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ALBERT PADWA: A RENAISSANCE MAN OF GREAT PASSION AND GRIT

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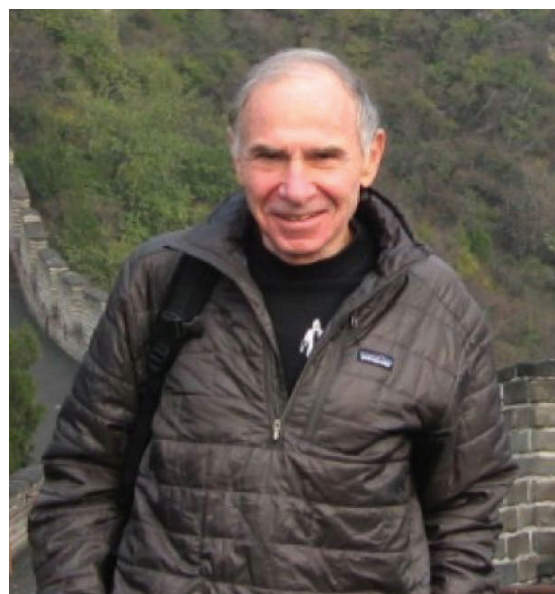
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Abstract – A brief personal tribute to Professor Albert Padwa is presented. This essay describes Padwa’s energy and passion in four fundamentally different areas of activity: his science, his contributions to the chemistry profession, his devotion to physical activities including trekking and mountaineering, and his creativity and artistry in the form of his mobiles and ‘rust art.’ A number of photographs highlight and document Padwa’s varied talents, experiences and achievements.

INTRODUCTION

“A Renaissance man is a person who has wide interests and is expert in several areas.”¹

Having avoided the formal study of statistics as much as possible yet having enjoyed the professional exposure to and application of statistics in recent years, I am immediately drawn to define the words “wide interests” in terms of factor analysis.[‡] As a great friend of Albert Padwa’s for over 20 years, I can attest to his passionate devotion to the following endeavors, among others[♫]: organic chemistry, the chemistry profession, physical activities including trekking and mountaineering, and the creation of mobiles and ‘rust art.’



Al Padwa at the Great Wall of China, 2010

[‡] “The analytical process of transforming statistical data (as measurements [observations]) into linear combinations of usually independent variables.”¹

[♫] Of course, Padwa has other *raison de'être*: his family and friends, his dogs, fine food and wine, reading, traveling, the performing arts, among others. But in this essay, I shall focus on my first list for reasons that will become clear in time.

I assert that these activities incorporate personality qualities and life skills that are so different from each other, they form four independent “personality and life skill” factors. They are (1) scholarship; (2) volunteerism and community service; (3) athleticism; and (4) artistic creativity. I claim that possessing such independent and significant “personality and life skill” factors entitles one to be judged to have wide interests and expertise in several areas. I further assert that once having established Padwa’s superexcellent performance in these categories, I will have established that he is a Renaissance man.

“PERSONALITY AND LIFE SKILL” FACTORS

1. Scholarship. Padwa’s scientific performance has been exceptional to warrant his being honored by the editors of *Heterocycles* in dedicating this special issue of the journal to him – and by the many friends and colleagues who have submitted papers for this issue. While there is no uniformly agreed upon analytical method to assess the impact of a scientist’s career, number of publications and impact factors of the chosen journals are two numerical indicators of productivity (see Table 1 and Figure 1). Perhaps the most telling and most endearing certification of one’s scientific contributions are peer-chosen awards. I name only two: Padwa has received the Cope Scholar Award from the American Chemical Society (2000) and the International Society for Heterocyclic Chemist Senior Award (1999). Other International Society for Heterocyclic Chemist Senior Awardees include Rolf Huisgen (1987), Edward C. Taylor (1989), Alan R. Katritzky (1993), Charles W. Rees (1995), Al. Meyers (1997), Victor Snieckus (2001), Larry Overman (2005), K. C. Nicolaou (2007) and Scott Denmark (2011). Excellent company! He has also received over \$13,000,000 in grants during his career, an indication of the promise and fulfillment of his research proposals, as judged by his peers. For an overview of Padwa’s science, see his recent Perspective² published in the *Journal of Organic Chemistry* as part of the ACS Division of Organic Chemistry’s Centenary celebration.

