MESSAGE FROM THE DIRECTOR: PHIL LIU

DEAR ALUMNI AND FRIENDS,

I am pleased to present this latest edition of Update. In it we celebrate Cornell’s and CEE’s 150 years of existence by presenting the timeline of the School’s history in terms of its organization, programs/curriculum, and facilities. Working with Hannah McKinney and Jeannette Little, Professor Emeritus John Abel spent considerable time in Olin Library compiling necessary information and photos for the timeline. In addition to the timeline, Prof. Abel and Ms. McKinney (with contributions by Michael Roman) have also co-authored three articles highlighting the first CEE professor, Professor Estévan Antonio Fuertes (1838-1903), the legacies of Cornell Civil Engineering faculty, and CEE’s distinguished alumni. The School’s history is fascinating, and I hope that the timeline and these articles give you an overview of the past 150 years.

The School welcomed Dr. Greg McLaskey to the civil infrastructure mission area as an assistant professor in October, 2014. Dr. McLaskey received his Ph.D. in Civil Engineering from the University of California at Berkeley in 2011. He was then awarded a USGS Mendenhall Post-Doctoral Fellowship and worked for the Earthquake Science Center at the USGS from 2011 until he joined the CEE faculty. His research uses seismological waves to study the mechanics of friction, earthquakes, fracture, impact and other processes that generate sounds and vibrations in solids.

In July, Dr. John Albertson will join us as a full professor in the area of Environmental Fluid Mechanics and Hydrology. Dr. Albertson’s research is directed toward the development of a comprehensive understanding of the exchange rates of mass, energy, and momentum between the land and atmosphere.

We anticipate welcoming three new faculty members in the next academic year in the areas of Civil Infrastructure, Environmental Processes, and Transportation Systems.

As we greet new faculty, we have two faculty members retiring on June 30: Professor Mark Turnquist and Senior Lecturer Frank Wayno. Prof. Turnquist joined CEE in 1979 and was instrumental in developing the Engineering Management (M.Eng.) program. Dr. Wayno has also made significant contributions to the Engineering Management program by teaching several courses since 2005.

On June 30, I will step down as Director of the School. I feel honored and privileged to have served as Director during a particularly active period. Among many other accomplishments I am particularly proud of the successful recruitment of five new faculty members (with searches for three more faculty to be concluded soon). All-in-all, it was a rewarding and exhilarating ride that seemed to fly by. Most prominently, I shall always remember fondly the meetings and conversations with many of you. As I have said many times before, it is very affirming to me to hear from enthusiastic alumni about their Cornell experiences. I am sure that whoever succeeds me will be similarly gratified.

Sincerely,

Phil L.-F. Liu
Class of 1912 Professor and CEE Director
National Academy of Engineering (2015)

Share with us your comments and news:
civil_eng@cornell.edu
607.255.3690
www.cee.cornell.edu

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REFERENCES AND RESEARCH SOURCES:

Books:

University Archives, Rare and Manuscript Collections, Cornell University Library:
- for photographs, maps and documents, editions of the Register through 1881
- On-line resources from eCommons@Cornell (ecommons.library.cornell.edu)
- University Publications: Registers, Announcements, Courses of Study
- College of Engineering > CEE: An Oral History of CEE, CEE Newsletters
- The University Faculty. Faculty Memorial Statements
- School of CEE Archives: photographs, documents, undergraduate handbooks
- Online searches for individuals, companies and/or universities: Wikipedia, Google, Yahoo, www.nae.edu (membership directory and memorial tributes)

Cornell Alumni Affairs and Development database—for degrees and dates
- Data on numbers of CEE/Civil Engineering degrees conferred, Institutional Research and Planning, The Graduate School, College of Engineering, School of CEE
From its humble beginnings in 1868, Cornell Civil Engineering’s rise to national prominence can be largely attributed to the leadership of Professor Estévan Antonio Fuertes (1838-1903). From 1873 until his death in 1903, Fuertes brought distinction and innovation to the program as head of CE. His pioneering emphasis on fieldwork and laboratory-style teaching influenced generations of students as well as departments across the country.

