U.Va. Engineers Can Do Anything: A Conversation with Albert Small
Thomas Jefferson was a practical man. If you share his belief in human progress, then democracy, a form of government that engages the skills and talents of all citizens and not the privileged few, is the most efficient choice. And if you wish to maximize the potential of these citizens, the logical solution is a system of universal education, especially one that culminates in an institution — the University of Virginia — dedicated to what he called “the useful sciences.”

In Jefferson’s time this practical approach was revolutionary. In our time it’s a matter of necessity. If the United States is to successfully manage the challenges that already impact our way of life — global competition for scarce resources, climate change, economic volatility and political instability — it will require that citizens across the spectrum of professions have a deep-seated understanding of science, mathematics and engineering. And thanks to Jefferson’s revolutionary yet practical vision, no school is better positioned than the School of Engineering and Applied Science to produce these citizens.

When our undergraduates leave us, they possess excellent quantitative skills, a thorough grasp of the fundamental principles of science and in-depth knowledge of their major. They know how to approach problems and organize information in ways that lead to solutions, having worked together on design exercises. In addition, they have an understanding of how technology intersects with social, economic, political and ethical issues, the result of courses we offer through our Engineering Business Minor and our Department of Science, Technology, and Society, as well as from the life-changing experiences they gain through our Science and Technology Policy Internship Program.

Moreover, they have the resources of one of the best public universities in the nation at their disposal — and they take advantage of them. Many of our students, for instance, double-major in courses outside the Engineering School. As a result, our students graduate with an unusually broad perspective, ready to make contributions to the host of professions our nation will need to flourish.

One sign of the success of these efforts is the reception our students receive. This year, the Center for Engineering Career Development’s annual Spring Career Days, February 18–21, brought 80 organizations to Grounds, many for the first time. These recruiters recognize that engineers in the Jeffersonian tradition are critical to their future success and will be critical in transforming challenges into opportunities that benefit us all.
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Washington, D.C., native Albert H. Small is living proof of the idea that U.Va. Engineers can do anything.

A graduate of the Engineering School’s Department of Chemical Engineering in February 1946, George Washington University Law School in 1948 and the American University Graduate School of Business in 1952, Mr. Small is a pioneer in construction of colonial and contemporary housing. At age 82, he continues to serve as president of the Washington-based Southern Engineering Corp., a leading developer of multi-family housing and commercial office space in Virginia, Maryland and the District of Columbia, which he co-founded in 1950. He also is actively involved as a leader in many organizations.

He and his wife, Shirley, are generous supporters of the University and the Engineering School. His generosity towards the Engineering School includes a gift in the mid-1980s to benefit the Center for Computer Aided Engineering and renovation of the Albert Small Building. His donations to the University of Virginia include a leadership gift that made possible the creation of the Albert and Shirley Small Special Collections Library. Subsequently, he donated his unparalleled collection of rare materials relating to the Declaration of Independence, which are on permanent exhibit at the Albert and Shirley Small Special Collections Library. Included in this collection is the first printing of the Declaration of Independence (the Dunlap printing), one of only 25 known copies in the world.

Dean James H. Aylor recently spoke with Mr. Small about his U.Va. experiences and his views on engineering education. What follows are highlights of that conversation:

Let’s begin with the idea that U.Va. Engineers can do anything. What do you think it is about studying engineering at Mr. Jefferson’s University that makes this concept true?

Mr. Small: Thomas Jefferson was a versatile person with many interests. He was an inventor, an architect and a gardener, as well as an impressive public figure. He made it a practice to observe, to do research and to incorporate what he learned into his own world. Anyone who studies here benefits from this. It rubs off on you and changes you as a person, leaving you with a broader view of the world no matter what you study while you are here.

You have said that your whole outlook on life changed when you came to U.Va. How so?

Mr. Small: When I grew up in Washington, D.C., in the 1920s and 1930s there were not as many museums as there are now. Travel was limited so I hadn’t been to very many places when I arrived at the University. One of the first things I did was to visit the Engineering School Library. I was so impressed; I felt like that library held all the knowledge of mankind, and my lifelong interest in books was born. I spent a lot of time in that library. Nothing in my life caught my imagination in quite that way before I got here. Through my reading and coursework, I learned that there was a world far beyond what I had known. I like to think I became a wiser person for it.
You were very busy with V-12 Naval Officer Training and served in student leadership positions when you were at U.Va. What undergraduate experience had the greatest impact on you when you were a student here?

Mr. Small: As a member of the V-12 Naval Officers Training program I was required to attend school 12 months a year. I also served as vice president of the U.Va. Chapter of the American Institute of Chemical Engineers and I was president of the Chi Chapter of Zeta Beta Tau. But I’d say the experience that had the greatest impact on me in that first year was sitting in a classroom and hearing Professor Joe Vaughan invite us to look to our right and our left, saying, “They won’t be here in your third year.” That got my attention and kept me motivated. And the study skills and work ethic I adopted during those years have stayed with me my whole life.

You graduated in 1946. What, in your view, are the ways engineering education has changed over the course of your life?

Mr. Small: When I went to school 60 years ago, we had to work very hard on engineering courses. We didn’t have much time to take classes in other disciplines and most of the students were from Virginia and from small towns. Now the University of Virginia has become so much larger and so has the Engineering School. The opportunities for engineering students to experience the broader University and to study the humanities are much greater. This is essential because the world is not limited to engineering and our students must graduate with a broad worldview in order to understand the issues they will be called on to solve.

What, in your view, are the most pressing issues facing the world today?

Mr. Small: Well, there are the obvious things such as energy, conservation and medicine. And there is the broader issue of the difficulty in getting good ideas pushed forward in various areas due to politics and red tape. Engineers must be educated to understand those political concerns. They must be skilled enough and wise enough to suggest solutions that will work in society and they must be able to work with people in a variety of fields because that is the way engineering is today.

You have been very generous in your lifetime. What would you like to say to those who might be considering a gift to the Engineering School today?

Mr. Small: One of my early gifts to the University is a letter written by Thomas Jefferson more than 200 years ago. In the letter, Mr. Jefferson discusses his fiscal concerns for the University. Not much has changed in this regard over the years. I would say to those who were touched by their experience at the Engineering School, that quality education is expensive and it will not be achieved without the help of others. Think about how going to this School changed you and give accordingly. It is a worthwhile investment in the future.

Albert H. Small in his home in Palm Beach, Fla.

Albert Small is an avid collector of rare books, autographs, manuscripts and maps. Throughout his life, he has pursued various passions, including tennis, gardening, skiing and photography. He is a past member of the University of Virginia Board of Visitors and the University of Virginia Engineering Foundation. He is a member of the University Foundation and a trustee of the Aspen Institute. His numerous other affiliations include the Trustees Council of the National Gallery of Art, American Associates of the Royal Academy Trust, National Trust for the Humanities, Life Guard of Mount Vernon, National Symphony Orchestra, National Archives Foundation, Historical Society of Washington, D.C., Folger Shakespeare Library, James Madison Council of the Library of Congress, Urban Land Institute and Tudor Place Foundation.
The partnership between Rolls-Royce, the University of Virginia, Virginia Tech and the Commonwealth of Virginia promises great changes for higher education and citizens of Virginia. Announced in November 2007, the partnership agreement will foster collaborations between U.Va.'s School of Engineering and Applied Science (SEAS) and the McIntire School of Commerce, Virginia Tech's College of Engineering and the Virginia Community College System.

The company's donation of 10 acres of land in Prince George County, Va., will allow the University of Virginia to construct a facility to house the Commonwealth Center for Advanced Manufacturing as well as undergraduate and graduate classrooms where courses in engineering can be held. The University of Virginia and Virginia Tech will jointly create and operate the Center for Advanced Manufacturing, and the facility will be leased from U.Va. This center also will support undergraduate internships and allow for expansion of undergraduate programs both in the classroom and in the workplace.

