyors in Kansas we should consult the 1855 Manual.

Many surveyors erroneously refer to the Manual as the "bible." Boundary law is established by the states. No book like the Manual written to cover all the public land survey states can cover all the variations in state laws and legal principles.

Surveyors that rely on information in the Manual without considering our state laws, regulations, and court decisions may establish GLO corners at locations that are contrary to state law and legal principles. For example, in the 1973 Manual Chapter V, Restoration of Lost and Obliterated Corners, there is a statement which is in direct conflict with Kansas law and now the 2009 Manual. The definition of an obliterated corner in section 5-9 and the definition of a lost corner in section 5-20 uses the term "beyond a reasonable doubt" for the test of an obliterated or lost corner. Kansas law (K.S.A. 19-1412) requires us to use the "best available evidence" in determining the location of a corner. This discrepancy between the 1973 Manual and Kansas law has led to significant misapplication of the burden necessary to establish a corner existent or obliterated, or a finding that the corner is lost. Following the guidelines in the 1973 Manual then requires proportionate measure in order to re-establish the corner location, even when substantial evidence of the location of the corner exists. The "beyond a reasonable doubt" criteria in the 1973 Manual was revised in the 2009 Manual, which uses the "substantial evidence" criteria. The 2009 Manual now defines a lost corner as follows:

"7-2. A lost corner is one whose original position cannot be determined by substantial evidence, either from traces of the original marks or from acceptable evidence or reliable testimony that bears upon the original position, and whose location can be restored only by reference to one or more interdependent corners.

"Thus, if substantial evidence of the position of the original corner exists, it is an existent or obliterated corner. This position shall be employed in preference to applying the rule that would be proper only in the case of a lost corner.

"In addition, once a corner is considered lost, it is the surveyor's responsibility to assure that the restoration method and the restored position comply with the statutory protection of bona fide rights requirements delineated in 43 U.S.C. 772 and 773 and as described in this Manual."

Unfortunately, the "beyond a reasonable doubt" criteria in the 1973 Manual may have encouraged surveyors to consider too many corners lost, and then incorrectly utilize proportionate measurement to establish the corner location. The "substantial evidence" criteria in the 2009 Manual may still overstate the evidence required in Kansas, which could be better described as the best evidence available. We would advise surveyors to retire their 1973 Manual or at least cross through the definitions of lost and obliterated corners in *Chapter V, Restoration of Lost and Obliterated Corners*.

Another publication that many surveyors use is *Restoration Of Lost Or Obliterated Corners & Subdivision Of Sections, a Guide For Surveyors 1974 Edition* by the Bureau of Land Management. This guide is based on information in the 1973 Manual and contains the same contradictions to Kansas Statutes and court cases as the 1973 Manual, and should also be retired. At least, one should cross out the definitions of lost and obliterated corners.

The 2009 Manual is organized differently than the 1973 version and there is no longer a chapter specifically for restoration of lost and obliterated corners, so chapter numbers do not coincide. The definition of an existent corner is now in Chapter 6 paragraph 6-11. *"An existent corner is one whose original position can be identified by substantial evidence of the monument or its accessories, by reference to the description in the field notes, or located by an acceptable supplemental survey record, some physical evidence, or reliable testimony."* The definition of an obliterated corner is in paragraph 6-17. *"An obliterated corner is an existent corner where, at the corner's original position, there are no remaining traces of the monument or its accessories but whose position has been perpetuated, or the point for which may be recovered, by substantial evidence from the acts or reliable testimony of the interested landowners, competent surveyors, other qualified local authorities, or witnesses, or by some acceptable record evidence."* Using the new definitions for existent and obliterated corners will greatly reduce the number of corners considered lost, and the resulting need to use proportionate measurement. In Kansas, except in remote areas in sand hill country, it should be rare to have so little physical evidence that a corner should be considered lost.

From an historical standpoint our laws, court decisions, and now the Manual have moved away from proportionate measurement to establish corner locations, and towards acceptance of established boundary lines as better evidence of the original corner location. The 2009 Manual states it this way in paragraph 6-41 *"In many cases due care has been exercised to place the property fences and other evidence of use or occupancy on the lines of legal subdivision and locate the public roads on the section or subdivision-of-section lines. These are matters of particular interest to the adjoining owners, and it is a reasonable presumption that care and good faith would be exercised with regard, to the evidence of the original survey in existence at the time. Obviously, the burden of proof to the contrary must be borne by the party claiming differently."*

In summary the 2009 Manual has moved much closer to Kansas law, but the new Manual is still not the "bible." The Manual is basically instructions to surveyors working for the BLM surveying federal land, and has no official authority in Kansas. When Kansas law conflicts with the Manual, surveyors must follow Kansas law. Surveyors who utilize the 2009 Manual will find there are few lost GLO corners in Kansas that should be re-established using proportionate measurement.

Local Surveyors Help Certify World Record Ice Cream Sundae

Reprinted from *Section Lines*, Kansas, November 2011

The Turner Recreation Commission, in conjunction with the Turner Community Library, coordinated an attempt to gain entry into the Guiness Book of World Records for the longest ice cream sundae. With ice cream donations from Belfonte and the assistance of approximately 300 adult and youth volunteers, they were able to create an ice cream sundae that was 155 feet long. Fifty five gallons of ice cream, eight pounds of whipped cream, several ounces of chocolate and caramel syrup, two pounds of sprinkles, and several cherries were used for this cool treat. In order to qualify as a world record, Guiness required the measurement to be taken by a professional with experience in measuring techniques and land surveyors certainly fit that description. Schlagel and Associates, a multidiscipline consulting firm based in Lenexa, Kansas welcomed the opportunity to participate and provided a land survey crew to take the official measurement.

Michele Romano
Administrative Assistant
SCHLAGEL & ASSOCIATES, P.A.
Engineers • Planners • Surveyors • Landscape Architects
(913) 322-7164 Direct • (913) 492-8400 Fax
14920 W. 107th St., Lenexa, KS 66215-4018
mr@schlagelassociates.com

MO Colleges/Universities Where Land Surveying Coursework is Available

The following list will be updated quarterly as new information becomes available.

Longview Community College — Lee's Summit, Missouri
Contact: David Gann, PLS, Program Coordinator/Instructor — Land Surveying MCC — Longview, MEP Division
Longview Community College
Science and Technology Bldg.
500 SW Longview Road
Lee's Summit, Missouri 64081-2105
816-672-2336; Fax 816-672-2034; Cell 816-803-9179

Florissant Community College — St. Louis, Missouri
Contact: Ashok Agrawal
Florissant Community College
3400 Pershall Road
St. Louis, Missouri 63135
314-595-4535

Missouri State University — Springfield, Missouri
Contact: Thomas G. Plymate
Southwest Missouri State University
901 So. National
Springfield, Missouri 65804-0089
417-836-5800

Mineral Area College — Flat River, Missouri
Contact: Jim Hrouda
Mineral Area College
P.O. Box 1000
Park Hills, Missouri 63601
573-431-4593, ext. 309

Missouri Western State University — St. Joseph, Missouri
Contact: Department of Engineering Technology
Missouri Western State University
Wilson Hall 193
4525 Downs Drive
St. Joseph, MO 64507
816-271-5820
www.missouriwestern.edu/EngTech/

St. Louis Community College at Florissant Valley
Contact: Norman R. Brown
St. Louis Community College at Florissant Valley
3400 Pershall Road
St. Louis, Missouri 63135-1499
314-595-4306

Three Rivers Communitiy College — Poplar Bluff, Missouri
Contact: Larry Kimbrow, Associate Dean
Ron Rains, Faculty
Three Rivers Community College
2080 Three Rivers Blvd.
Poplar Bluff, Missouri 63901
573-840-9689 or -9683
877-TRY-TRCC (toll free)

Missouri University of Science and Technology — Rolla, Missouri
Contact: Dr. Richard L. Elgin, PLS, PE
Adjunct Professor
Department of Civil Engineering
1401 North Pine Street
211 Butler-Carlton Hall
Rolla, Missouri 65409-0030
573-364-6362
elgin@mst.edu

University of Missouri-Columbia, Missouri
Contact: Lois Tolson
University of Missouri-Columbia
W1025 Engineering Bldg. East
Columbia, Missouri 65211
573-882-4377

Missouri Southern State College — Joplin, Missouri
Contact: Dr. Tia Strait
School of Technology
3950 E. Newman Rd.
Joplin, MO 64801-1595
1-800-606-MSSC or 1-417-782-MSSC

What to do with Fences

by Knud E. Hermansen, PhD, PLS, PE, Esq, Reprinted from *Georgia Land Surveyor*, Sept/Oct 2011

Abstract

One of the perplexing problems that land surveyors must face is what to do with fences. Fences are found on or near many boundaries, to include boundaries around woodland, farm, and residential lots. This article was written to provide some suggestions and guidance concerning fences (and for that matter walls, hedgerows, tree-lines, etc.). In particular, the legal significance, practical value, and responsible treatment of fences are examined in this article.

Introduction

Landowners generally hire surveyors, in part, to determine where they own—they want the surveyor to locate their ownership boundary. The surveyor, for their part, has been trained to reestablish the location of the boundary as described in the records; that is, the record boundary. Under ideal conditions the record and ownership boundaries will coincide and the surveyor will meet the client's expectations. A problem arises when the landowner or their predecessor in possession has asserted a claim, as evidenced by prior use and possession, short of or beyond the record boundary—creating a third category of boundaries known as the possession boundary. Where the extent of use or possession does not coincide with the record boundary, the location of the ownership boundary becomes uncertain since it may coincide with either the record or the possession boundary.

Within this realm of potential confusion stands the fence, sometimes an aid while at other times the nemesis and gist of the problem. The resolution of the confusion depends on the legal significance, practical value, and responsible treatment of the fence. Unfortunately, the confusion is compounded by serenity and fed by ignorance. By its protruding appearance in the woods, along a field, or between homes in a development, a fence seems to make what would ordinarily be uncertain, certain. For the surveyor to interrupt the serenity by casting doubt on its position or prestige as a boundary marker seems sanctimonious if not an outright declaration of mistrust that is bound to start a bitter boundary dispute between the neighbors. For this reason and others, surveyors are quick to adopt a fence, reluctant to question a fence, ignorant about the legal ramifications, or are simply uncertain about how to handle fences that are on or near boundaries.

The legal significance, practical value, and responsible treatment of a fence can be determined by three steps. The three steps are to: (1) gather information, (2) analyze the information, and (3) apply or communicate the information.

