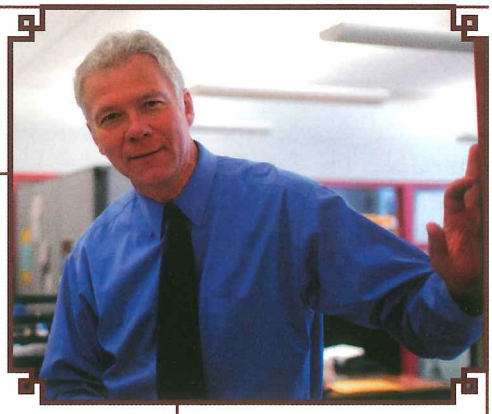
ELEMENTS

The Alumni Magazine of the Department of Chemistry at Virginia Tech - Spring 2013

From the Department Chair: Prof. Jim Tanko



Welcome to the Spring 2013 edition of Elements!

Undoubtedly, the biggest news this semester pertains to the renovation of Davidson Hall. As you may recall, the project involved two phases. Phase I (scheduled to be complete in January 2014), involved demolition of the middle and back sections and the construction of a new building. Construction is proceeding on schedule, and in December, there was a topping off ceremony: The final steel beam was placed at the top of the building, after being signed by several of the architects, construction workers, and university personnel. Assuming things remain on schedule, the tentative plan is to move several of our research labs from Hahn Hall South to Davidson by the end of Spring Break, and the temporary research labs in the Corporate Research Center back to Hahn and/or Davidson Hall by the end of May.

Phase II involves the renovation of the historic front section, and until very recently, it was unclear when that project would begin. Earlier this semester, we learned that Phase II may begin as early as July 2014. This means that the front end of Davidson will not be reopened this January as was originally planned. We will retain use of the Surge Building for both faculty offices and classrooms until Phase II is complete.

The Spring meeting of the Department of Chemistry Advisory Council (DCAC) was an outstanding success. Attendees included: Tom Piccariello (chair), Josh Bryson (co-chair), Beth Calvey, Rob Shenton, Bill Coleman, Frank Akers, Bill Bryant, Wayne Ogden, and the two newest members of DCAC: Ann Norris and Mike Ogliaruso. Ann earned her Ph.D. under the direction of Tom Ward; Mike is Professor Emeritus in the Department of Chemistry. In addition to business, DCAC members served as judges at our Spring Undergraduate Research Poster Session. First, second, and third place prizes for best poster were awarded to Kelly Young ($300), Matt Nguyen ($200), and Sandeep Pole ($100).

DCAC is in the early stages of planning a Davidson rededication ceremony to be held when Phase II is complete. This is expected to be an alumni reunion, similar to what was held a few years ago, and will include a blend of recreational activities and science. To help with the planning, we are conducting a survey of alumni to assess interest, determine the best time of year to have the event, and get some ideas for possible activities. If you are

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What's Inside:

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Department Chair *(Continued from Page 1)*

interested in participating, please go to:
http://goo.gl/XbXrdx

In other news, the Department is proud to announce the Dr. Roy H. Bible, Jr. (B.S. 1948) Memorial Scholarship. This fund was established by Mrs. Harriet Bible in memory of her husband Roy, who was a VPI graduate, Army veteran, and the founding Chairman of DCAC. The scholarship is directed towards undergraduate students on the basis of academic merit and leadership potential.

May was an eventful month. On May 9, the Department held its annual Academic Awards and Scholarship and Service Recognition Ceremony at the Inn at Virginia Tech. In addition to recognizing our graduate and undergraduate students who won awards and scholarships over the year, the winners of the major Departmental faculty and staff awards were announced. This year, Prof. Rich Gandour was the recipient of both the Jimmy W. Viers Teaching Award and the Alan F. Clifford Service Award. Lou Madsen won the John C. Schug Research Award, and Larry Jackson won the Harold McNair Staff Service Award.

There were a number of other noteworthy awards announced this past semester including: Amanda Morris (College of Science Diversity Award), and Jim McGrath who won the prestigious Charles G. Overberger International Prize for Excellence in Polymer Science and Engineering. One alumni, Ms. Susanne Dana (B.S. 1991, M.S. 1993, Anderson) who teaches at Blacksburg High School, won the ACS Southeast Regional Award for Excellence in High School Teaching.

The Department held its Spring commencement ceremonies at the Lyric Theatre in downtown Blacksburg. This year's commencement speaker was Prof. Paul Anastas. Paul is generally regarded as the "Father of Green Chemistry." Green Chemistry is a field of chemistry where the objective is to develop reactions and processes that minimize or eliminate toxic by-products, hazardous solvents, etc.

Two of our graduating seniors spoke at the ceremony as well: Mr. Daniel Shields (who earned a B.A. degree in chemistry summa cum laude), and Mr. Nicholas Deweerd (who earned a B.S. cum laude). Dan will be applying to medical school after graduation; Nick will be attending graduate school at Colorado State University.

Regrettably, Emeritus Prof. Paul Field passed away earlier this year, succumbing to leukemia. On a happier note, soon-to-be Prof. Jatinder Josan will be joining the faculty this Fall. Jatinder earned his Ph.D. in Organic Chemistry at the University of Arizona, and is currently a postdoc at the University of Illinois, Urbana-Champaign campus.