SEAS hopes the partnership will support additional chaired professorships, graduate fellowships, endowed internships and laboratory enhancements. The Commonwealth is contributing funding to U.Va. and Virginia Tech to help make these transformations possible.

“This partnership will allow us to expand our business minor, develop a new minor in manufacturing and increase the number of internships we can support, all of which is wonderful news for our undergraduate program,” says James H. Aylor, dean of U.Va.'s Engineering School. “This is an unprecedented opportunity for us to expand our curriculum and our collaborations within the University and with institutions throughout Virginia.”

Virginia Governor Timothy M. Kaine credits the excellence of Virginia universities with bringing Rolls-Royce to the area. As reported by the Petersburg, Va., “Progress-Index,” Kaine told audience members at the 127th annual Petersburg Chamber of Commerce dinner held in January, “I learned something in working with Rolls-Royce. The most precious asset in the world … is brainpower. [U.Va. and Virginia Tech] are going to be at the table at virtually every deal in the future. … This Rolls-Royce deal is a bellwether.”

SEAS leadership agrees with the need for unity as the project moves forward.

“We hope to create a flagship facility in Prince George County that will be a strong presence in research and education,” says Barry Johnson, senior associate dean for research at U.Va.’s Engineering School. “We hope to have all institutions in the Commonwealth involved.”

While formal details of the partnership are still being discussed, here are a few things that this partnership will make possible:

**A Research and Teaching Center**
The 10 acres of land in Prince George County, Va., will be home to the Commonwealth Center for Advanced Manufacturing. It also will be home to PRODUCED in Virginia classes. A joint program between SEAS and the Virginia Community College System, PRODUCED in Virginia allows students to earn a four-year engineering degree without leaving their community. Classes in this new center will serve undergraduates in the area and Rolls-Royce employees who wish to fulfill the first two years of an engineering degree at a local community college and then complete the last two years at the Prince George County facility with SEAS faculty.
Commonwealth Graduate Engineering Program classes also will be held at the new facility, Johnson says. This distance learning program allows students to pursue engineering master's degrees via video conferencing from classrooms on Grounds. During these real-time sessions, students will be able to fully participate in classroom discussions.

Johnson hopes the Center for Advanced Manufacturing will engage all universities throughout the Commonwealth in cross-industry research activities. The founding institutions — U.Va. and Virginia Tech — hope to involve other schools and industries in research related to logistics management, precision manufacturing and high-performance manufacturing. Other possible areas of collaborative research include corrosion combustion-related technology, fuel efficiency and green manufacturing.

Expansion of Curriculum and Faculty
The partnership with Rolls-Royce will allow SEAS to offer more courses and expand sections of current courses for the Engineering Business Minor. Offered in collaboration with the McIntire School of Commerce, the minor provides students with an interdisciplinary approach for not only designing new technologies, but also readying them for the marketplace. Student teams would work formally with Rolls-Royce to use their engineering knowledge to address real-world design challenges faced by the company.

The addition of a six-course manufacturing minor is also a possibility, according to Johnson. Faculty will include a chaired professor and one or two junior faculty members to support the increased teaching load. Focal points would likely be in the areas of mechanical, materials, electrical and computer, computer science, chemical and systems engineering.

“This partnership will allow us to expand our business minor, develop a new minor in manufacturing and increase the number of internships we can support, all of which is wonderful news for our undergraduate program.”

— Dean James H. Aylor

In addition, an annual endowment shared with Virginia Tech should allow SEAS to support approximately 10 third- and fourth-year student interns per year to work for Rolls-Royce international facilities in the summer months.

Workforce Development Initiatives
Beyond opportunities for higher education, the new manufacturing facility would be a boon for the economies of Prince George County and Virginia. The new facility could mean $500 million in economic development for Prince George County and bring more than 500 jobs to the Commonwealth in the coming years.

As a jet-engine manufacturer, Rolls-Royce has a significant need to hire mechanical engineers. The company also is interested in hiring engineers who understand business, making SEAS' Engineering Business Minor students promising candidates. Locally, the company is just beginning to recruit. “If all goes according to plan, we hope the site will be fully operational by the end of 2009, at which point it may employ as many as 170 people,” says Rolls-Royce spokesperson Mia Walton. Worldwide, Rolls-Royce has about 38,000 employees and an order book of $90 billion.

A brighter future is on the horizon. From economic stimulation to curriculum enhancements and strengthened relationships between industry and higher education, Rolls-Royce’s presence in the region benefits everyone involved. In the coming months, these hoped-for changes should become reality, paving the way for unprecedented partnerships and innovation.
Despite being unsubstantiated, the image of an engineering student as a caricatured super student — complete with pocket protector — is one that is familiar to all of us.

Benjamin Cohen, assistant professor in the Department of Science, Technology, and Society (STS) at U.Va.'s School of Engineering and Applied Science (SEAS), however, has forever modified this stereotype.

In Fall 2007, Cohen taught a “Technology, Nature, and Sustainable Communities” 200-level engineering course. “In planning, my first thought was: Wouldn’t it be great if the class wrote a book on this topic?” says Cohen. And so it began. The book was to be an analysis and exploration of the ecoMOD project — a collaboration between the U.Va. engineering and architecture communities to design and build eco-friendly, modular (ecoMOD) homes for low-income families locally and in regions devastated by Hurricane Katrina.

“The ecoMOD project represents our current ideas of nature,” says Cohen. “Environmental philosophies influence design principles and vice versa, and I wanted the students to understand this.”

The class initially focused on selected readings and discussion about the relationships between technology and nature before then thinking and writing about these themes as they relate to ecoMOD.


According to Cohen, the book explores ecoMOD’s historical background, its current reality and the necessary societal shifts required to make it widespread.

The practice of teaching engineers to be thoughtful writers will continue. Cohen plans to incorporate this teaching method into future courses and envisions the book being hosted on a Web page so that it may be read by sustainability advocates in the Charlottesville community and throughout the University. (For more on ecoMOD, please see page 10.)

Inside the Box

Drama Project Requires Innovative Thinking for Young Engineers

It seems an improbable pairing — drama students and first-year engineering students — but together they’re working to bring a series of one-act plays to life in the University of Virginia’s Helms Theatre in an intriguing interdisciplinary activity.

Called “Inside the Box,” the collaborative project is in its fourth year of combining the creativity of writers, directors and actors with the inventiveness of young engineers.

Benjamin W. Kidd (’10), a graduate student in electrical engineering, first proposed the idea to Paxton Marshall, associate dean of undergraduate programs in the Engineering School, when Kidd signed on as a teaching assistant.

“I was taking or had taken some classes in theatrical lighting with drama professor Lee Kennedy and, as an electrical engineer, initially thought that we could build something around lighting,” says Kidd. “But I thought that would be too constrained, while special effects permit more opportunities.”

Kidd and Marshall contacted the drama department and laid out their plan.

Playwrights from drama professor Doug Grissom’s class are paired with a director from drama professor Robert Chapel’s directing and stage-management class and teams of students from the “Introduction to Engineering” class. The playwrights are given a list of five special effects in an assignment that requires them to write a play that includes four of the effects. Later, the directors must...
add the remaining effect. Based on the specifications from the playwrights and directors, the engineering students design and build the effects.

Jessica Tabacca (SE ’11) confesses that she hadn’t expected to be spending part of her first semester as an engineering student working in the theater. “I think it was a good surprise, though, because we all had a lot of fun getting to work with our playwrights, directors and actors,” says Tabacca. “It was exciting to watch all our hard work come together in one final and exciting project.”

The engineers learn one other thing theater people already know: Performing in front of a live audience is as daunting as it is rewarding.

Among the interesting dynamics that Marshall has seen as Inside the Box has evolved is the relationship between the first-year engineers and the drama students who are generally in their third or fourth years. “The engineering students have just arrived, and they are awed by the upper-class drama students, who seem so extroverted and confident,” he says. “But in working together for a common end, they see the human side of the drama students: that they are uncertain and groping towards an optimal solution just like the engineers. The engineers see that their contribution is vital to the success of the plays, and this gives them both confidence and a sense of responsibility to the team effort.”

