



By Pat Toscano, LS

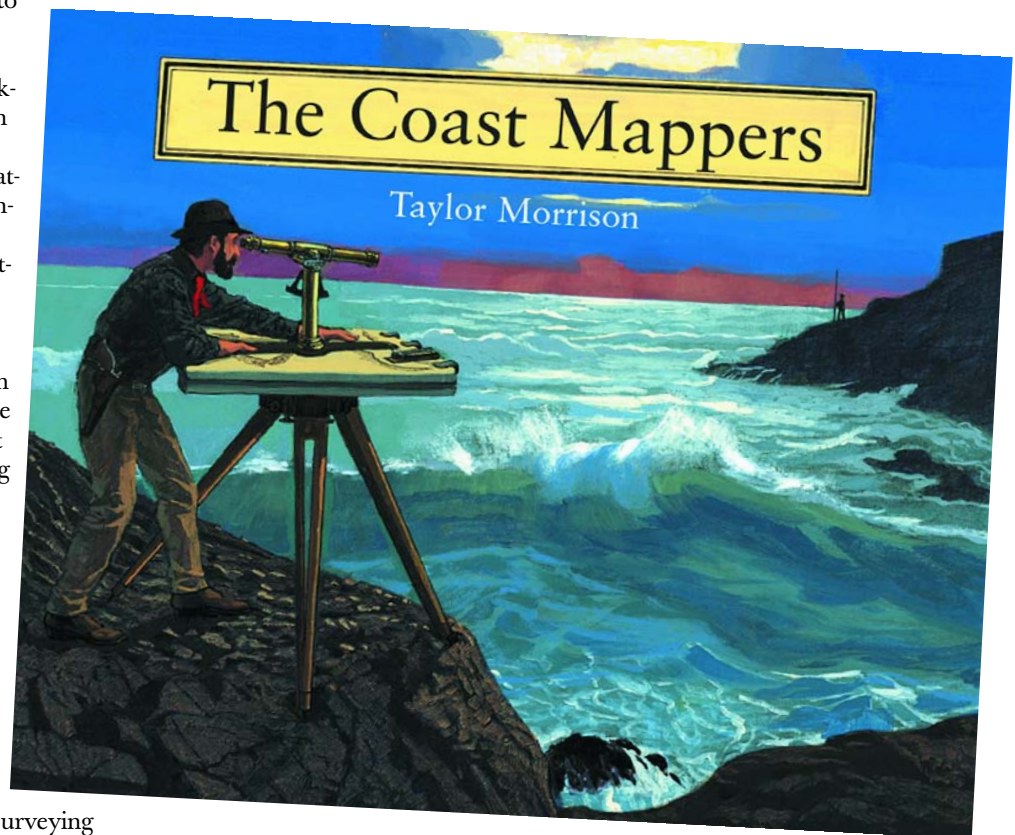
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The Coast Mappers

Times continue to be good for browsers of bookstores seeking information on surveying, mapping, exploration, and related biographies. The topics continue to be popular with both academic and mainstream writers. A recent trip to a bookstore not far from my office turned up excellent new titles in the American and European history sections and even more in the science department. But the idea that the current strong interest in our profession might extend to books for younger readers never really occurred to me until Marc Cheves brought *The Coast Mappers* to my attention.

The Coast Mappers tells of George Davidson, a surveyor and mapmaker for the United States Coast Survey, who is one of many unsung heroes of nineteenth century surveying and mapping in America. Born in 1825 in England, Davidson was seven years old when his father moved the family to Philadelphia in hopes of finding better opportunities for his lace-making business. Davidson attended city schools and eventually went to Philadelphia's Central High School. The school principal at the time was Alexander Dallas Bache, a graduate of West Point who believed in giving the students in his school a strong education in math and science. Bache was later appointed to be the second director of the U.S. Coast Survey and hired his former student, George Davidson, to work for him.