Rededication


Renovated Davidson Hall

The Department of Chemistry Advisory Council (DCAC) is planning a "rededication" and alumni reunion ceremony to coincide with the completion of the renovation of Davidson Hall. We are conducting a survey to assess interest in this event and to get suggestions about possible activities. To participate, please go to:

http://goo.gl/XbXrdx

J.P. Wightman

Participant in the Giant Acorn Sprint Triathlon
held at Lake Anna VA October 12, 2012

Juanita and I drove up to Lake Anna Saturday afternoon trying to listen to the Tech football game on different AM/FM stations from Blacksburg to Bumpass VA. We arrived in time to pick up my race packet and drive around the 12 mi bike course. Daughter Sharon joined us for supper in a nearby but "hidden" restaurant. She and I split a chicken and crab cake dinner. I got a good night's rest except for thinking about race details twice in the night.

Sharon and I went to a local mini-grocery and picked up egg/bacon croissants. We arrived at the race site [about 12 mi away] by 8:30a. It rained for the next couple of hours. The air temperature was on the low side of 50° F. Son Bill and grandchildren Liam and Alice joined us at the race site. Bill has done ironman and sprint triathlons before; Sharon has done sprint triathlons. So they were valuable on-site advisors and tension relievers. The **1/2 mi swim** came first. I was in the 4th or 5th swim wave and it was still raining when I started with the water temperature about 75° F. I didn't think my swim was particularly strong. When we were coming out of the water, the rain stopped!!! As fast as I could, I got ready for the **12 mi bike ride**. I didn't have all my riding equipment laid out neatly because of the rain. But, the bike ride seemed to go well. Most times when I glanced at the speedometer, it indicated higher speeds than my practice runs in Gloucester this summer.

I only took one swig of water fearing that I would lose control of the bike. I did run off the pavement once but quickly managed to get back on. I think the transition to the **3 mi run** was faster than the swim-bike transition. I seemed slow on the run. Bill told me to try and pick up the pace at different times during the run. I did try but not for long; it seemed like I was at my limit.

Please understand that Alice, Bill, Juanita, Liam, and Sharon appeared at different places during the race - begin/end of swim - begin/end of biking - begin/end of running. You can't underestimate the effect of hearing family members cheer you on. The run ended downhill on the same "path" we went down to start the swim BUT, we had to turn around and run back UP that hill. Brutal. My suggestion was that they install an escalator in next year's race for people over 65! Now a slight downhill run to the finish line where I joined hands with Alice and Liam just before crossing the finish line. Congratulations and hugs all around. Then pizza and pretzels and water.

The awards ceremony was well-done. The announcer encouraged everyone to stay for all the awards and said he was changing the order of presentation from past years. The first 3 "olympic" awards went to women ages 60-69. They came up to the podium to the sound of Olympic Games music and stood on #1 #2 #3 marked boxes to have their picture taken with their awards. You might guess who was called up second. Jim Wightman went up alone and stood on box #1 because there was no one else in his age group! Go Hokies. And he told the assembled participants that I was 77 years old!! Did you hear the roar of the crowd??? Sharon went and checked the preliminary times on the race postings. She read my unofficial time as 2 hr, 2 min, 24 sec. If that time holds, it will be 3 minutes FASTER than last year. We said goodbyes to Sharon [back to Hampton] and Bill and Alice and Liam {back to Harrisonburg] and headed back to Black as we are prone to say.

Where Are They Now?

Marion Franks (Ph.D. 1998, Merola)
Professor, North Carolina A&T University

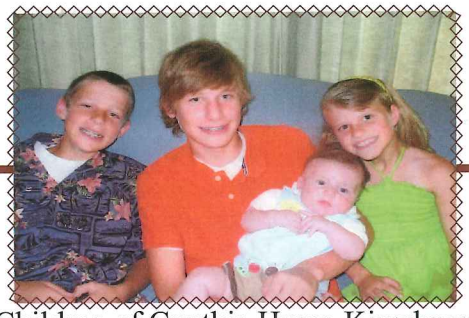
Kevin Schug (Ph.D. 2002, McNair)
Shimadzu Professor of Analytical Chemistry
University of Texas, Arlington

Anthony Lagalante (B.S. 2001)
Professor of Chemistry
Villanova University

J.A. "Pete" Kolbe (B.S. 1944)
Deceased 7/12/12, Richmond, VA

Winston "Jerry" Jackson (B.S. 1949)
Deceased 8/1/12, Kingsport, TN

Joe Thrasher (B.S.) (Ph.D. 1978, Clifford)
Professor Clemson University
Distinguished Service Awardee from ACS Division of Fluorine Chemistry and appointed to the Editorial Board for the Journal of Fluorine Chemistry



Children of Cynthia Hume Kirschner (Ph.D. 1993, Taylor)

Alumni Bob Schwerzel

Bob was the leader of "Brice's Disciples," the group of freshmen chosen in the fall of 1961 to participate in a research oriented chemistry lab in place of the regular freshman lab. The experience "changed his life."

"I went to my 45th Class of '65 reunion in 2010 and had a great time catching up with all the old geezers I'd gone to classes with. I'd also been back to the Chemistry Department a few times before then as a member of the External Advisory Council and saw firsthand some of the frustrations that the faculty have endured due to budget cuts and ever-increasing course loads. I don't know how successful we were in facilitating change – I had to cut back my involvement several years ago as my consulting commitments increased – but perhaps at least we helped to give a credible outside voice to some of the issues that the administration seemed unwilling to see, at least at that time. The current renovation of Davidson Hall is certainly a welcome step in the right direction, after all the years when that was promised but never delivered."