“The end,” Marshall continues, “they have a great sense of accomplishment and pride in their work.”
Jefferson’s Kind of Engineer
Chief Technology Officer of SEAS a True Renaissance Man
By Andrea Arco

It is reported that Thomas Jefferson measured 6 feet 2 inches. Had they been colleagues, the 6-foot-6-inch Mitch Rosen, chief technology officer for U.Va’s Engineering School, might have recruited him for a pickup game of basketball.

Height isn’t all the two men have in common. Like Jefferson, Rosen is a fixture on Grounds. The SEAS community knows him as a consummate professional, charged with guiding the School’s information technology infrastructure and advocating computational science. And there’s more: Rosen is a mechanical engineer.

“People assume I’m a computer engineer,” Rosen says, “but while in college I started learning to use computers to model physical problems. I had to find a way to solve my engineering simulations accurately and efficiently using the available tools, first on mainframes and then using the emerging PC platform: The rest is history.”

Rosen was born and raised in New York and graduated from high school when he was just 16 years old. He then majored in mechanical engineering at The Cooper Union for the Advancement of Science and Art, where, in addition to working his way through school as an energy consultant, he started a social fraternity. In spring 1975, the Delta Eta Chapter of Tau Delta Phi at Cooper Union was formed, and it remains active today.

Upon leaving college, Rosen worked for Westinghouse Electric Corp. in Washington, D.C., monitoring emerging opportunities and regulations in advanced solar, nuclear and fossil energies. He then went on to complete an M.S. degree (‘81) and doctorate (‘85) in mechanical engineering at U.Va. While a graduate student, Rosen pursued an interest in music, playing saxophone with the U.Va. Jazz Ensemble.

After working as a research faculty member analyzing jet-engine and industrial compressor design at SEAS, he left to start a consulting company.

When his business partner retired, Rosen returned to the University and academic life.

On Grounds, Rosen has taught aerodynamics, fluid dynamics, programming and computer graphics. He created The Design Lab, which provides specialized computer resources and workspace for mechanical and aerospace engineering students.

Here, too, he has found a ready audience for his jazz group, “Sax Therapy,” which has played a variety of Charlottesville establishments. Even today he gets requests to play at faculty parties.

Tall in stature, long in accomplishments, Rosen says, “I do what I love and I love what I do.” A truly Jeffersonian philosophy.
One of the most common surgeries performed on pediatric patients could become faster and safer thanks to several U.Va. engineers. Led by Shayn Peirce-Cottler, an assistant professor of biomedical engineering at U.Va.’s Engineering School, and Dr. Bradley Kesser, an ear–nose–throat (ENT) surgeon at U.Va. Health System, a team of undergraduate researchers are in the process of commercializing a novel device to aid in the surgical implantation of ear ventilation tubes.

Each year about 2.2 million young patients need these tubes implanted for the treatment of chronic otitis media with effusion, a common problem associated with earaches. ENT surgeons insert the tubes to relieve pressure and fluid buildup.

“Currently the procedure is tedious,” Peirce-Cottler says. “Small tubes — 2 to 3 millimeters in diameter — are inserted using four different instruments. The new insertion device facilitates safer, easier insertion. It reduces the time of anesthesia and reduces to one the number of instruments inserted into the ear canal, which reduces the risks for the patient.”

Similar in appearance to the current suction tool used to treat chronic ear infections, the new stainless steel device consists of a hollow rod with a collar that holds the tube in place, allowing the surgeon to apply force to insert the tube with one motion.

It has taken several years for the device to go from concept to invention. The project started as an undergraduate Engineering School Capstone biomedical design project in 2004 led by Peirce-Cottler and Kesser. Since its inception the project has been enhanced by three different Capstone teams.

“The momentum of this research has really been driven by students, both in engineering and medicine,” Peirce-Cottler says.

An orthopedic surgeon whose child had required the ear tubes brought the initial idea to the first Capstone team. Soon after, an operating-room visit was scheduled so the engineering students could see firsthand how the tubes were inserted.

“Students saw that the procedure was tedious even for a skilled surgeon,” Peirce-Cottler says. “Getting into the clinical setting with a real-world view made the task and goal immediately apparent.”

There have been some hurdles along the way — in particular, being more responsive to the design needs of surgeons.

“Originally our team wanted to over-engineer the device with too many features,” Peirce-Cottler says. “The surgeons wanted something simpler and streamlined. Having an ENT surgeon on the team helped us to overcome this problem and make the device usable.”

With dedicated groups of student researchers and a $100,000 grant from the Walter H. Coulter Foundation, the device is now approaching commercial viability. The group has completed small-animal studies on chinchillas, rabbit-sized rodents known for having ears very similar to those of humans. The researchers have successfully constructed an anatomically accurate human ear for testing and are now conducting human clinical trials at the U.Va. Hospital. They are still analyzing data and, according to Peirce-Cottler, the results look promising.

The researchers have secured provisional patents and applied for a U.S. Patent in September 2007. They are currently in license negotiations with an ENT product company in Scandinavia.

In the next couple of years, the work of surgeons and the health of millions of children could be vastly improved because this dedicated interdisciplinary team refused to accept the status quo.

For further information about Shayn Peirce-Cottler and research in her lab, visit: bme.virginia.edu/people/faculty/peirce and bme.virginia.edu/peirce.
The Seams Effect

Virginia Governor Kaine Praises ecoMOD3’s Focus on Affordable Housing and Sustainability

By Jane Ford

When Virginia Governor Timothy M. Kaine attended the ribbon-cutting ceremony for the University of Virginia’s ecoMOD3 project in December 2007, he applauded the project goals of historic preservation, affordability and ecological sustainability in both construction practices and use, and the incorporation of universal design to address issues of aging-in-place.

“I feel very excited about any project like this where we are merging the talents of our universities and the energies of our students with true community need,” Kaine said.

Kaine attended the event as part of his “Charlottesville Cabinet Community Day” activities, which included visits to five other Charlottesville-area locations. After the formal speech and ribbon-cutting, Kaine and his cabinet members had an opportunity to tour and discuss the project with the students who worked to make the initiative a reality.

ecoMOD, a multi-year collaborative project between the Engineering School and the School of Architecture, empowers students to research, design, build and evaluate a series of prototypes of ecological, modular and affordable houses. Interdisciplinary teams of architecture, engineering, landscape architecture, historic preservation, business, environmental science, planning and economics students worked together under the leadership of John Quale, assistant professor, School of Architecture, and Paxton Marshall, professor and associate dean of undergraduate programs, Engineering School.

The scope of the ecoMOD project includes three prototypes for the Piedmont Housing Alliance, a central Virginia affordable-housing organization that offers fair-housing education, low-interest loans and affordable-housing project development. Two prototypes have been completed. Another was developed for Habitat for Humanity.

The designs, licensed to Modern Modular of New York City, will be made available in the coming year to affordable housing organizations, modular builders and individuals.

The construction of ecoMOD1, a two-unit condominium, was completed in Charlottesville’s Fifeville neighborhood in 2006. In summer 2007, ecoMOD2 — designed and built for Habitat for Humanity of Greater Charlottesville and Habitat for Humanity of the Mississippi Gulf Coast — was completed. The design has been included in national exhibits of post-Katrina rebuilding efforts.

“I feel very excited about any project like this where we are merging the talents of our universities and the energies of our students with true community need.”

— Governor Timothy M. Kaine

The third iteration of the initiative, ecoMOD3 — known as “the SEAM house” — addresses both the need for housing for an aging population and the renovation of a mid-19th-century historic property. The project provides the community with two affordable housing units — a renovated

Site plan for ecoMOD2

Students and construction crew lower ecoMOD3 into place

By Jane Ford

Students and construction crew lower ecoMOD3 into place
For more than a century, voting machines have helped shape American political history. The chaos of the 2000 presidential election in Florida drew attention to the crucial role that voting machines played in shaping the outcome of that election. But Bryan Pfaffenberger, associate professor in the Department of Science, Technology, and Society at U.Va’s School of Engineering and Applied Science (SEAS), believes there is value in understanding that the interaction between voting technology and culture has been going on for more than a century.