Table 1. Al Padwa’s publication record

Publication Criterion (as of December 31, 2010)	Number of publications	2010 Journal impact factor
Total number of publications since 1961	698	--
Peer-reviewed Research Articles	608	--
Book Chapters and Review Articles	90	--
<i>Journal of the American Chemical Society</i>	83	9.019
<i>Journal of Organic Chemistry</i>	226	4.002
<i>Organic Letters</i> (first published in 1999)	39	5.250

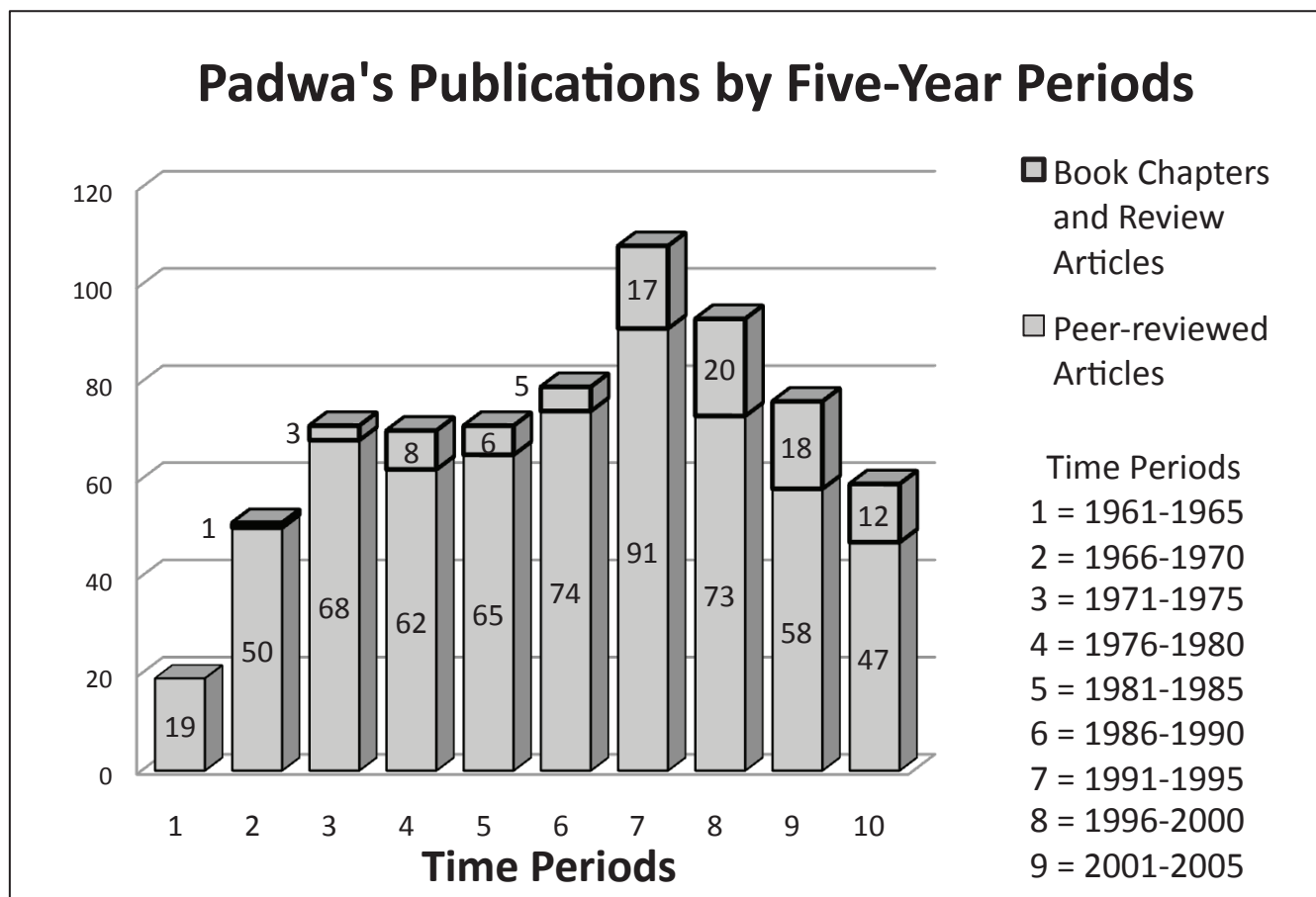


Figure 1. Padwa's publications by time periods.