Chemistry News

Sanzone's Puzzle City

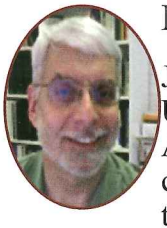
When it comes to designing the perfect city, George Sanzone has a knack for putting the pieces in place. Starting in November, the 69-year-old former Virginia Tech chemistry professor spent five weeks doing just that, as he pieced together elements from New York, Chicago, Los Angeles and several other cities in his custom 21,726-piece 3D city puzzle. "I just call it Gotham," Sanzone said. He began constructing 3D puzzles following his 1999 retirement, but soon found the standard puzzles sold in stores to be too easy. A little more than five years ago, he decided to take his hobby to the next level, first by adding buildings to expand a pre-made puzzle of Manhattan, and later by adding an industrial area in his second attempt at a custom city. Sanzone said his big improvement was the addition of a residential area, which he believes will be the final touch to his work. "My feeling is that there's not much else I could add," Sanzone said. Limiting new additions may be a good thing, as Sanzone's city — which spans over a roughly 64-square-foot area — has already outgrown his home and required him to rent a separate area for the puzzle. While he was more than happy to share his work and explain the intricacies of his creation, Sanzone said he didn't create his city for the attention of others. "It's something you do for yourself. I call it minor creativity." Sanzone's city ultimately fell, as he deconstructed it once the lease ran out on his rented space. He said there are a few remains; however, a comeback of his creation is unlikely.

By Travis Williams The Roanoke Times
(540) 381-1643

Long Named Associate Dean

Gary Long has been named associate dean for curriculum and instruction in the College of Science. As associate dean for curriculum and instruction, Long will be responsible for developing a sustainable process for selecting and awarding scholarships, providing leadership for curricular development and assessment and for recruiting and placement programs, diversity leadership, representing the college on university committees, and working with the assistant dean of graduate studies on graduate issues. He will also be involved in the development of forthcoming undergraduate degree programs in systems biology, nanoscience, neuroscience, and computational science.

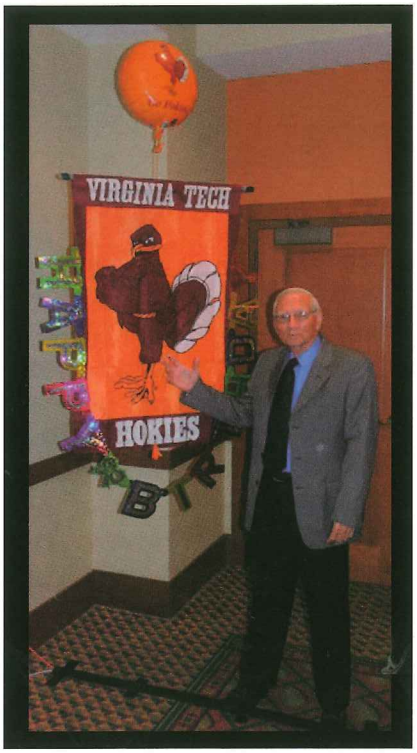
Merola Receives Award

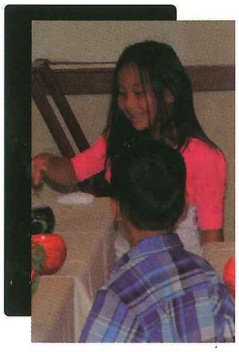


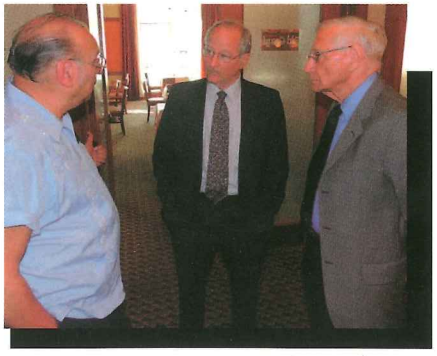
Joseph Merola received the University's 2013 William E. Wine Award. A member of the university community since 1987, Merola has taught more than 4,000 students, most of them freshmen. He has an overall teaching evaluation score of 3.7 out of a possible 4.0 across all courses he has taught. His teaching accolades include three college Certificates of Teaching Excellence and the Alumni Award for Teaching Excellence. He is a member of the university's Academy of Teaching Excellence.

Professor Emeritus Tom Ward with wife Randall

Harold McNair ... 80 Years Young







Faculty Spotlight

by Laurie Good

Professor Paul Carlier .... Love of Science Sparked in Middle School

What are the chances today of an 8th grader being able to purchase 100 mL of concentrated sulfuric acid and not end up expelled, in juvenile jail, or at the very least on the FBI's radar for terrorists-in-the-making? Fortunately, Prof. Paul Carlier grew up in a time and place where it wasn't unusual to have a chemistry lab in the basement—despite the occasional minor explosion.

Ironically, Organic Professor Paul R. Carlier's love of chemistry was sparked by a middle school science teacher who was unable to answer a basic chemistry question: "WHY does sodium chloride have one chloride, magnesium chloride have two chlorides, and aluminum chloride have three chlorides?". The "I don't know" response so irritated him that Carlier decided to find out for himself…and so began a career in chemistry. Paul followed his chemistry B.S. at Hamilton College (Clinton, NY) with a Ph.D. at MIT, after which he joined Polaroid in Cambridge. While the three-year industrial experience was certainly useful, it nonetheless had the unintended consequence of pushing him into academia.