Fuertes came to Cornell with an impressive educational and professional background that motivated him to innovate CE education through both hands-on and academic study. A native of Puerto Rico, he earned a Ph.B. and Ph.D. in the Arts in Barcelona before receiving a civil engineering degree at the Troy Polytechnic Institute in 1861 (now RPI). He returned to Puerto Rico as a member of the Royal Corps of Engineers, and by age 24, was Director of Public Works of the Western District of the island. Returning to the U.S. in 1863, he became an engineer for the Croton Aqueduct Board in New York. In 1870-71, President Grant appointed him as engineer-in-chief of the C.E. advanced degree program, and increased CE enrollment from 39 to 97. Professor Fuertes’ appointment in 1873 coincided with the onset of a national economic crisis that led to a decade of declining enrollment across the university. Nevertheless, in his first academic year, Fuertes immediately accelerated the CE program in three ways: he enriched the educational objectives and curriculum by offering more CE subjects, he strengthened the exams as a first step in increasing CE admission requirements, and he instituted full-time fieldwork during the summer for students that embodied realistic management of geodetic and hydrographic surveys. The resulting fieldwork proved to be of such professional quality that the U.S. Coast and Geodetic Survey used the data to map the Finger Lakes Region. With such success, the summer survey camp—now cited as Cornell’s field program into experiential learning—became an official course offering in 1877. Virtually all other CE programs in the U.S. soon followed suit.

By the early 1880s, the Trustees allocated more funding for equipment, and Fuertes was able to further his conviction that engineering instruction should be laboratory intensive. He purchased models, instruments, and laboratory apparatus as well as photographs and books to expand the CE collections. When CE moved from its temporary wooden building—the so called “Chemical Laboratory”—into the newly constructed Lincoln Hall in 1889, Fuertes’ leadership and foresight had ensured that his ambition for well-equipped laboratories, along with a museum and a library, was realized. This dream was further enhanced in 1898 when the Hydraulic Laboratory in Fall Creek was first placed in service for the College of CE under Dean Fuertes’ leadership. Capable of exceptionally high head and large volumes of flow, the facility became the envy of experimental hydrologists from around the nation as it was used for instruction, research, and industrial and government testing over the next half century. From the time of his initial faculty appointment, Fuertes was cross-listed in the faculties of architecture, mathematics, and mechanical arts/mechanical engineering, influencing these broader disciplines and the more specific disciplines of mechanics, mining/geology and industrial engineering. But his ideas of hands-on learning were perhaps most intensely felt through the primary involvement of CE in meteorology and astronomy. In 1873, Fuertes constructed a rudimentary weather station at his own expense, for the practical purpose of acquiring data needed by civil engineers working outdoors. He and his students made consistent daily weather observations and developed new systems for collecting and organizing meteorological data, which soon became useful for local and regional farmers. In 1889, the New York State Weather Bureau was formally established at the College of CE with Fuertes as its director, and this bureau continued in CE until 1907, when it was transferred to the College of Agriculture.

Just as Fuertes considered the patrician of Cornell CE, he was in many ways a pioneer of Cornell Astronomy as well. Surveyors relied upon careful measurements of stars for determining precise latitude and relative longitude, and thus an understanding the night sky was an essential part of the surveying education. While the Cornell mathematics and physics departments first taught theoretical astronomy, CE taught courses in practical astronomy and geodesy. Fuertes introduced much of this curriculum, which entailed acquiring appropriate instruments and building a series of increasingly sophisticated campus observatories as Cornell grew (see pages 8 to 11). Fuertes resigned as Dean of CE in late 1902 and was named Professor of Astronomy before his untimely death in early 1903. The subsequently constructed observatory north of Beebe Lake is named in honor of his formative influence.

Astronomy would remain an integral part of CE until 1932, when it was transferred to a new department of the College of Arts and Sciences. By 1899, following the three-decade Fuertes era of Cornell CE, the CE enrollment had increased to 560 (making it the largest CE department nationally), the CE faculty had grown to 32, and the CE-specific curriculum content had increased by a factor of six. Scores of CE alumni were filling important professional roles, including nearly two dozen in CE faculty positions at other universities—at least five of whom became directors or deans of their respective departments or colleges.

