

ELEMENTS

The Alumni Magazine of the Department of Chemistry of Virginia Tech




VOLUME 5, ISSUE 1, 2002

INSIDE

**Mary Gum:
Life and Work,
It's All About Fun**

Virginia
Tech
 VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY



February 28, 2002

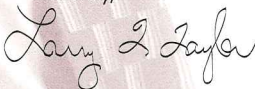
Dear Chemistry Alumni:

Greetings from Blacksburg! As in the past four volumes of Elements, I wish to offer some reflections on the past academic year. For a more complete list of happenings, I refer you to the department website <<http://www.chem.vt.edu>>. Especially interesting is the link to "Alumni News" and the Department's Advisory Council. If you have not done so, please register yourself on-line with an updated address and any news you might wish to share with us. As with all phases of life, there have been some good and not so good times. The passing of Professor Milos Hudlicky last fall along with graduate student Craig Watson (MS, 1999) was especially sad. Professor McNair will officially retire from the University this summer. The Commonwealth faces a \$1.3 billion shortfall in 2002. The Department has been instructed to prepare for cuts in our next two annual budgets of approximately 10%. On the other hand, ground has finally been broken on a Chemistry-Physics undergraduate laboratory building slated for completion January 2004. Two of our young faculty, John Morris and Daniel Crawford, were awarded prestigious and generous National Science Foundation (NSF) Career Awards. Funding from NSF for two instrumentation proposals concerning upgrade of our 400 MHz NMR and single crystal x-ray diffractometer were received with much appreciation. David Kingston was named 2002 Virginia Scientist of the Year, joining three other chemistry faculty who have previously won this award. Emeritus Professor of Chemistry James Wolfe came out of retirement to accept presidency of the new Via College of Osteopathic Medicine which will be housed in Blacksburg and begin admitting students in 2003. We also had the good fortune of hiring one new faculty, Professor Gordon Voe, whose expertise is inorganic magnetochemistry.

In spite of the good news, the tight budget constraints that we will operate under for the next two years are a sobering reality. The contraction in the business cycle has created another round of budget challenges. Indeed, the scope and depth of the financial problems facing the Commonwealth of Virginia today are daunting by any standard. There were no faculty/staff raises this year. Our discretionary spending in the area of student research/teaching awards, faculty excellence in scholarship, travel to meetings, undergraduate/graduate scholarships and staff awards must be reduced. To minimize the negative effect on the Department, we are seeking funds from all possible sources. These include friends, faculty, staff, industry and now you, our alumni. A \$25 or \$50 donation goes a long way in helping our students and, of course, we would be delighted to receive an even larger amount. I ask that you consider the Chemistry Department when you are making charitable donations. If you elect to send us a donation you may specify that your gift should target a particular area such as undergraduate or graduate chemistry scholarships, the Mobile Chemistry Laboratory, travel awards for students, etc. You can also simply let the Department use it where it is felt to be needed most.

Please know the Department of Chemistry values you as an alum and is proud of your accomplishments. Periodically, we are planning to hold Alumni-Faculty dinners during the next two years wherein we hope to meet many of you and share the latest in Virginia Tech Department of Chemistry news. I trust you will sign-up to attend when faculty and I show up in your locality. Kindest regards.

Sincerely,



Larry T. Taylor
Professor and Chairman

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Credits

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Mary Gum, who received
her Ph.D. in 1974, has
accomplished much in the
world of chemistry.

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A Magical End to National Chemistry Week

The Chemistry Department ended its recognition of National Chemistry Week with a bang, hosting its annual "magic show" on November 9. 180 people spent the night "oohing" and "ahhing" as they witnessed Department professors demonstrate feats in various chemical disciplines. Racquetballs dipped in liquid nitrogen exploded as if made of glass. Gunpowder and gun cotton were ignited to the rhythm of a Jimmy Buffett song. The show was organized by the student affiliate chapter of the American Chemical Society (ACS) to raise money for an April trip to the ACS national meeting in Orlando, FL.

Endowment Honors Fathers

Dr. Robin D. Kinser and Michael T. Johnson established an endowed scholarship in chemistry in honor of their fathers. Dr. Kinser received her B.S. in chemistry from Virginia Tech in 1981 and has served the Department of Chemistry as a member of its Advisory Council in recent years.

Blue Ridge Rubber Group Endowed Scholarship

The Blue Ridge Rubber Group recently established a scholarship for an undergraduate upperclassman studying polymer chemistry in the College of Arts and Sciences or the College of Engineering. The scholarship will allow Tech to continue to build its nationally acclaimed program in polymer chemistry.