Prof. Carlier has long had an interest in travel, and in Chinese culture and language in particular (he is now fluent in Mandarin). His wife of 27 years, Debbie, is of Chinese descent. They first became acquainted when her mother taught Paul's sister piano, and Paul's mother taught Debbie's brother guitar in their hometown of Rochester, NY. They started dating in College and when she finished her Masters in Public Health at Boston University, they strategized on overseas opportunities that would facilitate her interests in working in developing nations with his desire to begin his academic career in a dynamic international setting. Thus in 1991 the couple moved to Hong Kong where Paul joined the Hong Kong University of Science and Technology (HKUST) during its inaugural year. While Debbie worked for World Vision all over Southeast Asia, Paul helped to develop the university's now internationally ranked chemistry program.

Although his training and experience was largely in organic synthesis, it had no linkages to biology. That all changed when Carlier became interested in medicinal chemistry at HKUST, starting with research into Alzheimer's Disease and depression funded by an international partnership with the Mayo Clinic. In research that continues today, Carlier based his investigations on the fact that molecules can have "left- and right-handed forms"—basically mirror images of each other. Even though their atomic composition and connectivity are the same, they interact differently with other "handed" molecules, just as a right hand only goes into a right glove. Paul used the example of a molecule whose right hand configuration could be used in a sedative drug formulation, while its mirror molecule could cause birth defects.

After nine years in Hong Kong, not to mention the addition of two daughters (Melissa, a rising UVA sophomore, and Megan, a high school junior), the couple reluctantly decided to leave Kowloon and return to the U.S. Paul's visit to Virginia Tech left a lasting impression—principally as a result of "an amazing combination of fantastic people and an unwavering commitment to high quality science." He joined VT in 2000 and remains convinced that very few other institutions have a similar combination of collegiality and powerhouse science. His research here at VT continues to involve the synthesis of organic molecules in only one

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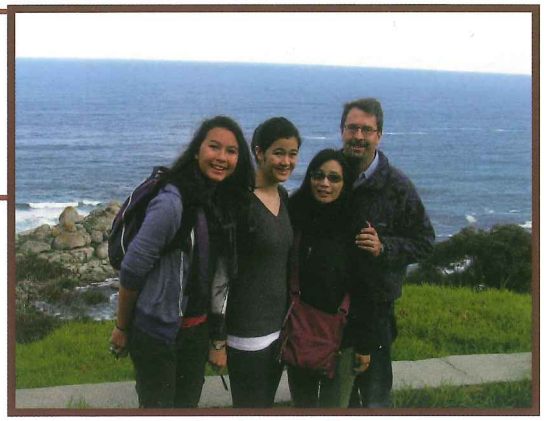
Faculty Spotlight ... *(Continued from Page 7)*



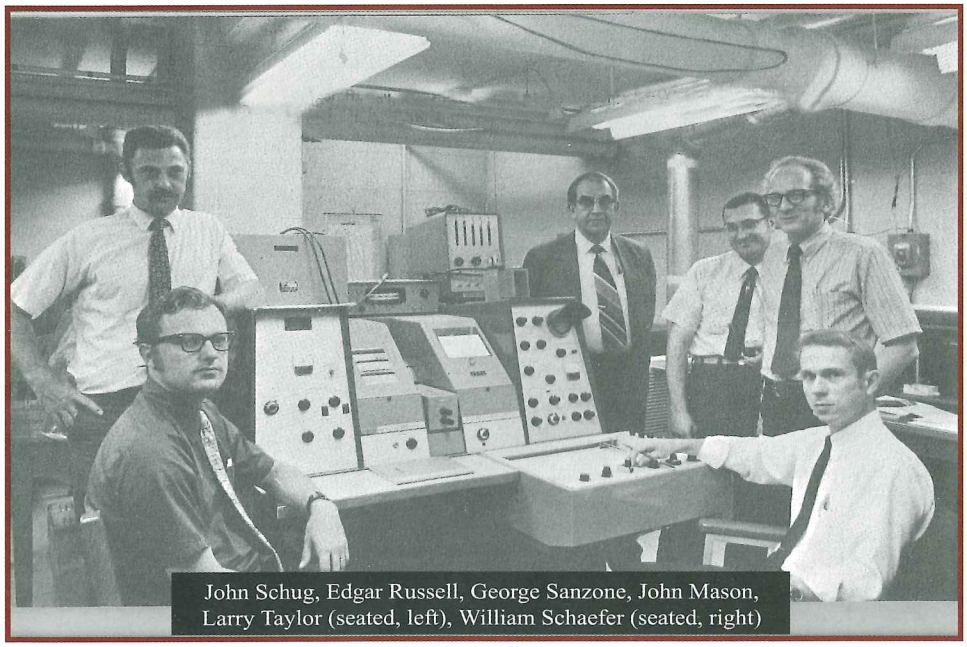
Carlier Family
(Megan, Melissa, Debbie, Paul)

(right- or left-) handed form, for example for use in the drug class, benzodiazepine, which can have a calming effect on many functions of the brain. With funding from the Gates Foundation, the NIH, and the Foundation for the National Institutes of Health, Carlier is also working with Vector-Borne Disease Research Group at VT to develop an entirely new strategy to kill the mosquito that transmits the malaria parasite. He is collaborating with Prof. Jeffrey Bloomquist (Univ. of Florida) as part of a three-year, $1.4 million effort to develop a new class of insecticides that will interfere with the mosquito's nerve signal mechanisms, thus preventing it from flying—and therefore biting, which is how the disease is transmitted.

While not in the lab, Carlier is an avid and skilled amateur cook, an active member of the Blacksburg Christian Fellowship, and enjoys classical music. He lamented, however, that his favorite pastime is also the most expensive one—travel.