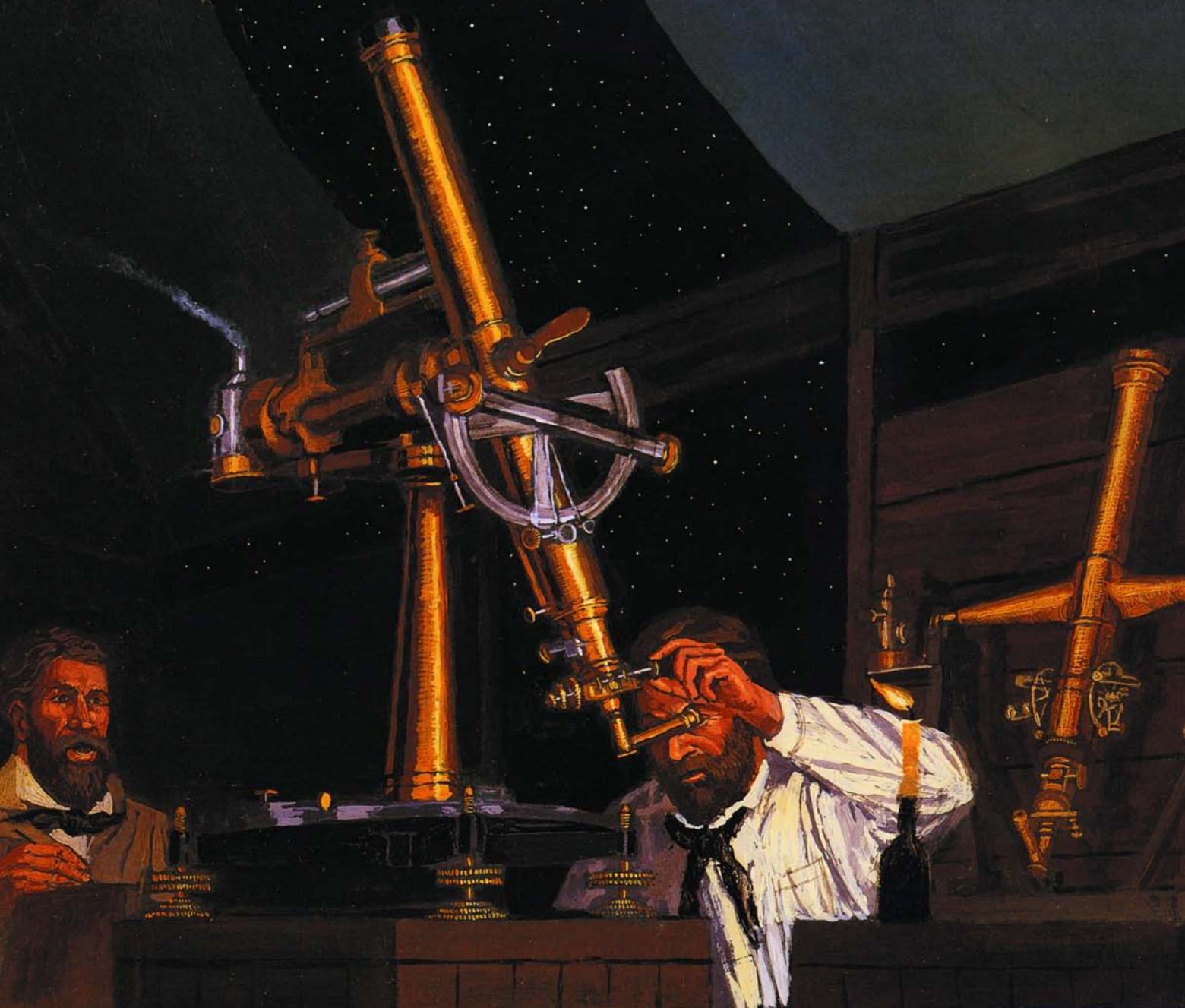
After training in Washington, D.C., Davidson worked on several small



Eastern projects. In the late 1840s, while the rush for gold was going strong, he was sent to California to undertake the job of charting the West Coast. It became his life's work.

