Editor's Corner

THE American Surveyor
A Foot In The Past... An Eye To The Future

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From Lewis and Clark to Satellites

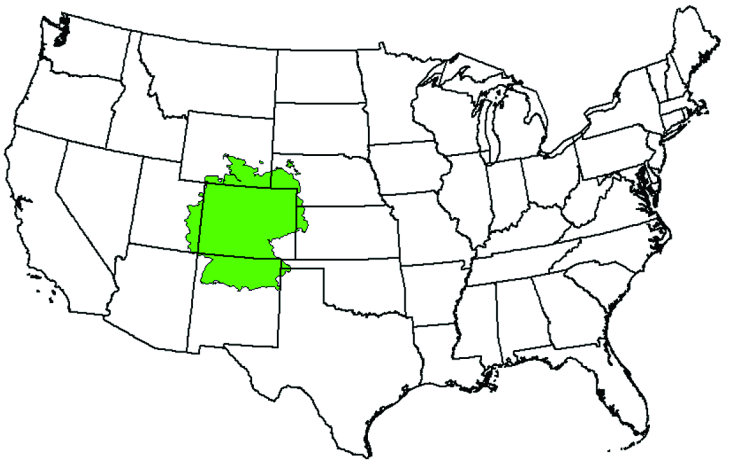
It's a well-known fact that one of the things surveyors like best about surveying is working outdoors. In conversations I have had with one of our contributing writers–Nebraska surveyor Jerry Penry–we both agreed that while many Americans may perceive the Midwest to be the Great Nothingness, there's a particular beauty in the Great Plains. There's nothing like standing on a speck of ground somewhere out on the Great Plains, surrounded by 360º of flat land as far as the eye can see, to make you come to terms with what an "eyelash" of space you occupy on this earth. Long before the advent of Doppler radar and the Weather Channel, one of the things I always enjoyed about growing up "where the wind comes sweeping down the plains" was a wide open view of monstrous supercells and other weather systems in the distance. Midwesterners learn to read the skies like they read the morning paper. It allows them to keep a handle on what Nature is about to dish out. Minnesota radio personality and writer Garrison Keillor humorously describes how people in the Midwest instinctively walk with their head bowed into the wind, and they rely on the PLSS for their sense of direction. They feel best knowing which way is North, and from that, are able to easily give directions or refer to something in a way that everybody can understand.

On page 62 of this issue, you'll find Penry's article about his journey with Nebraska Deputy State Surveyor Gene Thomsen to a remote area where the Nebraska-South Dakota line meets the Missouri River. Jerry and Gene wanted to go to this spot in order to retrace the footsteps of Captains Lewis and Clark who had camped there 200 years earlier. In Captain Clark's notes, he said: . . . *September 7, 1804. N. 60_ W. [1] 3 mes. to the pt. of a Bluff on the S. S. opsd. a pt. on the L. S. below [w]hich there is a Sand bar West 2 1/2 mes to a Tree in the bend to the L. S. near a mountain which is round formg a point on the riseing 70 feet higher than the high land from its Shape & Situation resembles a cupeleow [cupola] . . . A footnote to this entry says: Now called Old Baldy, in eastern Boyd County, Nebraska. On Atlas map 19 it is called the Steeple, a name perhaps given by American fur traders in the years after 1804. By the 1830s it was already Old Baldy on maps.*

While the area remains relatively unchanged save for the new growth of trees, the story gets better in terms of stolen markers, surveying by U.S. Deputy Surveyor Robert Harvey, and stones just waiting to be found.

Global Navigation Satellites

On page 30 you'll find Gavin Schrock's story about an international GPS network conference he attended in Germany. Gavin is the network manager for Seattle's GPS network. As Gavin and I discussed the article, we also discussed the situation here in the United States, where some surveyors have been reluctant to employ GPS. In the article, Gavin expresses embarrassment at how many countries around the world have taken GPS and run with it, and in his opinion, are far ahead of the U.S. in satellite surveying. Along the way, these countries have developed marvelous technologies for wringing the last millimeters out of their systems in their quest for accuracy, repeatability and usability.



Gavin and I recently attended the bi-annual CGSIC meeting in Long Beach where we learned that the NDGPS now covers 92 percent of the continental U.S. Coverage for many parts of the country is still single, but eventually dual-coverage will exist. The most encouraging news was learning that the Federal Railway Administration has put a lot of money in future budgets to finish out the system for use in Positive Train Control. Of course, NDGPS won't provide the real-time accuracy that surveyors need, but sub-meter accuracies will be most useful for a wide variety of GIS and environmental positioning. Other encouraging news involved continuing work on the High Accuracy NDGPS. This system will provide 3D dynamic positioning at the centimeter level, up to 50km from a single base station. The folks from FHWA who are developing the system (for intelligent transportation systems) have found that they can get ±10-20cm up to 250km from the transmitter. Now that's something we can work with!

Time-to-fix values will fall, thereby opening up a host of new services for impatient civilian users.

The map of Germany overlaid on the United States demonstrates the challenges faced by the dramatic difference the U.S. faces in size alone in setting up a country-wide GPS network. The fact that we now have single coverage over 92 percent of the country is a testament to the hard work by many people in the federal government to make it happen even though the funding has been slow in coming.

Other news from CGSIC involved the June 26th agreement that has been reached between Galileo and GPS. The two systems will share the L1 and L5 frequencies. Having 50-60 satellites to work with (and this number doesn't include GLONASS) will make the use of satellite positioning much easier and more flexible. Time-to-fix values will fall, thereby opening up a host of new services for impatient civilian users. Those of you who worked with GNSS back in the day when the observing window was only a few hours per day will probably chuckle at that last sentence!

I still have reservations about the viability of Galileo for precise users. If people throughout the world have taken advantage of the free GPS system, and it provides what they need, will there be an incentive to adopt a system they'll have to pay to use? Only time will tell, of course, but meanwhile, the GPS manufacturers have received the assurance they needed to start work on the new combined circuit boards that will receive all GNSS signals. One of the speakers, Javad Ashjaee, said that the capability of receiving all the signals will only add one dollar to the cost of the board, and that there's more cost in producing the cables, connectors and the box it comes in. Another speaker noted that 60 satellites will not help with accuracy in urban canyons, so the precise user community will have to find another solution. Rest assured that this is being worked on, as is indoor positioning. This technology will most likely employ some form of radio frequency in conjunction with a GPS antenna outdoors.

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Call it a 3rd dimension! We are pleased to announce that our newest website, **www.MAPuser.com** is now open for business. Designed to focus on the Measurement and Positioning "angle" of surveying, MAPuser will be the repository for current industry news and web-exclusive content. As time goes on, we will unveil many other resources that will make MAPuser a one-stop website. MAPuser is an ideal complement to our popular GIS industry resource, **www.GISuser.com** and our magazine website **www.TheAmericanSurveyor.com.** If you're looking for something new that you can sink your cerebral data collector into, then click on over!

In Passing

In the past few weeks, the surveying profession has lost two important figures–**Roy Minnick** and **Dr. Ben Buckner**. Roy died unexpectedly on September 29, just after concluding a meeting at First American Title's headquarters in Orange County, California. As a seminar presenter and water boundary expert, Roy was known for his efforts on the California Coastal Commission as well as for Landmark Books, his book-selling enterprise. Ben Buckner passed away on October 9th, following a long and courageous fight with cancer. Licensed as an engineer and land surveyor, Ben was well-known for his work to establish the survey programs at Ohio State and East Tennessee State. He was also a popular seminar presenter and author of numerous books. Roy and Ben will be greatly missed. Our thoughts and prayers go out to their families. *AS*