Gather Information

The first step to determine the legal significance and practical value of the fence is to gather information on the fence. During the course of the survey, information on the fence can be gathered during the record search, interviews, and field survey. While searching the records for boundary information, the surveyor should determine if any documents cite or portray the fence in a manner that is suggestive of an intent to fix the record boundary along the fence. Any citations to a fence should be scrutinized to determine: (1) the time the fence was built; (2) the fence material, (3) the direction of the fence, and (4) the location of the fence.

Information is also obtained from interviews with the client, neighbors, long-time residents, and other knowledgeable people. During the interview, the surveyor should gather the following information: (1) the maker/builder; (2) builder's frame of mind, purpose, and apparent significance of the fence (e.g. cattle barrier, line fence); (3) approximate age; and (4) past condition of the fence.

Finally, information on the fence is obtained during the field survey (to include the reconnaissance). The most important piece of information to obtain during the field survey is the relative location of the fence with respect to other evidence.

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What to do with Fences *(continued)*

This would include any significant meanderings and the geometrical relation between the fence, existing monuments, and major features. In addition, the surveyor should also attempt to collect the following during the field surveyor reconnaissance: (1) continuity of the fence (e.g. sporadic, continuous); (2) present condition of the fence (e.g. disrepair, decayed, new); (3) actual age of the fence (i.e. from tree borings); (4) fence material (e.g. woven wire, split rail); and (5) visibility of the fence.

Analyze the Information

The second step is to analyze the information. The analysis should attempt to classify the fence as one of the following: (1) the best evidence to the record boundary, (2) evidence to the record boundary, or (3) no correlation to the record boundary.

Best Evidence: The fence may be the best evidence of the record boundary under one or a combination of two or more of the following : (1) rules of construction; (2) recognition! reputation; (3) process of elimination; and (4) prima facie assumption.

Best Evidence - Rules of Construction: The rules of construction would favor the fence as the best evidence to the record boundary under two different scenarios. The most favorable scenario is when the fence is called for in a valid conveyance, cited in an authoritative record as a monument to the boundary, or constructed as a division fence according to a "fenceline" statute or boundary agreement.[1] The second, less favorable scenario is to determine the fence is in privity and conformance with the location of the original marks and monuments.[2]

Privity stands for the concept that there exists some chain of records, evidence, logic pattern, or other rational explanation that places the fence in the same stead as the original marks. This scenario would be appropriate if the fence were built along the blazed boundary, fence posts replaced the corner marks or monuments (e.g. stakes), or the fence replaced or stands in the place of an earlier fence that was called for as a monument. Under these scenarios, the fence is favored much the same as other monuments are favored under boundary law rules of construction.[3]

Best Evidence - Recognition/Reputation: A second way a fence may be the best evidence of the record boundary is by recognition and reputation. This concept treats the fence as an "undocumented" monument with authority based on its

recognition and reputation. Recognition and reputation as a boundary or "line" fence is based in part on equity and in part on logical assumptions. Equity by way of laches, estoppel, and other equitable principles, would keep settled what has been settled. With the same results, a logical analysis could be constructed to show that the recognition and reputation of a fence as a boundary marker must have been based on some authority since obscured or some intent expressed and accepted long ago.[4]

Best Evidence - Process of Elimination: Recognition and reputation are usually combined with the process of elimination (although not always). The process of elimination, simply described, is that there is no better evidence available to prove the fence does not stand on the record boundary. What better evidence that may have once been available is now unavailable, lost, or suspect. In some cases, there may never have been better evidence other than the fact the people living along or near the fence have always supposed and accepted the fence as the boundary marker.

Best Evidence - Prima Facie Assumption: By way of a primae facie assumption, some courts will assume at the outset that the location of an existing fence accurately marks the location of the record boundary. To understand this concept, recognize that under the previous methods of interpretation, judges would ordinarily reserve judgment until the party with the burden of proof produces sufficient evidence to show that the fence marks the boundary or the moving party, by a preponderance of evidence, shows the fence in all likelihood coincides with the record boundary. However, if at the outset of the trial the court adopts a prima facie assumption in favor of the fence, the court assumes that the fence marks the location of the record boundary unless other, better evidence is introduced by the opposing party that shows it does not. This last assumption is founded partially on convenience and partially on the premise that: (1) the builder knew where the record boundary was located, (2) the record boundary was discernible to the builder at the time the fence was constructed (e.g. blazed trees), and (3) the builder followed the marks in constructing the fence.[6]

Best Evidence - Prima Facie Assumption (Modified): As a slight modification to the best evidence by prima facie assumption, some courts do not use a prima facie assumption until the fence is shown to have existed undisturbed and uncontested for a period exceeding the statute of limitations (Acquiescence).[7]

This is based on the premise that any fence that has been allowed to stand uncontested for a long time must have been built on the

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record boundary or else someone should have come forward to dispute (i.e. litigate) its location before the present time. If the fence is shown to have existed for a long time without question or conflict, the opposing party has the burden of coming forward with evidence (not the same as the burden of proof) to show the fence is not on the record boundary.

Evidence: The fence may be classified as evidence (as opposed to the "best" evidence) to the boundary when the fence supports other comparable or better evidence to the record boundary. This classification uses the location of the fence as one piece of evidence among many (e.g. other undocumented monuments, measurements, area, and parol testimony) to help fix the record boundary. Naturally, the evidentiary value of the fence can be improved or minimized by proving or failing to prove such factors as: (1) the fence was built at a time when marks and monuments to the record boundary still existed; (2) the person constructing the fence was a disinterested party and intended to set the fence on the record boundary; or (3) the fence was constructed by previous landowners to stand on the common boundary between them.[8]

No Correlation: To The Record Boundary: By eliminating the possibility that the fence is the best evidence or, less favorably, evidence to the boundary, the surveyor is left with the last possibility—there is no correlation between the fence and the client's record boundary. In other words, the fence represents the position of another record boundary or a possession boundary not related to the client's record boundary—possibly creating a cloud on the client's or neighbor's title. Estoppel and adverse possession are two common legal doctrines where a fence, standing as a possession boundary apart from the client's record boundary, may alter the client's rights and cloud the record title.

Estoppel: Estoppel is a legal doctrine that denies a person a legal remedy that would ordinarily be theirs to claim. With estoppel, one landowner is denied the right to claim to their record boundary and the other landowner has the right to claim to the fence lying beyond their record boundary. Estoppel arises when one landowner, by design or innocence; by action or, in some cases, acquiescence (e.g. where the landowner had a duty to assert the truth and did not); misleads another to that person's detriment; to believe that the fence controls or stands in the location of the ownership boundary.[9] Examples include an oral agreement followed by possession;[10] acquiescence coupled with possession; and detrimental reliance.[11] Estoppel, by itself, does not ordinarily create title until adverse possession is maintained for the time period prescribed by the statute of limitations.[12]
Adverse Possession: Adverse possession is a legal doctrine that creates title in a possessor. Most states recognize adverse possession through statute or common law. Under the common law, adverse possession is founded on the premise (i.e. legal fiction) that any long possession must have been founded on a grant that has since been lost (i.e., lost grant theory). A person asserting title by adverse possession must prove the following six elements (although different jurisdictions may require more, less, or slightly different elements depending on the circumstances): (1) the land was held adverse or hostile to the record owner's title; (2) possession has been actual (v. constructive); (3) it has been open and notorious (i.e., visible and known); (4) possession has been exclusive or the use by others has been controlled by the possessor; (5) possession has been continuous for the period set forth in the statute of limitations; and (6) possession has been under claim-of-title or color-of-title.[13]

Other Record Boundary: A fence standing apart from the client's record boundary may also represent another person's record or ownership boundary (e.g. the neighbor's). In some cases this may result in a gap between record titles, while in other cases it may result in an overlap of record titles. In any event, a question of title is usually involveed. In most of these cases, the surveyor should treat the fence as an encroachment on the client's title or a possessory claim for the client.

Apply or Communicate the Information

The last step is for the surveyor to apply the information or communicate the information along with his or her analysis and opinion to the client. This step focuses on the proper treatment of the fence. Generally, if the surveyor determines that the fence is the best evidence or, in the alternative, evidence to the boundary, the surveyor uses the fence to help fix the location of the record boundary. In contrast, if the surveyor determines there is no correlation between the fence and record boundary, the surveyor should communicate this information to the client along with the legal ramifications that may result or may have occurred.

Fence as the Best Evidence: If the fence is the best evidence to the record boundary, the fence is used to fix the location of the record boundary. This normally requires the record boundary coincide with the location of the fence (even though the fence may deviate from a straight line).[14] This conforms to the rule of construction that generally holds monuments superior to measurements (i.e. straight lines) should they conflict. Furthermore, the call for a monument is a call for the center, where it stood at the time the original description was prepared.[15]

Fence Used as Evidence: On the other hand, if the surveyor has determined the fence is evidence to the record boundary, the fence usually falls partly on the boundary and partly off from the record boundary. The fence is used as one piece of evidence among others to relocate where the comer monuments or the record boundary once stood. All evidence, including the fence location, is analyzed and used in the most favorable light (i.e. the conform rather than conflict), keeping in mind the conditions and situation at the time of the conveyance. As

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evidence (as opposed to the best evidence) of the record boundary, the record boundary will not be made to follow the meanderings of the fence. Since the fence will not ordinarily coincide with the record boundary along its entire length, one of two different interpretations are used to reestablish the record boundary.

Under one interpretation, only part of the fence is used to help fix the comer locations. This interpretation assumes the builder attempted to place the fence on a straight line between two comer monuments, starting at one comer and building the fence toward the other comer. As he moved away from one comer monument and was out of sight of the other comer, the direction of the fence deviated from a direct line between the comers. However, once he came close enough to the other comer, the fence builder was able to visually correct his direction and head more or less back toward the second comer. The result is that the fence, as it stands, "bows" or "curves" away from the record boundary (i.e. a straight line). Therefore, under this interpretation, only the end segments of the fence would be used to help fix the location of the property comers. Once the comer locations are reestablished, a straight line is protracted between the comers and any deviation of the fence from the straight line is treated as an encroachment or adverse claim, as the case may be.

Under a second interpretation, the fence builder is assumed to have stayed on or near the boundary, sometimes going off to one side and at other times crossing and going off to the other side—crossing and recrossing the record boundary . In other words the fence zig-zags along the length of the record boundary. Given this interpretation of the fence construction, the record boundary is located by projecting a "best fit" straight line along the fence (i.e. a least squares best fit). In other words, a straight line is chosen for the record boundary that minimizes the deviations of the fence from the record boundary.