2. Volunteerism and community service. Padwa is a man who has accepted his responsibilities as an active member of the community of chemists. He has been a contributing member of the chemical profession for his entire career. Over twenty-five years ago, he was Chair of the Organic Division (ORGN) of the American Chemical Society (ACS). For seven years in the late 1970s and early 1980s, he was an Alternate Councilor of ORGN, a governing board of the ACS. He has been on the editorial boards of various journals and book series and has been editor of several books. Since 2002, Padwa has been an Associate Editor of the *Journal of Organic Chemistry*. He has been active in the Society of Heterocyclic Chemistry for many years, serving as its Chair in 1994. He has mentored over 94 graduate students and 110 postdoctorals. His CV lists 629 invited lectures and 46 presentations at National ACS meetings. Together with Will Pearson, beginning in 1992, he has given 75 two-day courses around the world on heterocyclic chemistry, mostly for the pharmaceutical



With Will Pearson (the taller fellow)

industry. And as a professor for nearly 50 years, mostly at Emory University, he has taught an untold number of courses at both the undergraduate and graduate level. All this, not to mention the symposia that Padwa has organized, the journal advisory editorial boards he has sat on, the granting agency boards and study sections he has advised, and the various journal-issue guest editorships he has served.



A gathering of Emory's organic chemistry faculty members at the Padwa home, 2000. Front row: Debbie Mohler, Lanny Liebeskind, Dennis Liotta, Padwa, Fred Menger. Back row: (partially hidden) Frank McDonald, David Goldsmith, Jim Snyder, and Craig Hill.

3. Athleticism and Extreme Sports plus Travel. Al Padwa is a man of boundless energy. Seriously. There seems to be no limit to his store of energy. He does not “work out” in the gym or other locations four or five or six or seven times a week. Rather, Padwa’s workouts number eight or nine or ten times a week. Many days, there’s an early morning and a late afternoon workout with stretching in-between. But this routine is nothing when compared to Al’s training schedule . . . training for one of his notorious “outings.” These outings can be up and up and further up a mountain or series of mountains. Or they can be down and down and further down into the deepest of canyons. Of course, what goes up must come down. And the reverse.

Al has climbed ten 14ers (or “fourteeners”), known among us couch potatoes as mountains that exceed 14,000 feet (4,267 m) above sea level. There are 88 14ers in the United States. Twelve of these exceed 15,000 feet in height – all being in Alaska. I have joined Al in one of these adventures: Pike’s Peak, at 14,115 feet, this past August after the Fall 2011 National Meeting of the ACS.

