

When Surveyors Were Revolting

A Brief Study of Four Revolutionists **BY N.W.J. HAZELTON**

"The greatest revolution of our generation is the discovery that human beings, by changing the inner attitudes of their minds, can change the outer aspects of their lives." — William James

INTRODUCTION

The picture of Mt. Rushmore with the slogan "Three Surveyors and the Other Guy" is now almost a cliché among the surveying community. T-shirts, coffee mugs, posters and all the commercial representations abound. And we feel good about it: "Hey, three of those guys were surveyors, just like me."

But the rest of the world sees all four of those guys as former Presidents of the United States. Those heads weren't chosen because of their surveying qualifications; perhaps it never occurred to Gutzon Borglum that they were surveyors. They were chosen to commemorate the founding, growth, preservation and development of the United States.

So where are the monuments to surveyors who didn't become President? What the slogan subtly tells us is that if you are a surveyor, you'll remain anonymous unless you become President! Even Nathaniel Bowditch, who developed the Compass Rule and helped introduce Least Squares Adjustment to Surveying, is largely unknown in his own country among surveyors, while the rest of the world knows the Compass Rule as Bowditch's Rule or Bowditch's Adjustment in his honor. I can think of at least five physical memorials to various early surveyors in southeastern Australia, quite apart from place names.

So those three surveyors on Mt. Rushmore aren't there to promote surveying. But can we learn something from their lives and deeds that can benefit today's surveyors?

THE FOUR REVOLUTIONISTS

George Bernard Shaw wrote in 1903 that "The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore all progress depends on the unreasonable man." It was one of the Maxims for Revolutionists in his book *Man and Superman*.

The common thread linking all four men is that they were revolutionists. They each found themselves in a situation that was disagreeable, and they changed the situation. The fact the situations were at a national scale meant that they were notably revolutionary. They were all examples of Shaw's "unreasonable man."

Washington and Jefferson were central figures of the American Revolution. It can be argued that Jefferson developed the theoretical framework and Washington led the practical application of the theory, although that would be a very simplistic appreciation. Both men found a situation they disliked (the tyranny of living in a



British colony of the day), refused to adapt beyond a certain point, and then proceeded to adapt the political and ideological landscape to suit their own ideas.

There is no question that their ideas were revolutionary and changed how their countrymen thought about themselves, their nation and the rest of the world. By changing people's attitudes, they allowed people to change the outer circumstances of their lives. The effect was not limited to North America, as their ideas spread around the world.

Lincoln was faced with a complex situation. The Union was falling apart as the inner tensions and contradictions became too much for the forces trying to hold it together. Perhaps his most reasonable course would have been to settle with the Confederacy, separate the USA into two nations, and take the Northern US in the direction it was already heading. Lincoln took the unreasonable

course, which was to attempt to solve the most pressing underlying problems (slavery, states rights vs federal rights), and this led to his vigorous prosecution of the Civil War and the preservation of the Union.

Out of the Civil War came the resolution of the slavery issue, which had bedeviled the US since its creation, changes in the nature of federal/state powers, and overall strengthening of the principles upon which the US was founded.

While Lincoln's role may seem to be more prosaic than revolutionary, he turned the situation he found at his Inauguration upside down and radically changed the nature of the US. The success of the Union, spurred on by the Civil War, meant that the US made a rapid transition to a major industrial power, setting the stage for the US to become a world power and a superpower in the 20th century. This justifies assessing him as a revolutionist, even though he was obliged to work within the constraints of an existing national system.

Theodore Roosevelt was another revolutionist. Times were good for the United States and his reasonable course would have been to do relatively little as President, something for which there were several good examples, but he chose to adapt the world to his attitudes. Again, he worked within the constraints of an existing national system, but he focused on changing people's attitudes. He fought corruption in government agencies, worked against trusts and large corporations, whose power rivaled that of the government, and managed to preserve areas of unspoiled land for posterity. Long-term success required changes in the attitudes of other people. Further, these were all things that would work against the interests of the rich, i.e., his own class, but came

from a strong sense of public service and noblesse oblige. Perhaps the most critical change in attitude Roosevelt accomplished was opening the American mind to the rest of the world and the place and role of the US in the world. This allowed the US to become a true superpower less than 50 years later.

Each of these four men were faced with a situation that was not to their liking, so they changed the situation, and made life better for a large number of people at the same time. Note that they didn't make significant material gains for themselves as a result of their efforts, but were focused on their larger community and the nation. Unreasonable and revolutionary attitudes, indeed! Today they are revered and memorialized in Mt. Rushmore. In the words of Mignon McLaughlin, "Every society honors its live conformists and its dead troublemakers."

An important point to note here is that all four of these revolutionists were successful in their efforts: the US rarely builds memorials to those who fail. They overthrew the status quo, but their achievements became the new status quo. As creators and founders they appear to us, years later, as 'establishment' figures. We often forget that they first had to be destroyers, iconoclasts, rebels and revolutionists. No entrenched, self-serving system will end without a fight.

MODERN REVOLUTIONISTS

Washington and Jefferson had the advantage of being able to start with an almost clean slate, so they could create the situation they wanted. Lincoln and Roosevelt were constrained by the existence of a national system that they wanted to preserve and strengthen. So their efforts focused on revolutionary approaches to the problems that threatened the nation and the

ideals upon which it was founded. But they all worked to change people's attitudes, and this ultimately changed the world.