The Future of Nanoscience

Harry Dorn, professor of physical chemistry and director of the Virginia Tech Center for Self-Assembled Nano-Devices (CSAND), spends most of his time in the fullerene laboratory at Virginia Tech (FLAT), the world leader in

the production of stable endohedral metallofullerenes. The research conducted at FLAT may quite possibly form the basis for future research in the area of nanotechnology.

Harris Receives Research Award

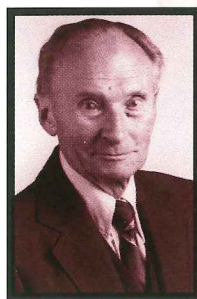
Linda Harris, a Dept. of Chemistry Ph.D. candidate, has received the Omnova Solutions Signature Award for Outstanding Research in Polymer Science and Engineering, a cash award of \$2,500.

Tech Receives Grant for Fuel-cell Research

A Virginia Tech group led by chemistry professor James McGrath has received \$2 million over two years from the U.S. Department of Energy for research to develop the next generation of polymer electrolyte membranes, membrane electrode assemblies and related fuel-cell material systems.

Hudlicky is Remembered

Milos Hudlicky, professor emeritus of chemistry, died on Aug. 31, 2001. A native of Czechoslovakia, he dedicated his life to the study of organofluorine chemistry.



Hudlicky joined the faculty of Virginia Tech in 1968. He would serve at Tech for 25 years, until his retirement in 1989.

Hudlicky authored 18 books, published 68 scientific articles and held 29 patents. He was an active participant in the ACS division of fluorine chemistry. He is survived by his wife, son, daughter and two grandchildren.

Simplifying DNA Research

Felicia Etzkorn, associate professor of bioorganic chemistry and her post-doctoral associate, Glenn Foulds, are researching chemical interactions between proteins and DNA. They have developed a new capillary electrophoresis mobility shift assay (CEMSA) that can be automated, has high resolution, provides online results and requires only small samples of material.

The Calculator — Made Easy

Ketan Trivedi, an instructor in the chemistry department, has developed an innovative CD-ROM designed to improve students' scientific calculator skills. The tutorial goes beyond simple instructions. It features programs that ensure students understand the concepts behind each function of the calculator. His CD-ROM has attracted a great deal of attention, with school systems in New York and Michigan and universities in Louisiana and Texas expressing interest.

McNair Retires

Harold McNair will retire Sept. 1 after 34 years of service to Virginia Tech and the Chemistry Department. His worldwide contributions to outstanding science, high integrity, goodwill, leadership, faithfulness and excellent teaching has influenced thousands of students and helped the Department become what it is today.

Virginia Names Kingston Outstanding Scientist

Chemistry's own David Kingston was named as one of Virginia's Outstanding Scientists for 2002. He received this honor during an awards presentation in April in front of the Governor, as well as more than 300 businesses, academic leaders and friends of the museum.

PEOPLE IN THE NEWS



Daniel Crawford, assistant professor, received the New Faculty Award from the Camille and Henry Dreyfus Foundation, a Research Innovation Award from the Research Corporation, and a CAREER Award of \$435,000 over five years for his project on "Accurate Quantum Chemical Methods for the Chiroptical Properties of Large Molecules."



John Dillard, professor, received the J. Burke Johnston Award, presented by the Alpha Omicron Circle of Omicron Delta Kappa, in recognition of excellence in teaching and leadership in the academic community.

Joseph DeSimone, department alumnus, received the Outstanding Young Alumnus Award from the College of Arts and Sciences at the 2001 Awards Banquet.

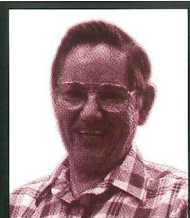


Darlene Eberhardt, received the Graduate Research and Professional Development in Mathematical, Natural and Physical Sciences Award (\$2,500) from the College of Arts and Sciences. Darlene, who came to Virginia Tech as a student in the NSF-sponsored joint graduate program between Hampton University and Virginia Tech, studies the development of novel anti-microbial finishes on textiles.

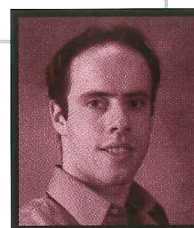
Rebecca Fall and David Williamson, graduate students, have both received NASA Graduate Student Researchers 2001 Program fellowships.

Ray Dessy, professor, has been awarded the Camille and Henry Dreyfus Senior Scientist Mentor Initiative Grant for 2002-2004. Dessy won the award for his work with micro-biosensors. The award helps support undergraduate research assistants in chemistry, chemical engineering and biochemistry.

