

**AAG Newsletter  
of the  
Association of American  
Geographers**

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USPS 987-380 ISSN 0275-3995

The AAG Newsletter ISSN 0275-3995 is published monthly with July/August combined, by the Association of American Geographers, 1710 16th Street NW, Washington, DC 20009-3198. The cost of an annual subscription is \$25.00. The subscription price is included in the annual dues of the Association. Not available to non-members. Periodicals postage paid in Washington, DC. All news items and letters, including job listings, should be sent to the Editor at the address below or to newsletter@aag.org.

All Newsletter materials must arrive at the Association office by the 1st of the month preceding the month of the publication. This includes job listings. Material will be published on a space available basis and at the discretion of the editorial staff.

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*Executive Director's Note: The AAG long has been fending off lobbying and litigation activity by some licensed surveying and engineering firms (e.g., MAPPs vs. United States) who claim that only they should be able to conduct most mapping and GIS activity, despite the fact that geographers and others have long led the development of GIS and related geospatial technologies, and have been doing mapping for centuries and GIS for decades. (See my AAG Newsletter columns, "The Plan to Hijack Mapping," March 2007; and "Mapping Procurement Practices—Best and Worst," February 2010, for background on these issues.) So I thought it was refreshing to see a recent frank editorial by Al Butler in the Professional Surveyor Magazine that provides some common sense on the issue. I hope you enjoy Al's column.*

*As always, I want to emphasize that the AAG warmly welcomes the participation of surveyors and engineers in the GIS and mapping worlds, as we always have in the past. However, we simply do not agree with their recent efforts to exclude geographers and others from the same mapping and GIS fields that we have for so long practiced and pioneered.*

—Doug Richardson

## You Won't Like This

By J. Allison Butler, GISP, AICP

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October 2010 issue. [www.profsurv.com](http://www.profsurv.com).

**N**o one is going to like this article, but everyone should read it. After reading many other writers opine on the various ways the surveying profession is under attack—from the average age of licensed surveyors being 57 years old to the need to keep those GIS people out of our business—I want to be the first to tell you: The surveying profession no longer exists.

Yes, there are still state regulatory agencies and licensed practitioners, but the profession of surveying has been absorbed into something much larger: the geospatial profession, which includes boundary surveying, GPS data collection, photogrammetry, mapping, and all the other things that we have spent the last 20 years arguing about in order to define their various boundaries. The fact is we've been having such a hard time defining those boundaries because they don't exist.

Before you put the tar on to boil and start tearing into your feathered pillows, let me also say that the specialized knowledge, skills, and abilities traditionally included in the practice of surveying are still very much needed. Surveyors are not this century's buggy-whip makers. The problem is that many of the skills that have traditionally defined the surveying profession

are no longer uniquely identifiable with that profession, which is why we have the boundary problem.

Define surveying as the profession that makes accurate measurements, and you find that technology now allows almost everyone with a little skill and knowledge to be able to make accurate measurements. Just this month I read several articles in various geospatial magazines covering what used to be the surveying, photogrammetry, and GIS professions where non-surveyors have compiled data with millimeter accuracy, all using essentially the same technology. Each group seemed to do equally well. Just as surveying professionals are beginning to use many tools previously employed only by GIS and photogrammetry professionals, GIS people are having to learn techniques employed by surveyors, such as error detection and remediation.

Raise that tired, old argument about surveyors upholding "public welfare and safety" as the ultimate argument for state licensure, and I will just have to say, "Oh, puhleeze!" GIS providers and users make many more decisions that affect the public than do surveyors. GIS folks create all those maps used by in-car navigation systems, compile the official census, use

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terrestrial photogrammetry to map crime scenes, forecast the weather for tomorrow on television, guide satellites to Mars, and chart the path of Predator drones in Iraq. A lot of GIS people still have to make their tools, although that situation is getting better. Some of these people may not know what they are doing and make mistakes.

Making everyone have a license doesn't fix that. Licensed people make mistakes, too. Just ask me about the boundary retracement survey I had done because we found four pins set at each of the corners of a lot less than 50-feet wide, all from the same company and put in place over a series of about five years as the property went through a series of foreclosures. It's not just me. Surveying magazines routinely carry stories about how surveyors ignore the basic rule of retracements—walk in the original surveyor's shoes—and use math and science to do it the way it should have been done. Only that's not the way it is supposed to be done.

