CIVIL and ENVIRONMENTAL ENGINEERING

UPDATE

Alumni Stories
Past, Present, and What Lies Ahead

CORNELL ENGINEERING

Spring 2013
Dear alumni and friends,

This issue’s main feature is a collection of eight stories of alumni who graduated between 1949 and 2010. We asked them to recall some of the highlights of their Cornell CEE experience and their career. I hope that you find their stories interesting and perhaps they will trigger some of your own memories. If so, please feel free to write down those memories and send them to us. We would love to read them.

For many of you, this newsletter will be the first time you have heard about the passing of Professor Bill McGuire. Bill died peacefully on January 31, 2013 surrounded by family members. Until the end of his life, he kept in touch with alumni, faculty, and staff on a regular basis. Bill was 92 years old.

During the last year we have been working very hard in addressing two challenging issues: faculty renewal and the renovation of laboratory facilities. Based on our faculty demographics, we anticipate that more than one-third of our faculty will either retire or enter a phased retirement agreement in the next five to seven years. We are developing and implementing a strategic plan to replace these highly accomplished senior faculty members in a timely and effective manner. Our strategic plan also addresses the need to update our laboratory facilities.

At the time of last year’s newsletter, we were conducting three faculty searches. I am very pleased to report that we were successful in finding three new, outstanding faculty members. Two of them, one in structural engineering and the other in environmental and water resource systems, will join us in fall 2013. The third new faculty member, whose research and teaching focus is in environmental processes, will arrive in spring 2014. We are very excited to have them on board and will highlight them in next year’s CEE Update.

We are currently conducting two new faculty searches. One is taking place here on the Ithaca campus in the area of structural and/or geomechanical behavior across materials and time and length scales. The second search aims to fill a position at the Cornell NYC Tech campus. This search is very broadly defined and is focused in the applied information science area of the built environment. We anticipate a few more faculty openings in the built environment area at Cornell Tech in the near future.

To attract new faculty members who are doing cutting-edge research and more disciplines in our college, we have also embarked on the Cornell College of Engineering Undergraduate Program to improve our college’s standing in the national and international rankings. We are looking for ways to improve our college’s well-being and to attract more students from diverse backgrounds. We are also working on improving the student experience and satisfaction with our college by enhancing the student-faculty interactions.

In addition to conducting research and teaching local road improvement in the College of Arts and Sciences, Spencer also served as the college’s associate dean and the vice director of Cornell Cooperative Extension. At the university level, he served briefly as special assistant to the president and then as vice provost. Among some of his other jobs along the way was his time spent assisting Belcher in exploring soil characteristics of possible sites for Brasilia (the capital city of Brazil). Not a bad resume for someone who admits his academic performance was less than stellar when he was a first-year student. That includes failing chemistry.

"I took it again," says Spencer. "Things went well, and I have never regretted having chosen civil engineering as a career."

Thomas Nuttle '51 Retired businessman

Thomas Nuttle came to Cornell in 1947, and thanks to a few extra college credits he earned in high school, he completed his five-year civil engineering degree in four and a half years. During his time at Cornell, he was an All-American lacrosse player and was the team captain his senior year, which earned him induction into the Cornell Hall of Fame in 2012. Nuttle was also elected to the Tau Beta Pi engineering honor society in his senior year.

Like James Spencer, Nuttle regards himself very fortunate to have crossed paths with Donald Belcher.

James W. Spencer '49, MCE '51

Professor emeritus of biological and environmental engineering

While digging a ditch for a public works job the summer after he graduated from Ithaca High School, James W. Spencer realized what he wanted to do with his life.

"I spent enough time in the ditch that I thought things would be more interesting on top of it, so I had the notion of becoming a civil engineer," says Spencer.

After a rough start academically, Spencer graduated in 1949 and was immediately offered a position as an instructor in civil engineering. While in graduate school, two years later, he was invited to join the faculty in agricultural engineering as an assistant professor. These positions marked the beginning of Spencer's 38-year career at Cornell—during which he never actually applied for a job.

It was the late Donald Belcher, widely regarded as the father of air photo interpretation, who offered Spencer the first job he had at Cornell.

"He was one of the best teachers I ever had," says Spencer. "You never got just a 'what' from him. You got a 'what' and a 'why.'"

