

OBITUARY

Jonathan W. Amy, March 3, 1923–December 4, 2016

Jonathan W. Amy, professor of Chemistry, Purdue University, died in December 2016 after a career which saw his novel ideas for the utilization and development of chemical instrumentation have great influence. Jon Amy's life story can be told briefly: Jon's father was an English professor in Ohio where Jon was born in 1923 and where he grew up. His education at Ohio Wesleyan University was interrupted by service as a communications officer in the US Maritime Service during the 2nd World War. Jon and his wife Ruthanna moved to West Lafayette in 1948 so that he could do graduate work in Chemistry at Purdue University. He completed his Ph.D. in 1955, studying spectroscopy and establishing in the early fifties – in a tiny room under the main stairway of Wetherill Hall – an instrumentation facility which has now operated for more than six decades. Crowded space was not unusual at the time: Purdue Chemistry had over 500 graduate students (Masters and Ph.D. candidates) who competed fiercely, worked hard, and were rigorously trained. (We like to think all this is still true except that the Department Head no longer says, when welcoming the assembled new students: 'Look to your right, look to left: only one of the three of you will succeed.')

Jon and Ruthanna were the parents of three children, Joseph (Bur), James (Jim), and Theresa (Terry) who grew up in Ravinamy, a subdivision that Jon platted, and which grew into a strongly interactive community surrounded by ravines, high (a relative term in Indiana) above the Wabash River. He installed a saw mill, built his home, started a Fire Service, and continued his lifelong practice of solving problems – almost always those of others. (Jon lived his life in accord with a remark of Theodore Roosevelt: "What a man does for himself dies with him. What he does for his community lives long after he is gone.") He displayed this spirit too in his summer hometown of Bay View, Michigan, a National Historic Landmark, where he was active into his nineties as a lecturer (on modern biology amongst other topics!) in a Chautauqua lecture series. It was at Bay View too, that he came to know Betty Flood whom he married in 2000 after Ruthanna's death.

Jon Amy was a visionary who conceived how to maximize the effectiveness of analytical chemistry and especially analytical instrumentation. To him it was all about putting the right people together. Never one for rank or privilege, he saw three equally important parties: the graduate student (with a thesis problem and a mission to succeed), the faculty member (with a



Jon Amy, ca. 1988

He and his staff would spend considerable time on a technology, working with particular research groups. This happened with gas chromatography (L. B. 'Buck' Rogers), mass spectrometry (Fred McLafferty, John Beynon, Richard Caprioli, Graham Cooks, Ben Freiser, Scott McLuckey, Yu Xia), NMR (John Markley, David Gorenstein), XPS/ESCA (Robert Davis), SIMS (Nick Winograd), laser spectroscopy (Fred Lytle), and in many other areas. Sometimes the faculty members became (willfully?) confused about the provenance of the technicians/engineers, thinking that they belonged to their research groups. Jon's motivation was simple: he was out to solve problems. If this meant a communication system was needed in the Chemistry Buildings in the recent pre-tech dark age, he installed an audio system that with three dashes got you Jon's attention and -- got the shop (the system worked in basements, cell phones still don't!). If it meant learning a new

technology and bringing it to Purdue, he did that. William E. (Bill) Baitinger, Jon's right hand man in the instrumentation group, went to Wilkens Instruments for some months and brought back a good knowledge of GC. If it addressed the emerging subject of surface science, then Jon, through friends at HP, brought in the prototype commercial HP 5950A ESCA instrument. When it became clear that industrial sales forces lacked knowledge of GC, or MS, or instrumentation, then Jon organized practically oriented short courses to provide this information. The results of these efforts included numerous firsts – in surface science, chromatography, mass spectrometry, and in NMR. Jon was friends with Keene Demick and TZ Chu of Wilkens Instruments, Dave Packard of Hewlett Packard, Joe Keithley of Keithley Instruments, Bob Finnigan of Finnigan Corporation, and many, many others. He saw other people's points of view clearly, and sought to provide value to both the academic research staff and to the commercial enterprise; hence his tongue-in-cheek mantra "we never pay shipping," meaning that he provided a service to the companies and did not expect to have to pay for instruments, not even for shipping instruments that were brought to Purdue and then greatly improved upon.

As a problem solver, Jon was extremely patient. He worked gently with people, most gently with those who needed the most help. He urged careful work and clear thinking. As he noted, "There is always time to do a job twice, but never enough to do it properly." I never ever saw him angry, or heard him express disappointment. He focused on the technical problem and brought the people along. As Mary Wirth, former graduate student at Purdue and now Distinguished Professor notes "Jon was much more than a wizard in instrumentation: he was a polymath, he was wise, calm, and friendly." He saw the waste involved when newly appointed faculty used start-up funds poorly and so made himself the first port of call for entering faculty....he advised on instrumentation acquisition, used his industrial connections to achieve mutually advantageous arrangements with companies, and focused on achieving the best outcomes for all. Not surprisingly, he was instrumental in the late 1980s in setting up the Department's Industrial Associates Program, although many of his earlier activities were forms of industrial association. He also had a hand in establishing the university-wide Technical Assistance Program, an extension service for industry modeled on the Agricultural extension concept.