Prof. Carlier was quick to stress that even though the papers and grants are rewarding for an academic, "it is ultimately the people that make being a professor so satisfying." In his thirteen years at Virginia Tech, Carlier has mentored "tremendous students and postdocs," including his current group of six graduate students and three postdocs.

Relics - Instruments and Faculty



John Schug, Edgar Russell, George Sanzone, John Mason, Larry Taylor (seated, left), William Schaefer (seated, right)

Larry Jackson

by Laurie Good

If there is more than a handful of Chemistry staff, students, and faculty who haven't been rescued by Larry Jackson in one way or another over the past several decades, then consider this article a work of fiction. Winner of the 2013 Staff Service Award, Larry Jackson—Chemistry's Computer Systems Engineer—comes by his love of electronics and travel quite naturally. Larry was born on an Army base in Germany where his father happened to be stationed when the second of his five children (and the only son) was born. After a few years at Fort Knox in Kentucky, Fort Greely in Alaska, and Fort Dix in New Jersey, Larry and family returned to Culpeper, Virginia, his father's hometown. Larry credits his peripatetic upbringing with easy transitions to new schools and new friends. Although he considered a career in the Air Force once he graduated high school, he opted instead for an engineering degree from Virginia Tech. While an undergrad, Larry also worked for two years in Chemistry's Electronics Shop with supervisor Rick Miller, who obviously had an impact on his eventual career path. First, however, was a post-B.S. industrial position with Singer-Link working on aircraft flight simulators. His thinking at the time was that a career as a field engineer would also feed his love of travel. Unfortunately, the reality of living out of a suitcase for months at a time while traveling between his principal assignments in Philadelphia, Los Angeles, and Honolulu was somewhat less thrilling in reality than it was on paper.

Some years later, Larry decided to return to Southwest Virginia—an area he'd grown to love—for a VT Masters in Electrical Engineering…that is until Rick Miller lured him back to Chemistry with a full time job offer with the Electronics Shop. That was 33 years ago. As Larry reflected back on three-plus decades in the field, he noted that each has featured somewhat different tasks. The first 10 years were principally involved in electronics repair. With advances in technology, Larry spent his second decade working in manufacturing design and fabrication—especially interfacing many new instruments to computers. Now, Larry is tasked to provide computer support at all levels and for a much larger department than when he decided to take the job in 1980. In short, despite a long career with Chemistry, Larry stated that it still feels challenging. The combination of "fantastic people" and ongoing advances in electronics and equipment has made for a very satisfying profession. And as everyone who has benefited from his help knows quite well, Larry's measured pace is reflected in his patient and thorough approach to helping solve IT problems throughout the department.

On the personal side….More than 20 years ago Larry was introduced to Lucinda Roy, a Professor of English at Virginia Tech as well as an accomplished author and lecturer. They were married in 1994. Larry is now stepfather to Joseph and grandfather to Austin—a role he enjoys since he's able to relive the best aspects of his childhood…but on a slightly bigger budget.

Anyone who knows Larry well can count on hearing travel tales from his many cruises—in a good year perhaps two! His favorite places/experiences include seeing the fjords of Norway, sampling the culinary delights of Florence, Italy, traipsing around Barcelona, Spain, and sailing north toward a former home state, Alaska. Larry enjoys all the arts, but especially music. He's also an avid reader of sci-fi/fantasy and history. In terms of more athletic pursuits, although Larry enjoys tennis and downhill skiing from time to time, his main sport these days is wallyball, which is similar to volleyball but played in a racquetball court. A 20-year veteran of the sport, Larry now mostly considers it a good excuse to go get a beer with friends afterwards.

Staff Spotlight

Hannah & Anna

Anna Hawthorne *(by Laurie Good)*

Anna Hawthorne recalls once responding to the typical "What do you want to be when you grow up" question with "A poor man's philanthropist...a good-deed-do'er." Fortunately for Chemistry, Anna is achieving that goal as the department's Undergraduate Program Coordinator, a position she has held since 2006.

While somewhat of a cliché in these parts, Anna Hawthorne really does bleed orange and maroon. In addition to her own B.A in Interdisciplinary Studies, she has Hokies on both sides of her family. Anna grew up on a small farm in Southside Virginia and came to Blacksburg as an undergraduate in Fall 1995. With degree in hand, she then supported herself for a couple of years with various part-time jobs including stints as a substitute teacher, an adjunct instructor for a local community college, and a paralegal in her uncle's law office. Once back in Blacksburg she worked part-time at the University Bookstore, was a receptionist at VT's Communications Networks Services, and drove a van for a local retirement community. Even though the job variety was wonderful, the lack of benefits inspired Anna to seek full-time employment. In April 2002, Anna switched from being part-time at CNS to being a full-time receptionist/secretary in the Pamplin College of Business—a position that groomed her for the ultimate switch to her current profession.

Anna feels fortunate to be able to provide information and advisory guidance to chemistry undergraduates at Virginia Tech. Given her educational and professional background, she feels well equipped to assist students in carving their own paths with as few pitfalls as possible. She thoroughly enjoys working with the faculty, staff, and students in the department and takes pride in connecting chemistry undergraduates with resources available to them.

Anna can also be found at least one night a week at Blacksburg's only movie theatre, The Lyric. Although starting there on a volunteer basis some years ago, she is now a paid projectionist and thus has once again returned to "multi-job" status. Anna half-jokingly stated that she took her full time position at Virginia Tech in part for the state benefits—in contrast to the Lyric position, which was the "fun side job." However, since working in the chemistry department she has amended that statement: Working with undergraduates is the "fun job with state benefits."