Belcher made such an impression on Spencer that he chose to minor in education while working toward his master's degree, he says, "to try to learn something about the learning process and about what made Don Belcher such an effective teacher."

Others may want to learn something about what made Spencer himself both an effective teacher and administrator during his time at Cornell. He is renowned for the high level of commitment, care, and discipline he brought to everything he did.

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Like James Spencer, Nuttle regards himself very fortunate to have crossed paths with Donald Belcher.
"He was doing a lot of aerial identification of different problems and solutions, and it worked out well," says Nuttle, who was Belcher's assistant. Within a month after he graduated, Nuttle was serving in the Korean War with the Second Infantry Division. Eight months later, after leaving active duty, he returned to the United States and went to work for an engineering consulting firm in Baltimore.

"But I soon learned I didn't like consulting," Nuttle recalls. So he shifted his focus and found a family-owned company in Baltimore that dealt with building materials such as stone, ready-mix concrete, and blacktop.

"Two members of the family had attended Cornell, so they took a chance with me," he says. Nuttle believes, above all, he was hired because his employers knew that Cornell graduates are able learners.

"All of a sudden I had to work with equipment that I knew nothing about. I was making little rocks out of big rocks. But I felt very confident in doing it."

Despite several changes in the company's ownership, Nuttle eventually became its chief executive officer. He retired in 1992 and still resides in Baltimore.

"Cornell has a very strong, nationwide position in engineering. If you have an engineering degree from Cornell, it's respected and that gives you an advantage," says Nuttle. "It worked very well for me. I got to be CEO of a company."

Katherine Anne Weible '10

Katherine Anne Weible would agree with Thomas Nuttle that the education CEE provides is the same now as it was then, because it was certainly very good back then. "I know that my time spent with Monroe Weber-Shirk was beyond valuable, I'm so thankful for that. It kept me from straying away from civil engineering," she says. "Coming out of college I thought, 'I don't have to have an engineering job; I could do something else for a while.' But I really felt compelled to continue in it largely because of his influence."

David Goodyear '73, MEng '74

One of the most respected and renowned bridge designers in the country, David Goodyear remembers a lesson that fell outside the engineering curriculum but nonetheless made a lasting impression.

"Professor Nilson was the only one who graded my grammar on an engineering exam. At the time we were all aghast, but he did it for a reason," says Goodyear. "One of the real advantages of attending Cornell is the diversity of opportunity you have there . . . to reach out beyond the engineering school."

For Goodyear, that meant taking courses in economics, political science, and even literature.

"You don’t get projects funded by other engineers; you get them funded by politicians and administrators," says Goodyear, whose recent project list includes the Hoover Dam Bypass Bridge. "You need to be able to communicate the merit of what you’re doing. . . . It’s important to do that at least with reasonable effectiveness or you end up not having many projects."
International Student Study and Experiential Learning

CEE students share knowledge abroad and at home

From Honduras to Nicaragua or from Spain to China, the School of Civil and Environmental Engineering offers international experiences to students through a variety of exchange and research programs.

In Honduras, CEE students in the group AguaClara partner with Agua Para El Pueblo, a Honduran nonprofit, and work with local communities to develop and improve sustainable water treatment. Led by Monroe Weber-Shirk, senior lecturer in civil and environmental engineering, the team developed a suite of water treatment technologies ideally suited to rural areas of the country. These gravity-powered, electricity-free systems fit the population and financial needs of any community by providing a simple, low-cost water treatment solution.

Currently seven systems serve 30,000 Hondurans, but AguaClara’s long-term goal is to develop and share these high-performance, low-cost, reliable, and sustainable technologies with nongovernmental organizations, governments, and private engineering firms in the developing world. As a result, the AguaClara research team was honored with the 2012 Katerina Award in the urban design category. This distinguished award highlights the world’s most promising sustainability ideas and honors the best sustainability innovators.

Talented students are also on the Solar Cooker Project, a part of the AguaClara program:

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Cranfield University

Cranfield University in the UK was fortunate to have the educational expertise of Professor William McGuire, who passed away on September 5, 2013. He was a member of the Department of Civil Engineering at Cranfield University from 1962 to 1989, where he played a significant role in shaping the future of structural engineering.