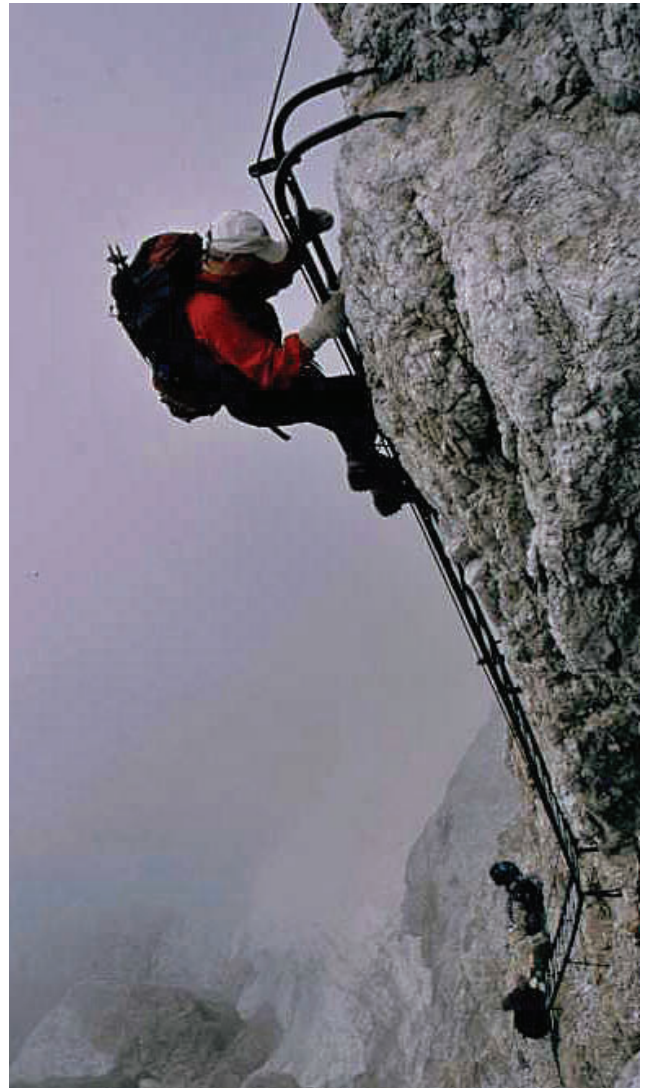


On Pike's Peak, August 2011.

Photo taken by J. I. Seeman who took an entirely different route to the peak.

The Barr Trail trailhead in Manitou Springs is at ca. 6,000 feet, so the Δ (my nomenclature) is about 8,000 ft. It was a tough day for us both. I had to get up at 5 am with Al to drive him to the trailhead. And then, I, poor me, had to drive, all alone, to reach the summit. Whew, was I ever exhausted, getting up that early. And then waiting in the coffee shop at the summit for over an hour as Al – highly-experienced Al – got lost and was quite late. In all seriousness, had Al been much later, he would have been in serious if not mortal danger: it began to snow and hail shortly after he reached the summit.

Al's athletic intensity has been with him his entire life. Even being in great physical condition does not allow Al to just go out and climb a major mountain without significant additional preparation. He will climb the stairs at Emory for hours every day, months in advance of a major climb, wearing a backpack filled with rocks. Who said doing science is tough!



Padwa climbing the Dolomites, Italy, 2002.



Annapurna in the Himalayas in north-central Nepal, April 2009.

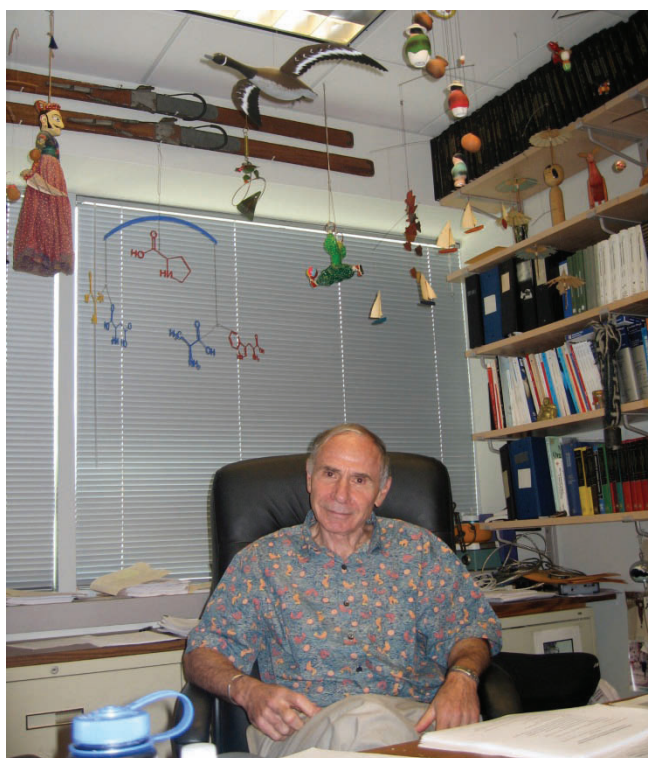


Mysore, India, March 2009.

Al's climbs have brought him to many exotic locations. He has taken advantage of the need to acclimate for several days at high altitudes. Among his coincidental tourist destinations have been Nepal, New Zealand, West China, Peru, Chile, Argentina, Kenya, Ecuador, and Bolivia.

Al's physical activities go beyond trekking and mountaineering and the preparation for such endeavors. He has reached the highest levels of reasonableness in racquetball, a sport which involves the placement of otherwise civilized individuals into a tiny boxed room with a little, black, very hard ball and a dangerous implement that is swung with all one's energy either at the ball or as close to the opponent vulnerable parts as possible. On a scale of 1 to 10, Al's competitiveness quotient is nearer 100. No opponent has ever been decapitated but many have anticipated such a premature ending to the game. One might say that Al's determination as a scientist is more than matched by his determination as a mountaineer and a racquetball player. (Not to mention handball.) Or *vice versa*.

