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Standing on the Shoulders of Giants, and Slightly Lesser Giants

"Observing the evolution of our community, and how we have benefited from collaboration among the generations, pooling our experience, I'm reminded of a celebrated physicist, Isaac Newton, who claimed that his achievements benefited by his 'standing on the shoulders of giants.'"

Descartes and Galileo come to mind. (For Newton, "giant" was an unkind dig at Descartes' stature.) Amateur Radio science owes much to the mathematical breakthroughs that Newton achieved in his experiments involving calculus and physics. When we share our experience, we become a stronger community. And our common interest informs our other activities.

Above all, we benefit from the sheer diversity of our fellow hams. Ours is a fascinating fratority. Most know all the familiar examples: Jordanian kings and Arizona senators, Nobel laureates and astronauts, teachers and industrialists. I offer several less-well-known, but exemplary, lesser giants whose shoulders we stand on. Three come to mind. The first, an Olympic Gold medalist and scientist; the second, a motion picture cinematographer, and the third, a computer scientist. What they have in common: ham radio.

Britton Chance, W2IBK (SK), discovered radio at age 13, sailing the Caribbean and operating the boat's ship-to-shore transceiver. Intrigued by the prospect of speaking at a distance over water, he became a ham. By 17, he had built and patented a servo-driven boat autopilot. Later, on the US Olympic Sailing Team, he won a gold medal at the summer 1952 Helsinki Olympics. In between, he would earn an appointment as a university professor, and lead a research team at MIT's Radiation Lab developing World War II radar. His combined knowledge of radio, magnetics, and biology made him a pioneer in early magnetic imaging, and if modern MRIs are not his children, they are his nephews and nieces. I knew Dr Chance only slightly, as a neighbor. As a grad student, passing his Pine Street, Philadelphia home with its large, rotatable 40 meter dipole on the roof, I would spot him carving model sailboat hulls on his porch. Beloved by students — not because Chance was easy but because he was a demanding instructor — thousands came to understand biology, radiation, magnetics, and even ham radio in his classroom. We stand on his shoulders.

Another is cinematographer Garrett Brown, W3AFF, the inventor of the Steadicam, a mechanical device that stabilizes motion picture cameras that are operated by hand. His invention was a technological breakthrough that made possible the triumphant sequence of *Rocky* ("Yo, Adrian!") on the steps of the Philadelphia Museum of Art, the forest scene in *Return of the Jedi*, and other iconic films like *Bulworth* and *Bound for Glory*. His achievements in the technology of filmmaking won him both an Oscar and an Emmy. Garrett returned to Amateur Radio later in life, the mentee of a much younger ham, Chris Brady, N3CB, who encouraged Garrett to renew his interest from when he was licensed in youth as a Novice. He's an enthusiastic CW operator. (I am indebted to N3CB for reminding me.)

The third is Kristen McIntyre, K6WX, a Massachusetts Institute of Technology-educated electrical engineer and computer scientist, now a senior software engineer working with OS X and iOS at Apple. Kristen was licensed as an undergrad at MIT. Her career led her to Sun Microsystems, and later, as an entrepreneur, to Japan where she founded a software firm and became a student of Japanese culture. Kristen has a rare talent — the ability to communicate complex subjects in readily understandable ways. Those who have seen her presentations ("Maxwell's Equations in 45 Minutes," or "The Mighty Transistor") on YouTube, or better yet in person, marvel at her clear, lucid, and enjoyable manner of instruction. For young women, she told me last month, ham radio provides an accessible portal to a career in science, technology, engineering, and math (STEM). But she reminded me that "girls are social," and ham radio is also a social activity. Countless people have been introduced to our community by her appearances at Amateur Radio conventions and hamfests. Don't miss her presentation at Pacificon, "Again, Again...?"

What do these three hams have in common? The first thing is their remarkable accomplishments — including the breadth of their achievements in multiple fields. Achievements in their avocations facilitate achievements in their life careers. The second is their insatiable curiosity to discover or invent — to match problems with solutions. The last quality is their willingness to share their discoveries, to collaborate. Working in garages, backyards, laboratories, on porches, or behind a keyboard and screen, wherever they are tinkerers and problem solvers, they display the highest virtues of ham radio. They are explorers.

In the Second Century, we all ought to be explorers, pushing out the frontiers of knowledge, refining know-how, and sharpening skills by creating things. And for most of us, discovery is as satisfying as invention. Yet genuine innovation will achieve many goals at once, including utilizing our spectrum grants to their fullest, vigorously defending that spectrum, attracting new hams, and aligning efforts at the political level, to defend our right to build collateral structures like antennas. On these topics I will have more to say in future editions of "Second Century." For now, spend more time meeting our peers. Get on the air and ask a fellow ham what he or she is working on. You'll find them as interesting as you are. Be an explorer, or a lesser giant — but with broad shoulders.