



## Editorial

# THE American Surveyor

A FOOT IN THE PAST... AN EYE TO THE FUTURE

[www.TheAmericanSurveyor.com](http://www.TheAmericanSurveyor.com)

Volume 3, No. 3 May 2006  
© Cheves Media LLC

**PUBLISHER** Allen E. Cheves  
[allen.cheves@chevesmedia.com](mailto:allen.cheves@chevesmedia.com)

**EDITOR** Marc S. Cheves, LS  
[marc.cheves@chevesmedia.com](mailto:marc.cheves@chevesmedia.com)

**ASSOCIATE EDITOR** Joel Leininger, LS  
**ASSISTANT EDITOR** Jacalyn Cheves

### CONTRIBUTING WRITERS

Dan Beardslee, LS	Jeff Lock
Silvio A. Bedini	Dan Martin
Joseph Bell, LS	John Matonich, LS
Joe Betit, LS	Thomas G. Merrill, LS
J. Anthony Cavell, LS	Jerry Penry, LS
Cathy B. Costarides, LS	Al Pepling, LS
Paul Cuomo, LS	Mark X. Plog, LS
James J. Demma, Esq., LS	Walt Robillard, Esq., LS
Dr. Richard L. Elgin, LS, PE	Fred Roeder, LS
Fred Henstridge, LS	Gavin Schrock, LS
Chuck Karayan, LS	Angus W. Stocking, LS
Gary Kent, LS	Patrick Toscano, LS
Wendy Lathrop, LS	Rj Zimmer, LS
Thomas Liuzzo, LS	

The staff and contributing writers may be reached via the online Message Center at [www.TheAmericanSurveyor.com](http://www.TheAmericanSurveyor.com).

**GRAPHIC DESIGN LTD** Creative, LLC  
**WEBMASTER** Joel Cheves  
**ACCOUNT EXECUTIVE** Richard Bremer  
[rich.bremer@chevesmedia.com](mailto:rich.bremer@chevesmedia.com)

*The American Surveyor* (ISSN 1548-2669) is published January/February, March/April, May, June, July/August, September, October, November and December by Cheves Media LLC. Editorial mailing address: 905 W. 7th St., #331, Frederick, MD 21701. Tel: (301) 620-0784.

*The American Surveyor* is a publication of Cheves Media LLC, 905 W. 7th St., #331, Frederick, MD. No part of this publication may be reproduced in any form without the express written permission of the publisher. Opinions and statements made by the writers and contributors do not necessarily express the views of Cheves Media LLC.

Subscriptions prices in the U.S.: \$29.95 for 1 year. Canada: 1 year \$56.00 US; international subscriptions \$72.00 per year (Airmail), U.S. funds prepaid. Back issues (subject to sufficient stock) are available for \$4.95 + S/H.

New subscription inquiries and all other address changes should be sent to *The American Surveyor*, P.O. Box 4162, Frederick, MD 21705-4162. Fax: 301-695-1538. Subscribe online @ [www.TheAmericanSurveyor.com](http://www.TheAmericanSurveyor.com)

Made in the United States of America



Proud Member of:



## Software and Computing

**W**hen it comes to tracing the footsteps of our predecessors, technology is hot on their trails. In this issue, county surveyor Ed Harvey of Wisconsin shares a fascinating tale about the GLO surveys in Sheboygan County, a tale in which at least one of the GLO surveyors didn't actually survey the land he platted, and used a procedure known as the Short Cut method. We now know that information about early surveys and the manner in which they were done can be critical in modern-day decisions about where a section corner should be placed.

With this in mind, I have always been intrigued by the possibility to look at and analyze an entire township when trying to retrace and re-establish section corners, rather than looking at only one section at a time. When I was doing a lot of oil and gas work in Oklahoma in the 70s, the survey profession received a shot in the arm from the Oklahoma board of licensure. Traditionally, oil companies pretty much had free rein when it came to easements for the thousands of miles of pipelines crisscrossing the state. Blanket easements were common. But as landowners grew more sophisticated, they started demanding specific-width easements. Effective in October, 1978, the Corner Perpetuation and Filing Act dramatically impacted surveyors. The Act pertained to PLSS corners, and required filing information about what corners a surveyor had set or recovered. Many states have this type of legislation, and in Oklahoma, quite a few surveyors have been disciplined for not filing reports in a timely manner, or even at all. But in what turned out to be a surveyors' full-employment act, the Board issued a ruling stating that easements fell under the Act, and required ties to section corners or quarter corners. *Voila!* All easements thereby required ties to section corners, and if the corners didn't exist they had to be set. We performed boundary surveys on hundreds of sections to comply with the Act. This brought an element of precision to what most oil and gas surveying had always been: pipeline surveys. Of course, pipelines, because they follow the lay of the land, do not require horizontal lengths. But precision-wise, to surveyors who live in a horizontal or vertical world, pipeline surveying always left something to be desired. Mind you, I'm not complaining. One thing I always appreciated about surveying for oil companies is that they spread the money around at the local level. Jobs were created, and whenever the oil industry was up, the local economy was also up.