4. Artistic creativity. For years, Al has been collecting mobiles. Indeed, his office at Emory looks like the Milky Way of Mobiles. There are



Al in his Emory office, 2011.



**From the Mobile Collection of Albert Padwa
"A Handsome Lizard- 2008"**

more mobiles in his office than Alexander Calder could have imagined! For years, Al's Christmas cards have featured his latest mobile purchase. His 2008 card is shown to the left.

A remarkable transformation occurred in Al in Melbourne, Australia in 2005 during his last sabbatical. Al began to explore his own artistic capabilities. As I recall, the first hint of breaking out of his shell – so to speak – was his discovery that he had talents as a juggler. He then advanced to arc welding. It was a short jump to “rust art.”

“Rust art” must not have made it big, yet, as I find it not on Wikipedia (as of September 20, 2011). But surely, you must have seen some rust art, if not in the Museum of Modern Art or the High Museum, then in the gardens of your local Sunday morning brunch-bistro. To further explain, one collects junk –

preferably rusty junk – and converts it into a Modigliani. (Truly, these sculptures look much better in person.) See Al's two skiers below.

Al, the adventurer! It was then just a matter of time before Al ventured into creating his own mobiles. And they are quite the thing, truly quite beautiful. Not surprisingly, Al's energy and passion was harnessed – or rather, he became that galloping mobile creator – and mobiles began appearing all over the places that Al favored. Al gave several of his mobiles to friends at Emory. Then others requested one for their office. “Padwa's mobiles” went viral. Today, in Emory's Chemistry Department, about 40 mobiles hang in various offices and other places like the chemical stockroom. Al has left his mark! Even *C&EN* has reported on Al's mobiles.³



“Skiers” by Padwa, 2009.

WORDS AND CONCLUSIONS

I assert that the above pages have demonstrated the real achievements of Albert Padwa. I further assert that I have provided more than sufficient data to establish that Padwa is, indeed, a Renaissance man. QED.

That being said, a number of Al's friends have wanted to add their own observations and thoughts. I have asked several of them to provide me with the one word that, in their experiences, best characterizes Al Padwa. They have also provided their own behavioral explanation for their choices in personality characteristic.

“Intense. I still remember playing singles racquetball with Al years ago. His intensity (and skill on the court) was unbeatable!” -- *Gary H. Posner, Johns Hopkins University*

“Gentleman and a Friend. When I was starting my independent career at a small school, Al made a discovery that could have allowed him to enter my research field and overwhelm my research program. He chose not to do so. From that point onwards I realized that even though Al has a competitive streak, he is very much a gentleman.” – *Huw Davies, Emory University*

“Collaboration. Al has the breadth of scientific interests and the generosity of personality to easily develop scientific collaborations. He is generous in his allowances and commitments to ensure that credit is given.” – *Mike Doyle, University of Maryland*

“Leadership. Al Padwa makes everyone who interacts with him better at what they do. Al has been an inspiration, for me to be the best that I can be. It is an honor and privilege for me to have Professor Padwa as a wonderful friend and a great mentor.” -- *John Gupton, University of Richmond*

Al with John Gupton, Spring National Meeting of the ACS, New Orleans, April 2008.



“Driven to excel. From my earliest days knowing Al in 1962 in Zimmerman's group, he has always demonstrated that basic drive to be excellent at whatever he tries.” – *Harry Morrison, Purdue University*

“Mentor. When I started at SUNY Buffalo, Al took me under his wing. My first publication was a paper with his group in *Tetrahedron Letters*. He also took me to my first National ACS Meeting, it was in Minneapolis, and he made sure I met all important physical organic chemists of the time. He was equally as tireless a mentor to his graduate students and postdocs.” – *Fred Wudl, University of California Santa Barbara*

“Engaging. In helping recruit me to Emory in 1984, Al entertained me over lunch at his (then) apartment in the Virginia Highlands neighborhood of Atlanta. Al put in the ‘hard sell’ over a lunch of quiche. He elaborated in depth the many great advantages of Emory University and the virtues of Atlanta as a great city. I got sick as a dog after lunch. It wasn't Al – it was the quiche. Gastrointestinal distress aside, I chose to be Al's colleague at Emory and haven't regretted one day of it.” -- *Lanny Liebeskind, Emory University*