Anna's Top 10 Personal Tidbits List

1. She is a chronically tardy procrastinator whose friends and family have started wagering on her arrival times at social functions.
2. She's a knitter, but so far only tackles very simple scarves.
3. She once received a Facebook friend request from the lady who actively tried to get her suspended in high school.
4. She has had an interest in Rhode Island ever since she did a 5th grade project on it and discovered that her home county (Brunswick) is almost half the size of RI. (She has yet to visit any of Rhode Island's 1,214 square miles.)
5. She is a spelling/grammar fanatic. In fact, Anna presented a poster at a regional academic advising conference last year dealing with grammar and how we, as stewards of higher education, should use grammar properly.
6. She loves getting other people to laugh – although she really prefers it when people are laughing *with* her, not *at* her.
7. She describes her living space as "organized chaos."
8. She has skydived (skydove? skydiven?) once.
9. She has no sense of smell… it's called *Congenital Anosmia.*
10. She once tried to email Frank Beamer (and the writer will leave it up to you to ask her how that went…)

Hawthorne Family

Graduate Students

Marwa's Story

by Laurie Good

Determination… thy name is Marwa Abdel Latif. If there were extra credits to be awarded for the number of hurdles a student had to overcome to join and thrive in a Ph.D. program, then Marwa Abdel Latif, a 3rd-year graduate student in Prof. Jim Tanko's group and the 2012-13 recipient of Chemistry's Community Service Award, would already be hooded.

Marwa Abdel Latif is a woman without a country. Although born in Lebanon, she has basically lived all her life as a refugee. Her grandparents fled from Jerusalem to Palestine in 1948 when conditions become intolerable; after all those years the Palestinians continue to view the Abdel Latif family as "visitors." As a third-generation refugee, Marwa had no rights to scholarship opportunities in Lebanon even though she was a stellar student; nor could her family even *own* anything. Marwa, who considers herself both Lebanese and Palestinian (and is proud of both heritages), eventually had to attend a United Nations high school for refugees. In fact, she was among the very few gifted students who were awarded UN scholarships. Her talents and potential were eventually rewarded by both the Hope Fund Organization and AMIDEAST, which sponsor educational opportunities for students from the Middle East in the U.S. Ms. Abdel Latif was the first young woman in their entire sponsoring region to come to this country for college during the 2004 academic year.

With the encouragement of her parents (and kudos to them for sanctioning such an incredible leap of faith!), Marwa entered Randolph-Macon Women's College in 2004 on full scholarship—but with no money, hardly any English skills, no computer familiarity, and little understanding of the American system of education. These were minor hurdles for Marwa, who volunteered in various campus offices to improve her English and learn how to type. With the help of wonderful host families, Marwa double majored in chemistry and biology with the hope of becoming a doctor. When she graduated from R-M in 2009 she had $33 in her pocket and little likelihood of entering med school—she couldn't even afford to take the MCAT. Fortunately for Virginia Tech, however, Marwa also fell in love with chemistry while an undergraduate.

Although she really wanted to attend graduate school, finances continued to be an ongoing hurdle—not to mention the fact that she could not get a job in the chemical industry because of security clearance issues. Thus, Marwa survived with the help of friends, part-time jobs, volunteer and paid work in K-12 science classrooms, and sheer determination. Enter the astute Prof. John Morris, then Graduate Director for Chemistry, who waived her VT graduate school application fee. Despite offers from a number of institutions (e.g., Rice) and a permanent job offer from the Baylor College of Medicine, Marwa joined VT-Chemistry in 2010. She is the first to admit that she struggled her first semester, but with encouragement from many (e.g., Prof. Paul Carlier), she began to thrive—especially when she decided to study kinetics with Prof. Jim Tanko, a field that "made total sense" to her.

Marwa is currently working with Prof. Tanko, studying the detailed mechanism, kinetics, and thermodynamics of the one-electron oxidation of carboxylates using electrochemical methods. She is especially interested in the timing of electron transfer and CO_2 loss, and how hydrogen bonding may change the mechanism. Marwa considers herself fortunate to have joined the research group of Prof. Tanko, a mentor she describes as supportive, challenging (in the right way!), and hands-offs—although he knows when to step in for guidance. Prof. Tanko notes that "Marwa is

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Graduate Students ... *(Continued from Page 12)*

making superb progress because she is highly motivated and able to work well with only nominal input from her advisor. Her motivation and enthusiasm for chemistry are infectious, and she is a joy to work with."

Not surprisingly, Ms. Abdel Latif has been extremely active in the department and throughout the wider campus in service activities. In addition to her contributions to the Department for which she was awarded the 2012-13 Service Award, Marwa will again serve as President of the Council of International Student Organizations and President of Academic Excellency and Leadership (AEL) national graduate honor society. She also serves on the Commission on Student Affairs and the Commission on Equal Rights and Diversity (CEOD); in fact she will serve as CEOD's representative on the University Council. In recognition of her academic and service activities, Marwa was admitted to the "Order of the Gavel,"

Professor Jim Tanko presenting the "Order of the Gavel" Award

a prestigious honor society at Virginia Tech; she was also selected as one of the top VT/Blacksburg community leaders for 2012-2013.

Lest you think Marwa has little time for hobbies—think again! She enjoys dancing, especially belly dancing, and she loves to read about "random science fields." Mostly, however, she is "passionate about changing people's perspectives about what they can accomplish." Because she considers herself to be "the product of the work of so many people," Marwa is determined to honor the many who have helped her by one day sponsoring and supporting other Palestinian refugee students. Given her track record for accomplishing goals—and with passion—those refugee students will be fortunate indeed.