Pfaffenberger is studying the history of mechanical-lever voting machines. His research focuses on the machines’ introduction in New York State in 1892 to 1925, when the technology was employed throughout the state. “There’s an almost exact parallel between the debate we’re having today concerning electronic voting machines and the equally divisive but completely forgotten debate that greeted first-generation voting machine technology in the 1920s,” Pfaffenberger says.

Pfaffenberger is helping to resolve a long-running controversy among political scientists and historians about who was responsible for the sweeping electoral reforms that characterized the 1890s.

A recent $27,000 grant from the National Science Foundation is allowing Pfaffenberger to pursue archival research on the topic. Already he has found that scholars have all but ignored the history of voting machines, which he finds surprising given our politically obsessed culture.

“It’s almost as if this subject wasn’t even explored until the 2000 presidential election,” he says. “After that, voting technology suddenly mattered to folks.”

Pfaffenberger’s study is part of a larger Democracy and Technology program that he is developing with colleagues in the University’s Department of Science, Technology, and Society — an initiative that has already sparked several cross-University collaborations and additions to the curriculum.

“It’s fitting that this initiative is under way at the university Thomas Jefferson founded,” says Pfaffenberger. “Jefferson strongly believed that engineers need to be good citizens. Today, the need is greater than ever, so it’s important for science and engineering students — indeed, students throughout the University — to reflect on how technologies shape our democracy.”

Bryan Pfaffenberger’s book “Machining the Vote” — detailing the progression of voting technologies and the changing political and social climates throughout the 18th and 19th centuries — will be published in summer 2008.
Michael Reed’s own career supports his contention that the engineering curriculum, with its emphasis on analytic thinking and problem-solving, is the ideal preparation for people interested in pursuing ideas wherever they lead. Reed, a professor in the Charles L. Brown Department of Electrical and Computer Engineering, is a founder of Setagon, a company developing an improved stent to keep open the clogged arteries of patients with heart disease. The technology Reed developed with senior scientist Whye-Kei Lye required them to range far afield from electrical engineering, applying knowledge from materials science, mechanical engineering and cardiology, as well as microfabrication technology.

This ability to cross disciplinary boundaries promises a payoff. Setagon — with the intellectual property that Reed and Lye created — has recently been acquired by one of the largest medical-device companies in the world. It saw in Setagon’s technology a potential solution for a number of problems associated with the current generation of stents. Stents today are coated with a polymer that releases a drug to prevent scarring of the blood vessel wall after angioplasty. Applying the polymer to the stent precisely has proven difficult, however, and the polymer has itself been implicated in scarring.

Reed and Lye, along with Gary Owens, the director of the University’s Cardiovascular Research Center, have developed a nanoporous metallic coating using a process that Reed encountered while working with Materials Science and Engineering Professor Robert Kelly. This coating can be made of the same material as the stent itself, making it easier to apply and potentially more effective in reducing scarring.

“Nanoporous metals make an ideal delivery system for drugs,” Reed says. “They act like a sponge, with very fine pores that are a thousand times smaller than the diameter of a human hair.” Results from preclinical trials have so far been promising.

The patented technology that Reed, Lye, Owens and their colleagues have licensed is representative of the dozens of technologies developed by Engineering School professors that have been licensed by start-ups and more-established companies. They include ultrasonic medical imaging systems, using intellectual property patented by biomedical engineers William Walker and John Hossack and electrical engineer Travis Blalock; passive remote sensors for chemical weapons, created by mechanical engineer Gabriel Laufer; and new methods to increase the efficiency of photovoltaic cells, created by electrical engineers Mool Gupta and Barada Nayak.

The point of departure for all these innovations is, as Reed points out, “the engineers’ ability to learn things outside their field.”

There’s more to the story ...

Check out Engineering School publications and news online:

- IMPACT, SEAS research publication at [www.seas.virginia.edu/impact](http://www.seas.virginia.edu/impact)
- Opportunity, the impact of generosity at [www.seas.virginia.edu/opportunity](http://www.seas.virginia.edu/opportunity)
- Spotlight, faculty and student highlights at [www.seas.virginia.edu/spotlight](http://www.seas.virginia.edu/spotlight)
**My Favorite Professor**

George Cahen prepared me for a daunting internship in just one semester — and that was only the beginning.

As a first-year SEAS student in Professor Dana Elzey’s “Intro to Engineering” class, I expressed interest in an engineering internship in Germany. Professor Elzey secured an internship for me in the R&D office of the materials science department at Mercedes-Benz. There was only one problem: I had no knowledge of materials science. I polled faculty and friends and everyone said, “To learn it comprehensively and quickly, take Professor Cahen’s class.” Everyone was right. Professor Cahen is a natural teacher and has the ability to break down complex subject matter so that students can understand it.

In one semester, he taught me the materials science basics I needed to succeed in my internship.

Later, I joined the U.Va. motor sports team and took the required “Intro to Motor Sports” class. Professor Cahen was one of the teachers. I’ll never forget the day when, to reinforce our knowledge of suspension systems, he brought in a variety of cars. That’s when I started going to Professor Cahen about car — and life — advice. What classes should I take? Which car should I buy? What would you do in this situation? He always had time to help me — especially as I navigated the international patent process for my firefighting tool redesign and, as a Truman Scholar, proposed legislation on sprinkler systems. He became my mentor and friend; his breadth of knowledge and positive outlook on life became my inspirations.

After graduation, I traveled to Ireland on a Mitchell Scholarship and received a diploma in fire safety and protection from Trinity College in Dublin. I worked in Washington, D.C., as a management consultant for fire departments before returning to Charlottesville in July 2007 to take post-graduate systems engineering courses and work as a firefighter. The best part about returning to SEAS? The frequency with which I see Professor Cahen — one of the best professors and role models I’ve ever had.

Markus Weisner (Engr Sci ’05)
Truman Scholar, Mitchell Scholar, international patent holder, firefighter

George Cahen is the newly appointed director of Experiential Programs and Engineering Outreach. Thanks in large measure to a generous donation from Linwood A. “Chip” Lacy Jr. (ChE ’67, Darden ’69), Cahen will bring new focus to the Engineering School’s experiential learning programs.

**Industry Leaders Join the SEAS Trustees**

The SEAS Trustees organization provides support to the Engineering School by advising the dean on issues related to strategic planning, development, academics, facilities, communications and finance. The organization also serves as the governing body of the University of Virginia Engineering Foundation.

New members of the SEAS Trustees are:

- **David S. Gee** (CE ’76), President North America, AES Corp., McLean, Va.
- **Steven A. Jarvis** (CE ’65), Vice President and General Manager, Beyer Construction LLP, Houston
- **John B. Muleta** (SE ’86, Darden/Law ’93), CEO of M2Z Networks Inc., Arlington, Va.
- **Karen L. Payne** (EE ’81), President, Pacific Edge Investment Management Inc., Los Altos Hills, Calif.
Engineering School Campaign Moves Forward in Unique Ways
By Tim Redden

SEAS alumni and friends, I have good news to share.

Great things are happening at U.Va.’s School of Engineering and Applied Science. Momentum is obvious wherever you look and each forward step we take is due in large measure to the support we receive from you — our alumni, our friends, and our corporate sponsors and partners.

With approximately 40 percent of our campaign behind us, we’ve raised more than $50 million in pledges, gifts and recorded planned gifts, including $12 million in commitments received in just the last three months. We are greatly encouraged by this outpouring of support and are ever hopeful that this campaign will have a transformational effect on Engineering School academic programs and capital projects when the campaign concludes in 2011.

