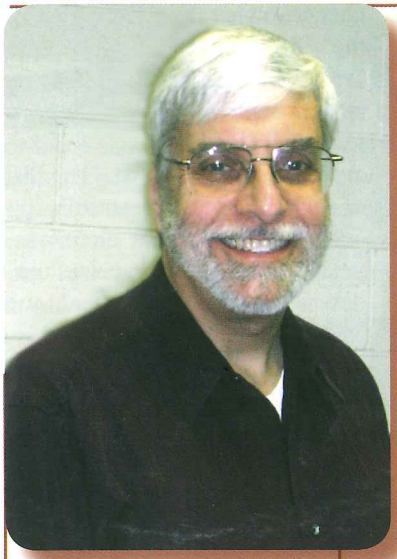
ELEMENTS

The Alumni Magazine of the Department of Chemistry at Virginia Tech - Spring 2007



From the Department Chair ...

Dear Friends,

As I thought about my comments for this issue of "Elements", I could not ignore the Ambler-Johnston/Norris Hall tragedy that befell this wonderful university on April 16. It is still difficult to comprehend the events that occurred that day and President Steger has said it well when asked about life returning to normal. He stated: "It will never go back to what it was before. There's a kind of new normal that's there."

I thought I would share with you some of the comments that I made during commencement this Spring since they combine words about the tragedy with hopeful words about the future that our new graduates will help to shape. I hope these remarks will have some meaning to you.

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What's Inside:

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We Remember April 16, 2007 . . .

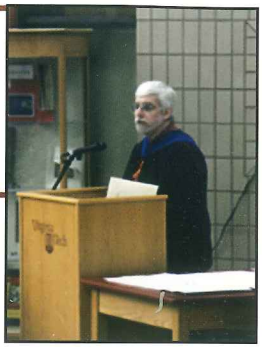
I've never been prouder of my collegiate heritage than in the past weeks. The losses were so extreme, the coverage so extensive, the interviews so poignant, the compassion for all involved came forth. As I told Dr. Merola and in a separate letter to Dr. Steger and the BOV, Virginia Tech showed it's character in ways nothing short of miraculous. The students and teachers were poised, thoughtful and respectful. Seeing the buildings and campus on TV brought back floods of memories. Both Norris and Ambler-Johnston were very familiar to me. I'm so sorry for your personal loss. Please tell the students and the Tech community they are in the thoughts and prayers of all, but especially in the minds of alumni. In many ways, all we really have is each other. *(Stephen R. Springston, Brookhaven National Laboratory, BS '78)*

I can hardly imagine what those parents are going through even with kids of my own. I hope they are able to find solace and comfort. It's still hard to believe something so horrible happening there where it is so beautiful and peaceful. *(Matthew M. Ellison, Hexion Specialty Chemicals, Inc., PhD '95)*

We've been thinking of you as we follow the news about VT. I hope you're weathering this difficult time okay. It's very tragic! *(Mary Burness, wife of Jim Burness (deceased), PhD '75)*

Continued on Page 3

Department Chair *(Continued from Page 1)*



Commencement Remarks
May 12, 2007

Graduates, this is YOUR day to celebrate your years of hard work and accomplishment. But, we cannot pretend that the events of April 16th did not occur. And, we do NOT want to forget. We do not want to forget those whose lives were tragically ended and we do NOT want to forget the spirit of strength and unity that those events brought out and showed to the world.

Sometimes, for solace, I turn to a verse from Ecclesiastes, better known to those of my generation as lyrics from a song by the Byrds: Turn, Turn, Turn. "To everything there is a season and a time to every purpose under heaven." "A time to laugh, a time to weep." The verse that particularly caught my attention was the phrase: "a time to cast away stones and a time to gather stones together." I then thought of Virginia Tech and Hokie Stone. We use stone to build memorials and make monuments. Here at Virginia Tech, we also use this stone to build the buildings where we teach and carry out our research. I do not want to dwell on the names of the victims, not because I do not want to honor them, but because this is a special day to honor you, the graduates. So, I place this stone before you during this ceremony both as a memorial to those who have fallen and a sign of our strength that we will use to build the future.

Let me lean on the words of Irwin Kula in his book "Yearnings: Embracing the Sacred Messiness of Life" to give you some parting thoughts. "Don't we all want life to make sense? To find some underlying purpose to the continuous ups and downs, the fear and joy, the accomplishments and disappointments? The sages encourage us to study life for clues and act as if that understanding were possible. At the same time, they teach there is no meaning: only a kind of dance between meaning and ambiguity; understanding and misunderstanding; faith and doubt; essence and no-essence. And the more joyous the dance, the richer and more holy the life.

We may accept all of this intellectually, even think it's obvious. But how many of us see our daily challenges as holy? We relish order, neatness, resolution. We forget that life has no straight lines or easy paths. The process of becoming is circuitous, to say the least. Yet so many of us expend endless energy wishing and trying to make it otherwise. We long for those happy times of satisfaction, even celebration, of feeling like all is well, balanced, and fulfilling. We can't help but be surprised when those happy times don't last. We believe families are supposed to get along. Jobs are not supposed to be lost. Faces are not supposed to get wrinkles. In short, most of us think life is supposed to work out the way we hope it will or even expect it to. We secretly want the kitchen to finally be clean. And yet, if the kitchen was always clean, there would be no meals."

So go out there – prepare those good meals and don't worry about the dirty kitchen. But when you go, take with you the hokie spirit that has been felt around the world in the last few weeks. We have all seen the outpouring of support for Virginia Tech in its time of need. The department has received wonderful letters from alums from all over the world and even from elementary school students. You have probably seen some of the remarkable displays of support on the web. I just returned from picking up one of my daughters from Bucknell, and all over that campus I saw stickers that said VT/Bucknell. If you have not yet had the chance to visit the drillfield or Squires student center, I highly encourage you to do so. The displays of support are truly beautiful.