It should be noted that one interpretation does not necessarily always have to be favored over another. The existing pattern of the fence location (bow v. zig-zag), the character of the comer marker (e.g. stream or road v. tree or ridge), and the character and frame of mind of the builder (conscientious v. noncaring) will influence whether the first or second interpretation is chosen. For example a bow in the fence line would tend to fit the first interpretation while a fence that zig-zags would fit the second interpretation. On the other hand, if the fence builder was heading toward a linear monument, a monument not easily visible to the builder, there is less reason to choose the first interpretation. In contrast, if the builder had a tall tree or point on a ridge that was generally visible along the entire boundary while the fence builder constructed the fence, there is a good reason to choose the second interpretation since the builder would have been able correct the direction of the fence from time to time.

Fence Does Not Coincide: In almost all cases where the record boundary and possession boundary (fence) do not coincide, the surveyor should not ignore the difference or attempt to solve the problem independent of written authority to do so.[16] Where the client's record boundary is in a different location than the possession boundary, the question of what is the (ownership) boundary becomes a question of law. The surveyor's responsibility is limited to showing where the boundaries are located, which is a question of fact. As one early practitioner said in the 1800s: "Old fences must generally be accepted by right of possession; though such questions belong to the lawyer [rather] than to the surveyor.[17]

In this situation, the surveyor has a duty to inform the client of any problems that may affect his or her title. Thereafter, it is the client's problem and prerogative to ignore or take steps to remove the problem affecting their title. If the surveyor fails to properly inform the client or, in the alternative, attempts to decide title questions on his or her own, the surveyor will increase their liability considerably.

Unfortunately, many surveyors find it difficult to come to the client with a potential title problem they have discovered and are unable to solve. In real life, the client is not happy to find out they have a problem, is annoyed that the surveyor cannot solve the problem, and, on top of it all, is mad at the surveyor for demanding to be paid. However, the fault is not with the surveyor because he or she identified and described the problem; the fault is with some prior landowner who failed to have the property surveyed and subsequently failed to build the fence on the record boundary.

If the surveyor should determine a fence does not coincide with the record boundary, the surveyor should take several actions on behalf of their client: (1) The surveyor should carefully locate where the fence stands and describe the fence in relation to the record boundary. (2) The surveyor should describe and document all evidence that would support or refute a possessory claim on behalf of or against their client. (3) If the area is not inconsequential ("de minimis non curat lex"), the surveyor should calculate the area for the client. (4) The client should be notified of the possible adverse or beneficial consequences that result when the possession boundary does not coincide with the record boundary. (5) Finally, the surveyor should suggest some possible actions the client should consider and discuss with his or her attorney. These include: (a) do nothing, (b) maintain the status quo, (c) negotiate and compromise with the neighbor (e.g. boundary line agreement), (d) recognize any adverse claims, (e) arbitrate, or (f) litigate.

Conclusion

A fence is a common object found on or along boundaries. The surveyor should not ignore a fence since the fence may be evidence of the record boundary or, in the alternative, may represent a possession

boundary that extends or usurps (i.e. clouds) the client's title. It behooves the surveyor to determine the relative location of the fence, who built the fence, when it was erected, the conditions under which it was erected, the manner in which it was erected, the purpose for its erection, and the authority or weight of the fence as evidence to the record boundary.

If the fence is evidence to the record boundary the surveyor may use it to reestablish or support the location of the record boundary. On the other hand, if the fence does not coincide with the record boundary, the surveyor must explain the possible significance of the difference. The responsibility of the surveyor is not to resolve any conflicting title claims but identify and locate any potential conflicting title claims. This information is communicated to the client (or their attorney) in a clear, understandable, and comprehensive manner. The client may, after receiving legal advice, decide to do nothing, maintain the status quo, negotiate and compromise with the neighbor, recognize any adverse claims, arbitrate, or litigate.

Knud Hermansen is a licensed surveyor, engineer, and attorney at law in several states. He teaches in the surveying program at the University of Maine and has a consulting business specializing in dispute resolution, title, easements, and boundary location.

1 See Pencil v. Buchart, 551 A.2d 302, 306-307 (Pa.Super. 1988), Yoho v. Stack, 540 A.2d 307, 310 (Pa.Super. 1988). Also see, e.g., (dissenting opinion) West Virginia Pulp & Paper Co. v. 1. Natwick & Co., 123 W.Va. 753, 777 (1941); Caputo v. Mariatti, 113 Pa.Super. 314, 173 A. 770 (1934); Cole v. P. & L. E. R. R. Co., 106 Pa.Super. 436 (1932):

Adams v. Tamaqua Underwear Co., Pa., 161 A. 416 (1932); Keech v. Delaware County Trust Co., 297 Pa. 442,147 A. 96 (1929); Zirkle v. Three Forks Coal Company, 103 W.Va. 614, 622, 138 S.E. 371 (1927); Winding Gulf Colliery Co. v. Campbell, 72 W.Va. 449,466 (1913); Wilcox v. Snyder, 22 Pa.Super. 450 (1903); and Kime v.

Polen, Pa., 8 A. 783 (1887). Also cf. Roth v. Halberstadt, 258 Pa.Super. 401, 392 A.2d 855, 857 (1978); Allison v. Oligher, 141 Pa.Super. 201, 14A.2d 560, 571 (1940); United Thacker Coal

Co. v. Red JacketJr. Coal Co., 146 C.C.A. 241,232 F. 49, 58 (1916); Thompson v. Hill, 137 Ga. 308,73 S.E. 640, 643 (1912); Koch v. Gordon, 231 Mo.645, 133 S.W. 609, 610 (1910); Grier v. Pennsylvania Coal Co., 128 Pa. 79, 154A. 449, 451 (1889).

2 See, e.g., Barba Inv. Co. v. Walker, Pla. App., 350 So.2d 509,512 (1977); Kahn-Reiss

v. Detroit & Northern Say. & Loan, Mich., 228 N.W.2d 816, 824 (fn.6) (1975); Siegel

v. Renkiewicz Estate, Mich., 120 N.W.2d 876, 879 (1964); Di Virgilio v. Ettore, 188 Pa.Super. 526,149 A.2d 153 (1959); Chicago Club of Lake Geneva v. Ryan, 203 Wis. 272,234 N.W. 488,491 (1931); and W. P. Thompson v. W. P. Zartman Lumber Company, 55 Pa.Super. 302 (1913)

3 See, e.g., Metcalfv. Buck, 36 Pa.Super. 58 (1908)

4 See, e.g. W. P. Thompson v. W. P. Zartman Lumber Company, 55 Pa.Super. 302 (1913) and Reilly v. Mountain Coal Co., 204 Pa. 270, 54 A. 29 (1903). Also cf. West Virginia

Pulp & Paper Co. v. 1. Natwick & Co., 123 W.Va. 753, 765 (1941). See also, Lewis v. Yates, 62 W.Va. 575, 592 (1907) quoting from Owen v. Bartholomew, 9 Pick. 520

5 Cf. Ralston v. Groff, 55 Pa. 276 (1867)

6 Contra. Reiter v. McJunkin, 8 Pa.Super. 164 (1898) and Potts v. Everhart, 26 Pa. 493 (1856)

7 Cf Di Virgilio v. Ettore, 188 Pa.Super. 526,149 A.2d 153 (1959) Kron v. Daugherty, 9 Pa.Super. 163 (1898); Ralston v. Groff, 55 Pa. 276 (1867); Ogden v. Porterfield, 34 Pa. 191 (1859); and McCoy v. Hance, 28 Pa. 149 (1857) 8 Cole v. P. & L. E. R. R. Co., 106 Pa.Super. 436 (1932)

9 Caputo v. Mariatti, 113 Pa.Super. 314, 173 A. 770 (1934); State V. Herold, 76 W.Va. 537,542 (1915): and Morris v. Dalrymple, 18 Pa.Super. 287 (1901). But c.f. Hatfield v. Workman, 35 W.Va. 578, 585 (1891) quoting from Manufacturing Co. v. Packer, 129 U.S. 688,9 Sup.Ct.Rep. 385: Ogden v. Porterfield, 34 Pa. 191 (1859); Hagey v. Detweiler, 35 Pa. 409 (1860); Armstrong v. Hall, 15 Pa. 23 (1850); and Sweigart v. Richards, 8 Pa. 436 (1848).

10 See Huffman v. Mills, 131 W.Va. 219, 223, 46 S.E.2d 787 (1948) quoting Teass v. City of St. Albans, 38 W.Va. 1, 17 S.E. 400 (1893), Clear Fork Coal Company v. Anchor Coal Company, 111 W.Va. 219, 229,161 S.E. 229 (1931); George v. Collins, 72 W.Va. 25, 28 (1913); and Harman v. Alt, W.Va., 71 S.E. 709, 710 (1911).

11 See George v. Collins, 72 W.Va. 25, 28 (1913) and Harman v. Alt, W.Va., 71 S.E. 709 (1911)

12 See Harman v. Alt, W.Va., 71 S.E. 709, 710 (1911) but cf. State v. Lillie Mounts, 118 W. Va. 53, 56, 150 S.E. 513 (1929)

13 Somon v. Murphy Fabrication & Erection Co., 160 W.Va. 84,90,232 S.E.2d 524 (1977), quoted from, Bitonti v. Kauffield Co., 94 W.Va. 752, 120 S.E. 908 (1923)

14 Cf. McCoy v. Hance, 28 Pa. 149 (1857)

15 See. e.g., Youker v. Grimm, 10 1 W.Va. 711, 719-720,133 S.E. 695 (1926) and State v. Herold. 76 W.Va. 537, 542 (1915)

16 Cf. Reiterv. McJunkin, 8 Pa.Super. 164 (1898)

17 quoted from Gillespie A Treatise on Land-Surveying at page 155 (Appleton & Company. New York, NY: 1881).

Once Upon a Time...

by Ken Mills, Reprinted with permission from *The Tarheel Surveyor*

In the early 1970's when I was learning the art of land surveying I enjoyed the challenge of working on difficult surveys. I think that's why I still enjoy taking on a difficult, problem survey.

I remember one day coming to work and Bruce Small, the head on the surveying department, called me into his office. He told me he was going to meet a client and I was to bring my crew and meet him at the site. The site turned out to be a nightclub.

We went inside and met the owner who explained to Bruce the problem he had. He was in the process of adding new stage lighting and a large light bar would be attached to the ceiling. He said the electrician was getting ready to drill a hole through a large wood beam, through which he would push a large anchor bolt and add a large steel support plate on the roof. Since the roof was flat and there were large air conditioning units up there, he wanted to be sure he didn't drill a hole in one of the units or through a cable or pipe.