William McGuire was a distinguished member of the American Society of Civil Engineers and held the position of editor-in-chief of the journal ‘J. Struct. Eng.’ from 1991 to 1994. He was a fellow of the American Association for the Advancement of Science and a member of the National Academy of Engineering. He had an active role in the field of structural engineering, serving as editor of several journals and contributing to the development of structural analysis and design methods.

McGuire's research interests were in the area of steel structures, and he made significant contributions to the understanding of the behavior of steel structures under various loading conditions. He was a leading figure in the development of computer simulation techniques for structural analysis, and his work has had a lasting impact on the field.

William McGuire was a dedicated teacher, mentor, and researcher. He taught courses in structural engineering at Cranfield University and supervised numerous research projects. He was an advocate for the use of interactive computer graphics techniques in structural analysis, and his work in this area has been widely adopted in the field.

Professor McGuire's contributions to the field of structural engineering were recognized through various awards, including the ASCE's Shortridge Award in 1985, the American Iron and Steel Institute's J.W. Long Prize in Structural Engineering in 1986, and the American Institute of Steel Construction's O. Lowdin Award in 1990.

In memory of Professor William McGuire, Cranfield University has established the William McGuire Master of Engineering Fellowship in the School of Civil Engineering. The fellowship is open to Ph.D. students who have demonstrated a strong interest in structural engineering and a commitment to academic excellence.

The fellowship includes a monthly stipend of £7,000 for the duration of the Ph.D. program, along with access to a dedicated study room in the JCT Building. The fellowship is open to students from all over the world and is awarded based on academic merit and a strong research proposal.

For those interested in learning more about the William McGuire Master of Engineering Fellowship, please visit the CEE website: Alumni > Give to CEE > Click here to donate > under “other designation or special instructions” please enter McGuire Fellowship.
Cherry is specifically interested in the process of hydraulic fracturing (fracking), methods. He hopes to devise innovative techniques to decrease the environmental impact of such extraction methods. Cherry’s goal is to help develop technologies that are environmentally safe as well as economically viable.

Erika Johnson of Catonsville, Maryland came to Cornell to pursue a PhD in environmental fluid mechanics and hydrology. Her interests are in turbulence and environmental fluid flow. Her ultimate goal is to obtain a faculty position. Johnson’s research focuses on developing a methodology to improve the U.S. Geological Survey (USGS) process of river gauging, which measures volumetric flow rate at approximately 7,000 locations in our nation’s rivers and streams. The current USGS method of determining volumetric flow rate involves point measurements of river velocity spanning the width and depth of the river. Johnson’s proposed technique involves imaging the river’s surface through the use of remote sensing technology and applying turbulence theory to determine volumetric discharge. Her advisor is Professor Edwin Cowen.

Sarah Levine of Beachwood, Ohio is a junior who is pursuing an environmental engineering degree. Levine decided to pursue this degree in order to enhance her educational experience by taking classes like engineering economics, earth science, and energy systems, which are not part of the standard curriculum. Outside of the classroom, her primary work is with Cornell University Sustainable Design (CUSD), an interdisciplinary, student-led, design-build project team. The group focuses on realizing a future of economic, social, and ecological sustainability. Levine co-leads a team of roughly 25 students that is working on two CUSD design projects. For one of them, the team is designing and prototyping a small-scale, constructed wetland for household gray water treatment.

Rudolph Power of Branchburg, New Jersey is a senior who is following two passions: structural engineering and architecture. He aspires to be an international architect and a professional engineer. Power is working on research that uses computational mechanics to predict the macroscopic mechanical properties of materials. His research also compares the accuracy and computational efficiency of plane wave calculations to localized basis set calculations. He is minoring in architecture to balance the technical aspects of his engineering studies with aesthetically focused projects. Power has been the design team leader for the CEE Student Steel Bridge Team and the structural team leader for the Cornell Wind Power Club. He has guided his teammates through the research and design process in both groups.