So, no matter what circuitous path your life takes, whatever ups and downs you suffer, no matter how many wrinkles you get, know that this is all a part of life and live it with that Hokie spirit. However you wish to express it "Hokie Nation", "We are Virginia Tech," "We will prevail," keep that spirit with you always – it is something very special.

Einstein stated: "Imagination is more important than knowledge. For knowledge is limited to all we now know and understand, while imagination embraces the entire world, and all there ever will be to know and understand." I hope that we have enflamed that spark of imagination that is within you because you will use that imagination to add to our knowledge in the future. Whatever you do, use that imagination and you will go far.

I looked for more words that I could borrow to conclude these thoughts. But, when all was said and done, I couldn't do better than a third grade student from Robinson Elementary School in Woodstock, VA: "I hope you feel better soon. I hope you have a good summer and Go Hokies."

Go Hokies and show the world what you can do!

We Remember

Reflections on April 16, 2007

I made the trip to Virginia Tech yesterday at the suggestion of my wife. She knows how much I love the University and felt that I should be there. She was right. It was a bit like visiting a good friend that lost a family member. I wanted to be there to support them. I also needed to be there so I could deal with the loss myself. I made the trip with two classmates from Tech who are now in Charlotte. Just as we arrived we saw two other friends from Raleigh and you could see she had been crying. Her two sons, both at Virginia Tech now, were with them. As we had not seen all the memorials he described them by saying "It's like attending church multiple times". I think this says it all. Unlike a week ago, the sky was bright blue and the weather was perfect. Across the drill field were tents and areas with flowers, notes, candles and other items placed in memory to those who lost their lives in this tragedy. Every tree was tied with a black ribbon with an orange and maroon bow. Although there were quite a few people on the field it was so quiet all you heard was the birds chirping. I don't think I can describe the feeling, but you knew God was present. We did not talk much about the tragedy, but more about our days at Virginia Tech. And although this was 25 years ago the memories are still strong. I think that's the best way to handle things like this, remember the good times. In front of Burris Hall were engraved stones with the names of every person who died, even Cho. Most had messages of remembrance, flowers and pictures. Cho's place had flowers and a note to his family expressing sympathy. If students can do this then I think perhaps there is hope. Not only has the Tech community come together but so has the nation. Universities from across America have sent boards with with thousands of signatures. Grade schools had made cards. I saw one note from preschoolers who could just barely sign their name. Everyone has been touched and everyone wants to help. I have been asked two questions recently; the first friend asked if all the campus is as beautiful as what we saw on television. It is and more so. The second friend asked if they should send their son to Tech. The answer is yes and if ever I have the chance I would love for my daughters to go to Tech. It's a special place drawn closer by tragedy. *(Scott Banks. B.S., White Knight Engineered Products, BA '81)*

Now that commencement is finished, maybe life at Tech will come to some normalcy. I believe that the administration at Virginia Tech have done a commendable job in managing this tragedy. The press descended upon them looking for a scapegoat or more drama, and the honest transparency of the answers was crystal clear to all watching the news. Awarding post-mortem degrees to those who died was a fitting conclusion and farewell. I hope that the healing starts, and the second-guessing ends. *(Chuck Johnson, PhD '85)*

I read about the massacre at VT in the newspapers this morning. Terrible. How is this possible in such a peaceful place as Blacksburg? More than 30 killed. Once again I am very glad that gun possession is not as liberal in Holland as it is in the USA. *(Teris A. van Beek, Wageningen University, visiting professor, 1990's)*

I can only watch from afar and offer prayers and support. I watch and I see the school that I love and I remember all of the places I see on TV. I remember cutting through Norris all the time. I am so thankful you all are ok, but I am so mournful and sorrowful for those who passed. *(Scott Boyd, BS in Biochemistry 1990's)*

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Professor Larry Taylor (just a few photos from 1967 - 2007)

Jim Rancourt, PhD '87

Phyllis Eckard, PhD

Swati Shah, PhD

Mehdi Ashraf-Khorassani, PhD '88

Cynthia Hume Kirschner, PhD '93

William Potter, MS '75

Peter Thompson, MS '94 and Rose Shi

Robert Brown, PhD '83

William Moore, PhD '96

Thompson Strode, PhD '95 (on left) and Wesley Yoo, MS '96

Chuck Johnson, PhD '85

Patricia Graham Amateis, PhD '84

Elizabeth Madigan Calvey, MS '84; PhD '90

Dennis Madeleine, PhD '88

John Hellgeth, PhD '86

Eugene Khor, PhD '83

Stephen Ezzell, MS '83

Shelly Reisch Porter, MS '97 (on left) and Karen Yang, MS '96

Sherri Jordan, PhD '95

Lori Heldreth McDaniel, MS '85; PhD '99

John Cooper, MS '82

Paul Jedrzejewski, PhD '96

Muh Wang, MS '85

Alumni Highlights

GROWING COMPANY

Polymer Solutions Inc. has moved to a 10,000 square foot facility in the Blacksburg Industrial Park. We did minor renovations and the place is awesome. Went from 2 fume hoods to eight fume hoods, 2 loading docks… Our CRC site was about 4750 square feet so this temporary move has fixed our space crunch nicely. Groundbreaking for our new facility was December 2006. (Jim Rancourt, PhD '87)