In spite of heavy ship traffic, sailors arriving at California ports often experienced great hazards due to poor or nonexistent mapping of the coastline. The Gold Rush made it difficult to find available personnel as "gold fever" had taken hold and few people were interested in working for the government. Supplies were expensive and hard to come by. Davidson and his co-workers wound up doing the scientific work and the field work as well.

Author and illustrator Taylor Morrison succinctly but competently tells the story of Davidson's work in California, explaining complex concepts in terms that both adults and younger readers will appreciate and enjoy. He describes the financial troubles, the logistical problems and the hazards of field work on a remote coast. In addition to a well-told story, Morrison has created page after page of beautiful illustrations, both technical and otherwise. If you have ever struggled to explain traversing, control surveys and field mapping to people without mathematical training, then you will be glad to have this book as a sort of training aide.



“In the observatory, wisps of smoke puffed out of small oil lanterns that illuminated the telescope sights. The surveyors recorded when and where certain stars appeared and compared their information with tables made at the observatory in Greenwich, England. They listed the times and positions of stars passing overhead in the night sky. Rockwell noted the time and called out, “Up!” when a star was going to appear in Davidson’s telescope. Their frame of reference was an infinitely huge imaginary ball surrounding the earth, called the celestial sphere. The stars were moving across its surface like trains on tracks. By using the star map in the sky, the surveyors could determine their location on earth.” (p. 15)

Morrison’s images that illustrate latitude and longitude are fabulous. His illustrations of traversing around an island, measuring a baseline and triangulating a coastline are equally good (I would have liked to see an even more detailed explanation of how control nets function as skeletons in holding a map together). All in all, if you have ever done mapping with a plane table you

will love Morrison’s illustrations.

Davidson had trouble explaining what he was doing wherever he went because his work was completely outside of the experience of most people he encountered. He often received a hostile reception, the most severe of which was from the Makah Indians. The field crew had to build a breastwork around their camp and post a guard to keep watch.

Morrison’s illustration of naval officers in their gold-trimmed uniforms in the houses of the Indians is excellent.

The Coast Mappers tells about hydrographic surveying and coastal field mapping, describing a method of surveying that is probably gone forever, faded with the remote and wild landscape that was once the West Coast. The book is both entertaining and educational. The

acknowledgments and bibliography at the end reveal Morrison's inspiration for writing the book, as well as his in-depth research on the subject. A glossary of important terms is also provided. Blending careful details with a rich play of colors and light, Morrison's illustrations capture the intangible elements of the coast mappers' work. They seem to reveal why, in spite of the hardships, the "adventurous" were so attracted to the work. *A*

Editor's Note: The Coast Mappers is available on our website at www.theamericansurveyor.com. For information about other books by Taylor Morrison, visit his website at www.taylormorrison.com.

We also want to congratulate Taylor and Naomi Morrison on the birth of their first child, David Carter Morrison, who was born in May!

"...Harrison had to create an accurate picture of the giant cape. This was extremely difficult to do in 1851, long before aerial photography was available. Harrison hiked over the steep cliffs, mapping the terrain with a drawing board called a plane table. A rod man hiked ahead of him to a distant point and then held up a stadia rod. Harrison found out how far away the rod was by reading measurements from it through a small telescope on the table, called an alidade. Next, he determined the direction to the rod by drawing a line along the ruler on the alidade from the rod man's point to his point on the table. When they finished at that point, the rod man hiked to a new spot and Harrison followed him. They ran a traverse, or measured lines across the cape, to record the distance, direction, and height between many points. As the surveyors repeated this process from point to point, the headland began to take shape on the thick cloth paper. "The map grew as Harrison [a topographer] sketched all the land he could see. The plane-table party completed the traverse when they returned to the first point. They had to move quickly, because the paper got soggy when it was in the field for too long." (p. 23)