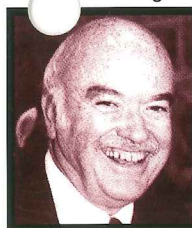
James Glanville, associate professor, is serving as the Chair of the External Advisory Council of the Science and Math Education Department at Southern University in Baton Rouge.



Jack Graybeal, emeritus professor of chemistry, Graybeal has served as the National President of Phi Lambda Upsilon for the past six years.



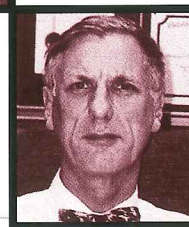
Brian Hoffman, graduate student, devoted his time and expertise to the construction and maintenance of an aquarium in the Department's main office.



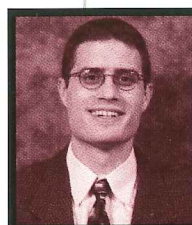
James E. McGrath, university distinguished professor, received an award from the American Chemical Society (ACS) in Applied Polymer Science.



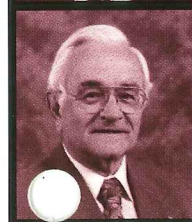
Afia S. Karikari, a Ph.D. candidate, has received a grant from the David and Lucile Packard Foundation's Board of Trustees in the amount of \$100,000.



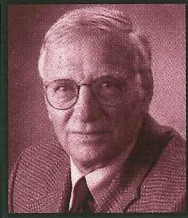
David Kingston, university distinguished professor, received the honor of having a new South American tree named after him: Cordia Kingstonia. Kingston is the group leader of the International Cooperative Biodiversity Group (ICBG), which is currently working in Suriname.



John R. Morris, assistant professor, received a 2001 National Science Foundation CAREER Award for \$502,000 over five years. The award, intended to encourage outstanding young researchers, was presented to Morris for his research project on "Reaction Dynamics of Hydrogen Halides on OH-Functionalized Surfaces and Development of Guided-Inquiry Experiments for Analytical Chemistry."

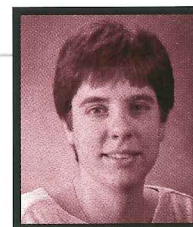


James Wightman, emeritus alumni distinguished professor, received the State Council on Higher Education Outstanding Faculty Award, one of the Commonwealth's highest honors for faculty at Virginia public and private colleges and universities. Was named the Gene Wise Awardee from the Blue Ridge section of the American Chemistry Society (ACS).



Harold McNair, professor, and Chemistry Department alumnae Lee Polite and Humberto Gomez presented a four-day workshop in November at the National University in Mexico City (UNAM), where Gomez serves as a professor of analytical chemistry.

Dean Webster, a member of the Chemistry Department Advisory Council, Webster has accepted a faculty position at North Dakota State University in the Department of Polymers and Coatings.



Carla Slebodnick, instructor, was one of three instructors at the Mobile Chemistry Laboratory teacher summer 2001 workshop. The workshop focused on basic activities to introduce into their classroom curriculum, as well as introduced high-tech experiments to refresh their techniques.



Gordon T. Yee, has joined the Department as an Associate Professor after a position at the assistant level at the University of Colorado. Yee's research is aimed at developing novel magnetic materials by building an atomic-level understanding of magnetism.

A.K. Youssef, director of Tishreen Univ. Marine Research Institute, Latakia, Syria, returned to Virginia Tech to begin his third sabbatical with Professor Harold McNair.

Jennifer Kelly Showcases Multiple Talents, Speaks Multiple Languages

By Keith Harrison

When it's time to leave mom and dad and go away to college, students have a lot on their minds.

What will it be like to be away from home? How will I like my roommate? Am I going to be able to handle those tough classes? How am I going to get those elusive tickets to football games? For many, the list seems endless.

But, when Jennifer Kelly was college bound, her biggest worry was how she would adjust to being taught in English.

No, Kelly's not from a foreign country. In fact, she's from Washington D.C. But she comes from a strong German background. Growing up, her parents wanted her to be bilingual.

So what was the big deal? Kelly attended a 100 percent German high school.

Students, teachers and administrators spoke German. "The entire school was German," Kelly explains. "We spoke it in the halls. And the teachers spoke it in the classrooms. So when I came to Virginia Tech I remember I was worried there might be some sort of language barrier. It took a little time to adjust to hearing English all the time instead of German, but I got used to it."

Kelly was first introduced to Blacksburg and Virginia Tech when the swimming team recruited her. While taking a tour of the campus, she fell in love. "When I first came to Tech, I fell in love with it," she says. "I loved the college town atmosphere. I knew right away that Tech was where I wanted to go to school."