Graduate Student Hemp

Sean Hemp of Raleigh, N.C., a Ph.D. student is helping to invent new therapies that target genetic disease and cancer. Working with Professor Timothy Long, Hemp creates polymers that have the potential to deliver nucleic acid molecules which may carry genetic information within DNA and RNA. "Sean exemplifies a genuine inventor. He has an unbridled passion coupled with keen intellect and infectious curiosity," said Long. Delivering foreign DNA and RNA to the body is difficult, but can serve several health benefits, especially in the case of genetic disease and cancer, according to Hemp. Effective uptake of nucleic acids allows for the delivery of genetic code that may correct malfunctioning DNA or eliminate mutating cells, such as cancer. The body's natural defense system quickly detects naked DNA or RNA and eliminates them. Polymers are an important part of delivering the nucleic acid and targeting only cancerous cells.

Jianxiong (Catherine) Bao (M.S. 2008, Taylor) and Song Zhao (Ph. D. 2008, Etzkorn) celebrate the birth of their first child. They live in Henrico, VA.

Giving

Every institution of higher learning is faced with increasing costs and diminished state funding. The Department of Chemistry at Virginia Tech benefits greatly from donations from its alumni, corporate sponsors, and friends in helping to bridge the funding gap. Unrestricted contributions to the department's general fund have an immediate impact on day-to-day operations. Working with its advisory council, the department has also established several endowed funds to address specific needs over the long term. Depending on their priorities and interests, donors may designate their gifts to one or more of these funds knowing that their gifts will go directly to that area of departmental need.

Donations to both the general fund and the endowed funds are needed and appreciated, helping the department in the short and long term. Contributions to the general fund are a primary source of discretionary funds at this time. Contributions to an endowed fund provide a steady, sustained stream of funding for the purpose supported by their fund.

The table below provides a brief rationale for each area, along with the information needed to direct donations to that area of need.

Name of Fund	Impact	ID Number
Chemistry General Fund	Provides discretionary funding for a range of activities including graduate and undergraduate recruiting and scholarships, commencement, faculty, staff, and student activities and awards, faculty recruiting, seminar program, alumni newsletter, and more	881327
Larry Taylor Excellence Fund	This endowed fund provides long-term support for a range of departmental activities including scholarships, recruitment, awards, and more.	886047
Harold M. McNair Alumni Endowed Fund	Supports graduate education and recruiting in the Department of Chemistry by augmenting stipends for graduate students to make them more competitive, funding visits of prospective students to campus, providing travel funds for professional meetings, and more.	885802
James P. Wightman Lecture Series Excellence Fund	Brings outstanding speakers to campus, benefitting students, faculty, and the university community.	860634
Chemistry Friends Scholarship	Undergraduate scholarships **awarded** according to potential and need.	885487
Dallas Kinser and R.T. Johnson Scholarship	Undergraduate scholarships **awarded** according to potential and need.	885628

Giving ... *(Continued from Page 13)*

When you receive your College of Science Annual Fund letter or phone call, please earmark your support for the Department of Chemistry to the general fund and/or one or more of these special funds. Simply make a notation on the gift card or let the caller know that you want to direct your donation to the Department of Chemistry, and then include the specific fund name and number.

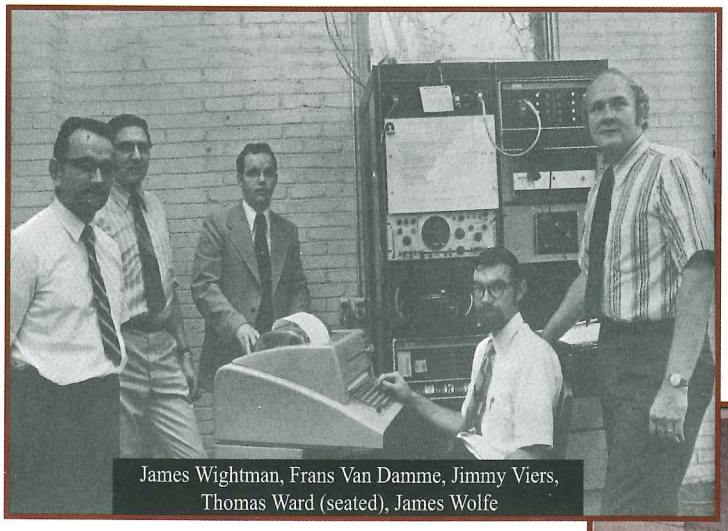
To make an immediate contribution online or by mail, please go to the chemistry web page for instructions:

http://www.chem.vt.edu/alumni/alumni-giving.html

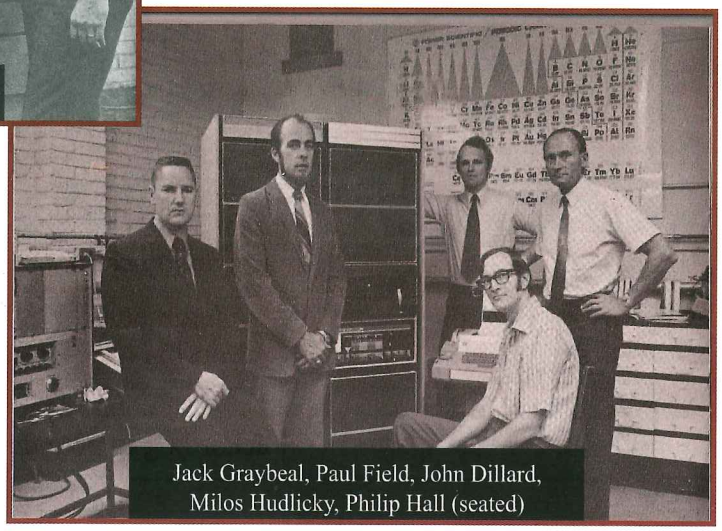
For more information about these funds or to learn more about other ways to give, please contact Jenny Orzolek, Director of Development for the College of Science, at (540) 231-5643 or jorzolek@vt.edu.