ACADEMIC ALUM

Edward C. Lisic (Ph.D. 1984) recently published a paper with three undergraduates entitled "Synthesis of a Series of Dihydro-4,4-Dimethyl-2,3-Furandione Thiosemicarbazone and Semi-Carbazone Compounds", *Journal of Undergraduate Chemistry Research*, **2007**, 1, 47. Eddie is Professor of Chemistry at Tennessee Technological University in Cookeville, TN, PhD '86)

CHEMISTRY TO COOKING

I received my Elements and read it with interest. The late Dr. Krug inherited the department after Dr. Watson and was a no-nonsense and organized professor and taught as such. I read with interest the iron chefs use of winter squash. I am going to try a new one for me, Sweat Meat, Mock Pumpkin Pie is a good one for the chefs, tastes just like pumpkin. The Yankees here 40+ years ago would walk by my garden and say, "You can't eat them gourds". They tasted just like cardboard. (Hudnall J. Lewis, MD)

MADIA RETIRES

After 32 years of service to Battelle, Dr. William J. Madia (PhD, 1970), Executive Vice President of Laboratory Operations, will begin a transition toward retirement at the end of the year. Dr. Madia currently leads Battelle's laboratory operations business, where he oversees the management or co-management of five Department of Energy national laboratories: Brookhaven National Laboratory, Idaho National Laboratory, the National Renewable Energy Laboratory, Oak Ridge National Laboratory and Pacific Northwest National Laboratory and one national laboratory for the Department of Homeland Security, the National Biodefense Analysis and Countermeasures Center. Madia's tenure at Battelle was marked by the expansion of the company's laboratory portfolio from one to six laboratories. During this period, Madia served as laboratory director at both Pacific Northwest and Oak Ridge, the only person to have served as director of two multi-purpose national laboratories. Before leading the national laboratories at Richland, Washington, and Oak Ridge, Tennessee, Madia managed Battelle's global environmental business and served as president of Battelle Technology International, director of Battelle's Columbus Laboratories in Ohio, and corporate vice president and general manager of Battelle's Project Management Division.

CHEMISTRY TO CLERGY

Taylor, Harvey, Horning

I (Tim Harvey, BS '92) have been married to Lynette for 14 years, and we have 3 children: Emily, age 11; Zachary, age 7; Rose, age 5. In 1999, I graduated from Eastern Mennonite Seminary with a Master of Divinity Degree, and have pastored 2 churches during the past 8 years. I am presently pastor of Central Church of the Brethren in downtown Roanoke. My wider church involvements have included writing a Biblical commentary on the books of 1 and 2 Thessalonians, and also serving on the Church of the Brethren General Board, of which I am the vice-chair. Our family interests include running, hiking, camping, yard work, school involvement and enjoying our neighbors. Fairly standard and exciting stuff for a family with 3 kids. Seen here with Tim and Professor Taylor is Les Horning (MS '90) who pastors the Mennonite Church in Christiansburg, VA.

CHEMISTRY TO GARDENING

I have been busy with piano lessons, needlepoint and my garden. We cleaned out the pond on Monday – it was full of algae and dead leaves. But everything is growing, waterlilies, pickerel weed, cattails, iris, papyrus and water clover. (Barbara Bunn, Ph.D. 1990)

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We Remember ... *(Continued from Page 3)*

Please accept my condolences, it must be horrible to be living through this tragedy. I hope all is as well as it can be given the events of yesterday. If I can do anything (other than praying which I have been doing), please let me know. *(Angela L. Howard, Merck, Inc., PhD '92)*

We are really in a state of shock with the massacre at Virginia Tech. In the last two days I have read all the information about it and I am feeling like I am at the VT campus. I have my heart full of pain. We are praying for all the victims, injured people and also for all Virginia Tech and Blacksburg community. *(Adley Rubira, Universidade Estadual de Maringa, Brazil, visiting professor, 1990's)*

I am so sorry about the tragedy at VA Tech yesterday, I hope that you and your students are safe. Dave's and my thoughts and prayers are with everyone in Blacksburg. It's hard to fathom something so senseless happening at such a safe, wonderful place. *(Dave (PhD '99) & Shelly Porter (MS '97), Eastman Chemical Co.)*

As a member of Virginia Tech, we want to express to you our deepest condolences for the tragedy on Monday. This tragedy has deeply affected us and many people in Spain. *(Miguel Palma, Spain, visiting professor, 1990's)*

Marlene and I were obviously shocked and saddened by the events of Monday morning. As a former student and graduate of Virginia Tech, I have always been proud of my school, but I know that this wonderful university and everyone close to it will forever be changed by a senseless act. I cannot imagine how difficult this must be for you and your family, as well as the entire Virginia Tech community. Please let everyone there know that they are in our prayers, and that they have our deepest sympathy and support. *(Ron Nicewander, retired, PhD '76)*

I heard about the shooting that happened yesterday. It even made the headline news here in China. (My mother passed about 3 weeks ago and I am back in China now.) It was very sad and shocking. I hope all is well with you and others in the department. I just want to let you know that I have been thinking about you. I will be praying for you. *(Sally Zheng, Abbott Laboratories, PhD '05)*

Very shocked to hear of shooting on campus. Trust all is well with you and family. Let me know what else I can do besides pray. *(Eugene Khor, University of Singapore, PhD '83)*

The feelings of shock and disbeliefwere intense for Candace and me – seeing such familiar and special places in such a horrible context was crushing. I can't begin to imagine what it felt like for you and others right there at Tech at the time, let alone those who were most directly affected. We were heartbroken, but are now resolved to ensure that Tech brings genuinely positive thoughts into peoples minds to temper the memories of the tragic event. *(Professor Vincent Remcho, PhD '92, Oregon State University)*