A few of the large projects required us to re-establish entire townships, but most often it was one section at a time. As surveyors, we know how scary it is to work on a piece of the survey fabric without knowing how the surrounding pieces affect our piece. We did our best, usually running eight miles of line to all the quarter corners – many times just half-line fences – outside our section. The eight miles consisted of a half-mile in every direction from the corners of the section in which we were working. Because we were doing so many section boundaries, my mentor, Don Cunningham, often mused about how nice it would be if we had a tool to allow us to take a big-picture look at more than one section at a time.



Uprooted South Stone at the former Frederick County, Maryland Court House.

But we had neither the software nor the computing power to do this. As I recall, the RAM of our HP-85s was measured in kilobytes, and I suspect the CPU didn't have the power to perform the iterative process required by least squares. When Star\*Net was introduced in the 1980s, computers had evolved to the point that least squares adjustments were finally available on the desktop. Roger Frank, a southern California surveyor, has written about his effective use of least squares to find or re-establish section corners. By inputting the topo calls from the original GLO plats along with already-known section corner positions, Roger has literally been able to walk up to original corners, even in situations where there was no occupation. Of course, this won't work when the original surveys were fraudulent, but I applaud Roger on this innovative

use of software and computing power, because his big-picture look allows him to make much more informed decisions. Additionally, we can easily relate to the importance of finding original corners instead of setting new ones. As evidence of this, a recent court case in Oregon (*Dykes v. Arnold*, [www.publications.ojd.state.or.us/A121699.htm](http://www.publications.ojd.state.or.us/A121699.htm)) resulted in a finding that a 100-year-old center of section set by the County Surveyor, even though stubbed-in and not set according to the rules – the intersection of lines drawn between opposing quarter corners – was held to be correct. The finding stated “...For the same reasons that a federal government survey of a section's exterior boundaries is given legal effect despite its errors, an original county survey of a section's interior boundaries should be as well.” The online case contains numerous maps to illustrate the

reasoning behind the decision, and is a textbook case of “the original survey has no error in position” doctrine.

## A New Column

Long-time California surveyor Fred Henstridge kicks off a new column in this issue. Fred is winding down his long career, most recently with Psomas, and will write a multi-part series on Quality Assurance/Quality Control. In these times of increased litigation, it behooves surveyors to have processes in place that ensure quality.

## Compass Stones

Also in this issue is a fascinating look by an astronomer at curious stones in Nantucket and Ohio. Author Vladimir Strelnitski identifies them as “meridian stones,” since they are thusly inscribed, however they are perhaps better defined as compass stones. When our country was young, Thomas Jefferson sought to establish an American meridian rather than using the Greenwich Meridian (see *The Jefferson Stone*, by Silvio Bedini). To my knowledge, Jefferson's attempt at establishing a meridian was the primary alternate meridian in the United States, even though I've seen a few maps that refer to a Philadelphia Meridian. As history proves, the alternate meridians were discarded.

At the end of Strelnitski's article are links to PDFs of two articles about related projects that appeared in the Maryland Society newsletter. More than a century ago the Maryland legislature established a fund to enable each county to set a pair of stones for use by surveyors to set the declination on their compasses. To my knowledge, only two counties availed themselves of this money, and one of them happens to be Frederick County (the county in which I live). The Appalachian Chapter of the Maryland Society of Surveyors has had a long-running project to re-set one of the stones that resides on the lawn of the former County Courthouse. It is believed that many years ago a television truck parked on the lawn for an event, and in doing so, dislodged one of the stones. For many years, the stone just sat aimlessly on the lawn. The chapter has performed GPS surveys and astronomical observations to establish the true north-south line from the remaining soundly-set stone.

All this (and much more!) follows in this month's issue. Enjoy! ..