Tan focuses on multi-stage stochastic optimization of the hydropower system using flow and wind data from the Pacific Northwest. Tan is also working on a paper for her master’s project on efficient sensor network placement in a watershed.
competitions. Preparations have begun for both the concrete canoe and steel bridge. Cornell’s ASCE members competed in the ASCE Regional Conference on April 19–20. Shoppers watched the Steel Bridge Team with the 2012 Albert George MENG Award winner, Kiara Proctor, as she assembled their structures and began testing them. In February 2013, the AguaClara Foundation ’99 received a $150,000 check from the Bill and Melinda Gates Foundation to complete 700 Solar Cooker units and 6) continued testing of conduction griddles that are used for preparing tortillas; 2) construction and documentation of a lightweight, foldable and portable cooker; 3) construction of a solar water distiller that will make potable water from dirty or salty sources; 4) continued testing of a small cooker with a slanted window that is appropriate for demonstration at Ithaca’s latitude; 5) testing of a large Fresnel lens as an input for small box ovens and griddles that are used for preparing tortillas; and 6) continued testing of conduction and convection properties of box-style solar cookers.

In February 2013, the AguaClara research team won a 2012 Kateryna Award in the category of urban design. This award is given to highlight “the world’s most promising sustainability ideas and honor the best sustainability innovators.”

ASCE

The Cornell Engineering Alumni Association presented the ASCE’s Steel Bridge Team with the 2012 Albert George Student Team Award. Eight of the group’s members traveled to the Sabana Grande community in Totogalpa, Nicaragua on March 18–22, 2013 for a technical exchange with Las Mujeres Solares de Totogalpa and Grupo Fenix. This exchange is part of a long-term, technical collaboration and support project among the groups.

For more information, including pictures and video, visit: confluence.comell.edu/display/SolarCooker

STUDENT AWARDS

Jeffrey Alfano ’13 is the recipient of the 2013 Motes Scholarship. The annual scholarship is awarded to a deserving and academically qualified senior who is studying civil engineering and has expressed an interest in pursuing a career in the construction industry.

Emma Leujeune ’13 is a recipient of a 2013 Merrill Presidential Scholars award. Leujeune identified Prof. Ken Hauer as the faculty member who has contributed the most to her Cornell education.

The following master’s of engineering students received 2012–2013 fellowship awards:

- Sean Augustine, of Bethlehem, Pennsylvania, received a bachelor’s degree in civil and environmental engineering from Cornell University. His MENG concentration is in structural engineering.
- David Buck, of Brookfield, Wisconsin, received a bachelor’s degree in civil and environmental systems engineering from the University of Minnesota. His MENG concentration is in environmental processes.
- Molly McDonough, of Pittsburgh, Pennsylvania, received a bachelor’s degree in civil and environmental engineering from Cornell University. Her MENG concentration is in environmental engineering.
- Bethany Potter, of Auburn, Maine, received a bachelor’s degree in civil and environmental engineering from Cornell University. Her MENG concentration is in structural engineering.
- Rachel Brooke, of Corpus Christi, Texas, received a bachelor’s degree in civil engineering from Texas A&M University. Her MENG concentration is in environmental fluid mechanics and hydrology.
- Marissa Yang, of Pano, Texas, received a bachelor’s degree in operations research and information engineering from Cornell University. Her MENG concentration is in engineering management.

ALUMNI

Francesca Dal Molin ’78 has worked for more than 15 years as a developer and project manager on real-time, steady-state and transient pipeline flow models for the oil and natural gas industry. She claims that the problem solving techniques and report writing skills she learned at Cornell proved to be indispensable for her work. Dal Molin later branched out and began working with software that analyzes oil and gas pipeline behavior in real-time optimization; offered tools for interpretation of well log data, which addressed such issues as borehole stability; and provided reservoir modeling and seismic inversion applications. Her course work at Cornell was, in part, the impetus for her career choices and provided her with a solid foundation for handling these jobs.

Dal Molin is currently enrolled in a master of science program to study geographical information systems. “I thank Cornell for opening doors, for providing me with a solid approach to problem solving, and for stoking my interests in a number of subjects that have helped to shape my career and my life,” she says.

David Darwin ’67, MS ’68 was recognized as one of the ASCE’s 2012 Class of Distinguished Members. Darwin was honored for his numerous contributions to the concrete industry, his research on bond strength and corrosion resistance, his development of ASTM International tests that have radically changed reinforced concrete design practices, and his achievements in educating the next generation of civil engineers.