It is tough to see the marred images on the television of places that I once spent living and laughing. I pray that nobody there has been directly affected with the loss of a loved one. I think of Dr. Merola and the fact that his children are about the age of the students that were lost yesterday and hope that they are all safe. If memory serves one of his children had the same birthday as mine. Time does fly – my oldest who was born there in October 1989 is starting at LSU in the fall. *(Joe Layman, VT alum who earned his PhD with Jim Wolfe)*

I am still in shock about everything and get "misty eyed" every time I hear about what happened yesterday. *(Jennifer Cornelius Watson, BA '97)*

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Chemistry Research News

S. Richard Turner, MII director and research professor of chemistry, and Min Mao, a Ph.D. candidate in polymer chemistry, have reported the synthesis of a new family of charged, rod-like block copolymers. No longer than a fraction of the diameter of human hair, the tiny rods can be either positive or negative, or can have alternating positive and negative charges along the backbone. The rods self-assemble and the aggregated structures are remarkably stable in saline solution, Turner said. "The early results of this study suggest that these charged polymers self-assemble by like-charge interactions similar to such natural polymers as DNA. The stable self-assembled structures could have potential applications in drug delivery and gene delivery systems." But more immediate, "These unique block copolymers can be instructive models in understanding the forces that lead to the dense packing of DNA when complexed with viruses and other polymers." A poster, "Stimulus Responsive Aggregation in Aqueous Solution of a Novel Rod-Coil Type Double Hydrophilic Block Copolymer Containing Rigid Strictly Alternating Polyampholytes" (PMSE 314), was presented on March 27 at the ACS meeting as part of the joint PMSE-Polymer poster session of the American Chemical Society.

Diego Troya has received one of the prestigious Cottrell Scholar Awards. Only 10 awards were made in chemistry and physics this year.

Professor Timothy Long has created a student exchange program with Waseda University in Tokyo to catalyze joint research efforts dealing with nanostructured polymeric materials for advanced battery applications. As part of this collaboration, Takeo Suga from Waseda University visited Virginia Tech during summer 2006 and worked together with Brian Mather in Dr. Long's research group to prepare a novel nitroxide containing block copolymers.

Isocyanates are important to many products we take for granted – from paint to spandex running shorts. But the high reactivity for which the chemical group is valued also makes this compound toxic when breathed. Sharlene R. Williams, a chemistry graduate student, with Professor Timothy Long, has created macromolecules with comparable reactivity using soy-based chemistry. Williams presented her research at the 233rd national meeting of the American Chemical Society in Chicago on March 25-29. "We are looking for alternative chemistry that offers the advantage of reactivity but is not toxic, and is cheaper than petroleum based chemistry," said Tim Long. "We are looking at bio-feedstocks such as soy-based triglycerides and peptides in combination with novel chemistry." Williams has demonstrated that a process called the "Michael Addition" induces reactivity in soy proteins, and also improves mechanical properties of the bio-based polymer. "Agriculture-based polymers may offer comparable performance to petroleum-based polymers," said Long. "They offer strength and elasticity. We think the Michael addition reaction offers the opportunity to address elastomer technology challenges with safer reactivity."

Paul Deck has been appointed Director of Graduate Studies.

Brian Hanson has been appointed Director of Undergraduate Studies.

Paul Carlier has been promoted to full professor.

The Chemistry Department - 2007

28 Faculty Members
240 Undergraduate Majors
130 Graduate Students
30 Postdoctoral Fellows
Five NSF CAREER Awardees (+ One NYI)
One National Academy of Engineering Member
Three Virginia Scientist of the Year Awardees
$10+ Million in Annual External Grant Support
(ranked 29th most recently by the NSF)

We Remember ... *(Continued from Page 6)*

All the VA Tech family are in my thoughts and prayers. As with all of us associated with VA Tech, last week will make an indelible stamp on our memory. I would like to dedicate the following poem to the students, faculty and alum of the Chemistry Department and the rest of the Virginia Tech community. (Elizabeth Calvey, Food & Drug Administration, MS '84, PhD '90)

Tears …
They are there
Yet sometimes may not fall
Because we are strong …

Understanding …
We seek answers
Yet realize they may not exist
Despite this we move forward …

Life …
We begin to live the present for the future
We try to leave the past where it belongs
Yet, we do not forget
Because we grow strong

Chemistry Research News ... *(Continued from Page 7)*

CHEMISTRY FACULTY DIRECT TWO RESEARCH CENTERS

Macromolecules and Interfaces Institute (MII) – S. Richard Turner, Director

Macromolecular materials and their interactive interfaces are fundamental components for enabling many products and technologies that have enormous societal impact across many sectors of the world's economy. MII researchers are active in many important areas of this science and technology. Strategic thrusts include: 1) synthesis and properties of well-defined functional and branched macromolecules, including biopolymers; 2) synthesis and structure/property studies of high-performance polymers for advanced proton exchange membranes for fuel cells; 3) preparation of superparamagnetic polymer supported nanoparticles and property studies related to medical applications; 4) synthesis and properties of novel responsive polymers and the study of their role in smart, advanced composite structures; 5) studies of the interphase region in composites, nanocomposites, adhesives, sealants, and coatings; 6) fracture mechanics and fatigue; 7) development of novel polymer processing techniques for complex structures; and 8) green and sustainable strategies for macromolecular materials.