He took a couple of measurement from two walls and went around the back of the building where he placed his extension ladder. He climbed the ladder and stopped at the top. The owner was right behind him and asked why he stopped. The electrician looked at the owner and told him the roof was completely covered by water. They came back down the ladder so the owner could climb up and see what he was talking about. He told Bruce that sure enough, there was at least an inch of water covering the entire roof and if the electrician had not checked the roof before he drilled the hole, he would have been injured when the water came pouring through the hole.

We followed the owner around back and climbed the ladder to look at the roof. Sure enough, the roof was covered with water. It had been evaporating and there was just enough to get the bottom of your shoe wet. The drainage channel around the edge of the roof was still full of water and the drainage holes in the outer wall, which led to the downspouts, were clear of debris. The only problem was the drainage holes through the outer wall were at the top of the outer wall instead of at the bottom of the drainage channel.

The owner told Bruce he filed a suite against the builder and needed a survey of the roof to present to the judge. Bruce told the owner we could get the survey map for him but we needed to wait until at least the flat part of the roof was dry. The owner left and Bruce and I began looking around. We splashed around the roof and decided we need to locate everything attached to the roof and the location of all of the roof drains. We also needed elevations over the entire roof so a site plan could be produced and cross sections at every roof drain hole could be prepared.

A couple of days later I returned with two additional crewmembers. Normally my crew consisted of me and one other person, but for this survey I needed the additional help. Using the outer edge of the roof as baselines we located everything on the roof and filled up a number of field book pages. Then we set up the level and began taking elevation shots using a linker rod. We marked a grid pattern on the flat portion of the roof to get good coverage. The only portions we couldn't get elevation shots on were where the two large air conditioning units were located. Then we took elevations shots along the inside top and bottom of the drainage channel. Next came the outside bottom of the drainage channel and the top of the outside wall, followed by the invert elevation of the all the drainage holes.

A couple of days later Bruce called me to the drafting room to review the maps, which were prepared for the court case. He wanted me to go over the maps to make sure we had not missed anything important.

I never did hear what happened with the law suite or the survey work we did for the final maps.

That survey perked my interest in doing surveys for law suites so I kept my eye out for any seminars dealing in testifying in court on problem survey boundaries. Before I received my license as a Professional Land Surveyor I had attended a number of those seminars.

Years ago, I had testified in a number of cases, which my clients won. I felt I was able to explain a survey problem to a jury in a clear and easily understandable manner so the jury would agree with my client's position.

Boy, was I wrong!

A number of years ago a client of mine became involved in a law suite and he asked me to do some surveying for him. His neighbor was suing him to get access to a small branch on the west side of his property, which was on my client's property. The neighbor wanted access to this branch for his horses to be able to get to the water for them to drink. It didn't matter that on the east side of the neighbor's property there was a larger branch with a larger flow of water, which he was already using for his horses.

The law suite was based on a recorded plat, which showed the location of the branch in question, which, according to the plat crossed the southwest corner of the neighbor's property. My client was sure the branch was not on the neighbors land because a large 2" diameter old rusty pipe was the corner marker. This marker was also situated on the East side of the branch and a couple of feet

Land Survey Commision Established

HB 1251, Beginning at section 59.319

Richard McCullough
Governmental Consultant

(1) Dissolves the State Land Survey Authority and the Land Survey Advisory Committee and establishes the Land Survey Program and the Land Survey Commission within the Department of Natural Resources;

(2) Revises the membership, terms, and duties of the commission;

(3) Creates the Missouri Land Survey Fund for the deposit of $1 of the $6 fee collected by every county recorder for recording any instrument which currently is deposited into the General Revenue Fund for use by the department;

(4) Expands the duties of the department by requiring it to restore, establish, maintain, and preserve Missouri state and county boundary markers and provide the framework for all geodetic positioning activities in the state;

(5) Requires the commission to recommend to the department a person to be selected and appointed State Land Surveyor. The State Land Surveyor will be the chief administrative officer of the program. He or she must be selected under the State Merit System on the basis of professional experience and registration; and

(6) Requires the commission to produce, by December 1, 2013, a report to the department and the General Assembly that recommends the appropriate administrative or overhead cost rate that will be charged to the program and includes all indirect services provided by the department, Division of Geology and Land Survey within the department, and Office of Administration.

The entire bill can be viewed HYPERLINK "http://www.house.mo.gov" www.house.mo.gov. Go to bill search enter HB 1251.

east of the top of the bank of the branch. My job was to survey my client's property, the common boundary line and accurately locate the branch.

On the surface the survey appeared to be simple, but in reality it turned out to be rather difficult. The largest part of my client's property, lying on the west side of the neighbors land, was acquired by a meets and bounds deed. The remaining portion, which is to the south of the neighbor's property, is made up of three parcels as shown in a recorded plat. The neighbor's property is one of the parcels in the same subdivision.

The first thing I did was to plot my client's large parcel from the deed description. The description closed very well mathematically and the corners called for were either natural monuments such as trees and creeks or metal corner markers.

Then I began plotting the lots in the plat. The lots were not rectangular or square but really odd shapes. Also, none of the lots closed mathematically. The error of closure ranged from 20 feet to over 80 feet. It was a real mess. The odd thing about the lots was the shape of each lot looked like the lots on the plat. Except the lots on the plat closed and the lots according to the bearings and distances did not.

The plat also showed the location of the branch in question. It began just north of my client's northwest plat corner, on my client's property, and meandered in a southeast direction, across the neighbors southwest corner, toward the southern boundary line where it emptied in to a creek. With my deed composite map and a copy of the recorded plat in hand, I sallied forth to find out what was going on with this subdivision.

During the field search phase of the survey I discovered the distances on the recorded plat didn't match anything I found, even when, at both ends of a line, there existed large trees, which were noted on the plat. Almost every line I searched, I had to measure from each end of the line toward the opposite end to see if I could find any metal corner marker. When the bearing of a line was near a cardinal direction, I would search the line using both quadrants. I remember finding one metal corner marker by using that method.

The big surprise was the actual location of the branch in question. For the branch to follow the location shown on the recorded plat it would have to climb a 40 plus foot high ridge and flow down the other side. The true location of the branch was entirely on my client's larger, western parcel and west of the west side of the subdivision which happened to be a hollow.

I couldn't imagine a surveyor making such a bad mistake. I called around to surveyors in the area who had been in business for a while and asked if they ever heard of the surveyor listed on the recorded plat. I was told he was the County Surveyor at the time he prepared the subdivision. After a little research I discovered the office of County Surveyor was an elected position and the person holding the office did not have to be an actual land surveyor. However, since he did hold that elected position, people in the county would come to him to have him survey their land.

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The Use of Extrinsic Evidence as an Aid to the Interpretation of Deeds and Their Descriptions

by Donald R. Richards & Knud E. Hermansen, Reprinted from *The Cornerpost,* Vermont, December 2011

Introduction

A deed is an expression of the parties as to what real estate and rights were intended to be conveyed.[1] It should contain an accurate description of the land and appurtenances. However, persons whose services require them to scrutinize and interpret deed descriptions know that deeds and descriptions have often been drafted by unskilled and inexperienced hands. Furthermore, in spite of the care, vigilance, and caution on the part of the skilled scrivener, errors often did and continue to creep into deeds.[2] For a deed that contains errors or ambiguities, it is well settled that it shall not be considered void if the intention of the parties to the grant can be satisfactorily determined.[3] The object of the law is to uphold, rather than defeat such conveyances.[4] Accordingly, there are occasions when it is appropriate to determine what was intended by utilizing information outside the deed or extrinsic evidence.[5]

Defined

Extrinsic evidence is defined as evidence outside the writings — in this case the deed. Extrinsic evidence is held to be synonymous with evidence aliunde and includes parol statements, acts by the parties, unrecorded documents, historical documents, private plans, etc. Extrinsic evidence does not include maps or other documents referred to in the deed. These documents are considered part of the deed and are merged with the deed as if copied into the deed.[6] It does not matter if the document referred to in the deed is recorded or not.[7]

When Extrinsic Evidence May Be Used

Generally, extrinsic evidence is used to clarify the intent of the parties and reasonably explain the import of the deed or the location and extent of the premises being conveyed. It is sometimes used in situations where the deed would otherwise be void but for the extrinsic evidence. When a deed does not sufficiently describe a tract of land to locate the boundaries, extrinsic evidence is properly admitted to furnish the information needed to clarify the location but only as much as is absolutely necessary to validate the description or supply its deficiency.[8] Extrinsic evidence is allowed in the following situations.

Ambiguities — Extrinsic evidence can be used to resolve ambiguities.[9] An ambiguity in a deed often arises when circumstances which are evident to the parties at the time of a conveyance may not be evident, after many years, to a subsequent owner or one who tries to interpret the deed. An ambiguity may arise when, for example, a deed calls for a monument at a comer and it is discovered that there are two monuments that fit the description, or where a deed calls for a distance easterly to a stream or highway and it is found that there are two potential locations that may meet the call.[10] In another example a deed which conveys, "my west pasture as now fenced containing 5 acres", may, 40 years after the conveyance, require reference to the recollections of older individuals who were familiar with the property or information from aerial photos to ascertain what was actually conveyed by the description.

Verification of a Monument or the Location — Often surveyors use extrinsic evidence to identify monuments referred to in the deed. Monuments are often described poorly or partially. In some deeds monuments may need to be verified using extrinsic evidence.[11] It also happens that the monument called for in a deed is not permanent, such as a tree or wood stake, or may have been removed by snow plowing or earth moving. The location of those monuments, even after their disappearance, is subject to proof by extrinsic evidence.[12] An example which may require extrinsic evidence is a description that calls for a line running "northerly, passing 15 feet westerly of the Jackson sawmill" when the sawmill burned down years ago. The Jackson sawmill's proper location may be established by extrinsic evidence.

Errors, Omissions, and Conflict — When there is clearly an error, omission, or conflict between two or more parts of a deed, extrinsic evidence can often be helpful in resolving the error, omission, or conflict.[13] This may be particularly applicable when a scrivener's error is revealed such as in the transposition of numbers in bearings or distances, the reversal of a course, missing courses, and so on.

Circumstances — Circumstances surrounding the conveyance have also been the topic of extrinsic evidence.[14] Examples include the use of tidal shores and marsh, determining a fence type, the location of utility poles, use of slope distances or magnetic bearings, and so on. An example is a deed which conveys "all that land which was the homestead farm of Caleb Daniels at the time of his death." Determining the homestead by looking at the circumstances existing at the time of Daniels' death may require extensive research into deeds, maps, tax records, ancient lines of occupation and other evidence outside the deed to determine what was intended to be conveyed by the terms.