Fuertes’ energetic personality and diverse background made his presence widely felt at Cornell. Popular with colleagues and students—they nicknamed him the “Great Mogul” or “Mogue” due to his dapper appearance and stately demeanor—he was known for his sense of humor, his participation in informal concerts as a talented flautist, and his sympathetic interaction with students. His memory is preserved not only by his namesake Observatory but also by the annual Fuertes Medal that is still awarded annually to the top graduating senior in the School of CEE.

By John F. Abd, Hannah McKinney, and Michael Roman
Below: The Cornell ASCE Student Chapter team members celebrating their success in the 2012 steel-bridge competition held at Clarkson University [Credit CEE].

Below: The first class of Civil Engineering students surveying in knee-deep grass on the field in front of Morrill (South) Hall and White (North) Hall (about 1870). Cornell’s first Professor of Civil Engineering, William Charles Cleveland (died 1873), is the individual with the full beard near the middle. Note McGraw Hall under construction in the background. [Credit RMC]
Below: The Cornell ASCE Student Chapter team members celebrating their success in the 2012 steel-bridge competition held at Clarkson University [Credit CEE].

Hollister Hall (1959 - Present)

Below: The first class of Civil Engineering students surveying in knee-deep grass on the field in front of Morrill (South) Hall and White (North) Hall (about 1870). Cornell’s first Professor of Civil Engineering, William Charles Cleveland (died 1873), is the individual with the full beard near the middle. Note McGraw Hall under construction in the background. [Credit RMC]
Early faculty members Charles Lee Crandall, Estévan Antonio Fuertes, and Irving Porter Church added by Fuertes were alumni—Charles Lee Crandall, B.C.E. 1872; C.E. 1876 (1850-1931) and Irving Porter Church, B.C.E. 1873; C.E. 1878 (1850-1931)—who devoted their full careers to Cornell CEE. They authored widely recognized textbooks, beginning a tradition of distinguished publications that continues to this day. Church published books on Hydraulics and Mechanics starting in the 1880s. Crandall’s books focused on Railroad Construction and Surveying/Geodesy and were co-authored by his CE colleague Fred Asa Barnes C.E. 1897, M.C.E. 1898 (1876-1950). Notable authors of influential texts over the next half-century include Henry Neely Ogden C.E. 1879 (1868-1947) on sanitary engineering as well as Henry Sylvester Jacoby (1857-1935) and Leonard Church Unquhart C.E. 1909 (1886-1960) with Charles Edward O’Rourke C.E. 1917 (1896-1947) on structural engineering.

The following provides a sample of notable faculty who contributed to the legacy of Cornell CEE during the 20th century.

Ernest William Schoder

Ernest William Schoder Ph.D. 1903 (1879-1968), with his co-investigator Augustus Valentine Saph Ph.D. 1902 (1871-1920), made precise measurements on the frictional resistance to the flow of water in pipes, verifying the theory of an exponential relationship between velocity and head loss; these results were the first American experimental data used in Europe, reversing the long-established flow of this information. Schoder became Professor of Experimental Hydraulics and until 1947 was director of Cornell’s Fall Creek Hydraulics Lab. During his tenure, the majority of leading American hydraulic engineers were either educated at Cornell or participated in tests conducted here.

George Winter

George Winter Ph.D. ’40, [supervised by Hollister]; NAE (1907-1982) authored textbooks and contributed to structural specifications for several different structural materials and types. He also carefully built up a faculty group that became one of the nation’s best in structural engineering, including William McGuire M.C.E. ’47 (1920-2013), Floyd Owen Slate (1921-2008), Arthur H. Nilson M.S. ’56 (1926-2014), Peter Gergely (1956-1995) and Richard H. Gallagher, NAE (1927-1997).

Solomon Cady Hollister

Solomon Cady Hollister, NAE (1891-1982) designed concrete ships for World War efforts, was a county engineer who designed innovative concrete bridges, and consulted on the design of the steel penstocks for the Hoover Dam before becoming an engineering educator. Recruited to the CE faculty as Director in 1954, he invigorated both research and professionalism in C.E. As Dean of Engineering from 1937-1959, Hollister revitalized the College by planning and fundraising for a new engineering quadrangle. He left a legacy of innovative engineering education.

