

Devons Memorial

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A physics department maxim I learned early, perhaps from Sam, was that a professor is somebody who can hold forth on any topic for an hour and 15 minutes. With the task today, reviewing Sam's long and productive life, a lot more time would be needed. I suspect that, if Sam were asked to review someone else's 92 productive years, this would be the start of a long afternoon. But I have neither Sam's oratorical skills nor his boundless energy. Besides, many more speakers are ready and anxious to follow.

So I will limit my comments to briefly relate my sense of Samuel Devons as a scientist and professor of physics, prior to and after joining the Columbia department, where he served for a quarter century before becoming emeritus. Though I only overlapped his Columbia professorial days by two years, I came to know him directly and about him from others. Though he was not a physically large man, Sam was hard to miss.

The role of a professor of science in a research university (in brief descriptions) is four-fold:

1. Perform forefront science!
2. Teach the young!
3. Stimulate your colleagues!
4. Embrace important responsibilities!

Let me go through these as they relate to Sam's tenure as a professor.

1. Perform forefront science!

Sam was a force in experimental nuclear science when he moved to Columbia in 1960 – he had already achieved a substantial reputation, and had been made a Fellow of the Royal Society. At Columbia, he embarked on important experiments, including observations of heavy nuclei emitting X-rays after capturing muons – providing information about nuclear structure. The muon was and is a heavy electron-like metastable particle that was not yet understood. In an attempt to shed light on its nature, he looked to find instances in which a muon might decay into an electron and a photon -- the process should have been there if the muon were just an excited and heavier electron; that is, part of the same family. The decay was not found in a very sensitive experiment; this result was a forerunner of the demonstration a couple years later at BNL by Schwartz and collaborators of two distinct neutrino families associated with electron and muon.

In the same period, he discovered an expected process: β -decay of charged pions expected in analogy to the β -decay of nuclei. He also experimented with

stopped antiprotons to observe their annihilations with protons. These and other work done here and while he had been in Britain led to the award of the Rutherford medal and prize in 1970 – an honor given only once every other year by the British Institute of Physics.

2. Teach the young!

Sam brought a unique hands-on perspective to the practice of experimental science. Graduate students remarked often about his emphasis on doing. Several commented how they had learned more about doing real science from Devons than from anyone. He placed great store in solving problems on your feet! And getting the answers on your feet!

Getting fast answers led him to foster more extensive use of logarithms. The only other person I knew so committed to mental gymnastics with logarithms was Richard Feynman. Whereas Feynman would take logs and antilogs in his head, Sam argued to bypass that step and just remember the important physical constants in logarithmic form. No multiplying, no complications ... just adding. Fast answers ... on your feet.

He extended his hands-on philosophy to undergraduates beginning in 1970, when he became Director of the History of Physics Lab at Barnard. He'd assign students problems faced by famous scientists of the past, and get them to design and carry out experiments to address them. Generations of students took this course. Experiments of particular interest were re-created on film by Sam and his students.

3. Stimulate your colleagues!

- ✓ He brought new perspectives to old problems -- from mental gymnastics with logs, to unique teaching perspectives, to producing films on science history.
- ✓ While working on important research problems with colleagues and students, he brought more than energy, intellect, and technique to light up the problem; he brought his special personality and wit to lighten up the atmosphere. A vivid example: he was remembered by many for breaking into a full rendition of Groucho Marx'

“Lydia, oh Lydia

Have you seen Lydia

O Lydia, the tattooed lady ...”

- ✓ He founded and presided over the Joseph Priestley Society, to promote interactions among university faculty, high school teachers, and science museum administrators.

- ✓ He was an expert in histories of important physics ... particularly works by Newton, Franklin, Thomson, Volta, Rutherford, and Rabi ... he wrote articles and gave talks on them all. The last was less than three years ago at our departmental colloquium titled “Benjamin Franklin: Electron, Electricity, and King’s College, NY”
- ✓ He promoted connections among all the sciences, particularly between physics and biology.
- ✓ After retirement, he continued active involvement with many other ventures, some of which will be discussed more by subsequent speakers.

4. Embrace important responsibilities!

- ✓ WWII was begun as he received his PhD. Sam served several roles
 - As a science officer in the British air ministry, he worked on anti-aircraft barrages ... Students recalled Sam relating vivid experiences early in the Blitz of shooting 750-foot long wires from the ground toward low-flying planes.
 - He worked on radar and became a UK-US liaison officer with the MIT Radiation Lab, headquarters for R&D on radar.
 - He served as a British intelligence officer at the close of the war, interviewing surrendered scientists in Germany.
- ✓ At the University of Manchester, as Langworthy Professor of Physics (the position held previously by Ernest Rutherford, one of his heroes) he served as Director of Physics 1955-59.
- ✓ At Columbia, he served as department chair 1963-67.
- ✓ He served on technical aid missions to Argentina and held visiting appointments at various times in India and Israel.
- ✓ He served on the Board of Governors for Weizmann Institute in Israel for many years.

In conclusion, Sam leaves a substantial legacy in all the areas relevant to what makes for a professor:

- ✓ Great science!
- ✓ Teaching with a unique personal imprint!
- ✓ Real intellectual and human stimulation to his environment!
- ✓ Embracing important responsibilities throughout his long life, and doing them well!

Samuel Devons will truly live in the memory of the physics department as one of the greats!