Chemistry wasn't always her subject of choice though. She started as a double major in math and German, with a chemistry minor. But, after taking organic chemistry and doing a semester of research with professor Tim Long, Kelly decided she needed a change.

"I was really intrigued by what I learned in my research and through my first chemistry class," Kelly says. "So, I simply swapped my major and minor, making chemistry my main focus."

Slated to graduate in May of 2002, Kelly has reveled in her chemistry studies, researching injection methods with gas chromatography under Harold McNair. Together they are testing different variables to ascertain what conditions are optimal to get better chromatography.

But, she is most interested in polymer chemistry research, an interest sparked by three semesters of research under Long. This area of study is extremely diverse, with applications in everything from prosthetic limbs to tinted windows.

"Polymer research is a rather new field," she says. "It's exciting because we're only beginning to touch base on

its potential. The possibilities for research are huge."

Kelly is so turned on by learning about chemistry and polymers, she doesn't want to stop. Instead, she will pursue a graduate degree. She plans to skip a master's degree and go right for a doctorate. Her area of specialty will be polymer research. While Kelly has yet to officially decide which university she will attend, Cornell University and the University of North Carolina at Chapel Hill are at the top of her list.

Wherever she chooses, it will be difficult to match her experience at Tech. She says the learning environment is amazing. And fun.

"I am laughing 80 percent of the time I'm in the lab," she says. "Everyone is easy to get along with. It's a professional atmosphere but we can still joke around a little."

On the professional side of things, Kelly says the Chemistry Department is top notch.

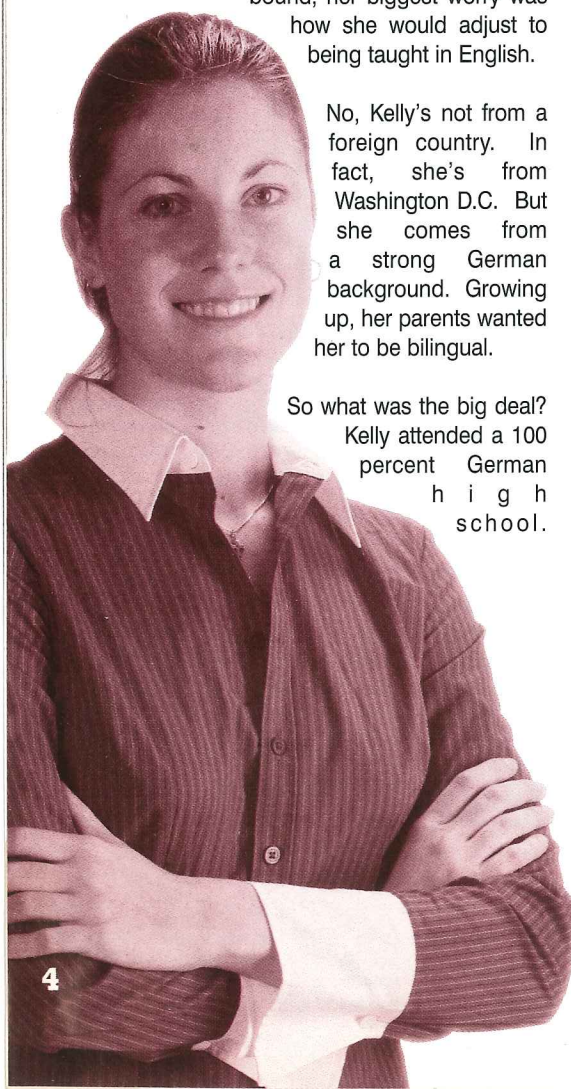
"The quality of professors here is of the highest level," she says. "There is an amazing amount of talent in this department."

Kelly has some talent of her own. In addition to being an avid soccer player, she competed with Tech's swimming team for a year and a half before giving it up to truly focus on her studies. And of course, she continues to be bilingual.

As for the future, Kelly plans on a long, exciting career in industry, researching chemistry-related biomedical applications.

But, she says nothing is set in stone.

"I'm a perfectionist," Kelly says. "Whatever I choose to do, I'm going to make sure it's what I'm best at. Most importantly, I want my work to make a difference in the world."



FACULTY PROFILE



Polymers, Motivation and One Old Car

By Keith Harrison

It's rusted, filled with trash and the doors won't even lock.

But, for some reason, his students seem to like it.

"Sometimes I'll walk into the parking lot and my car won't be there," Adhesive and Sealant Council (ASC) Endowed Professor Tom Ward jokes. "Part of the problem is that I leave my keys in the ignition. I don't have to worry about it getting stolen."

For years, Ward's students have dabbled in the field of "auto migration", tricking their much-respected professor by moving his 1977 yellow Volvo from parking space to parking space.