Carbonaceous Nanomaterial Center (CNC) – Harry C. Dorn, Director

CNC conducts nanoscience and technology research using the unique hollow structure of all carbon molecules – such as the fullerene, popularly known as a buckyball, and nanotubes – as a platform for new materials. The focus is controlling supramolecular architecture (self assembly) at the nano/molecular level. Activities range from fundamental research to experimental device development and laboratory demonstrations. Potential applications include nanocomposites, nano-robotics, new drugs and drug delivery systems, chemical catalysts, opto-electronic devices, biosensors, and quantum computers. The group has expertise in two broad research area: 1) the study of new carbon-based materials including fullerenes (bucky-balls), nanotubes, and endohedral metallofullerenes (filled buckyballs); and 2) spectroscopic studies utilizing nuclear magnetic resonance, electron paramagnetic resonance, and dynamic nuclear polarization. In the United States, CNC leads in the separation of endohedral metallofullerenes. A main thrust is to provide basic nanomaterials as well as functionalized nanomaterials, for example, polyhydroxylated and other nanomaterial derivatives for future medical applications, such as MRI contrast agents.

Daniel Crawford

Professor Daniel Crawford joined the faculty of the Department of Chemistry at Virginia Tech in May of 2000, following a postdoctoral appointment at the University of Texas in Austin. He completed his undergraduate studies in chemistry and mathematics at Duke University in 1992 and his Ph.D. in theoretical chemistry at the University of Georgia in 1996 under the direction of Prof. Fritz Schaefer. He grew up on a cattle farm just south of Huntsville, Alabama, and, although he is genetically required to love Crimson Tide football, he is a die-hard Duke basketball fan by choice.

Daniel and his wife Emily met as undergraduates at Duke in 1989 on Daniel's 19th birthday and just twenty days shy of Emily's 18th -- right after a Duke football game (way back when Steve Spurrier was the Blue Devils' coach). They dated throughout college and married in August of 1993, after Daniel's first year of graduate school and Emily's graduation from Duke. Emily obtained her master's degree in computer engineering at Georgia Tech in Atlanta while Daniel was studying at UGA. They now have three children -- Mary (7), Alexander (5), and Cecilia (2) -- of whom they are tremendously proud.

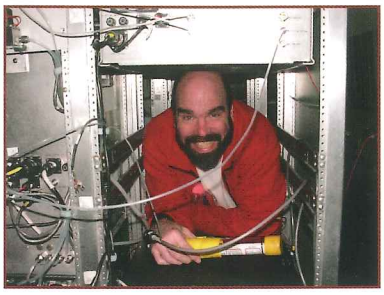
Daniel and Emily enjoy traveling together whenever possible. In fact, not long before their wedding, one of Emily's siblings offered her some well-intended advice: Daniel's OK, but you should wait to get hitched until you've had a chance to see the world. Rightly disregarding this advice, Emily proceeded with her nuptial plans, and since then they have enjoyed a few of the world's cities together, including Amsterdam, the Hague, Brussels, Prague, Strasbourg, Rotterdam, London, York, Cambridge, Canterbury, Edinburgh, Glasgow, Nuremberg, Cologne, and, Frankfurt -- and even Crawford, Scotland (which, unfortunately, they don't recommend visiting). In 2004, they took Mary and Alexander to visit Winnie-the-Pooh country and Beatrix Potter's home in England, and in June of this year, they took their youngest child, Cecilia, with them to a conference in Budapest, Hungary followed by a visit to the University of Giessen, Germany.

Daniel's research in theoretical and computational chemistry focuses on the development of so-called *ab initio* theories of electronic structure, particularly that of chiral molecules. His group has spearheaded the development of high-accuracy computational models of optical rotation and circular dichroism spectra with the ultimate goal of building computational tools that will assist organic chemists in the assignment of absolute stereochemical configurations. In addition, his group is extending the applicability of the most accurate and reliable quantum chemical models through the design of more efficient algorithms that will allow first-principles calculations on molecules containing perhaps hundreds of atoms. If successful, these new tools will allow the more rapid development of new chiral drugs, for example.

Daniel has thus far published a total of 55 peer-reviewed papers, most of which have appeared in the *Journal of Chemical Physics*, the *Journal of Physical Chemistry*, and the *Journal of the American Chemical Society*, and his work has received over 1000 citations. He is first author and a lead developer of the open-source electronic structure program PSI3, and, although Daniel is fairly certain he could eventually become the Bill Gates of quantum chemistry, he and his collaborators have instead chosen to give the program away for free to the scientific community.

Daniel was granted tenure and promotion to associate professor in 2005. He has received a number of research and teaching awards, including an NSF CAREER award, Research Innovation and Cottrell Scholar awards from the Research Corporation, a New Faculty Award from the Dreyfus Foundation, a Certificate of Teaching Excellence from Virginia Tech, and a nomination for a Virginia Outstanding Faculty award. In what little spare time he has away from family and work, Daniel enjoys a good beer or glass of wine (or both), a hand of poker, or a round of golf.

Alumni Highlights *(Continued from Page 5)*

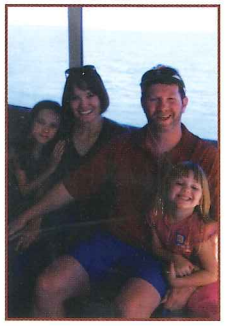


(Stephen Springston, B.S. 1978)

