Peter Roland Swann

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Peter was a gentleman in all the senses of the word. He trusted those around him, and helped them achieve things they did not always know they were capable of. He was a hard worker, talented inventor and a great organizer, extracting order out of chaos in any field he entered. He also had a wonderful sense of humor, and great gifts for going straight to the heart of the matter and for keeping things in perspective. He was always inspiring to work with, and he will be greatly missed.

Peter's scientific career started in Cambridge UK with a Ph.D. in metallurgy, a field that remained his first scientific love. He then became a researcher at the US Steel's Edgar Bain Fundamental Research Laboratory in Monroeville near Pittsburgh. Among the many discoveries and inventions Peter made at US Steel was a double tilt sample holder for a Siemens Elmiscope 1 electron microscope. Siemens, the premier manufacturer of electron microscopes at the time, became interested in Peter's design, and in 1964 Peter formed the company Gatan with his brother Rex to supply the holders to Siemens and to develop other devices for electron microscopy.

For the next one and half decades, Peter managed to combine a research career that culminated in a full professorship at Imperial College, London, with the role of the chief designer at Gatan. This led to long working hours and a large number of outstanding scientific contributions. In 1978 he came to Pittsburgh to direct Gatan full time. Gatan then really took off, especially after 1983, when Peter relocated its headquarters to the San Francisco Bay Area, and after "going international" with German and UK offices.

Electron microscopy has aptly been called "the eyes of science". Thanks to Peter's work, the eyes have become more open, more sensitive, and more sharply focused. As one example, Peter designed many different types of sample holders that allow scientists to look at samples that are cooled, heated, strained, in a gaseous environment rather than in vacuum – i.e., under the conditions they encounter in the real world, rather than sitting rigidly as if they were in a photographer's studio. This is now called in-situ microscopy, and it has greatly contributed to our scientific knowledge of the "real world". As another example, Peter pioneered using ion beams to micro-machine samples such as semiconductor chips, a development adopted by others with a huge impact on modern electronics and other fields. Gatan also became the leading supplier of specimen preparation equipment, pioneered electronic recording of microscopy data that greatly improved on photographic film, and developed a line of widely used electron energy loss spectrometers and imaging filters. It also introduced image processing software that has now become the standard software that is supplied with all the leading electron microscopes, no matter whether they are made in Japan, Holland, Germany, the Czech Republic or the USA. In many ways, under Peter's guidance, Gatan became the Cisco, Apple and Google of electron microscopy, all in one.

Peter's guiding principle was KISS – keep it small and simple. Another one was an insatiable curiosity about how things worked and how they could be made better. He would spend hours refining each new invention to purge superfluous elements such as screws that were not really needed, and in the process he would achieve a Zen-like purity of design. His interests ranged over many different areas of science and human endeavor in general. In each area, he quickly zeroed in on the essential and was bubbling with ideas about how to improve it.

Peter touched many things and made them better, and he was not shy about sharing his ideas. We used to joke that when he arrives at the Pearly Gates, he will say to the Peter with the halo above his head: "Very nice design, Saint Peter, but have you thought about making the path straighter by moving the Gates a little to the left, simplifying the supports to make them stronger, and …?" Those of us lucky enough to see the Pearly Gates ourselves one of these days will be struck by their perfection, and we will suspect that Peter may have had a hand in it.

Ondrej Krivanek