"It's all in good fun," Ward laughs. "I make the learning environment enjoyable for my students. I joke with them and try to connect with them on a personal level. In return, they take chances with me and are more willing to test the limits in their research."

And that's what he likes best. Ward says that the test of a good research chemist is that you should be wrong more than you are right. This means you're being curious and pushing the limits, rather than simply repeating experiments or doing the obvious.

For 34 years, he has encouraged Virginia Tech students to extend their boundaries with a demanding teaching curriculum.

"If you don't wake up in the morning and look forward to your day, you're probably in the wrong field," Ward says. "So, I make it a point to challenge my students to become involved in research that is interesting to them."

And it's when his students get motivated that he truly enjoys his job.

"Some students come in here lacking confidence," Ward says. "But once you feed them that first bit of discovery, they realize they can do it – and blossom into fine scientists."

Ward received his motivation at an early age – through his family. Working as a chemistry professor at North Carolina State University, Ward's father unknowingly influenced and shaped his son's future.

"I got to be around a lot of the work he brought home," Ward says. "We had a photographic darkroom and since we lived on a farm, I was around various chemicals and fertilizers."

So, chemistry was a natural fit. Ward followed his father to North Carolina State, receiving his bachelor's in chemical engineering. He went on to acquire his master's and doctorate in physical chemistry at Princeton University.

But, it wasn't a straight shot to Blacksburg. Before arriving at Virginia Tech, Ward taught at the University of Strathclyde in Scotland and at the University of Essex in England.

Tech was introduced to Ward in 1968 where he started as an assistant professor and slowly worked his way up the promotional ladder, receiving the Wine Award, two Certificates of Teaching Excellence and, most notably, the "The Adhesion and Sealant Council Endowed Professor of Chemistry" Commonwealth Scholar appointment.

He's right where he wants to be, enjoying teaching just as much as his research.

"I clearly love teaching," Ward says. "And the research is exciting because it's important to the world. There are immediate applications just waiting to

be fulfilled through my area of study. That's stimulating."

His research activities include the study of adhesion in ink-jet printer heads, as well as self-healing materials for NASA.

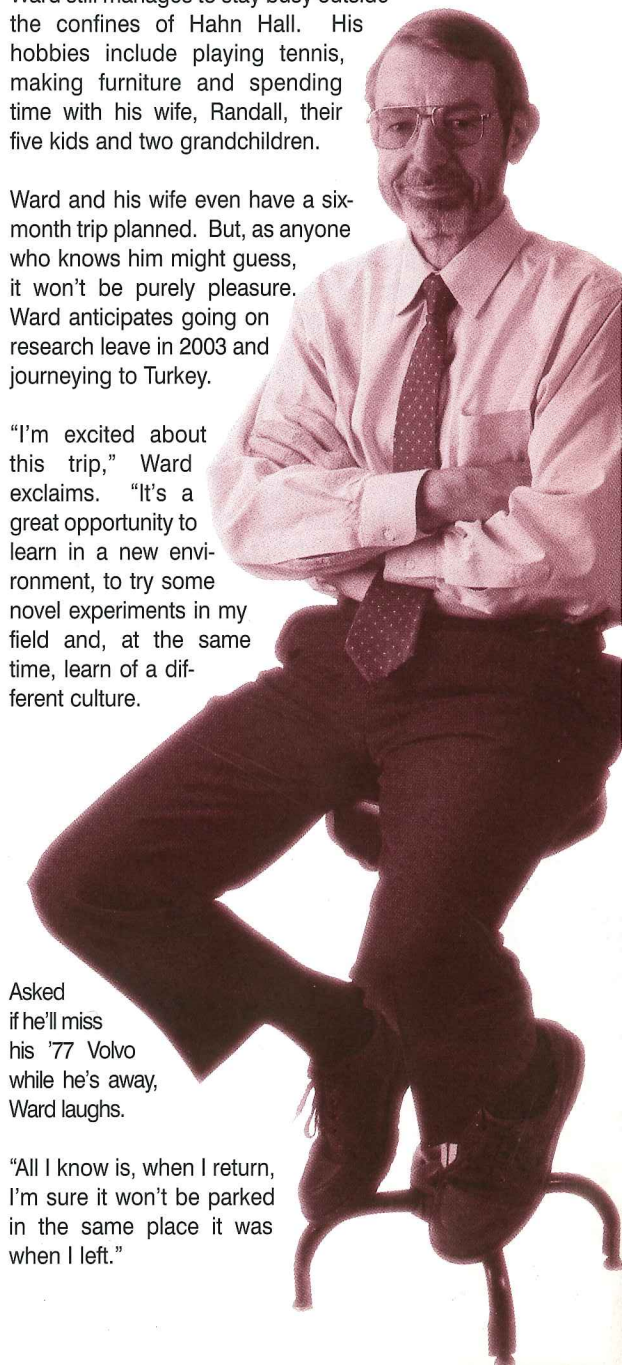
As often as he can be seen in his lab, Ward still manages to stay busy outside the confines of Hahn Hall. His hobbies include playing tennis, making furniture and spending time with his wife, Randall, their five kids and two grandchildren.