Definitions and Terms — Often extrinsic evidence such as information from history books, technical manuals, journals, and so on must be used to clarify terms used in the deed. It is common for deeds to use terms that were familiar to the parties to the conveyance but which today may be very obscure.[15] For example a deed which contains the wording, "beginning at a balm of gilead on the easterly side of Black Brook 25 rods north of Stones crossing..." may need to be clarified by knowledgeable witnesses or reliable documentation that a balm of gilead is a balsam poplar tree and that

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NSPS Board Passes Motion to Pursue 100% Membership from State Affiliates

by Troy Hayes, PLS, NSPS Governor

At the Spring Meeting of the National Society of Professional Surveyors (NSPS) held May 4-6 in Charlotte, NC, a motion aimed at attaining 100% membership in NSPS from state affiliates such as MSPS, was passed by the NSPS Board of Directors. The motion finally approved after considerable discussion calls for reducing the annual membership dues from $225.00/year to $40/year for the members of any state affiliate that adopts a 100% NSPS policy for all regular members within their organization. In the case of surveyors who are members of multiple state societies the additional dues for NSPS would only be paid in your home state.

At the MSPS Board Meeting held on May 10th, the Board of Directors approved a motion to bring the NSPS proposal to a vote of the membership at our Annual Meeting to be held in St. Louis in October. The benefits of membership in the NSPS are numerous and include:

- Website
- PBS Show – Spotlight On Surveying
- Weekly Radio Show – With Curt Sumner
- National legislation involvement – **LightSquared has been the focus**
- CST Program
- Trig-Star Program
- NCEES – Exam Prep
- A surveyor's voice to national and international entities such as:

NGS
USGS
FEMA
Department of the Interior
Bureau of Land Management
NOAA
FIG

- ALTA Standards
- Involvement in rules and regulations in the states
- Student competition program
- Personal Benefits:
  - Insurance Programs (E & O Insurance Discounts)
  - Scholarships
    - Certification Programs: Hydrographic, Flood Plain Surveyor, Construction Survey Technician
- National Surveyors Week
- Boy Scouts of America Surveying Merit Badge

These programs illustrate the value of membership in the national organization. Unfortunately, the vast majority of surveyors are not convinced that membership in NSPS is worth $225 a year. As a matter of fact, only about 10% of the approximately 25,000 surveyors who are members of state survey societies throughout the United States are also members of NSPS. Although I don't have actual numbers for MSPS I suspect we fall very close to the national average of 10%. If this trend continues, we project that NSPS will follow the lead of ACSM and go bankrupt in three years. If that scenario plays out, the land surveying profession as we know it would be irreparably diminished.

For the past several months this dues structure idea has been discussed via e-mail and conference calls among the NSPS governors, officers, and directors throughout the country as to the viability and ramifications of lowering the dues. However, the time to do this is now, while we are in the process of re-organizing NSPS, and I believe the ultimate success or failure of the future of NSPS depends on the outcome. Are you willing to pay an extra $40 in yearly dues to join the NSPS and support the national surveyor's organization? I hope the answer is YES, and that you will attend the Annual Meeting in St. Louis and cast your vote in favor!

I would welcome ideas and comments regarding this issue and would be more than willing to attend upcoming chapter meetings to discuss it in person. You can contact me at my e-mail: tryhayes@midlandsurvey.com , Troy Hayes, NSPS Governor-MO.

Portions of this article were reprinted with the Permission of David Holland, NSPS Governor-Virginia, from an article he wrote for the May edition of the "Old Dominion Surveyor"

Once Upon a Time...*(continued)*

I don't remember when the Office of County Surveyor was abolished in North Carolina, but I'm sure many surveyors today run into these recorded surveys, which need a lot of time and head scratching to unravel.

During the trial, I testified to the location of the branch on the west side of the neighbors property and tried to show the jury why the location of the branch shown on the recorded plat was in error. I prepared a number of really nice exhibits for the jury to look at, which I used during my testimony. In the end the jury decided to grant the neighbor access to the branch at the southwest corner of his property by cutting off a portion of my clients land so the horses could get to the branch for a drink of water.

Can you imagine that? The jury decided the case on emotion rather than the facts. They wanted the horses to be able to get a drink of water without walking from one pasture to the other where a larger branch flowed. It was never pointed out during the trial but there was a 100-gallon water tank in each pasture for the horses.

This was a very good learning lesson for me. Since then, when a client decides to go the trial to settle a dispute with a neighbor, I try to explain that it's better to settle differences with their neighbor instead on going to court because there is no way to predict what a jury would decide.

Missouri Society of Professional Surveyors

Surveyors Review Course
August 15-17, 2012
Best Western Capital Inn, Jefferson City

PROGRAM

Wednesday, August 15
1:00-5:00 pm and an evening session
Surveying Math

Calculator Use, Basic algebra, trigonometry and geometry,
Traverse calculations and coordinate geometry, Surveying math applications
(Bring your NCEES-approved calculator)

Thursday, August 16
8:00 am-5:00 pm and an evening session
Surveying Fundamentals

Errors analysis, State plane coordinates
Route surveys, GPS & GIS
Exam preparation, Legal principles and definitions

This course is appropriate for those who will be taking any part of the surveying licensing exams, or for those already licensed and wish to review surveying topics and receive PDUs.

Friday, August 17
8:00 am-3:30 pm
Missouri Practice

Missouri Minimum Standards and Board Rules
Missouri GLO system, Resurveys on Missouri's GLO system (RSMO Chapter 60)
Other Missouri Statutes, Riparian Boundaries

COURSE INSTRUCTORS are Dr. Joseph Paiva, PLS, Dr. Dick Elgin, PLS, PE and Mike Flowers, PLS — All are well known surveying professionals. Joe Paiva helped found the Review Course and for years all three have previously taught parts of it. Joe is a geomatics and business development consultant to surveying instrument manufacturers. Dick Elgin works for Archer-Elgin Surveying and Engineering, LLC (Rolla). Mike Flowers is the former Missouri State Land Surveyor. Mike is a member of the Missouri Board for Architects, Professional Engineers, Professional Surveyors and Landscape Architects.

Missouri Society of Professional Surveyors
Est. 1957

This course has been approved for continuing education credits from the Missouri Board for Architects, Professional Engineers, Professional Land Surveyors and Landscape Architects for the following hours:
Wednesday — 6.0 PDUs
Thursday — 9.5 PDUs
Friday — 6.5 PDUs

COURSE FEE SCHEDULE *(Multi Day Discounts Available)*	MSPS Member	Non-MSPS Member
Wednesday and either Thursday or Friday	$600	$600
Thursday and Friday	$750	$800
All Three Days	$900	$1,000
Wednesday Only	$250	$250
Thursday Only	$500	$500
Friday Only	$450	$450

Missouri Society of Professional Surveyors

Surveyor's Review Course

August 15-17, 2012
Best Western Capital Inn
Jefferson City, MO

LOCATION AND LODGING

A block of rooms has been reserved at the Best Western Capital Inn in Jefferson City, Missouri, at a rate of $87.30 for single or double occupancy which includes a Full Hot Breakfast. **Deadline for reservation is August 1, 2012.** Make your reservation by calling 573-635-4175.

CANCELLATION POLICY

MSPS reserve the right to cancel the program and return all fees in the event of insufficient registration. A participant may cancel a registration up to two weeks before the course date and receive a full refund. **NO REFUNDS AFTER August 1, 2012.**

Review Course Registration

COURSE FEE SCHEDULE *(Please check appropriate boxes)*	MSPS Member	Non-MSPS Member
❑ Wednesday and either Thursday or Friday	$600	$600
❑ Thursday and Friday	$750	$800
❑ All Three Days	$900	$1,000
❑ Wednesday Only	$250	$250
❑ Thursday Only	$500	$500
❑ Friday Only	$450	$450

To register, detach and mail to: **MSPS, PO Box 1342, Jefferson City, MO 65102**
Phone: 573/635-9446 - Fax: 573/635-7823 - Email: msps@missourisurveyor.org
Registration Deadline: August 1, 2012

Name: _____

Firm: _____

Address: _____

City, State, Zip: _____

Office Phone: _____ Fax: _____

RLS No: _____ Email: _____

❑MasterCard ❑Visa ❑Discover

Make checks payable to MSPS
Advanced registration is necessary and appreciated.

CREDIT CARD

Card Number: _____ Exp. Date: _____

Signature: _____

Total Amount: _____

The Use of Extrinsic Evidence *(continued)*

"Stones Crossing" was the point just above Morgan Stone's grist mill where the old county road crossed the brook. The court will utilize credible information outside the deed to define terms and give effect to the deed description.

Validate or Prove Lost Deeds — Less frequent but required from time to time is to use extrinsic evidence to validate or prove lost deeds. If sufficient evidence can be produced by unsigned copies, testimony of credible witnesses who read the deed, or other means of verifying the fact of the conveyance, the conveyance may be supported and proven.[16]

What May Be Used As Extrinsic Evidence

There are several sources of extrinsic evidence that have been recognized by the courts. These sources can be used to good advantage when the need arises.[17]

Parol — Parol evidence or verbal testimony is perhaps the most common source of extrinsic evidence. Surveyors, attorneys, and the courts, while recognizing the limitations of the recollections and statements of witnesses, make frequent use of this source when boundary locations are being retraced. It is common practice for the surveyor to talk to a landowner and the neighbors to hear their explanation of the boundary location and compare the testimony with the written descriptions in the deeds and the measurements made on the ground.

Historical Survey Plans — Surveys, both old and recent, are also a source of evidence which may shed light on circumstances surrounding the conveyance and the relative location of monuments and physical features on the ground. Surveyors may locate stone wall remnants, old wire fence remnants, physical features like brooks, old roadways, wells, foundation remains, timber cut lines, logging roads, buildings, utilities and easements. Without that information, which may verify or explain ambiguities, discrepancies, or errors in the deed, it is often difficult or impossible to properly fit the description to the ground.

Aerial Photographs — In addition to surveys and plans, aerial photos of a property may give clear evidence to the trained eye of the relative position of many physical features on the ground including buildings, roads, utility lines, streams, fences, and many other physical features.

Unrecorded Papers — Unrecorded papers and previous agreements between the parties may also, in some situations, be utilized to clarify an ambiguity or identify an obvious error in a deed.[18] The evidence may take the form of purchase and sale agreements, sketches, annotated drawings, or memoranda of the transaction. Because of the Doctrine of Merger, this source of information can not enlarge or diminish the grant or contradict the clear writings of the deed—it may only supply necessary information that was omitted from the deed.