The broadening interest of faculty and students and the vast increase in engagement on the part of our alums is particularly encouraging. More than 1,000 alumni and friends have joined us at events across the nation since the campaign began, and our tailgates in Darden Court before each home football game are attracting upward of 300 people who come to enjoy the great food, the great music and the opportunity to gather before the games.

Our alums are stepping forward in significant and unique ways to stand behind the School and to encourage other alums to get involved as well. Individual donors who have helped the School recently include James T. “Jimmy” Fang (SE ’95) and his brother Edward Fang (CS ’91), who have worked tirelessly to make connections to young alums and have given generously to support the Annual Fund and the School’s new International Programs initiative. Peter Quick (CE ’78) has given a gift to establish the first endowed Ridley Scholarship for Engineering, which will provide support for promising African-American students in the School.

We have seen increased corporate engagement as well. Earlier in this publication you read about the School’s ongoing partnership with Micron and our unprecedented partnership with Rolls-Royce — relationships that will bring opportunities for our School and the Commonwealth. Other recent gifts include Aerojet’s support for the Engineering School’s Hy-V program and support from Alcoa, Areva, AutoTrader.com, Boeing and Lockheed Martin, among others.

Rice Hall, our information technology engineering building, becomes closer to a reality every day, and our Annual Fund is a great success. We are grateful for the 1,800 alumni, students, parents, faculty and friends who contributed more than $1 million so far this fiscal year. We are well on our way to achieving our goal of raising $1.7 million unrestricted Annual Fund dollars to help support experiential learning opportunities for our students, state-of-the-art laboratory space and equipment, international learning experiences, innovative new programs, student research, alumni activities and much more.

Annual Fund matching gifts from companies and challenge gifts from generous alumni and friends also play key roles in our annual gift program. We offer special thanks to our 208 Thornton Society Members who have already contributed leadership gifts to SEAS of at least $2,500 this year. These partnerships with SEAS make a tremendous impact.

Tim Redden is the associate dean for development for the School of Engineering and Applied Science and the vice president and executive director of the University of Virginia Engineering Foundation.

Your key to everything SEAS …

Sign up for E-News and receive SEAS news delivered directly to your inbox once a month. Enter into a dialogue with the dean by responding to his question of the month.

Sign up today: www.seas.virginia.edu/enews

Respond and read classmates’ responses to the dean: www.seas.virginia.edu/enews/qotm
1960s
Hunton Energy, a subsidiary of the Hunton Group, whose chairman and CEO is Richard O. Hunton (ME ’60), signed a memorandum of understanding in December 2007 to develop and operate a synthetic natural gas (SNG) plant adjacent to the Dow Chemical Company’s Oyster Creek Facility on the Texas Gulf Coast. The Hunton Energy facility will produce SNG and will use steam turbines to produce additional power from its by-product steam. Processes will capture 100 percent of the CO₂ emissions from the facility for use in enhancing oil recovery.

Walter A. King (ME ‘61) was elected a distinguished member of the Society of Petroleum Engineers.

1970s
David M. Shelton Jr. (EE ’71) is a senior associate with Hayes, Seay, Mattern & Mattern, an architectural and engineering design firm in Virginia. He is an electrical engineer in the Roanoke Buildings Division of the firm and has more than 36 years of experience in the architectural-engineering industry.

Richard C. Benson (ME ’74) is the Paul and Dorothea Torgersen Dean of Engineering at Virginia Tech. This is the first endowed dean position at Virginia Tech and will provide discretionary funds for use in developing academic programs. Dean Benson’s research area is in the mechanics of highly flexible structures.

Charles A. Creswell (ChE ’75) is vice president of project management at WEBBER/SMITH Associates Inc., a multidiscipline planning, engineering and construction management firm that specializes in serving the needs of the food industry.

Martin T. Kokus (Engr Physics ’75) is a visiting instructor in physics at Potomac State College of West Virginia University. He formerly owned a consulting business specializing in recycling and solid waste management and holds two U.S. patents, one of which is for a line of backpacking equipment that he markets. He is a former contributing editor for “Cycles” magazine, an editor of several science books and a member of the editorial board for “Frontier Perspectives.” He has lectured on gravitation and geology in earthquake prediction and on redshift quantization and alternative theories of gravity, cosmology and fundamental particles.

Deborah L. Pearce (Applied Math ’78) was elected president of the Rochester School for the Deaf board of directors. She holds an M.B.A from Harvard Business School and is CEO of LeJames Inc. She has held executive and leadership positions with Otis Elevator Co., United Technologies, General Electric and IBM. She is married to William Sheeran, president of LeJames Inc.

1980s
Jack B. Hicks (ME ’79, ’80), an attorney in the law firm of Womble Carlyle, has joined the Elon University School of Law as an adjunct professor.

Christopher M. Stone (CE ’80) is a Fellow of the American Society of Civil Engineers and president of Clark Nexsen, an architecture and engineering firm. He has 27 years of experience in the design and management of public, private, educational and commercial projects and has been involved in more than 400 construction projects.

Honoring Women
Jill Tietjen Co-Authors “Her Story”

Jill Tietjen cares about women. Women in engineering. Women in professional careers. Women who have had a profound impact on the intellectual, social and political development of our society.

Now, she and co-author Charlotte S. Waismann have written “Her Story,” a vivid documentation of the breadth and diversity of American women’s achievements throughout U.S. history. The book offers a one-of-a-kind illustrated timeline that highlights the varied and often unrecognized contributions of women since the 1500s.

The authors have compiled an extraordinary collection of women and events that provides a unique view of history. Part of the distinctiveness of “Her Story” is the inclusion of hundreds of lesser-known women from all walks of life who have broken barriers and created paths of noteworthy and inspiring achievement.

Tietjen believes this book had to be written. “Most people have heard of Susan B. Anthony, Harriet Tubman, Margaret Sanger and Eleanor Roosevelt,” she says. “But did you know that a woman microbiologist discovered the bacterium responsible for undulant fever, which then led to the pasteurization of all milk? Or that a female mathematician’s work laid the foundation for abstract algebra?”

“We hope this book goes a long way toward showing not only that a woman can do anything, but that many women have already been doing extraordinary things throughout history,” she says.

Tietjen is one of those women. For almost 30 years she has worked as an engineer, mentor, author and speaker — passionately encouraging women to pursue careers in science, technology, engineering and mathematics, and promoting recognition of their accomplishments. A Past National President and Fellow of the Society of Women Engineers, Tietjen received the U.Va. Distinguished Alumna Award in 2007.

Visit www.AuthorTracker.com for exclusive information on your favorite HarperCollins authors.
Mark F. Wolfe (EE ’80) is deputy director of the Special Operations Directorate at Essex/Windermere Corp., a subsidiary of Northrop Grumman.

David B. Miller (EE ’81) is group vice president at DuPont Electronic & Communication Technologies.

James T. Moore Jr. (CE ’83) and his wife, Heather, welcomed the arrival of their second daughter, Olivia Taylor, in June 2007.

George W. Morrow Jr. (ChE ’83) is director of flight projects at NASA Goddard Space Flight Center.

Scott A. Griffith (EE ’84) is vice president of engineering at Comarco Wireless Technologies. He lives in San Clemente, Calif., with his wife, Chrissy, and their four children. Mr. Griffith coaches local youth basketball.

John W. Via III (ChE ’84) was recently promoted to vice president, Manufacturing, Pharmaceutical Operations, at Alcon and has global responsibility for all of Alcon’s pharmaceutical manufacturing operations. He is also an adjunct professor at Southern Methodist University, where he teaches graduate courses in engineering management and production and operations management.

Brian Morgan (Aero ’89) assumed command of the U.S. Navy’s VAW-117 squadron in November 2007. He is headquartered at Naval Base Ventura County, Point Mugu, Calif.

1990s

Gary A Kriebel (ME ’91) and his wife, Gretchen Blankenship (Col ’98), welcomed their second son, Devin Allen, in November 2007. Mr. Kriebel is owner of Voiceover Talent.