Ward and his wife even have a six-month trip planned. But, as anyone who knows him might guess, it won't be purely pleasure. Ward anticipates going on research leave in 2003 and journeying to Turkey.

"I'm excited about this trip," Ward exclaims. "It's a great opportunity to learn in a new environment, to try some novel experiments in my field and, at the same time, learn of a different culture."

Asked if he'll miss his '77 Volvo while he's away, Ward laughs.

"All I know is, when I return, I'm sure it won't be parked in the same place it was when I left."



Mary Gum: Life and Work, It's All About Having Fun

By Keith Harrison

Most people couldn't imagine it.

The alarm clock goes off before the sun comes up. She knows she'll be working late that day. And, she doesn't like her job.

In fact, she loves it. From the moment she wakes up each morning, she actually looks forward to going to "work" - that dreaded four-letter word that leaves most people counting how many sick days they have left. But, to Virginia Tech Chemistry Department alumnus Mary Gum, her job doesn't seem like "work" at all.

"I've been blessed,"
Gum says
sincerely.
"I'm hav-

ing far too much fun to be working. And that's what's key. When someone selects a career path, you need to make sure that you're going to enjoy yourself. So far, I've been successful in that regard."

Gum says she decided upon chemistry during her days in high school. With an uncanny desire to generate new ideas and discoveries, the choice was simple.

"I've had many strange twists and turns in my career," Gum says. "Through it all, I've learned one important thing."

"Stay on your toes. And when an opportunity presents itself, don't hesitate - reach out and grab it."

"The chemistry world is an extremely dynamic environment," Gum says. "What better feeling is there than taking a problematic situation, doing a bit of work and making it better in the end."

She loves to challenge herself. And when it came time to start thinking of a career path, Gum tried to think of the most intelligent people.

"I figured the smartest were mathematicians, physicists and chemists," Gum laughs. The first two clearly weren't for me, so, I just thought - chemistry here I come."

West Virginia University was her

next stop, where she would acquire her bachelor's in chemistry and also marry her high school sweetheart Ernie.

"We got married after our sophomore year," Gum says. "I laugh about it now because it's not something I'd recommend to many people. But, we're still together, so I guess it worked for us."

They didn't simply stay together. They were virtually inseparable. In fact, they both decided to pursue graduate studies at the same school.

She had studied under Jack Graybeal at West Virginia University, who actually provided her with her first exposure to chemistry. And coincidentally, he had received a teaching position at Tech.

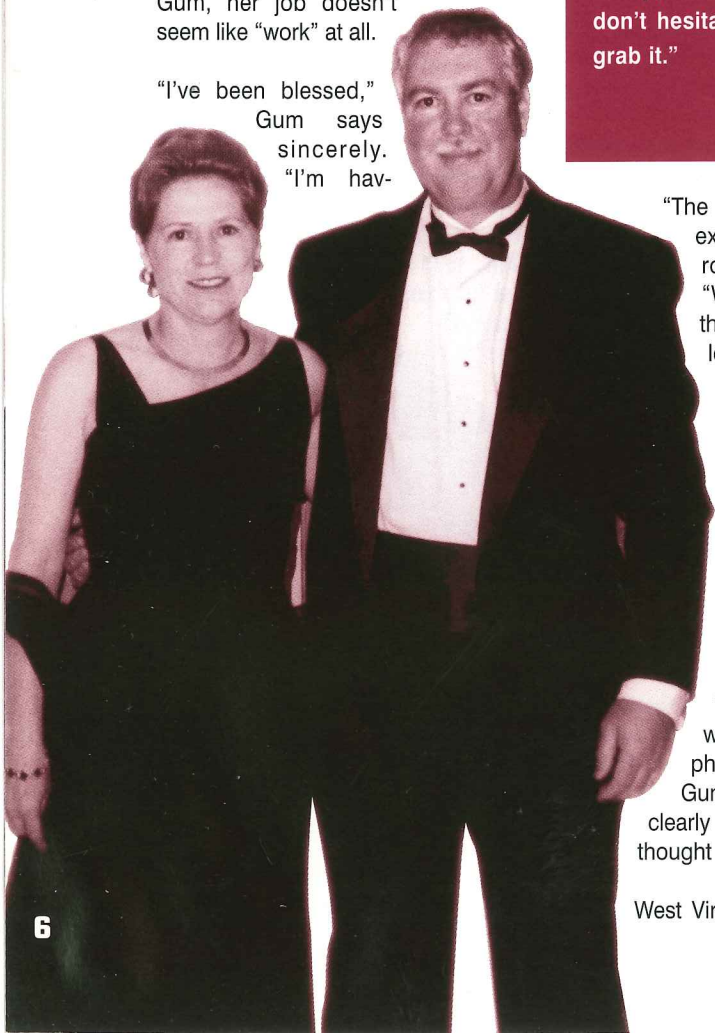
"After he left for Tech, we remained in touch," Gum says. "He told me a lot of good things about the Chemistry Department at Tech. And after comparing a few other schools, the choice was clear."