Donald Jenks Belcher

Donald Jenks Belcher (1911-2005) pioneered the field of Remote Sensing, and he started an entirely new approach that employed the use of aerial photos to interpret landforms and geology. Joining him in this field in CE were colleagues Ta Liang M.C.E. ’48, Ph.D. ’52 (1916-1987) and Arthur James McNair (1914-1986). Belcher applied his expertise to consult on appropriate sites for Brasilia, the new capital of Brazil, and the 1000-foot dish of Cornell’s Arecibo Observatory, the world’s largest radio telescope.

Walter Royal Lynn

Walter Royal Lynn (1928-2011) pioneered the application of systems techniques to many civil engineering problems, including those involving water supply, water treatment, environmental systems, and public health. As a department chair and Director of CEE, he built an outstanding CE faculty group in systems for environmental and transportation engineering, and these successors are still on the CEE faculty roster. He also co-founded the department of Science and Technology Studies in Cornell’s College of Arts and Sciences.

In 1972, after more than a century of male-only faculty, Cornell CEE led the College of Engineering by hiring its first woman faculty member, Christine Shoemaker, in the area of Environmental Systems Engineering. She was the first female faculty member in the College to achieve tenure, the first to serve as a department chair, and the first to be named a chaired professorship. In 2012, she was elected to the National Academy of Engineering (NAE). With only three tenured women faculty members currently in CEE, the challenge remains of assembling a faculty representative of student enrollment that is approaching 50% female.

Today’s faculty members, both active and emeritus, continue the distinctions and accomplishments of their forbearers—for example, see the list of current members elected to the NAE on the CEE website (http://cee.cornell.edu), where biosketches are also available for each current faculty member. In addition, the videos of oral-history interviews with faculty may be viewed at http://ecommons.library.cornell.edu/handle/1813/33202.

—John F. Abel and Hannah McKenzie

The following provides a sample of notable faculty who contributed to the legacy of Cornell CEE during the 20th century.
Distinguished Alumni

The heritage of Cornell Civil and Environmental Engineering is largely reflected in the achievements and successful careers of its alumni. In the course of 150 years, CE/CEE has awarded over 7,300 undergraduate degrees (B.C.E., B.S.), 2,500 professional degrees (M.C.E. and M.Eng.) and 1,300 research-oriented degrees (M.S., Ph.D.). Because many alumni have earned multiple degrees, the cumulative alumni count is about eight thousand. Many have distinguished themselves not only in professional practice and academia, but also in business, government and other endeavors. For example, since the inception of Ph.D. National Academy of Engineering (NAE) in 1964, several alumni have been elected.

The School of CEE has begun to compile a 150-year roll of its distinguished alumni. This sampling is a work in progress that is intended to elicit further nominations.

Franklin W. Olm 1886

Nora Stanton Blatch 1885, Olga Dennis 1924

Some Firsts

A few alumni are notable as pioneers.

Henry Turner Eddy, C.E. 1870, Ph.D. (Math) 1872 (1844-1921) earned the first Ph.D. at Cornell, the first black intercollegiate Greek-lettered fraternity.

Olive Wetzel Dennis, C.E. 21 (1885-1957) was the second black woman to graduate from Cornell and of the University of Cincinnati and of Rose Polytechnic Institute.

George Biddle Kelley, C.E. 1898 was the first black engineer to be licensed in New York. In 1906, he co-founded Alpha Phi Alpha at Gam College, the first black intercollegiate Greek-lettered fraternity.

Truman T. Goodyear, C.E. 1896 is the Executive Chairman of Goodyear-Ki Kควรี Sten in Johannesburg and was the first black president of the South African Institute of Civil Engineers.

PROFESSIONAL PRACTICE

In addition to these recognized by NAE membership, below is a sampling of alumni with leading professional achievements.

Joseph deFreys 29 with Prof. Richard White

Howard Simpson, B.C.E. ‘42 is a founding Professor of Mechanical Engineering at Georgia Institute of Technology; a consulting firm that now is known as SCH.