My diploma says I graduated from Tech 29 years ago, but the freshness of my memories disputes the chronology. It seems like yesterday I was sitting transfixed by a Luther Brice general chemistry lecture, getting my first experience with a gas chromatograph in Harold McNair's lab or receiving my first paycheck as a chemist (well, a labware dishwasher actually) from Larry Taylor. As an undergraduate, I don't think I fully appreciated the sense of inclusion into the scientific community that Tech's faculty provided. Looking back, I have to say that being treated as real participant in science was what made a difference and cemented my course in scientific research. That was the spark. Following graduate school at Indiana University and a post-doc at University of Utah, I have studied atmospheric chemistry at Brookhaven National Laboratory for the past twenty years. For an analytical chemist with an interest in airplanes, I have the ideal job. I get to design, make and operate instrumentation that I use to make trace measurements aboard the Department of Energy's Research Aircraft Facility. It is a gratifying combination of getting ones hands dirty, seeing results for the first time and then integrating these results into the bigger picture of understanding. My sampling laboratory is the back of a Grumman G-1, twin turboprop usually flying in bumpy air around major metropolitan areas, not the most controlled laboratory environment. I just received a new 'Virginia Tech' tee-shirt which I'll proudly wear on this summer's field campaign. Unlike most chemists, my field doesn't involve traditional experiments where you change an independent variable and observe what happens. Trying to tease process level understanding from irreproducible measurements is one of the challenges in this field. Ultimately my colleagues and I seek to understand the effects of society's energy consumption on the atmosphere and the earth's climate. I can't imagine a greater privilege than a career studying these issues.

My professional career involved 2 years teaching high school chemistry, math, and mechanical drawing and 32 years with Westvaco (now MeadWestvaco Corporation). At MeadWestvaco, almost 28 years were spent in industrial Research & Testing, Sr. Project Scientist, and Administrative Manager. When MeadWestvaco R&D was centralized in Ohio, I chose to remain in Virginia and for 4 years continued to serve MeadWestvaco in Covington, VA as Product Stewardship Manager and as Analytical Services Supervisor. I chose an early retirement option effective 12/31/2005 and since that time have continued to work for several MeadWestvaco operations in a consulting role. I also do some substitute teaching in the local school systems and enjoy playing golf (badly). I have served on the VT Chemistry Advisory Council since it was created. (Wayne Ogden, BS '72, MS '75)

Angela Howard (PhD '92) with her two daughters.



Kevin Cooper (PhD '92) and Sharon Edie Cooper (MS '91) with their two daughters.

Leonard Bell (BA '87) has been promoted to full professor of Food Science at Auburn University.

Staff Spotlight

These Ladies Have Paid Lots of Bill

Every family needs someone to pay the bills that come due all too frequently. The Chemistry family has two of the best in Melba Edwards and Judy Spicer. Since our Department does over $5,000,000 of business each year, this translates into lots of bills. In addition to these valuable duties, they place orders for everything from Kemwipes to major instrumentation. More impressively is the fact that Melba and Judy have performed these duties for over 30 years for the Department. They are best friends. They used to work in the same office. Now, they work in adjacent offices in Davidson Hall.

Judy Spicer

No fooling, Judy joined the Department on April 1, 1974 as a Steno B. So for 33+ years she has faithfully served the Department except for the time when she took a leave of absence from January 2, 1979 to May 1, 1979 to care for her Mother who had cancer. When she returned to work on May 1, 1979 she was made a Clerk-Steno B. Shortly thereafter on August 16, 1979 she was upgraded to Clerk Typist C. Later she became our Fiscal Assistant, and then on November 1, 1997 she was made a Fiscal Technician-Research which is her work title. Her role title (for whatever that is worth) is Admin & Program Spec III. For the past ten years Judy has never made a mistake (that I know about)! Judy was the recipient of the Harold McNair Staff Service Award in 2001. Words cannot express how blessed the Department is to have had Judy in this position. No one wants to hear the word "retirement" from Judy. Judy is married to Jerry. They have two daughters: Kezia who also works on campus and for previously worked for the Department of Chemistry and Cindy who lives in Roanoke. She also has three grandchildren: Mallory, Brady, and Margo. Her favorite pastime is being with her grandchildren. Judy seems to work so quietly and efficiently that you just figure that's how she always is. Well it's just like Judy's daughter, Kezia, always says, 'it's the quiet ones that swing from the rafters'. What do I mean by that? Well, Judy can take pretty much any subject and after a few minutes of conversation, can have you rolling with laughter. She is so funny! Her stories about her grandchildren can just brighten your day.

Melba joined the Department in April, 1973 as a Clerk Steno C. She was upgraded to Clerk Typist C on August 16, 1979. She left the University and worked as a legal secretary in Fort Collins, CO from August, 1982 to July, 1983. Fortunately for Chemistry, she returned to Virginia Tech as an Office Services Specialist September, 1983. On July 1, 1996 Melba was upgraded to Fiscal Technician. Her role title in the State of Virginia system is the same as Judy`s. Melba was nominated for the College of Arts and Sciences Outstanding Secretarial Award in 1987. She won the Harold McNair Staff Service Award in 1999. She is married to Kelcie Edwards who also works on campus. I always considered Melba very prim and proper – she's so quiet spoken – I don't think I've ever seen her show her anger (although I'm pretty sure she's been upset a few times). When I found out that she was a motorcycle lady, you could have picked me up off the floor. And once I even heard rumors that if it rained a lot, her road would flood and she had to swing on a rope to get to her car. (I'm not sure that's true, but it sure was fun to think of Melba swinging on a rope.) She has one son, Mike, who graduated from Virginia Tech with a degree in Chemistry! In earlier days, Melba could regularly be seen on a motorcycle with Kelcie. Nowadays, she can be more likely found in her garden when she is not at Virginia Tech. At 7am on any week day, she can be found in her Davidson Hall office paying the bills.

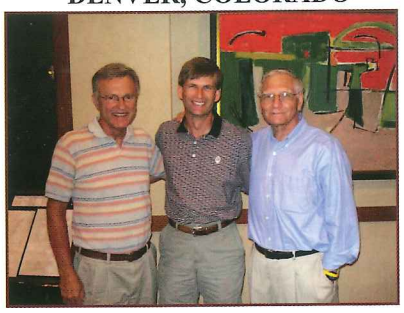
Melba Edwards

Judy and Melba – What a team! These two ladies are crucial to our Department, but most of all I feel blessed to call them friends!