She received a National Science Foundation (NSF) Fellowship for her studies at Tech, which covered her tuition and provided a stipend of \$200 a month to live on.

"Two hundred dollars is not a lot of money to live on," Gum laughs. "Being able to share expenses with my husband made things easier. We did get quite good at pinching pennies though."

Studying microwave spectroscopy under Graybeal, Gum received her Ph.D. in chemistry in 1974. Her husband Ernie received his Ph.D. in biochemistry the same year. She then accepted a position as an assistant professor of chemistry, where she would educate Hokie students for three years.

Gum says she loved teaching the Tech students. "It was great being able to pass on the knowledge that I had gained





to students that had strong ambitions to learn. The on-going desire to learn is something that is key to becoming a good chemist."

And just as they came to Tech together, Gum and her husband would go to work together. In 1977, they both went to work for Union Carbide at the Tarrytown Technical Center. There, Gum would work in research and development management, focusing on applications research in ethylene oxide derivatives and specialty silicones.

"I've been blessed," Gum says sincerely. "I'm having far too much fun to be working. And that's what's key. When someone selects a career path, you need to make sure that you're going to enjoy yourself."

She soon learned the difficulties of being a woman working in such an environment. "I had a strong desire to move up within the company," Gum says. But, it's difficult to do so in a male-dominated industry. So, I took it upon myself to prove I was worthy."

Gum began taking night classes at a nearby college and soon had completed an MBA from Pace University.

"I think that was what put me over the top," Gum says. "When people saw that I had the motivation and desire to go and get an MBA on my own time, I think they realized I truly wanted more."

They most certainly did. In 1989, Gum was introduced into the commercial side of the company, as she was promoted to new products manager for the

OSi Group at Union Carbide's headquarters in Connecticut.

"The position was kind of strange at first," Gum says. "I was used to the research and development side of things. But, I soon found out that the commercial aspect can be equally, if not more, challenging."

There, Gum's job was to instill discipline into the company's new product process. The job consisted of an equal split of research and development and commercial, successfully preparing her for a climb up the business ladder. From that point on, Gum's career was marked by promotion after promotion. In 1999, following a merger, Gum climbed to her current position: executive vice president of Crompton Corporation.

She is responsible for the OSi Specialties businesses, including Silanes, Specialty Fluids, Industrial Specialties and the Urethane Technology Group. In fact, she is accountable for nearly one-third of the corporation's businesses.

"I get to travel a lot," she says. "I've been to numerous parts of the world, integrating our products into new markets and soliciting customers."

She says that through her travel, she's learned a lot about different cultures, met many nice people and seen beautiful parts of the world most people don't get the opportunity to.

"I loved visiting Bangkok," Gum says. "The people there are some of the nicest I've ever met. And it's exotic. I came out of a store one day, looked down and there was a baby elephant standing right beside me. You don't get that everyday in Connecticut."

But when she's away on business, Gum admits she misses her family.

"I spend the majority of my time with my two children, Ryan and Stephanie," Gum says. It's funny how fast they grow up. I try to be as big a part of their lives as I can."

The Gum family has no problem finding things to do. In the summer, golf is the sport of choice. And in the winter, there are many ski resorts nearby.

And strangely, with chemistry gurus for parents, Gum's kids aren't at all interested in the subject.

"I think chemistry's the farthest thing from their minds," Gum says. "My daughter is talking about being a lawyer. And all my son can seem to think about is ice hockey."

Whatever road they choose to take, their mother has some advice that is sure to pave their way to a successful future.

"I've had many strange twists and turns in my career," Gum says. "Through it all, I've learned one important thing."

"Stay on your toes. And when an opportunity presents itself, don't hesitate - reach out and grab it."