Contemporaneous and Subsequent Acts — Another form of extrinsic evidence which the courts have relied on is information pertaining to the contemporaneous and subsequent acts of the parties to a deed.[19] If the description in a deed is ambiguous the acts of the parties in recognizing a certain line by setting boundary markers, and blazing lines or making improvements such as erecting fences, building roads, placing utility poles, or landscaping may give the only evidence of the intent of the parties to the deed.[20]

Declarations With Knowledge — Persons with some peculiar means of knowledge such as near-by-residents, surveyors, farm hands, etc. have all been used to clear up ambiguity. After the tract of land has been conveyed, the declarations of a former owner regarding his or her understanding of the boundaries and their use of the property may be admissible to clarify an ambiguous deed.[21]

Limitations

Extrinsic evidence is not used perfunctorily. The court has gone to great lengths to state and make clear that extrinsic evidence cannot be used to control, vary, or contradict the clear language in a deed. In other words, extrinsic evidence cannot enlarge or diminish that which is clearly described.[22] For example, a plan or deed not referenced or cited in a conveyance is evidence aliunde and therefore cannot control, vary or contradict the clear written description contained in a deed.[23] The reasoning behind the principle is obvious. Why would people go to the trouble to clearly articulate their contract and solemnly execute a deed if those writings could be annulled by verbal contradictions or extraneous memoranda? The court has recognized that titles would be completely unsettled.[24]

Exception Not A Commonplace — The use of extrinsic evidence is to be an exception or a last resort when the language of the deed is found deficient after harmonizing all the calls in the deed under the standard rules of construction.[25] In the interpretation of deeds, the intention of the parties must govern, and that intention is to be determined if possible from the words expressed in the deed.[26] Where the words are clear, extrinsic evidence is not allowed.[27] Accordingly, extrinsic evidence was inadmissible to show that in drafting a deed the scrivener erroneously inserted the words, "the north half' preceding the number of the lot to be conveyed or that instead of a certain parcel described in a deed, another tract was intended to be conveyed.[28]

No Substitution — In other cases, extrinsic evidence cannot be substituted where common sense, plain meaning, rules of construction, and logic adequately provide recourse. For example, when a deed calls for the ending point of a line to be opposite a certain and definite point on the other side of a street, the line must end at a point at right angles to the point called for.[29]

Cannot Vary Rules of Law or Legislature — Extrinsic evidence has not been allowed to vary rules established to protect purchasers and the sanctity of the deed.[30] For example, the Court did not permit a deed to be used as a security for a debt or as a mortgage or allow that the delivery of a deed was to be void on the fulfillment of a certain condition when these conditions are not cited in the deed.[31] Neither can a parol reservation of fixtures, crops, manure or the like be considered valid.[32] Even if the act of conveying a deed does not make sense or appears to have been unwise or absurd in what it accomplishes, if the language is clear, it is not to be altered by extrinsic or parol evidence.[33]

Conclusion

As can be seen from this discussion, extrinsic evidence, while not always the favored tool for the interpretation of deeds, is often a necessary one. Persons who must interpret, retrace, or delineate the descriptions in deeds must be familiar with the rules pertaining to these matters so that their construction will coincide with that of the court.

(Endnotes)

1 See e.g., *Cushing v. State of Maine*, 434 A.2d 486 (1981)

2 *Madden v. Tucker*, 46 Me. 367 (1859) and *Wing v. Burgis*, 13 Me. III (1836)

3 "...it is well settled law, that a deed shall not be held void for uncertainty, but shall be so construed wherever it is possible as to give effect to the intention of the parties and not defeat it; and that this may be done whenever the court placing itself in the situation of the grantor at the date of the transaction, with knowledge of the surrounding circumstances and of the force and import of the words used, can ascertain his meaning and intention from the language of the conveyance thus illustrated. Greenleaf's Cruise, vol. IV, p. 306; ed. of 1850, tit. XXXII, chap. XX, note to § 24. And this, even where it becomes necessary to reject parts of the description given as false and inconsistent. "*Vose v. Handy*, 2 Maine, 322, 330 citing *Worthington v. Hyler*, 4 Mass. 196; *Jackson v. Clark*, 7 Johns. 217. To the same effect are *Wing v. Burgis*, 13 Maine, 111, and *Vose v. Bradstreet*, 27 Maine, 156, 171. Also see *Cilley v. Childs*, 73 Me. 130 (1882)

4 *Pelletier v. Langlois*, 130 Me. 486 (1931); *Patrick v. Grant*, 14 Me. 233 (1837); and *Wing v. Burgis*, 13 Me. 111 (1836)

5 See e.g., *St. Pierre v. Grondin*, 513 A.2d 1368 (Me. 1986); *Bailey v. Look*, 432 A.2d 1271 (Me. 1981); *Perreault v. Toussaint*, 419 A.2d 1009 (Me. 1980); *Gould v, Boston Excelsior Co*., 91 Me. 214 (1898); and *Abbott v. Abbott* 51 Me. 575 (1863)

6 *Bradstreet v. Bradstreet*, 158 Me. 140 (1962); *Bartlett v. Corliss* 63 Me. 287 (1873); *Thomas v. Patten* 13 Me. 329 (1836)

7 *Bradstreet v. Bradstreet*, 158 Me. 140 (1962); *Bartlett v. Corliss*, 63 Me. 287 (1873); and *Thomas v, Patten*, 13 Me. 329 (1836)

8 *Perreault v. Toussaint*, 419 A.2d 1009 (Me. 1980) and *Gould v. Boston Excelsior Co*., 91 Me. 214 (1898)

9 *Taylor v. Hanson*, Me. 514 A.2d 155 (Me. 1988); *Abbott v. Abbott*, 51 Me. 575 (1863); *Bonney v. Morrill*, 52 Me. 252 (1863); *Linscott v. Fernald*, 5 Me. 496 (1829); and *Linscott v. Fernald*, 5 Me. 496 (1829)

10 *Tyler v. Fickett* &3 Me. 410 (1882) *Abbott v. Abbott*, 51 Me. 575 (1863); *Chadbourne v. Mason*, 48 Me. 389 (1861); *Emery v. Webster*, 42 Me. 204 (1856); and *Wing v. Burgis*, 13 Me. 111 (1836)

11 *C.f. Tyler v. Fickett*, 73 Me. 410 (1882); *Abbott v. Abbott*, 51 Me. 575 (1863); *Chadbourne v. Mason* 48 Me. 389 (1861) and *Wing v. Burgis* 13 Me. 111 (1836)

12 *Theriault v. Murray*, 588 A.2d 720 (Me. 1991); *Savage v, Renaud*, 588 A.2d 724 (Me. 1991); and *Ricci v. Godin*, 523 A.2d 589 (Me. 1987)

13 *Wing v. Burgis*, 13 Me. 111 (1836) and *Vose v. Handy*, 2 Me. 296 (1823)

14 *Holden v. Morgan*, 516 A.2d 955 (Me. 1986); *Cushing v. State of Maine*, 434 A.2d 486 (1981); *Gillespie v. Worcester*, 322 A.2d 93 (Me. 1974); *C Company v. Westbrook* 269 A.2d 307 (Me. 1970); *Callahan v. Ganneston Park*, 245 A.2d 274 (Me. 1968); *Pellitier v. Langlois* 130 Me. 486 (1931); *Emery v. Webster*, 42 Me. 204 (1856); *Linscott v. Fernald*, 5 Me. 496 (1829)

15 *Emery v. Webster*, 42 Me. 204 (1856) and *Linscott v. Fernald*, 5 Me. 496 (1829)

16 *Day v. Philbrook*, 89 Me. 462 (1897); *Moses v. Morse*, 74 Me. 472 (1883); and *Gore v. Elwell*, 22 Me. 442 (1843)

17 *Callahan v. Ganneston Park*, 245 A.2d 274 (Me. 1968) and *Cilley v. Childs*, 73 Me. 130 (1882)

18 *Company v. Westbrook*, 269 A.2d 307 (1970); *Callahan v. Ganneston Park*, 245 A.2d 274 (Me. 1968); *Vumbaca v. West*, 107 Me. 130 (1910) and *Gould v. Boston Excelsior Co*., 91 Me. 214 (1898); *Haight v. Hamor*, 83 Me. 453 (1891); and *Whitman v, Restman*, 30 Me. 285 (1849)

19 *Theriault v. Murray* 588 A.2d 720 (Me. 1991); *Bemis v. Bradley*, 126 Me. 462 (1927); *Borneman v. Milliken*, 123 Me. 488 (1924); *Woolen Co. v. Gas Co*., 101 Me. 198 (1906); *Roberts v. Richards*, 84 Me. 1 (1891); *Cilley v. Childs*, 73 Me. 130 (1882); *Tyler v, Fickett*, 73 Me. 410 (1882); *Abbott v. Abbott*, 51 Me. 575 (1863)

20 *Knowles v. Toothaker*, 58 Me. 172 (1870) and *Emery v. Fowler*, 38 Me. 99 (1854)

21 *Bradstreet v. Bradstreet*, 158 Me. 140 (1962).