“Confidence. Al Padwa is one of the most courageous, self-assured, decisive, certain, adventurous, and tenacious people I've ever met. On top of that, his confidence is flavored with a warm benevolence. Al has been one of my heroes since I was a first-year assistant professor at Michigan when he came to give a seminar. He embodies the qualities that I sometimes find missing in myself, so his friendship and mentorship has been profound for me.” – *Will Pearson, formerly of the University of Michigan, now a consultant*

I believe that Dale Poulter's comments immediately below summarize all of our thoughts:

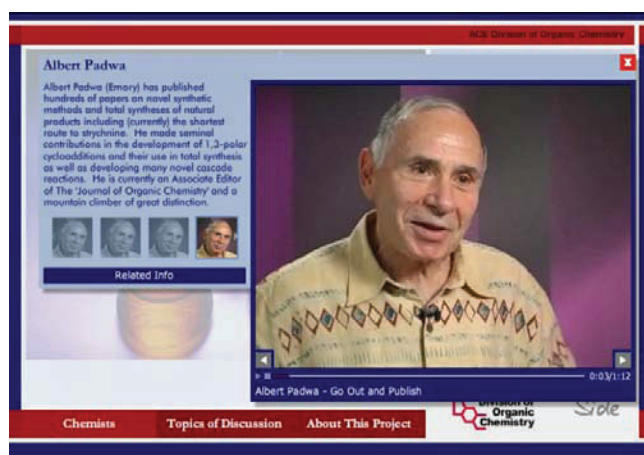
“Passion. Al approaches life with PASSION, whether as the world's foremost heterocyclic chemist, for his wonderful artistic expressions in creating mobiles and the iron art in his back yard, and for his enthusiasm for mountain climbing and trekking in remote locations often in extremely challenging conditions.” -- *Dale Poulter, University of Utah*

MY FINAL WORDS. Al and I met in 1990, when we both were members of the Advisory Board of the Petroleum Research Fund. We have been fast friends since then. Being scientists within a community of scholars offers wonderful opportunities of friendship and learning. And when the talents reach beyond chemistry – into the world of play – we are doubly blessed. Thank you, Al, for all the good times.



Al and Jeff, Alamo Square, San Francisco. Pastel by Aiming Sun, a friend and fellow organic chemist from Emory, 2010.

VIDEO INTERVIEW OF AL PADWA. As part of the ACS Division of Organic Chemistry's (ORGN's) Centenary celebration, a special website was developed containing video interviews of eminent chemists, one of whom is Al Padwa. To see and hear Padwa speak of his life's experiences, go to: <http://www.layingthegroundwork.com/chemists/>. See website screen capture below.



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Jeffrey I. Seeman is at the Department of Chemistry, University of Richmond. He is an internationally recognized expert in history and sociology science. He received his B.S. with high honors in 1967 from the Stevens Institute of Technology and his Ph.D. in 1971 from the University of California, Berkeley. He has published over 125 articles in the peer-reviewed scientific literature and patents, in fields as diverse as natural products chemistry, chemical physics, flavor and pyrolysis technology, aerosol science, theoretical chemistry, history and sociology of chemistry, and responsible conduct of research. Seeman currently serves on the Board of Directors of the Chemical Heritage Foundation (CHF) and as Chair of the Heritage Council of the CHF.

Seeman was the Editor of the prestigious series of 20 autobiographies of eminent chemists titled *Profiles, Pathways and Dreams* published by the American Chemical Society (ACS). He has served as Chair of the ACS Division of History of Chemistry, on the Advisory Board of *The Journal of Organic Chemistry*, and on the Advisory Board of the Petroleum Research Fund. He was Centennial Perspectives Editor for *The Journal of Organic Chemistry*. Seeman originated and runs the ACS HIST Citation for Chemical Breakthrough award program. He has also produced videos for educational and scientific purposes including documentaries of a number of eminent scientists as well as productions for the Chemical Heritage Foundation, Imperial College London, Emory University, the Johns Hopkins School of Public Health and Virginia Commonwealth University. He has produced and directed a major video web-based project, *The Archimedes Initiative*, aimed at improving science literacy in youth (www.archimedesinitiative.org).