

Field H. Winslow



Field H. Winslow, the Founding Editor of *Macromolecules*, left this mortal coil in December 2009 at the age of 93. From here on we will refer to him as Stretch, the name bestowed on him as a boy. Stretch, who was a lanky six feet five, relished a good nickname, and when asked "Why Stretch?" he replied "The name kind of suits me".

Stretch grew up in West Rutland, VT, which seems to have been far from prosperous at that time, and always had some of the qualities ascribed to native New Englanders, especially concise speech. He had an interesting set of friends during his teenage years with colorful nicknames, and he was an accomplished storyteller who would regale the Bell Laboratories lunch table with their exploits.

A college education was far from common in those days, especially for the sons of families with limited resources. Stretch excelled in high school and was the recipient of the Vermont Special Scholarship, paving his way through Middlebury College. He spent summers working in the famous Vermont quarries and always claimed that he was accepted into graduate school at Cornell because of his experience with dynamite. His job at the quarry, as he described it, was to make "little ones out of big ones". His brother, Eugene, also became a chemist and taught at the University of Rhode Island.

Stretch studied chemistry with Professor William Miller, who was interested in organofluoro compounds as well as their synthesis and chemical resistance. There are no publications

from Stretch's graduate work as it was supported by the Manhattan Project. They needed various fluids that could be used in conjunction with uranium hexafluoride in the enrichment project, and this was highly classified. However, there is a reference to Winslow's work in a 1947 Miller paper on the polymerization of hexafluorobutadiene.

It was an obvious opportunity for Stretch to continue working for the government, and after obtaining his degree in 1943, he joined the Manhattan Project group at Columbia University in New York. Bell Laboratories had a major location (actually the original one) in lower Manhattan and a strong interest in polymer insulation and made a good move in hiring him in 1945.

During this time he met Runa Palsson, a Swedish émigrée. They married at the Little Church Around the Corner in Manhattan and lived for a while in Greenwich Village, which was in its classic mode then as a haven for intellectuals of all sorts. They had four children: a boy and three girls. Tragically, one daughter succumbed to a congenital condition as a teenager. Although deeply distressed, Stretch said little to his colleagues at work. He just did not want to talk about it for a long time.

In 1948/1949, Bell Laboratories moved most of its operations to the large Murray Hill facility in nearby New Jersey, the location most commonly associated with its name. There was a great deal of interest in dielectric materials. AT&T manufactured a lot of copper wire that festooned wooden poles all over the US as well as much interconnection wire for central offices with their myriads of electrical equipment; high quality, long lifetime insulation was an important area of research and development. It was understood that the paper insulation used in interior telephone wiring took up too much volume as well as being moisture sensitive, and polyethylene was an attractive alternative. Stretch was appointed to head a polymer department in the early 1950s. He led work on understanding polyethylene degradation and the identification of stabilizers and how they worked.

AT&T's need to understand the science behind organic polymer materials resulted in a decision to strengthen this area and created a number of openings in 1958. One of us (E.A.C.) joined Stretch's department in the summer of 1959 as a member of what was termed "the organic group". The other (A.J.L.) joined Bell Laboratories in 1977 but never served in Stretch's department. It was a bit daunting for some of the newly minted organic chemists to find themselves working alongside the "rubber group", which had a major interest in reducing the cost of insulation by adding oil. Stretch supported the mission of the six "organickers" to establish a place in the outside organic research world, and we had a great deal of freedom to choose our own fundamental chemistry research. That was during the "golden age" of Bell Laboratories research: a long time ago in a world far away that does not exist in any industrial laboratory today. None of us had any background in polymer chemistry, a

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field that was generally not well regarded in academia at the time. Osmotic learning followed, and some of us entered a new world with fascinating opportunities for research.

Stretch was an active part of the organic research community and provided much encouragement and support. It is important to mention some aspects of his personality that made him such an effective manager. As noted earlier, he had the laconic nature that Vermonters are famed for. Along with that was a very good sense of humor. Even more important was his reluctance to behave like a traditional manager, and he cared deeply about everyone in his group. It is too simple to sum this up by noting that he was as honest and upright a person as you will ever find. He always "told it like it was".