Today's revolutionists are as constrained as Lincoln and Roosevelt, if not more so. The national problems threatening the US and the principles and ideals upon which it was founded are no less severe or dangerous than those threatening the nation in the times of the four guys on Mt. Rushmore. There is all the more need for revolutionary thought and change to deal with these problems. But we have to start by changing attitudes.

What can surveyors do? As far as major national problems are concerned, that is rather beyond the scope of this column. But we have enough problems in the surveying community and industry to keep us busy for a while.

PROBLEMS AWAITING REVOLUTIONARY SOLUTIONS

The US surveying profession faces many challenges. It is aging, with an average age of practitioners in their mid to late 50s. It is under assault from the courts, which find from time to time that it is not a profession (owing to the absence of a universal education requirement for registration). Its hegemony over property boundaries has been eroded by widespread GIS implementation in counties across the nation, commonly without any surveyor involvement. There has been a significant decline in recruitment, leading some states to be recruiting far fewer surveyors than they currently need for on-going survey work.

The shortage of surveyors has led to some calls for lowering the standards for licensing surveyors. This shows that we have failed to educate the public about the importance of what the profession does. The widespread availability of measurement technol-

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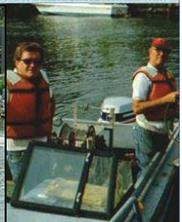
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ogy makes this situation worse, especially if we cannot explain why a \$100 consumer GPS in the hands of a layman isn't satisfactory for boundary surveys.

In the midst of a technological revolution, the US surveying profession has been very slow to become involved with new technologies, GIS and GPS being two more prominent examples. The disciplines of spatial measurement and spatial data analysis, once largely the domain of surveyors and cartographers, have been appropriated by other groups, e.g., ASPRS has the tagline "The Imaging and Geospatial Information Society." The changes in technology are coming very quickly, and the theoretical understanding of these new technologies is disseminated very slowly in the surveying profession.

Although it is difficult to see from the inside, the profession commonly has a poor understanding of several important aspects of its own fields of expertise. Error propagation and management in a measurement system, and systems of adjustment of measurements are commonly not understood beyond a superficial level. The legal questions on the registration examinations have the poorest pass rates of any subject area. There are several writers, e.g., Jeff Lucas and Dennis Moulard, who argue that there are significant and fundamental problems in how the profession discharges its professional obligations in terms of boundary determinations. Knud Hermansen and the late Ben Buckner have discussed the lack of civil discussion and debate in the surveying profession.

Within the surveying community, there are some who argue that surveying is no more than a trade, but these people are often arguing from a position of ignorance of what surveying is really

all about. Regardless, the fact that such voices are raised suggests that we've not done a very good job of explaining what surveying really is, even to our own members.

Within the surveying profession, there seems to be no real idea of where the profession should go in the future. The main efforts tend to try to keep things as they are, to improve recognition, and to recruit, while the world rushes on by. In these times of major change, the best we seem to achieve are small and transitory successes, and symbolic, but somehow empty, victories (e.g., National Surveyors Week). We seem to be uncertain of what to do, where to go, and how to tackle the problems the profession faces.

This is by no means an exhaustive list. In summary, there are a lot of problems, but perhaps we can categorize them to help direct us towards some solutions.

The major problems we face can be categorized into those centering on direction (i.e., the future and nature of the profession), recruitment (e.g., aging, numbers), professional competence (e.g., errors, legal issues, technology), and public awareness (e.g., standing of the profession, fields of work and competence). Further, the issue of recruitment would be helped greatly if the issues of direction, professional competence and public awareness were resolved favorably.

COME THE REVOLUTION...

Resolving these problems will require revolutionary changes to who we think we are (i.e., changes in attitudes), who we think we should be, where the profession should go, and how it can get there. Clearly, whatever we've been doing in the

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past is no longer working, and to keep doing more of the same just keeps us more surely on the same path. Time is running out to fix these problems, as other groups are slowly taking over the areas where surveyors traditionally work.

So when you look at the heads on Mt. Rushmore, remember that three of those revolutionists were surveyors. The four of them turned their worlds upside down, and the three surveyors (though men of peace) did it to the point of bloody and unremitting war.

Revolutions start with changing your own attitudes. How can you do this? Begin by questioning whether an attitude you hold works to solve or enlarge a problem the profession faces. If this attitude was changed across the profession, would things improve and problems be solved? If the answer is even a vague 'possibly,' there's the first attitude to work on. Work to change your own attitude, then help others work on theirs.

Eight years of the Revolutionary War and four years of the Civil War make doing a 4-year degree, joining a professional committee, or keeping up one's professional development hours seem pretty tame by comparison. But changing how we think, or even just starting to think, is still a major task. Change in the world starts with change in the mind. That is where revolutions begin.

The surveyors on Mt. Rushmore didn't cling to the past and all its problems. They imagined a better future and turned the world upside down to achieve it. All they took with them on the journey was their dreams and principles. They set an example of how surveyors can solve difficult problems. We can be guided by them, or we can devalue them, and ourselves, to being just a T-shirt and a catchy slogan. ■