22 *Callahan v. Ganneston Park*, 245 A.2d 274 (Me. 1968); *Card v. Nickerson*, 150 Me. 89 (1954); *Parkman v. Freeman*, 121 Me. 341 (1922); *Bassett v. Breen*, 118 Me. 279 (1919); *May v. Labbe*, 114 Me. 374 (1895); *Neal v. Flint*, 88 Me. 72 (1895); *Ames v. Hilton*, 70 Me. 36 (1879); *Mitchell v. Smith*, 67 Me. 338 (1876); *Bartlett v. Corliss*, 63 Me. 287 (1873); *Faught v. Holway*, 50 Me. 24 (1861); *Emery v. Webster*, 42 Me. 204 (1856); *Wellington v. Murdough*, 41 Me. 281 (1856); *Kennebec Ferry Co. v. Bradstreet*, 28 Me. 374 (1848); *Pride v. Lunt*, 19 Me. 115 (1841); *Allen v. Allen*, 14 Me. 387 (1837); *Thomas v. Patten*, 13 Me. 329 (1836); *Lincoln v. Avery*, 10 Me. 418 (1833); and *Linscott v. Fernald*, 5 Me. 496 (1829)

(continued on next page)

The Use of Extrinsic Evidence *(continued)*

23 *Kinney v. Central Maine Power Co*., 403 A.2d 346 (Me. 1979); *Bradstreet v. Bradstreet*, 158 Me. 140 (1962); *Bartlett v. Corliss*, 63 Me. 287 (1873); *Talbot v. Copeland*, 38 Me. 333 (1854); and *Thomas v. Patten*, 13 Me. 329 (1836)

24 *Card v. Nickerson*, 150 Me. 89 (1954); *Bonney v. Morrill*, 52 Me. 252 (1863); *Madden v. Tucker*, 46 Me. 367 (1859); *Allen v. Allen*, 14 Me. 387 (1837); and *Lincoln v. Avery*, 10 Me. 418 (1833)

25 *Taylor v. Hanson*, 514 A.2d 155 (Me. 1988); *Kinney v. Central Me. Power Co*., 403 A.2d 346 (Me. 1979); *Wentworth v. Laporte*, 156 Me. 392 1960; *Penly v. Emmons*, 117 Me. 108 (1918); *Haight v. Hamor*, 83 Me. 453 (1891); *Ames v. Hilton*, 70 Me. 36 (1879); *Kennebec Ferry Co. v. Bradstreet*, 28 Me. 374 (1848); *Grover v. Drummond*, 25 Me. 185 (1845)

26 *St. Pierre v. Grondin*, 513 A.2d 13 69 (Me. 1986); *Cushing v. State of Maine*, 434 A.2d 486 (1981); *Kinney v. Central Maine Power Co*., 403 A.2d 346 (Me. 1979); *C Company v. Westbrook*, 269 A.2d 307 (Me. 1970); *Wentworth v. LaPorte*, 156 Me. 392 (1960); *Knowles v. Bean*, 87 Me. 331 (1895); *Haight v. Hamor*, 83 Me. 453 (1891); *Ames v. Hilton*, 70 Me. 36 (1879); and *Bartlett v. Corliss*, 63 Me. 287 (1873)

27 *Bonney v. Morrill*, 52 Me. 252 (1863); *Kennebec Ferry Co. v. Bradstreet*, 28 Me. 374 (1848); *Grover v. Drummond*, 25 Me. 185 (1845) ; *Lincoln v. Avery*, 10 Me. 418 (1833)

28 *Card v. Nickerson*, 150 Me. 89 (1954); *Brown v. Allen*, 43 Me. 590 (1857); and *Williams v. Spaulding*, 29 Me. 112 (1848)

29 *Bradley v. Wilson*, 58 Me. 357 (1870)

30 *Madden v. Tucker*, 46 Me. 367, 376 (1859)

31 *Card v. Nickerson*, 150 Me. 89 (1954); *May v. Labbe*, 114 Me. 374 (1916); and *Reed v. Reed*, 71 Me. 156 (1880)

32 *Card v. Nickerson*, 150 Me. 89 (1954) and *Brown v. Thurston*, 56 Me. 126 (1868)

33 *Warren v. Blake* 54 Me. 276 (1866) and *Kennebec Ferry Co. v. Bradstreet*, 28 Me. 374 (1848)

Minimum Standards Workshop

July 14, 2012
Lodge of Four Seasons
Lake Ozark, MO

MSPS & the Missouri State Fair
We're B-a-a-a-ck!

The Missouri Society of Professional Surveyors did not have the opportunity to participate in the 2011 State Fair. We are back, and August 9th thru the 19th, 2012 will be our 3rd year with you, our members, interacting with and educating the public. The Division of Geology and Land Survey, Missouri Department of Natural Resources, hosts our efforts at the Fairgrounds at no charge to our Society. This gives our Society a great and affordable means to have Professional Surveyors available to interact with and educate a broad cross section of the public. This has been a unique partnership between a public agency and the Missouri Society of Professional Surveyors (You!) coming together for the benefit of the public.

This year, we are inside the air-conditioned Woman's building with a 10' x 10' display area during the hot August days of our State Fair. It is a great opportunity for all of our members, including our more senior members to participate.

The disadvantage is, you the Land Surveyor, are not discussing surveying in our natural environment on the ground. The outside space is fully dedicated for use throughout the Fair. We are being restricted to space inside the air-conditioned Woman's building during the hot August days of our State Fair.

Our goal is and will remain simple. It is to make the professional available to the public. There is no "typical" fairgoer. Mostly, we have "just" folks stopping by. Some stop to look at the displays, ask a few questions about surveying, and move along. Some bring their kids by and point to an instrument and say "We see guys with these standing beside the road all the time." Still others say surveyors never agree so what's the point, and some have very real boundary issues and need a surveyor. These are all opportunities. Listen to them. These are all opportunities. Discuss the research involved, the gathering of record evidence, the gathering of field evidence, and the services only you the Professional Surveyor can provide. Answering questions and entering into discussions with the public is educating the public. Some results are tangible, and you can see the impact and influence being created. Many of the "just" folks walking up will tell you about their very real problem they are having with a neighbor and unsettled boundary lines. Listen to them. Discuss the research involved, the gathering of record evidence, the gathering of field evidence, and the services only you the Professional Surveyor can provide. A membership directory is kept on hand, and they are referred to our member listing by County to find a Surveyor in their area.

You never know who is walking up to the booth dressed in casual summer wear for a day at the Fair. In one morning, a woman came to the booth asking questions. She became unusually specific about licensing and getting started in our profession. When asked about her curiosity it was discovered that she is a High School Guidance Counselor from Minnesota. She saw our booth and wanted to gain knowledge about Surveying for her students. Another was an advisor to the High School organization, Future Farmers of America (FFA). Their questions were cheerfully answered, further discussion was generated and educational/promotional materials were distributed. These two alone will have a direct influence on, and can help lead youth into our most honorable profession. The measure of that successful influence won't be known for years to come. However, it is one of the most important reasons to conduct these efforts. Other notable folks stopping by were County Commissioners from distant corners of the State; County Recorders; Judges, and one of our state Representatives. There is no doubt that many other influential community leaders anonymously stop by.

We need your help!

We need your continued personal and professional interest support to make this a success. Success lies in the efforts of you, the individual Professional Surveyor, getting involved and making a difference for the future of our time honored and noble Profession. We need your time, your ideas, and most of all we need you. MSPS won't make this a success. It can only be successful if we as members step up and make it successful. It's time once again be proactive representing our profession, and we will have some fun along the way. Our goal is to staff the booth every day of the fair. We need ½ day or full day volunteers August 9th thru the 19th. Make your commitment and sign up sign up on line at http://www.missourisurveyor.org .

Spring Workshop 2012 Report

Everything a Surveyor Needs to Know About Realtors, Title Companies, and Client Communication

We had a great workshop. Most attendees expressed comments that this is the best we've had in a long time.

Stacy Shore with Lake Ozark Remax, was very knowledgeable on the Ameren Boundary Property Ownership issue going on at the Lake and also how the actions may affect boundaries other than lake properties. This is a hot topic and one that could have far reaching ramifications nationwide, not just at the Lake.

Rhonda Overberg with Remax Best Choice talked about the changes she has seen in the real estate market in recent years and explained the complicated process of listing foreclosed properties. She would like to see the surveying industry work with the real estate industry to educate realtors on the importance of having a boundary survey when purchasing a home.

The Title Companies were represented by Mike Freeman, John Teale, and David Townsend who explained the importance of using a title company with a title plant of long standing and discussed issues with lenders and owners policies. They fielded lots of questions the audience had regarding title work.

Donnie Snelling, President of the Recorder of Deeds Association expressed the need for the surveying industry and the recording industry to work together especially on legislative issues. Also, he talked about the recording and quality of plats and why some should be rejected. He passed out a breakdown of the recording fees per state laws.

Don Borman, Surveyor talked about client communication both verbally and written on the survey plat and suggested sending thank you letters to clients to market for future work.

On Saturday, Larry Phipps taught us effective client communication which was very informative and will help us with future ideas on better communication and obtaining jobs. He expressed the need to get involved with local charities and other organizations to promote your business which I personally believe works. He went into great detail on "Value Priced Surveying", which prices a job based on its "value" to the client rather than "time and material pricing." He had other great tips on generating and expanding your business.

We appreciate all the exhibitors who helped sponsor the workshop.

For those of you that were unable to attend, you missed a great workshop.

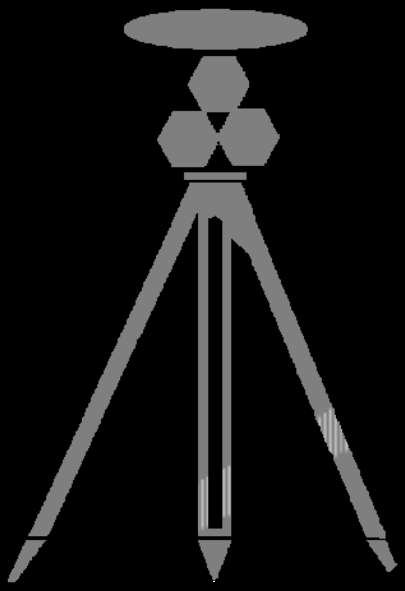
I hope to see you at the Annual Meeting in St. Louis on October 11-13, 2012.

Daniel L. Govero, Ed. Comm. Chairman

Missouri Society of Professional Surveyors

23rd Annual Minimum Standards Workshop

Saturday
July 14, 2012
Lodge of Four Seasons
Lake Ozark, Missouri



This course has been approved for continuing education credits from the Missouri Board for Architects, Professional Engineers, Professional Land Surveyors and Landscape Architects for 8 PDUs (8 hours of professional development units - four hours of Minimum Standards credits)

PROGRAM

7:00 am. ..... Registration & Continental Breakfast

8:00 am ..... **Panel Discussion: Missouri Statute Chapter 327, The Licensing Board, Common Complaints, and Board related topics**
Mike Freeman, Dan Govero, and Mike Flowers

9:00 am. ..... **Minimum Standards for Property Boundary Surveys**
Darrell Pratte

11:00 am. .... **US Public Land Survey Corners-Registration Standards**
Jim Mathis

12:00 noon .. Lunch

1:00 pm. ..... **Odd Sections and Sectional Breakdown**
Bob Shotts

5:00 pm. ..... Review/Closing Remarks

PRESENTERS

MIKE FREEMAN, PLS, Chairman, Land Survey Division, Missouri Board for Architects, Professional Engineers, Land Surveyors and Landscape Architects and President of Freeman Land Survey, Hermitage, Missouri (417) 745-6957

MIKE FLOWERS, PLS, Member, Land Survey Division, Missouri Board for Architects, Professional Engineers, Land Surveyors and Landscape Architects and retired State Land Surveyor

DAN GOVERO, PLS, Member, Land Survey Division, Missouri Board for Architects, Professional Engineers, Land Surveyors and Landscape Architects and President of Govero Land Services, Imperial, Missouri (636) 464-9380

JIM MATHIS, PLS, President, Mathis & Associates, Poplar Bluff, Missouri (573) 785-4202, member of MSPS Board of Directors

DARRELL PRATTE, PLS, State Land Surveyor, Land Survey Program, Division of Geology and Land Survey, Missouri Department of Natural Resources, Rolla, Missouri (573) 368-2300

BOB SHOTTS, PLS, CFedS, President, Robert S. Shotts, Inc., Lebanon, Missouri (417) 588-7877, and past president of MSPS

Missouri Society of Professional Surveyors

Golf Tournament PAC Fund-Raiser

Friday, July 13, 2012
1 pm shot gun start

The Cove Golf Course
Lodge of Four Seasons
Lake Ozark, Missouri

FORMAT: Four-person scramble.

