

Qualities of a Good Mentor

SUCCESSFUL, rewarding scientific careers are often shaped and guided at an early stage by the wisdom and generosity of a good mentor. Sadly, one of my mentors, Bill Normark, passed away in January 2008, after a long battle with cancer. As a geologist at the US Geological Survey, Bill was an extraordinary mentor to graduate students (not to mention students of the vine and grape), even though such mentoring fell outside the scope of his government job description. Bill was patient, personable, and impeccably organized, a colleague and a friend. Reflecting on how Bill helped to shape me as a scientist led me to think about the characteristics of a good mentor.

I first met Bill Normark on a cruise in 1984, when I was a graduate student at Lamont-Doherty Earth Observatory. My advisor, Bill Ryan, wisely believed that the best way to train competent sea-going scientists was to send his students to sea as often as possible, even if the data collected would not relate specifically to our current projects or be included in our dissertations. Bill Ryan connected me with Bill Normark, who was chief scientist on an upcoming cruise to the Juan de Fuca Ridge, my thesis area. Bill Normark had an extra berth on the cruise and offered it to me. At sea, I observed an outstanding chief scientist in action and worked with a group of very capable scientists and technicians. In the years that followed, Bill Normark invited me on additional USGS cruises, helped me to land a summer job at the USGS in Menlo Park, co-authored papers with me, and ultimately played a role in my appointment as a co-chief scientist on a USGS cruise. If Bill Ryan hadn't had my interests in mind and picked up the phone, and if Bill Normark hadn't been so generous and thoughtful, these opportunities might never have come my way.

Based on what I learned from Bill Normark, Bill Ryan, and other mentors in graduate school and beyond (interestingly, none were women), any list of "qualities of a mentor" must include the following:

1. **Mentors create opportunities and open doors.** As a young graduate student, you often don't know where to knock. You aren't familiar with the opportunities out there and don't have the connections.
2. **Mentors know your strengths and abilities. They don't set you up to fail.** They challenge you to go beyond what you think you can do. But they don't have you tackle things you are not ready to handle (or may never be). A good mentor can know you better than yourself.
3. **Mentors set an example.** Sometimes it's just a matter of watching your mentor in action—how he or she conducts a cruise as chief scientist, prepares a manuscript or presentation, or analyzes data.
4. **Mentors want you to succeed and help you learn from your mistakes.** They are not in competition with you. They don't put up any roadblocks to success.
5. **Mentors want you to become independent.** The training you receive and the associations you build, often through your mentor, enable you to eventually function independently—whatever your ultimate career path.

The last time I saw Bill Normark was on a visit to California in the summer of 2006. He knew then that he was never going to be able to defeat cancer, but he remained enthusiastic about the latest cruises and papers, about international colleagues and foreign travel, and about the most recent batches of award-winning wines that were fermenting in his garage or aging in his storeroom. We talked about his latest scientific interests and, among other things, the continued evolution of this magazine. Bill Normark's work as a mentor was largely done by then, but the life-long impact of a wonderful mentor never stops. Whether mentoring comes naturally or requires an occasional peek at a checklist, the rest of us should strive to have a similar effect on the lives of the next generation of scientists.

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