Lev Zetlin, M.S., Ph.D. (1918-1990) founded a consulting structural engineering firm, Lev Zetlin Associates (LZA), and invented a cable roof system notably used in the NYS Pavilion of the 1964 World’s Fair.

Tarrance Charles Farley, Jr., was named as “ENR Man of the Year” in 1992 for his role as President of Bechtel Construction Co. in charge of extinguishing the oil-well fires in Kuwait following the Gulf War.

Malcolm C. McLaren, B.S. ’73 is the founder and CEO of the McLaren Engineering Group.

Jose de la Guardia, M.Eng. ’74 is a key manager of the enlargement project of the Panama Canal.

Barbara Cook, B.S. ’73, M.Eng. ’77 offers consulting services through her company Geo Environmental Group, LLC in Silver Spring, MD.

SawTeen See, B.S. ’77, M.Eng. ’79 is the managing general partner of LERA, a renowned structural firm. She is an Honorary Member of ASCE.

Jennifer Benman, Ph.D. ’13 is a Principal at the Stratigos Springs, NV, office of Anchor QEA, a national environmental and water resources firm.

Marta Van Wyk, B.S. ’04 was recently recognized by ASCE as one of the “New Faces of Civil Engineering”. In 2014, she became the Chief Sustainability Officer at Florida A&M University and Executive Director of the FAMU Sustainability Institute.

Governments

Several distinguished alumni have held government positions.

– Marica Gregor Memmel, C.E. 1888-1964 (1911-1971) was the first American woman awarded by the government of Cuba for two terms from 1913 to 1921.

– Carlos L. Presuta, M.S., Ph.D. ’94 was the former Chief Engineer for Public Works of Puerto Rico from 1993-1999 and ran for Governor in 2000.

– San-chen Chang, Ph.D. ’81 has been Vice President of the Republic of China (Taiwan) since December 2014 after serving as Minister of Technology. He is one of the few alumni who have recently served in the Taiwanese government.

Business, Military, and Other Endeavors

A sampling of alumni follows.

Frank Panosso C.E., 1872 (1854-1898) became a partner in the Boston College School of Law, was a public intellectual and well-known social reformer as the co-founder of the vocational guidance movement.

Franklin Walter Olm, C.E. 1886-1960 (1866-1951) became Dean of the College of Grocery & Major Inc., a consulting firm that is currently Dean of the Faculty of Engineering & Technology at the Cyprus University of Technology.

– John H. Shelley, B.C.E., B.C.E. ’52 now stands as the rank of Major General in the U.S. Army Corps of Engineers and serves as Deputy Chief of Engineers retiring in 1995.

– Thomas J. Peters, B.C.E., M.C.E. ’66 is a business motivational guru who co-authored the best selling In Search of Excellence (1982) and has since written over a dozen works in the new world.

– John M. Paxton, Jr., B.S., B.S. ’73, M.Eng. ’74 is a Lieutenant General who is currently serving as the Assistant Commandant of the Marine Corps.

– Jamie Reid Kovic, B.S., M.Eng. ’02 is an access best-known for playing “Peyton on American Gladiators and is currently an executive at York Construction in NYC.

CEE Advisory Council

Several distinguished alumni from practice, academia, and government have joined with friends of Cornell CEE who are not alumni have served on the Advisory Council, currently chaired by Jim Bezos ’81 and Vice President of Skanska USA Building. A listing is on the School website (http://www.cce.cornell.edu/).
Join us for Cornell Engineering’s
Sesquicentennial Celebration
October 23-25, 2015

EDUCATE
CELEBRATE
SPECULATE

Three days of history, lectures, exhibits, lab tours, and more.

For more info:
http://www.engineering.cornell.edu/alumni/sesquicentennial.cfm

June 4-7:
Reunion 2015

Saturday, June 6:
Alumni breakfast buffet: Plan to attend this year’s CEE alumni breakfast. The breakfast is free and will be held from 7:30 to 9:30 a.m. in McManus Conference Center, 166 Hollister Hall. All alumni(ae) and their families are invited. Please let us know if you are planning to attend the breakfast at civil_env_eng@cornell.edu or by phone at 607-255-3690