(written by Larry Taylor and other friends)

FACULTY AND STAFF NEWS

ANDERSON MOVES TO DENVER, COLORADO



Mark with Emeritus Professors McNair and Taylor.

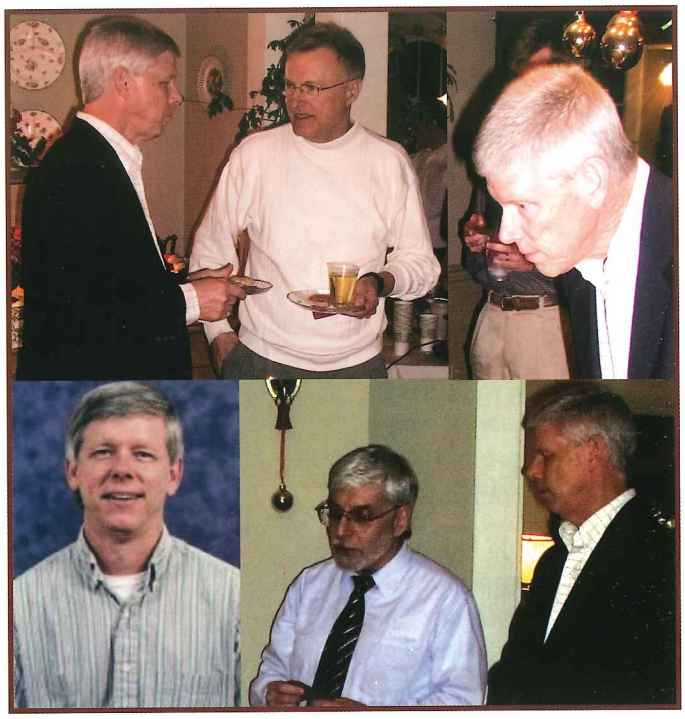
Professor Mark Anderson will assume the Department Chair at the University of Colorado-Denver later this summer. Mark departs Virginia Tech after 18 years of service to the department as a teacher and researcher in the area of analytical electrochemistry. For the past three years, Mark has also served as the Graduate Coordinator for the Department. Mark's contribution to the Department in terms of service-teaching-research is greatly appreciated. The Department wishes Mark and his family good fortunes in their new environment.

Daniel Crawford and Jeannine Eddleton have been awarded a Certificate of Teaching Excellence. The College of Science has an allotment of 4 certificates to award and it speaks highly of our faculty that two of those awards went to chemistry teachers in 2006-07.

Dr. Crawford was awarded a Certificate of Teaching Excellence as a result of his outstanding teaching accomplishments. The committee was particularly impressed with his efforts to make Physical Chemistry a fun, interesting, and rewarding experience for his students. He accomplished this by his commitment to high-quality instruction (including his innovative web-based modules on quantum chemical modeling) and instructor accessibility.

Ms. Eddleton was awarded a Certificate of Teaching Excellence. Her teaching accomplishments were truly noteworthy and she deserves to be honored as a pioneer in the pursuit of an ED in Chemical Education, as well as her innovative use of Tablet PC in the classroom.

TOM GLASS RETIRES AS AN NMR SPECIALIST AFTER 30+ YEARS OF SERVICE TO THE DEPARTMENT OF CHEMISTRY.



Dr. Thomas Ward has been named Emeritus Professor.

Dr. Harry Dorn received the Schug Award for Excellence in Research.

Dr. Paul Deck received the Clifford Faculty Service Award.

Dr. Herve Marand received the Viers Award for Excellence in Teaching.

Frank Cromer received the McNair Staff Service Award.

Professors Crawford, Troya and Valeev hosted the 2007 meeting of the Southeastern Theoretical Chemistry Association on campus. Although SETCA has existed since 1970, this was the first year the meeting had been held in the Commonwealth of Virginia.

Chemistry Department Grantees

Felicia Etzkorn
"Designed Inhibitors of Pin 1 in Mitrosis"
National Cancer Institute

David Kingston
"Studies of Tubulin-Interative Anti-Cancer Drugs"
National Cancer Institute

Karen Brewer
"Visible Light Induced Interactions with DNA by Rhodium Centered Supramolecular Assemblies"
National Science Foundation

Tim Long / Tom Ward
"Fundamental Investigations of Tailored Macromolecular Topology and Chemical Reactivity for 'functional' Materials and Advanced Transducers"
U.S. Army Research Office

Sungsool Wi / Harry Dorn / 8 Faculty
"Acquisition of a 600 MHz Nuclear Magnetic Resonance Spectrometer at Virginia Tech"
National Science Foundation

Paul Deck
"Highly Fluorinated Diels-Alder Polyphenylenes"
American Chemical Society

Judy Riffle
"Materials World Network for the Study of Macromolecualr Ferrofluids"
National Science Foundation

Diego Troya
"Atomistic Simulations of Hyperthermal Collisions Between Closed-Shell Gas Phase Species and Organic and Inorganic Surfaces"
Air Force Office of Scientific Research

James Tanko
"Activation/Driving Force Relationships for the Unimolecular Rearrangement of Radical Ions"
National Science Foundation

James McGrath
"Synthesis and Characterization of Sulfonated Poly(arylene ether sulfone) Copolymers: Potential Candidates for Chlorine Resistant Surface Active Water Purification Membranes"
Office of Naval Research