Stephen M. Lobbin (EE ’91) is a partner with Manatt, Phelps & Phillips in the law firm’s Los Angeles office. His practice focuses on client counseling and litigation in intellectual property law, including patents, trademarks and copyrights.

Mission specialist Leland D. Melvin (MSE ’91) experienced his first “space walk” on February 11, 2008, as part of a team that delivered Europe’s first manned space lab to the International Space Station.

Precision of Movement

SEAS Alum and Entrepreneur Takes the Stage

C on Way Ling (SE ’92, ’93) started his company around the same time he took up a second career — dancing. As CEO of Xerpi, an online social bookmarking network, and member of the prestigious Martha Graham Dance Ensemble in New York City, he is excelling at both.

“Martha Graham technique is structural and appeals to my engineering mind,” says Ling. “Engineering, like dance, blends art and science. There are precise formulas and techniques you must learn. The art is in how you use the techniques to solve a problem … or convey an emotion on stage.”

In Ling’s case, balancing both of his passions is an art form in and of itself. In the office, he works with the Xerpi team, including cofounder and U.Va. alumni Chris Stanton (Col ’91) and the company’s chief technology officer Wray Mills (CS ’95), to help users customize the Internet by organizing, finding and sharing personal bookmarks — through a Web-based application that is available anytime, anywhere (see xerpi.com for more information). On stage, he dances. With only three years of training, Ling auditioned and was selected from among hundreds of students worldwide to join the 12 dancers who comprise the Martha Graham Ensemble.

“You don’t run into many engineers in the dancing world,” says Ling, “but there are definite connections between the two areas — both blend analysis, precision and creativity.”

Andrew J. Newman (EE ’92) was the principal investigator on a Johns Hopkins University Applied Physics Lab project that earned the R.W. Hart Prize for Excellence in Independent Research and Development in the development category. The Hart Prize honors R.W. Hart, former chairman of the Johns Hopkins University Research Center and assistant director for exploratory development.

Denise Russell Fleming (EE ’93) was recognized as a “Top 50 Under 50 of Top Young Corporate Executives” for 2007 by “Diversity MBA Magazine.” Ms. Fleming is the director of staff operations, reporting to the CEO of Sprint Nextel.

David G. Jacobowitz (EE ’95) was married to Ann C. Keller in July. Mr. Jacobowitz earned his master of public policy degree in May 2007 from the Goldman School of Public Policy at the University of California, Berkeley. He plans to work on energy-related issues. The couple resides in Berkeley, Calif.

Andrew R. Parker (CE ’95, ’96) and Meredith N. Caskey (Col ’99, Law ’02) were married in September 2007. The couple resides in Washington, D.C., where Mr. Parker is a director at Tetra Tech Inc.
Eric Anderson (Aero ’96) was featured in “Ad Astra,” the magazine of the National Space Society, in an article titled “The Top 20 Space Visionaries.” Mr. Anderson, who was voted among the top-40 college graduates in 1996, cofounded Space Adventures in 1998 and serves as president and CEO. Space Adventures offers a wide range of space-related activities, including observing rocket launches, flying high-altitude jets and touring space ports. In 2005, Gregory H. Olsen (MSE ’71) became the second private individual to experience space exploration on a trip to the International Space Station arranged through Space Adventures.

Sarah S. Blair (CE ’96) married Mark S. Blair in September 2007. The couple lives in Atlanta, where they are both architects.

Jennifer Burns (CE ’96) married Sean Dell’Orto (Com ’96) in October 2007. Mr. Dell’Orto is the vice president and treasurer for Barcelo Crestline Corp., a lodging real estate ownership and management company. The couple resides in Arlington, Va.

Mark B. Gillespie (ME ’96) and his wife, Trixy, welcomed their first son, Connor William, in September 2007. The family lives in Tampa, Fla.

Patrick J. Taylor (ME ’93, ’97) and Maria Lynn Graceffa were married in May 2006. Mr. Taylor is a physicist with the U.S. Army Research Laboratory. The couple resides in Vienna, Va.

Michael T. Bowersox (SE ’98, Darden ’07) and Liza D. Bowersox (Col ’98) welcomed their second daughter, Claire Marie, in June 2007. Their first daughter, Grace Elizabeth, was born in October 2005. Mr. Bowersox works for Humana Inc. The family lives in Louisville, Ky.


Jeffrey D. Lee (CS ’98) received a master of theology degree from Princeton Theological Seminary in May. He is associate pastor of small groups at Maple Valley Presbyterian Church in Maple Valley, Wash., where he resides with his wife, Laurie Jacks Lee (Col ’97), and their daughters, Cambria Louise and Avery Ruth.

James B. Furrow (ME ’97, ME/ Aero ’03) and Catherine E.P. Furrow (Nurs ’99) welcomed twins Elizabeth Clare and Rebekah Charlotte, born in July 2007. Mr. Furrow is a mechanical engineer with the Joint Warfare Analysis Center in Dahlgren, Va. The family resides in Fredericksburg, Va.

Gregory S. Haydasz (SE ’99) and Megan Poyhonen Haydasz (Col ’99) welcomed their first child and daughter, Paige Avery, in June 2007. The family resides in Arlington, Va.

Nathan D. Neckel (Engr Sci ’99) received his doctorate in biomedical engineering at the Catholic University of America in November 2007 and is now studying spinal cord regeneration as a post-doctoral fellow at Georgetown University.

2000s

Scott Tolchinsky (CS ’01) is an associate in the litigation group of the law firm of Fish & Richardson. His practice specializes in patent and intellectual property litigation.

Patrick M. Anstaett (MSE ’03) and his wife, Jennifer, announced the birth of their son, Marshall Benjamin, in May 2007.

Michael W. Brinn (SE ’03) married Devon Breithaupt (Col ’03) in October 2007. Mr. Brinn is an engineer with Northrop Grumman. They reside in Falls Church, Va.

Andalu

Calvin Schneiter Takes a Systems Approach to Fine Dining

Calvin Schneiter (SE ’92, ’94) took his systems engineering background to the kitchen. With a passion for cooking passed on from his mother and a challenge from a fellow SEAS systems engineering alum, Schneiter opened the popular and eclectic restaurant, Andalu, in San Francisco’s Mission District in September 2001.

“It started as a daydream and I figured why not be one of those people who make it happen,” Schneiter says.

Complimentary reviews in “Bon Appetit” and “The New York Times” suggest that the hard work paid off. Reviews focus on the restaurant’s festive atmosphere, delicious offerings and comprehensive wine list. While the reviews offer one measure of approval, Schneiter’s benchmark for success is customer feedback.

“Couples come for their first date and then return for their first-year anniversary,” he says. “Feedback like that is exceptionally fulfilling.”

Schneiter’s systems engineering education has helped him keep the business thriving for the past seven years. “Andalu is an organic system with systemic challenges,” Schneiter says. “If employees are doing something incorrectly, they are missing an ingredient. It’s my job to make sure they have that ingredient. Not just in a recipe, it could be any of the many elements that are essential in creating the best culinary experience for my patrons.”

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Jessica L. Dunne (BME '00, '03) married Chris Washburn (Grad '04) in December 2006. The couple lives in New Jersey, where Ms. Dunne is a scientist at a small biotechnology company.

Sarah J. Amelon (ME '04) and Thomas L. Walls Jr. (SE '03) were married in September 2007. The couple resides in Suffolk, Va.

Bryan M. Smouther (EE '00; ME, SE '04) and Erin E. Seney (Col '00) were married in September. Ms. Seney is the niece of William C. Schmidt (Aero '71, Law '74). The couple resides in Galveston, Texas, where Mr. Smouther works as a systems engineer for the Boeing Company in Houston.

Sean M. Bias (EE '01, SE '05) and his wife, Mary, welcomed their first child, Tynan Scott, in November 2007. The family resides in Charlottesville, Va.

Christopher E. Rehorn (EE '04, '06) is an integrated circuit designer for Agilent Technologies. A high-speed SiGe bipolar transistor he designed was fabricated by ST Microelectronics.