PRIZES: There will be prizes for first through third place teams.

HOLE SPONSORS ($100): If your company would like to sponsor a hole at this year's tournament, contact MSPS at 573-635-9446.

GOLF PRIZES: Longest Drive, Closest to the Pin and Longest Putt.

FEES: $85.00 per player which includes 18 hole green fees, a cart and two mulligans.

Registration Information:

Registration fee is $100 for MSPS Members and $150 for Non-members. Deadline for registration is June 29, 2012. After this date, a 10% processing fee will be added to registration fees.

The fee includes instructional materials, refreshment breaks, and lunch.

To register, complete the attached form and mail it with your check or credit card information to: MSPS, 722 East Capitol Ave., P.O. Box 1342, Jefferson City, MO 65102. For more information on this course, call Sandra Boeckman at 573-635-9446.

Location and Lodging:

A block of rooms has been reserved at the Lodge of Four Seasons at Lake Ozark, Missouri, at a rate of $120.00 for single or double occupancy. **Deadline for reservation is June 12, 2012.** Make your reservation by calling the Lodge of Four Seasons at 888-265-5500.

Cancellation Policy:

MSPS reserve the right to cancel the program and return all fees in the event of insufficient registration. A participant may cancel a registration up to two weeks before the course date and receive a full refund. **NO REFUNDS AFTER June 29, 2012.**

Minimum Standards Workshop Registration

To register, detach and mail to: **MSPS, PO Box 1342, Jefferson City, MO 65102**
Phone: 573/635-9446 Fax: 573/635-7823 Email: msps@missourisurveyor.org

Registration Deadline: June 29, 2012

Workshop Fees:

- ❑ $100 MSPS Members
- ❑ $150 Non-Members
- ❑ $182 with 2012 PLS Dues
- ❑ $135 with 2012 Associate Dues
- ❑ $85 PAC golf fundraiser
- ❑ Check here if you are a Corporate member and are taking advantage of the free Minimum Standards Workshop offer.

Corporate Name: _____

Name: _____

Firm: _____

Address: _____

City, State, Zip: _____

Office Phone: _____ Fax: _____

RLS No: _____

❑ Mastercard ❑ Visa ❑ Discover

Credit Card Payment: Exp. Date:

Card Number: _____

Signature: _____

Total Amount: _____

Make checks payable to MSPS — Advanced registration is necessary and appreciated.

Missouri Society of Professional Surveyors
34th Annual Spring Workshop

THANKS TO OUR EXHIBITORS

CHC
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Department of Natural Resources
Division of Geology and Land Survey
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Surveying the Edge of Space

Written by Mark Nolte and Dennis Stewart

One 300 gram weather balloon + One partially full old helium tank + One used digital camera + One cellular phone with tracking capability + 16 square feet of remnant nylon + Several yards of nylon cord + One Honey Baked Ham Styrofoam mailing container + One ounce of home wall insulation + Two disposable hand warmers + Two astronaut "wanna bes" with nothing better to do = Beautiful photos from the edge of space!

Lafayette County Land Surveyor and former MSPS President, Mark Nolte, knew exactly who to contact after he happened to find (by accident) a You Tube video on amateur weather ballooning. He called his former high school biology teacher, Dennis Stewart. Mark knew his teacher from nearly 40 years ago would become just as "hooked" on this project as he was. Mark was right.

Mark and Dennis developed a friendship early during Mark's high school career when Mark showed his biology teacher a book he had discovered in the school's library, Caves of Missouri by J. Harlen Bretz (1956). Dennis had greatly enjoyed wild cave spelunking as a child with his Boy Scout troop in Georgia. Mark quickly got the "spelunking bug" himself when his teacher informed him that wild caves are common, especially in Missouri, and many friendly landowners allow others to have access to their geological treasures. The teacher-student relationship resulted in several dozen spelunking excursions during the next few years to areas in and around Boone County. Now, nearly four decades later, the adventurous pair joined forces again for an entirely new quest, a virtual visit to the edge of space.

Dennis had always wanted to be an astronaut. During the 1960's, he was the geeky kid in school who hid his earphone from his teachers as he listened on his transistor radio to every word Walter Cronkite had to say about the latest Mercury Program launch. The Mercury Program was NASA's first suborbital manned space flights and Dennis fantasized of being in those early tiny capsules himself. Mark's invitation was finally going to allow Dennis the opportunity to experience his dream of being an astronaut by using modern technology as his avatar.

Mark had already completed most of the technical tasks for this project before he contacted his old teacher. This included downloading legal CHDK hacking software to his digital camera, which would allow it to automatically take pictures every 5 seconds during the flight, and signing up for a one month free trial at a website that would allow his cellular phone to be tracked from any computer. It was wise of Mark to complete these tasks himself since Dennis still has a functioning Commodore 64 from the 1980's in his home that he still uses!

Dennis's assignment was to develop a safe descent method for the electronic gear and to construct the actual "space" capsule itself from an old Honey Baked Ham Styrofoam mailing container that Mark had luckily saved. Mark's important job was to locate the cheapest source of helium. Within a few days, thanks to 16 square feet of remnant nylon found in Dennis's attic for a parachute and the fact that Gorilla Glue does an incredible job bonding Styrofoam, the "space" capsule was ready to launch. Amazingly, Mark found a friend, Karl Fallman, who just happened to have an old tank of helium that he wanted to donate to the mission. The tank did not have a pressure gauge, however, but Karl thought there was enough gas left to fill a 300 gram balloon which Mark had purchased earlier.

The entire balloon's payload had to weigh less than 4 pounds. This not only

allowed the small 300 gram balloon (most amateur balloons are twice as large or more) to have sufficient lift, it also avoided the stricter FAA regulations for heavier balloons. In addition, some environmental conditions needed to be considered. Weather balloons can reach altitudes where wind speeds are greater than 100 mi/hr. and temperatures can drop below minus 70 degrees F, even in the summer. The Gorilla Glued Styrofoam "space" capsule was surprisingly strong and, along with some scrap home insulation and two disposable hand warmers, enough heat was retained in the capsule to allow all the electronics to function during the entire 3 hour and 46 minute flight. Even though hand warmers require oxygen in order for the exothermic process to occur, the maximum altitude reached by the balloon placed it well above air densities adequate enough to support that chemical reaction, however, despite air pressure changes from about 15 to below .5 lbs./square inch, the "space" capsule retained enough heat for all its electronic components to operate.

The balloon began its journey just 5 feet in diameter, but that was enough to lift its payload about 8 feet/sec. It ascended for 2 hours and 33 minutes before bursting after swelling to over 13 feet in diameter in the near vacuum of the Earth's stratosphere. At the balloon's zenith, hundreds of photos were captured as blue sky was replaced by the black of space and the curvature of the Earth became visible below a thin turquoise ribbon of its fragile atmosphere which the balloon had just passed through.

The "space" capsule required 1 hour and 13 minutes to return back to Earth, even though it probably reached velocities greater than 100 mi/hr. initially after the balloon burst due to the lack of sufficient air density to allow the parachute to slow its descent. Later the parachute functioned perfectly and gently returned all gear, minus one 300 gram balloon.

It was after 9:00 PM when the final cell phone "ping" was received indicating the landing site. Mark, Dennis and Mark's business partner, Aaron Perrine, quickly gathered flashlights and GPS navigational aids and traveled to the spot where Google Earth indicated the "space" capsule should be found in a row of trees over 90 air miles away. Two hours later, GPS coordinates were followed across a muddy field and with NASA precision the entire payload was recovered hanging in a tree at eye level. The trio of virtual astronauts wasted no time opening the capsule on the spot. They were rewarded with over 2000 photos of the entire flight from prelaunch to final touchdown. Dennis finally realized his dream of being an astronaut, with a little help from 21st Century technology, and Mark and Aaron did their first preliminary survey from the edge of space!

Awards Nomination Form

to be awarded at the Annual Conference
October 12, 2012 in St. Louis, Missouri

Person Nominated:_____

Name of Award:_____

In the space provided below please highlight the reason(s) for your recommendation/nomination. Please limit your remarks to this space.

Mail or fax completed form to the **Missouri Society of Professional Surveyors, PO Box 1324, Jefferson City, MO 65102, Fax: 573-635-7823, no later than September 15, 2012**. If you have questions contact Troy Hayes or Curtis McAdams, Awards Committee Co-Chairmen.

AWARDS

Surveyor of the Year Award has been given since 1987. This award is given to a MSPS member who has given freely of his time and efforts to the organization and toward the betterment of the surveying profession.

* Must be a Member of MSPS.
* Should enjoy an outstanding reputation for his/her knowledge, integrity and professional competency.

Robert Myers Service Award has been given since 1990. This award is given to an MSPS members who, over an extended period of time (ten years minimum) has given exemplary service and dedication to the surveying profession and in particular to the Society.

PAST RECIPIENTS INCLUDE

Surveyor of the Year –
Mark Nolte, Ralph Riggs, John Teale, Mike Gray, Don Martin, Dan Lashley, Richard Cox, Jim Mathis, Robert Shotts, Troy Hayes, Craig Ruble, Gerard Harms, John Holleck, John Stevens, Richard Barr, Erwin Gard, Charles Kutz, Robert Myers, Dan Govero, Jim Anderson, Mike Flowers, Bob Pirrie, and Jerry Day

Robert E. Myers Service Award –
Stan Emerick, Don Martin, Robert Myers, John Teale, Jim Mathis, Robert S. Shotts, Stan French, Dan Lashley, Gaylon Smith, Gerard Harms, John A. Holleck, J. Michael Flowers, Erwin Gard, Rich Norvell, David Krehbiel, Richard Elgin, Dan Govero, Jim Anderson, Rich Barr, Norman Brown, and Harold Schulte

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