We thank you in advance for your support!

More Relics - Instruments and Faculty



James Wightman, Frans Van Damme, Jimmy Viers, Thomas Ward (seated), James Wolfe



Jack Graybeal, Paul Field, John Dillard, Milos Hudlicky, Philip Hall (seated)

ACKNOWLEDGEMENT: The Department of Chemistry is indebted to Prof. Emeritus Larry Taylor, Ms. Angie Miller and Ms. Laurie Good for their efforts in the publication of Elements.

Donors to Chemistry

Appreciation is extended to all alumni, friends, faculty and organizations that have contributed to the Department of Chemistry at Virginia Tech over the years. Your gifts truly make a difference and can be designated for general department needs or specific programs and scholarships. The following names are donors for the period July 1, 2012 - December 31, 2012.

The Department of Chemistry acknowledges the generous contributions of the following faculty members to the Department's gift fund, which is used to support the holiday and retirement gift fund.

Arachchige, S.
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Castagnoli
Crawford, D.
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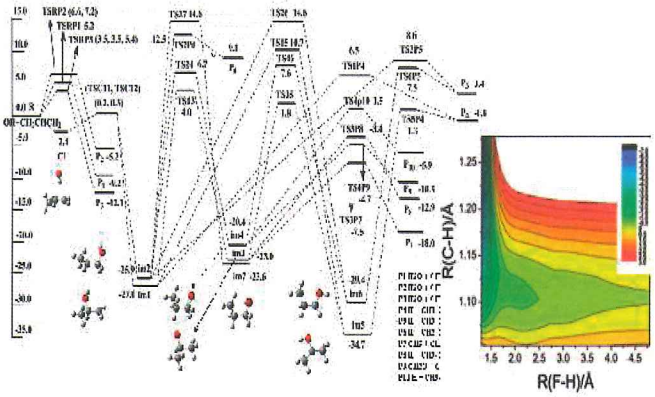
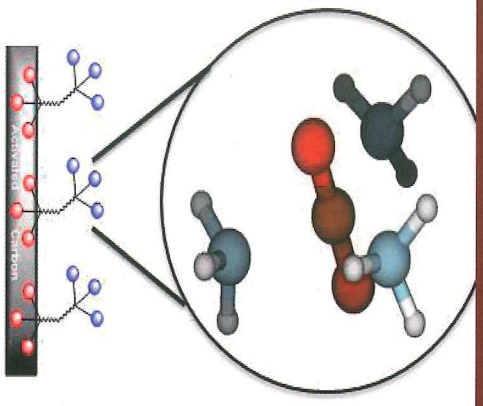
Research in the Troya group

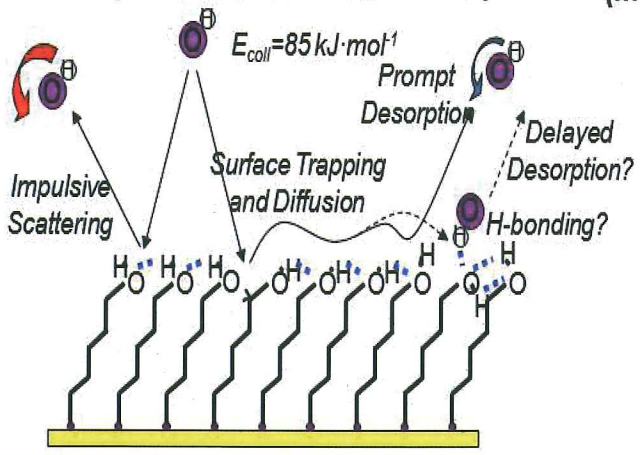
Dynamics of atmospheric reactions (Terpene oxidation by OH radicals)



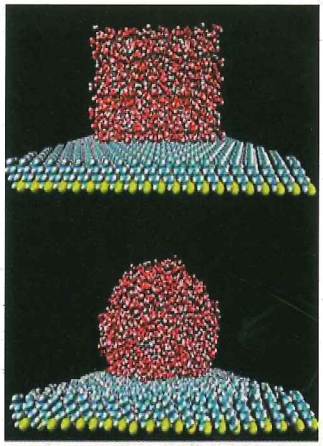
Designer materials science (Sorbents for CO_2)



Environmental gas/surface dynamics (OH collisions with surfactants)



Water and surface-science simulations (Molecular studies of the hydrophobic effect)



The Troya group utilizes computational-chemistry techniques to investigate a variety of applied problems ranging from gas-phase reaction in the environment to the behavior of water in the vicinity of hydrophobic surfaces.

Two main techniques are employed in the group to understand the fundamental details of chemical reactivity and interaction: ab initio quantum chemistry and molecular dynamics simulations. Ab initio calculations provide us with an extremely accurate prediction of the potential energy landscape for chemical reactions and intermolecular interactions. These data are subsequently used to guide molecular dynamics simulations, which enable us to follow the time evolution of chemical systems.

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