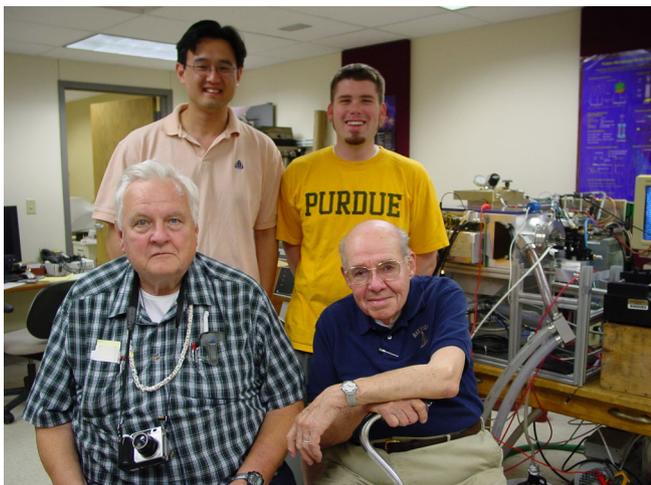
Jon also believed in not letting bureaucracy get in the way of getting the job done. In the author's lab, a promising ambient ionization method was being used to distinguish diseased and healthy biological samples, and it seemed that it might be useful in Parkinson's disease diagnosis and patient stratification. The process of getting samples was slow, and diagnostic studies were not helped by using artificial cerebrospinal fluid. The project was stuck without any patient samples. Jon Amy in 2014 underwent a medical examination that involved a spinal tap. He insisted that a larger than usual sample be taken and

then, in friendly but firm discussions up the medical chain, he had a sample delivered to Purdue for use in this research (which is consequently going well, with Michael J. Fox Foundation support and access to many human CSF samples).

Jon Amy was a notably quiet person who avoided recognition. He enjoyed cars (taking them apart prior to long trips and then reassembling the pieces). His volunteer services in the community were extensive and earned him the rare distinction of Sagamore of the Wabash, conferred by the Governor of Indiana. He was recognized by his alma mater, Purdue University, with an Honorary Doctor of Science degree in 2014, a distinction that he appreciated and quietly thought appropriate. He published little but was well known, and he greatly influenced the careers and success of many faculty members at Purdue, including Fred McLafferty, John Beynon, Harry Pardue, Graham Cooks, Fred Lytle, Sam Perone, Richard Caprioli, Peter Kissinger, Scott McLuckey, Hilkka Kenttamaa, and numerous others. He had a great impact on many, many graduate students and over the years, dozens of graduate students working in mass spectrometry have been funded to attend scientific meetings by the Jonathan and Ruthanna Amy Travel Award, established by TZ Chu to honor the couple. Jon's favorite role in the last decades of his life was reviewing instrumentation projects with individual students. Steve Unger recounts a typical example: "My fondest memory of Jon was his willingness to advise students on their scientific problems. On one occasion, I mustered up enough courage to inform him that 'My instrument stopped working.' Jon looked up from the schematics he was reviewing and asked '*What was the last thing that you did before it stopped working?*' He explained that he was a believer of cause and effect. I retraced my day's work with him and soon the SIMS was working again."

Mass spectrometrists will be interested in Fred McLafferty's comments on his personal experiences with Jon Amy at Purdue in the mid-sixties: "I arrived at Purdue in 1964 from industry, bringing no experienced co-workers or instrumentation. So, like the new Assistant Professors, our research start-up was highly dependent on the Amy group. Our first Purdue publication (GC/MS, 1965) had Jon Amy as first author, with Ed Chait (new grad) and Bill Baitinger. This study used a low-resolution Hitachi instrument, installed at the same time as a "high-resolution" CEC. Jon then pushed the 1967 NIH MS Center to obtain an even larger Hitachi (the RHM-2) and a larger computer to go with the PDP-8. He was always a key part of Purdue's great reputation in Analytical Chemistry!"

John Brauman, who got to know Jon Amy in the pre-FT ICR days of the late 1960s, remarked recently, "He was a giant, in my view, and a really wonderful person." Perhaps it is most appropriate that the last words go to the Jonathan W. Amy Professor of Chemistry, Paul Shepson, who notes "what a great, impactful life! There is so much to celebrate in Jon Amy, and his legacy."



Typical instrumentation lab scene, 2003, Jon Amy, front right, with clockwise, Bill Fies, Thermo Finnigan, post-doc Zheng Ouyang, grad student Thomas Blake. Photo courtesy Graham Cooks

The faculty of the Purdue Analytical Division established the Amy-Mellon Lecture in 1984 in honor of Jon Amy, together with an earlier renowned analytical chemist, Guy Mellon, who lived in Jon's subdivision of Ravinamy. The aim of the Lectureship was to connect graduate students to people with personal knowledge of the development of analytical chemistry over time. Jon Amy passed away on December 4, 2016, 3 days after attending the Amy Mellon Lecture and celebrating this event with a dinner in his home with members of the Chemistry Department and with 2016 Amy Mellon Lecturer Jeanne Pemberton of the University of Arizona.



Jon Amy (right) with Bob Finnigan, 2008. Photo courtesy Mike Story

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Comment: This is one of two articles about Jonathan Amy's legacy. The second will appear in the A-pages of *Analytical Chemistry* and will deal primarily with the Jonathan Amy Facility for Instrumentation Development.