Salman Syed (SE '07) was recently named by “Consulting Magazine” as one of the top “30 Under Thirty” consultants nationally. Mr. Syed is an associate with Booz Allen Hamilton. In 2007, he was awarded the firm’s prestigious Professional Excellence Award, given to client teams in recognition of outstanding and innovative service on an assignment.

We Apologize

The Engineering School wishes to acknowledge the contribution of David J. Van Petten, (Nuc/Applied Math '77) for his contribution to the Engineering School during the 2006–2007 year. We apologize for the omission of his name in the 2006–2007 Honor Roll.

From Problem Sets to Community Solutions, SEAS Alum Acknowledges Calling

Therese Glancy Houghton (EE '81) worked for the Navy as an electrical engineer for more than a decade before she was called to improve the lives of others in a different capacity. In 1994, Houghton left to attend clown camp.

“It sounds funny,” she admits, “but I worked with hospice patients, spreading laughter. This experience confirmed my decision to go to seminary.”

Houghton became an ordained Baptist minister in 2000 and then began working with a church-based organization to transform the lives of families in Fredericksburg, Va. Under her leadership, the organization — Olde Forge Junction Inc.— became a fully staffed nonprofit.

Houghton says she uses her engineering background daily: “The critical thinking skills I learned at SEAS allow me to quickly assess a situation and define a work breakdown structure for our team.”

“Whether managing large-scale projects like park renovations and adult learning programs or connecting at-risk youths with mentors, in her heart Houghton remains an engineer.”

“Making a donation to the School of Engineering and Applied Science is simple, and every gift makes a difference!

To donate securely online, visit: www.seas.virginia.edu/support.
To donate by phone, or for more information, please contact Truin Huntley at 434.924.3551.
In Memoriam

The University of Virginia Engineering School mourns the passing of our alumni, faculty and friends.

1940s

Bernard H. Wright (ChE '41) of Houston died in September 2007. He served in the U.S. Navy as a radar repairman on a submarine tender in World War II, and later worked as a plant production superintendent of DuPont Chambers Works until retiring in 1982. A lifelong member of the Boy Scouts of America, he was active in the Southern New Jersey Council, receiving several awards, including the Silver Beaver, for his service to scouting. An active runner, he participated in races into his mid-80s. He was a licensed amateur radio operator.

Sture G. Olsson (ME '42) of West Point, Va., died in September 2007 after a lifetime of achievement and a long legacy of transformational support for the University of Virginia and the Engineering School. After graduating in 1942, Mr. Olsson worked for Sperry Gyroscope and served his country in the Marines and the Navy. In 1946 he joined Chesapeake Corp. as a project manager and expanded the corporation into a Fortune 500 company before he retired as chairman of the board in 1994. During his career, Mr. Olsson served in leadership roles for numerous professional organizations. His continued support of U.Va. included underwriting scholarships, fellowships, endowed professorships, special academic programs and numerous capital projects. Additionally, he was one of the founding sponsors of the Darden School of Business at the University, which houses the Olsson Center for Applied Ethics. In recognition of his support of the Engineering School, the applied math and computer science building was named Olsson Hall. His legacy on Grounds continues, thanks to an endowed fellowship of $500,000 created by the Elis Olsson Memorial Foundation in Mr. Olsson’s honor. The Sture G. Olsson Fellowship in Engineering will support graduate students whose research focuses on systems approaches to biomedical engineering. Mr. Olsson’s survivors include his son C. Elis Olsson (SE ’86); daughters Anne O. Loebs (Col ’81) and Inga O. Rogers (Col ’82); a daughter-in-law, Dudley Percy Olsson (Col ’86); and a son-in-law, William D. Rogers (Col ’81, ’84).


Louis E. Kilmars (ME ’45) of Dickson, Tenn., died in August 2007. He was a plant manager of the former Schrader Automotive Division of Scovill Inc.

Lemuel W. Vaughan Jr. (Engr ’45) of Camden, S.C., died in August 2007. He was a World War II U.S. Navy veteran. At U.Va., he was a member of Sigma Phi Epsilon fraternity and sang with the Choralineans, a barbershop group. Mr. Vaughan retired from DuPont as a mechanical engineer specialist and then worked for Carlisle Associates in Columbia, S.C., for five years. He was a past member of the South Carolina Society of Engineers, a member of the Golden K and the Palmetto Master Singers, and commodore of the Wateree Sailing Club. He was also a woodworker.

Herbert A. Henderson (Engr ’46) of Hamilton, Ohio, died in August 2007. He served as a U.S. Navy officer in World War II and the Korean War. Mr. Henderson was a teacher, principal and superintendent in several school systems.

John T. Ticer (ME ’48) of Alexandria, Va., died in August 2007. A veteran of World War II, Mr. Ticer was a former member of the Alexandria City Council and chairman of the board that established George Mason University. His professional career included positions with Westinghouse Electric Corp., Atlantic Research Corp., the U.S. Senate Armed Services Committee and the Department of Defense. He was active in many local civic and professional organizations. Survivors include a son, John T. Ticer Jr. (SE ’80, ’81).

1950s

Lester R. “Randy” Amiss (CE ’50) of Charlottesville, Va., died in September 2007. Mr. Amiss served as a 1st lieutenant in the U.S. Army during World War II. He later joined Transcontinental Gas Pipeline Corp., now the Williams Companies Inc., and retired after 35 years. He was a member of the Virginia Reelers Square Dance Club and the Thomas Jefferson Society. Survivors include his wife, Virginia Cummings Amiss (Nurs ’46).

John M. “Jack” Kerr Jr. (ChE ’50) of Fairfax, Va., died in April 2007. He served in the U.S. Army in World War II and worked for the Department of the Navy as an engineer for 35 years. He was a direct descendant of George Washington.

William R. Olinger Jr. (Engr ’50) of Amherst, Va., died in October 2007. He was a U.S. Army World War II veteran. He was a member of the Phi Delta Theta fraternity and the Trigon Engineering Society. Mr. Olinger retired from Norfolk Southern Railway after 33 years as a special agent. He was a Civil War memorabilia collector and produced Civil War leather accoutrements that have been displayed at the Smithsonian Institution in Washington, D.C.

Frank S. Goodman (ME ’51), of Atlanta, died in October 2007. A native of Little Rock, Ark., he was raised in Louisville, Ky., and in Alexandria, Va., where he played football and was captain of the all-state team. He attended the University of Virginia and played as a star halfback before joining the Navy Air Corps. He returned to U.Va. and was twice elected student president of the Engineering School and was elected to the University Honor Council. He was a member of Trigon, Delta Kappa Epsilon, the Service Society, the V Club, the IMP Society and the Seven Society, and remained a generous supporter of the Engineering School throughout his lifetime. Following his time at U.Va., Mr. Goodman went on to earn a business degree from the University of

2000s

Louis E. Kilmarx (ME ’47) of Greenville, S.C., died in July 2007. He was a World War II career officer in the U.S. Navy. Mr. Kilmarx was a member of the Alexandria and the Southeastern Virginia Chambers Works until retiring in 1982. He was a World War II U.S. Navy veteran. At U.Va., he was a member of Sigma Phi Epsilon fraternity and sang with the Choralineans, a barbershop group. Mr. Vaughan retired from DuPont as a mechanical engineer specialist and then worked for Carlisle Associates in Columbia, S.C., for five years. He was a past member of the South Carolina Society of Engineers, a member of the Golden K and the Palmetto Master Singers, and commodore of the Wateree Sailing Club. He was also a woodworker.

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Pennsylvania and worked in a variety of companies before founding a career-counseling business that he ran for 20 years. He served on boards of the History Center and the Episcopal High School and was a member of the U.Va. Alumni Board of Managers. A lifelong athlete, he was the first inductee into the Piedmont Driving Club's Squash Hall of Fame, which subsequently named a tournament in his honor. He is survived by his wife of 52 years, Carol Lanier Goodman, and by four children and seven grandchildren.