Only those "of a certain age" can remember the use of lead sheathing to protect telecom cables that were seen hanging from every pole. Nowadays, that would be simply unacceptable given all the effort made to avoid lead in the environment. But for a long time there was simply no alternative. Polyethylene had been discovered in the 1930s, but while its physical properties were attractive, it was prone to disintegrating in the sunlight. There was a great deal of effort invested by many laboratories to develop additives to protect the polymer. The general starting point was addition of carbon black, an inexpensive material that was helpful, but not enough to meet the AT&T goal of a 40 year lifetime.

The work of W. L. Hawkins (Linc to one and all), Vincent Lanza (who died in an airplane crash in the 1960s), and Stretch Winslow was recently the basis for inducting all three into the National Inventors Hall of Fame. They discovered an effective synergy between carbon black and some sulfur-containing phenolic antioxidants that enabled the replacement of lead by polyethylene. The patents covering this work were widely licensed, and "black polymer" is now the standard protective layer for outdoor cables.

There were several departments at Bell Laboratories that carried out research on polymers, ranging from physical chemistry to engineering applications. The work was highly integrated and contributed a great deal to industrial applications. When the possibility of using optical fibers for long distance transmission opened up, work on coatings and fiber technology ramped up. A significant part was in Stretch's department.

Macromolecules made its first appearance as an ACS journal in 1968. Before that there was no major ACS publication that included polymer research. Stretch was the Founding Editor, aided by Associate Editors Walter Stockmayer and Frank Bovey. He led *Macromolecules* for 27 years. The history of the early days of *Macromolecules* is covered in some detail in a 1992 Tribute marking its 25th anniversary and will not be repeated here [*Macromolecules* 1992, 25, 1]. Stretch's modesty and sense of humor were shown when he first saw that special Tribute to him and his two original Associate Editors (he had been unaware of it because it was meant as a surprise from the newer editors). His reaction was, "I feel like I'm standing in the window of Macy's with my pants down!"

Stretch guided the journal with great efficiency, foresight, and a zealous passion for the highest standards of quality. It was this emphasis on manuscript quality, novelty, and impact that very quickly made *Macromolecules* the most widely cited journal in the polymer field. His passion for setting the highest standards was exemplified by a story he occasionally told, namely, that he rejected the very first paper that was submitted to *Macromolecules*—a manuscript he had invited! Stretch was a champion of international science and encouraged submissions from outside the USA at a time when this was uncommon.

Stretch was a very conscientious editor who came in well before the usual working hours to ply his editorial trade, and he was careful not to ask his Bell Laboratories colleagues to review papers unless there was a very good reason. He generally did not say much about his editorial work, although there is good reason to believe that he was well aware of the unfortunate trend toward incremental publication that continues to plague all journals. He sometimes complained about those who were "making the ethyl out of what they had already made the methyl of". His keen eye for unjustified hype in science connected to his sense of humor, as in this story, which is obviously pure fiction. After the initial report of polywater in Russia in the 1960s reached the West, there was a great deal of attention paid to the work of Derjaguin, who presented a colloquium at Bell Laboratories in the 1970s. Stretch, one of the scientists who spoke with him, later reported this conversation: Professor Derjaguin, how much polywater do you actually have? About enough for 20 papers was the answer, with a twinkle in the eye of the reporter.

Stretch retired in 1987 at the age of 71. However, he kept his office and Editor position until 1994 and came in regularly for some years after that. Unfortunately, Runa died around that time, and he stayed in the house he had built in the 1950s as a rather lonely man until he married his high school sweetheart. She was not well and entered a nursing home several years later. His home, originally on a dirt road in the woods, came to be surrounded by huge houses that led him to ask each new neighbor if their name was Jones. Thankfully the answer was always no, as he would reply, "That's a great relief, for I wouldn't want to have to keep up with the Joneses". He maintained his interest in the scientific world for a long time after giving up his Bell Laboratories office and welcomed visits from his many friends. Isolation, a concern for anyone of advanced age, eventually took its toll. His death was not revealed by his family, and his friends found out only when the Inventors' Hall of Fame announcement was made.

Everybody who worked with Stretch appreciated his high standards, self-effacing modesty, straight talk, and delightful sense of humor. He set *Macromolecules* on the right course and provided the global polymer community with a major vehicle for dissemination of its most original research. He is missed by all who knew him.

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