John Morris
"Molecular Beam Studies of Energy Exchange, Accommodation, and Acid/Base Chemistry at the Gas-Solid Interface"
National Science Foundation

Harry Dorn / Harry Gibson
"NIRT (Nanoscale Interdisciplinary Research Teams): An Optimized Nanosphere Platform for High-Resolution Multi-Modality Imaging Applications"
National Science Foundation

Gordon Yee
"A Different Strategy for the Production of Molecule-Based Nanomagnets"
National Science Foundaton

Support the Chemistry General Fund

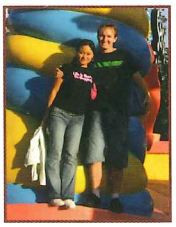
The Department of Chemistry has established a Chemistry General Fund. Your contributions to this fund will be used to support the seminar and colloquium program, curriculum enhancements, student recruiting, student and faculty travel, and a variety of other activities. These unrestricted gifts provide special support to foster an intellectual community of faculty and students. Checks should be made payable to the VT Foundation, Inc. and you should designate "Chemistry General Fund" on the memo line of your check. Does your company provide matching gifts? If your employer participates in a matching gifts plan, please complete the paperwork to double or triple your contribution. We appreciate your support.

Chemistry News *(continued from Page 12)*

JUST NEWS

Virginia Tech's Institute for Critical Technology and Applied Science (ICTAS) will dedicate its first building--housing the Nanoscale Characterization and Fabrication Laboratory (NCFL) and related office space--at the Virginia Tech Corporate Research Center on Sept. 21. The new NCFL facilities will place Virginia Tech facilities on a par with the best nanotechnology labs in the world. The building will provide 16,000 square feet for the NCFL laboratory, plus 16,000 square feet for related office space. It will provide a collaborative home to existing and new state-of-the-art tools for fabrication, characterization, and testing materials at the macro-, micro-, and nano-scale, as well as office space for faculty, staff, and students involved in these efforts. The facilities will be heavily used by Chemistry students and faculty.

GRADUATE NEWS



Brian Mather and Qian Zhang, graduate students currently finishing this spring from Dr. Tim Long's and Dr. Judy Riffle's groups, respectively, are one of the married couples working in the Department of Chemistry. Brian, who hails from the University of New Mexico and Qian, who comes from the East China University of Science and Technology (ECUST) in Shanghai, met during graduate school, at the 2003 Halloween costume party organized by the polymer groups. The band *Poly and the Mers*, which is composed of faculty serenaded the couple during their first dance. The students were married on January 5, 2005 in Albuquerque, New Mexico at Brian's *alma mater* and later in Maanshan, China, Qian's family's hometown. The couple started work at Hewlett-Packard, in San Diego, in June.

UNDERGRADUATE NEWS

Virginia Tech Woman of the Year

Alison A. Smith is a graduating senior majoring in biological sciences and chemistry in the College of Science. She was selected as Virginia Tech's Undergraduate Woman of the year based on her academic excellence, leadership accomplishments, campus involvement, and her service to the university community. Smith, who maintains a 3.95 grade point average, has conducted various undergraduate research projects and has an extensive resume. Among her many honors and awards are the 2006 College of Science Dean's Award Barry M. Goldwater National Scholarship Honorable Mention.

Special Scholarship

James Mills of Roanoke, Va., is the recipient of the Jerry and Leslie Gough Scholarship. This scholarship was established by the Goughs after their son, Conor, graduated from Virginia Tech and University Honors. Students wishing to pursue this scholarship must be planning a career in medicine. The Gough scholarship seeks to afford recipients the opportunity to design an experience that will enhance his or her awareness of medicine as a career. Mills, a biochemistry and chemistry major, plans to visit and volunteer at two health centers and one hospital near the U.S.-Mexico border to learn more about problems related to accessible healthcare for immigrants.

ALUMNI NEWS

WEST COAST
ACADEMIC HOKIE

I was an undergrad in your department long ago. I went on to earn a PhD in Chemistry at Penn State, postdoc in Biophysics at Yale and I am now faculty at the University of California, Irvine, in the Biochemistry department. I documented the Orange and Maroon Effect at UC Irvine. Students and faculty at Irvine wore Virginia Tech colors that day to honor your students and faculty. (Melanie Cocco)

Donors

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 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, 2006 to June 30, 2007.

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Create a Chemistry Scholarship

A scholarship in your name or the name of a special loved one is a gift that will live forever. You can help our students to become tomorrow's leaders in industry, academia, and medicine. The Department of Chemistry offers scholarships to both undergraduate and graduate students based on academic potential, academic performance, and financial need. For more information on how to create a scholarship for a deserving Chemistry student, please contact Joe Merola at jmerola@vt.edu or 540-231-4570.

VIRGINIA TECH DEPARTMENT OF CHEMISTRY'S MISSION

The Virginia Tech Department of Chemistry has a long history, a solid reputation and a bright future. Our courses provide the chemical foundation for all Virginia Tech science and engineering students and broaden their understanding about the structure and properties of matter. Our undergraduate and graduate degree programs prepare society's future chemists and scientists. Our faculty's research and scholarships generate and disseminate chemistry knowledge to the Commonwealth, the nation and the world. And our outreach programs offer opportunities to share this knowledge with others, including practicing professionals, as well as primary and secondary school children. To achieve our mission, the Virginia Tech Department of Chemistry will continue to pursue multi-disciplinary research within and beyond the University, to find innovative ways to instruct students, to forge partnerships with industry and government and to establish a reputation as one of the world's highest ranking chemistry departments.

Virginia Polytechnic Institute and State University
Department of Chemistry (0212)
Blacksburg, VA 24061