Gregory G. Deierlein ‘81, a professor in the Department of Civil and Environmental Engineering and the John A. Blume Professor in the School of Engineering at Stanford University, was recently elected to the National Academy of Engineering for “development of advanced structural analysis and design techniques and their implementation in design codes.”

Rosemarie Fang ’08 and Charles McCormick ’08, both married on September 1, 2012 in Sage Chapel. Many classmates attended the weekend’s wedding celebrations.

After graduating from Cornell, Fang went on to receive an MEng degree in structural engineering from the Massachusetts Institute of Technology in 2009. In 2011, she obtained her Professional Engineer’s License while working for Wedderburn Associates in New York City. She now works for an engineering firm in Raleigh, North Carolina.

McClure chose to follow his interests in economics and management after graduating from Cornell, rather than his love of civil engineering, and worked for a real estate investment firm in downtown Chicago. In 2010, he moved to New York and enjoyed a brief stint on Wall Street before beginning graduate studies in economics at Duke University. In summer 2013, he plans to pursue a PhD in accounting.

Remembering Staff Member Paul Jones

Paul Jones passed away on January 6, 2013. He was 94 years old. Jones worked for Cornell University for 52 years as an experimental machinist for faculty and graduate students in the School of Civil and Environmental Engineering. He also worked with several teams on projects involving soil testing and bridge building and helped design Cornell’s sundial. He enjoyed getting to know many students from around the world and a few of them became his life-long friends.

Jones graduated from Ithaca High School in 1938 and was later drafted into the United States’ Army during the war. He played baseball for the army’s team.

After retirement, Jones and his wife had the opportunity to travel to many foreign countries; sometimes they visited former students. Spain was their favorite country, which they visited twice. Jones’s hobbies included working with his hands and building—he even built the family home with his son, Michael. A licensed glider pilot, Jones loved flying and taking other people for rides. He was an avid reader of history and enjoyed watching sports on television, observing wildlife from his porch, or attending his children’s and grandchildren’s activities. He also liked dancing and going to the Elvis Lodge where he was a lifetime member.

Jones is survived by his wife, Mary, of 62 years; his children: four daughters and one son; seven grandchildren; 11 great grandchildren; one great-great grandaughter; several nieces and nephews; and many friends. A memorial service for Jones was held on Saturday, January 12, 2013. He will be remembered for his kind ways and wonderful sense of humor.

Article originally published in the Ithaca Journal.

FACULTY

Wifl Brutsaert is a recipient of the 2012 College of Engineering James and Mary Tien Excellence in Teaching Award.

Todd Cowen has received the 2012 Award for Excellence in the Teaching, Advising, and Mentoring of Graduate and Professional Students. This award honors the extraordinary service of faculty members who provide exemplary assistance to the graduate and professional students they advise.


Fred Kulhawy was recognized for his many contributions that advance the science, art, teaching, and practice of geotechnical engineering at a special symposium held in his honor on March 4, 2013 during the annual ASCE Geo-Institute meeting in San Diego, California. At the meeting, Professor Kulhawy’s distinguished friends, colleagues, and former students gave presentations and the ASCE published Foundation Engineering in the Face of Uncertainty: Honoring Fred H. Kulhawy (Geotechnical Special Publication 229).

Tom O’Rourke was elected by the State University of New York University at Buffalo to present his 2012 Earthquake Engineering Research Institute Distinguished Lecture, “The New Normal for Natural Disasters,” at its T.T. Soong Student Lecture Series on October 11, 2012. Derek Warner was the recipient of the 2012 Chi Epsilon Professor of the Year Award.

Contact us with your news:
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news: student, alumni, and faculty
Upcoming Events

Reunion 2013
June 8, 2013
Plan to attend this year’s CEE alumni breakfast event—especially if it’s your reunion year. The buffet breakfast is free and will be held from 7:30 to 9:30 a.m. in McManus Conference Center, Hollister Hall. All CEE alumni and their families are invited. Please let us know if you are planning to attend the breakfast by emailing civil_env_eng@cornell.edu or by phone at 607.255.3690.

Homecoming 2013
September 21, 2013
Cornell versus Bucknell

First-Year Parents’ Weekend
November 1–3, 2013
For the class of 2017