We need to embrace the future, not fight it. What we are suffering from are the five stages of grief (Elisabeth Kübler-Ross, *On Death and Dying*). We have been through the first four:

1. **Denial** (surveying is a long-lived profession the public can't do without)
2. **Anger** (those darn GIS people are ruining our business; we need to bring photogrammetry under surveying)
3. **Bargaining** (if only we could adopt the NCEES Model Law and Rules, raise minimum education requirements, eliminate price-based procurements, or [insert your favorite idea here], then things would be great)
4. **Depression** (average age of licensed surveyors is 57, which makes me average)

This leaves the last stage: **Acceptance**. Only with acceptance of the fact that the surveying profession, as a clearly identifiable way of life, has come to an end can we move forward to the new future we all must face. Now everyone has to know everything. GIS people have to understand their data, including the data they get from

surveyors and photogrammetrists. And I'm not talking about book knowledge. I'm talking about real, on-the-street knowledge, because the universal truth of the GIS business is that the best data is the data you have. GIS people re-enact MacGyver episodes every day, just like surveyors who deal with all kinds of conflicting information have to make "informed judgments." We're all the same.

Acceptance means more than just acknowledging that the surveying profession needs to transform into something else, something bigger. It means embracing as part of the new profession those things that have been seen as less than surveying, like what is often referred to as "map-quality" data collection. It means consolidating all these artificially separated professions—surveying, photogrammetry, and GIS—into a single geospatial profession. It means all of us need to get together right now and decide collectively what this new profession needs to be. We're all in this together.

It also means moving these professions beyond state licensure regulations and into the realm of interstate commerce. You can strongly disagree with everything else I have said and you will still have to acknowledge that we absolutely do not need more than 50 different definitions of our collective geospatial profession. We cannot trust our livelihood to the whims of the political process. We need to collectively define our entire profession and recognize that most of the products generated by the members of that profession are part of interstate commerce. Our profession is now too big for state regulation. Or would you prefer that the maps stored in your GPS had to meet different requirements in each state?

Of course, the converse is that I must acknowledge all the things we do that relate to the property laws and court precedents of the individual states. These things need to be addressed. But that part of surveying, while representing a majority of the work performed by many of us, also represents

only a small part of the broad geospatial field. Everything else is pure science and math. Why the heck should we have state legislatures regulating science and math? Why should we allow state regulatory restrictions to keep us from being able to practice in adjacent jurisdictions?

Let me put it to you another way: Given the level of automation many of these data

collection systems provide, which person in the chain needs to be the state-licensed surveyor? The one flying the plane, the people who write the computer programs, the person who runs the data through the software, or the one who compiles the results? I say the answer is, "None of the above," not because this work doesn't need to be done

properly, but because the science doesn't vary from state to state.

Consider this example. I am a licensed building contractor in Florida, the poster child (state) for the construction industry with the toughest licensing laws in the country. The licensing test takes 20 hours spread over two days and has a pass rate of less than 40 percent. It covers topics such as how to run a business, handle payroll taxes, get workers' compensation insurance, deal with banks, create balance sheets, organize an office, draft and follow contracts, and create price proposals. Oh, there are a few questions on how to build things, but you could miss every one of those questions and still pass easily.

Why is the test structured this way? Because the state's biggest fear is that a contractor will take your money and go broke. If a contractor can't comply with the building code, the inspectors will find it and stop the project before it gets so far as to hurt someone. If the finished work doesn't look good, they won't get paid. The state focuses on the things that don't have checks and balances. Maybe something like that would work for surveying products.

Many of us practice in interstate commerce already by using satellite and aerial



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photography and other forms of remote sensing compiled across large regions. We use our new GPS units as we drive across state lines on vacation. We use Google Earth, or we sell the maps and aerial photos to Google. Lots of people are checking the product every day. Screw up much and people stop paying you. That's a pretty good check-and-balance component.

Property boundary surveys may need more regulation, because the average consumer may not be able to tell whether it was done properly. Perhaps the construction industry offers a solution here, too, something like a state certified plat inspector to review the survey products before they are filed at the courthouse.

What I am really saying is that we need to quit worrying about something that might happen because it already has happened. The surveying profession, as it was defined 20 years ago, is gone. It is now part of something bigger: the geospatial profession. This is a good thing for those of us who have seen a shrinking marketplace and declining revenues. We now have a big world open before us, a new world where we can define who we are, what we do, and how it should be done. Change is hard, but the world is going to change whether we want it to or not. We will change with it or go extinct. It's your choice whether you want to be a dinosaur or a bird.

In my opinion, an early step is to declare that most of what we do is part of interstate

commerce and should not be subject to state regulation. Math and science, and the technology and methods based on them, are not different in each jurisdiction. It seems reasonable for each state to declare what it wants on a boundary survey or other legal documents, but everything else should be for the geospatial profession to declare. That means you and me.

Let's get started defining our future. Agree or disagree, I want to hear from you. We need to talk. ■

*Al Butler is capital program manager for Ocoee, Florida and operates a part-time GIS consulting business. He is past-president of the GIS Certification Institute.*