Stradford G. Folkes (CE ’54) of Norfolk, Va., died in November 2007. He retired as a civil engineer with Hassell & Folkes Surveyors and Engineers, the company he cofounded in 1964. He was a veteran of the Korean War, and a former chairman and founding board member of Bank of Hampton Roads. He was a charter member of the Delta Associates at the School of Engineering and Applied Science. He is survived by his wife, two children and three grandchildren.

John J. Larkin III (ME ’57) of Allentown, Pa., died in September 2007. He served in the U.S. Navy during World War II. He was also an Eagle Scout. Mr. Larkin worked in oil industry management and later taught at Lehigh County Community College in Allentown until his retirement.

Robert L. Davis (EE ’58) of Raleigh, N.C., died in September 2007. He served in the U.S. Air Force during the Korean War. He was a member of Theta Tau engineering fraternity and the Raven Society. Mr. Davis was employed by Bell Laboratories in New Jersey for 35 years.

1960s

Thomas D. Atwood (EE ’68, Darden ’75) of Nogales, Ariz., died in July 2007.

1970s

Parker M. Tabor (EE ’70) of Charlotte, N.C., died in September 2007. He served in the U.S. Army during World War II. He was also an Eagle Scout. Mr. Tabor began his engineering career at Allis Chalmers. He then went to work for General Electric, where he remained for 40 years. After retiring, he taught at Greenville Technical Community College, becoming chair of the electrical engineering department.

Homer K. Richards Jr. (Aero ’72) of Charlottesville, Va., died in October 2007. He served in the U.S. Army Air Forces as a pilot, as well as in the U.S. Navy as a fighter pilot and instructor at the U.S. Naval Academy. He retired from the Navy in 1967. Mr. Richards was head coach of the Virginia men’s tennis team in the 1970s and coached the women’s tennis team. He won three national doubles championships in tennis and played gentlemen’s doubles at Wimbledon four times, advancing to the finals twice. He also played in the Dubler Cup and later became a member of the International Lawn Tennis Club.

1980s

Arthur M. Kyle (ChE ’82) of Huntington Beach, Calif., died in August 2007. He worked as a chemical engineer, electrical engineer, aerospace engineer, and as a deputy program and program manager on national defense contracts. He had previously worked for General Electric, International Paper and IBM. Mr. Kyle also worked at the Goddard Space Flight Center, NASA, for 10 years on satellite altitude control. Most recently, he was a director in the integrated defense systems program with the Boeing Space and Communications Group. Mr. Kyle was a certified advanced scuba diver and private pilot and built a two-person RotorWay helicopter.

2000s

Andrew C. Dornan (Aero ’06) of Arlington, Va., died in September 2007. He was a member of the water polo team at the University. Mr. Dornan was a satellite specialist for Honeywell International at Goddard Space Center in Greenbelt, Md. He married Lisa G. Dornan (Col ’07, Educ ’07) in September. Survivors also include a brother, Joshua Dornan (Com ’99); sister, Molly Dornan Smith (Col ’01); sister-in-law, Kimbel B. Dornan (Col ’99); and brother-in-law, Michael A. Smith (SE ’01, ’05).

Faculty & Friends

Ralph A. Lowry of Charlottesville, Va., died in October 2007. He was born in Clay County Mo., in 1926, attended public schools in Liberty, Mo., and graduated from Liberty High School in 1944. He served two years in the U.S. Navy. He attended Iowa State University, earning a B.S. degree in electrical engineering in 1949 and a doctorate in physics in 1955.

He joined the faculty at the University of Virginia in 1955 and served as chair of the Department of Aerospace Engineering and Engineering Physics, 1965–1972. He was awarded the John L. Newcomb Chair in 1978. Mr. Lowry served as interim dean of the Engineering School from 1983 to 1984, and was associate dean for graduate studies and research from 1986 until his retirement in 1991.

He is survived by his wife, Jean Dunnell Lowry, four children and eight grandchildren. Memorial contributions in his honor may be made to the University of Virginia Engineering Foundation, c/o the Center for Diversity in Engineering, P. O. Box 400256, Charlottesville, VA 22904.
Reflections on the Science and Art of Biomedical Engineering

By Tom Skalak, chair of the Department of Biomedical Engineering

Engineering is the art, science, technology and practice of solving problems under constraints. These constraints are particularly evident at the intersection of biology and medicine because of the human body’s unique complexities. Recent developments in our quantitative understanding of the structure of living systems have lessened these constraints, creating an unprecedented opportunity for engineers to make an impact on human health, the quality of our food supply, the availability of alternative energy sources and, ultimately, on our national economic competitiveness.

In medicine, we will soon see low-cost engineering devices that can acquire detailed information about a patient’s genetic makeup and response to environmental stressors such as infection or inflammation. This information will be analyzed using state-of-the-art, secure information systems coupled with complex, multiscale engineering models of disease processes — involving biochemical transport, mechanical interactions among cells, and electrical activation of thousands of units in precise arrangements. The analysis will be used to prescribe individualized medical treatments, thus decreasing side effects and reducing health care costs.

In other bio-based engineering arenas, we can envision vast new energy sources being derived from biological materials through inventive biochemical engineering and catalytic strategies, perhaps growing blue cotton for our blue jeans to make consumer lifestyles more environmentally sustainable, producing high-performance engineering polymers with nanoscale structure sustainably at low temperature and pressure and ensuring clean water supplies for our grandchildren via environmental engineering.

Achieving advances like these will require active contributions from all engineering disciplines, as well as from the sciences, arts, commerce, business and social sciences. This is the role of universities. Throughout history, universities have served as a focal point for innovation by bringing together those who discover new knowledge and those who see opportunity in applying it. U.Va.’s effort to grow new activities linking “Engineering in Medicine” is a laudable example. This initiative is one part application of technologies to emerging medical problems, one part application of applied science to help advance understanding of disease and injury, and one part invention of entirely new and disruptive therapies. All three parts are critical to leadership in this field.

How can we prepare the SEAS student of tomorrow for these exciting challenges?

For the student, this means growing as a person to develop the habit of personal initiative and the ability to make judgments in the face of uncertainty. More broadly, we believe that the creative arts and social sciences can help inform novel solutions to biomedical problems, and we seek ways to create interfaces for students at these boundaries of human creativity. Again, U.Va. Engineering already has a lead in this arena via efforts such as the exciting “Engineering in Context” program. In our biomedical engineering (BME) major, we integrate contextual problem formulation, design and discovery throughout all three years of the undergraduate experience.

The Engineering School is approaching this vision for BME from a number of perspectives. With funding from the National Science Foundation, we have created a collaborative network — BME Planet — that currently includes 20 other universities and 25 corporations across 18 nations on six continents.

We will pursue “globally distributed design” experiences for our students. This network will make it possible for students from U.Va. to take a summer internship developing a new medical device with a high-tech firm in Milan, or for researchers at U.Va. to find collaborators in Singapore. It will enable collaboration among groups that had previously operated in isolation, making the pursuit of innovation more efficient and productive.

The work we’ve done as part of the $4.5 million Translational Research Partnership Award we received from the Wallace H. Coulter Foundation complements this effort. At the heart of our Coulter initiative is a concept we call “upstream innovation,” the idea that early interaction among all the parties that play a role in the commercialization of a technology — patent attorneys, physicians, venture capitalists, market analysts, as well as university scientists and engineers — can have a positive impact on innovation.

The U.Va. plan for the Future of the University cites biomedical engineering as a University-wide strength to be sustained. This field is too important for any single department alone, and it is clear that engineers in every subfield have major insights and talents to bring to the bright new world of “bioengineering.” The emergence of a global bioengineering community — involving engineers of all types — will enhance our ability to make a difference for human health.
Enjoy great music and food
Visit with the dean
Attend seminars
Reconnect with classmates
Make new acquaintances and friends

And be sure to attend:
The SEAS Reunion Celebration Lunch
Saturday, June 7, 2008
Darden Court, Thornton Hall
Noon to 1:30 p.m.

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