CLASS NOTES

Reese John Bursey, Jr. '39

Passed away at the age of 85. He served as president of the Mid-Columbia Chapter of the Muscular Dystrophy Association of America. While at E.I. DuPont, Bursey participated in work on the Manhattan Project.

Charlie C. Rawlings, '44

Retired, spends his days working on his electric car with plans of making it hybrid.

William Starnes, Jr., '54

An advisory council member, he has been elected as a FELLOW of the Society of Plastics Engineers.

James Edward Smith, '66

Retired from DuPont and formed Smith & Associates Consultants. James spends much time in Blacksburg, where he serves on several advisory boards.

Terry St.Clair, '72

Working for Langley Research Center, St.Clair received R&D 100 Awards for his part in developing a high-tech foam, TEEK, which was named one of the 100 most significant new

technical products of 2001 by *Research and Development Magazine*.

Jerry Clemons, '77

Named vice president and general manager of ABB Process Analytics. Has been inducted as a Fellow in the Instrumentation Systems and Automation Society.

Andrew J. Wnuk, '79

Was appointed a Research Fellow in Proctor and Gamble's (P&G) Victor Mill's Society. Since joining P&G, he has been named inventor or co-inventor on 19 patents.

Joseph S. Thrasher, '81

Is a professor of chemistry and director of graduate studies for the University of Alabama.

Michael Ogden, '85

Has been promoted to director of biological chemistry in the research and development department of R.J. Reynolds Tobacco Company.

Peter Walter, '90

Works as an inorganic product specialist;

received his Ph.D. in chemistry from Duquesne University in 1995.

Jennifer Riley Mayhall, '91

Works as a senior chemist and has received two patents, with one patent pending.

John Yost, '93

Works as a consultant for Science Applications International Corporation (SAIC) and is a member of the Department's Advisory Council.

Greg Kauffman, '96

Is completing his Ph.D. in computational chemistry at Penn State. His research focuses on method development and application to quantitative structure-activity relationships.

Lowell A. Umayam, '98

Is working as a bioinformatics engineer II at the Institute for Genomic Research.

Xuequn Shang '99

Works in the department of drug metabolism at Merck Research Laboratories.

A Snapshot of the Chemistry Department

Virginia Tech's Chemistry Department has a long history, a solid reputation and a bright future. Here are some highlights.

Undergraduate Education excellent teaching record: Wine Award (3), Sporn Award (5), SCHEV^{*} Outstanding Teacher Award (1).

Innovative teaching tools: *Think Well - The Next Generation* textbook by Gordon Yee, *General Chemistry for Engineers* textbook by Jim Glanville, *Mathematical Operations for Scientific Calculator*(CD-ROM) by Ketan Trivedi.

Chemistry learning center for Introductory courses: Daily "help sessions" serve approximately 50 students per day.

High-level undergraduate Instruction: Research students (32), placement in graduate school (15) and in science/technology-based industry (10),

NSF funded "Summer Research Experience" (13 years, 280 students).

Leader in continuing education: Courses taught in US, Europe, Asia, and South America in polymer/analytical chemistry for industrial/government/academic scientists (10 courses taught per year, 6 faculty involved).

New courses: "Scientific Professionalism" course addressing career planning, ethics and economic aspects of the chemical industry for both undergraduate and graduate students (Prof. Deck), "Oral/Written Communication" (Prof. Riffle).

Outstanding faculty: National Academy of Engineering (1), Virginia Scientist of the Year (4), NSF CAREER Awardees (4), UDP^b(2), ADP^c(1).

Excellent research productivity: The Department ranked 2nd among all Virginia Tech departments in research dollars awarded over the last 3 years (\$14,688,000) and 1st for research dollars per faculty. The polymer program ranks

5th by *U.S. News & World Report*.

Nationally recognized research centers: Harvey W. Peters Center for the study of Parkinson's disease and disorders of the central nervous system, Center for Self-Assembled Nanostructures and Devices, Center for Adhesive and Sealant Science and Materials Research Institute.

The Mobile Chemistry Laboratory: State-of-the-art experimentation to high schools from inner city Richmond to far SW Virginia 5 da/week, 9 mos/year. Chemkit-based program statewide (NSF funded). Four teacher workshops per year.

Distance learning: General Chemistry for Engineers course delivered to Blacksburg-Abingdon-Roanoke-Richmond-Norfolk each summer. Multimedia interactive DVD-ROM's developed to enhance local/distance learning.

Minority recruitment: Hispanic high school students (8) had research opportunities for two weeks in Blacksburg (summer 2001).

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Appreciation is extended to all alumni, friends 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 January 1, 2001 to December 31, 2001.

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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.

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