CornellEngineering

Civil and Environmental Engineering





MESSAGE FROM THE DIRECTOR: PHIL LIU

DEAR ALUMNI AND FRIENDS,

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 CE 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 seismic 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,

Phily II.

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

Share with us your comments and news:

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ESTÉVAN ANTONIO FUERTES

PATRIARCH OF CORNELL CIVIL ENGINEERING

rom 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 U.S. survey of the Nicaragua isthmus for a possible canal. Afterwards, he maintained a consulting office in New York City. Thus, at the time of his appointment at Cornell, he had accumulated broad expertise in the practice of CE, especially in municipal/ sanitary engineering and surveying/ geodesy.



Portrait of Fuertes that is in Hollister Hall

With limited space and equipment, Fuertes' predecessor, Professor William Charles Cleveland, had jumpstarted Cornell CE. In just four years, Cleveland had established a rudimentary undergraduate curriculum for the B.C.E., developed 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 first venture 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 teaching 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 crosslisted in the faculties of architecture, mathematics, and mechanic 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 is considered the patriarch 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 1909, 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.

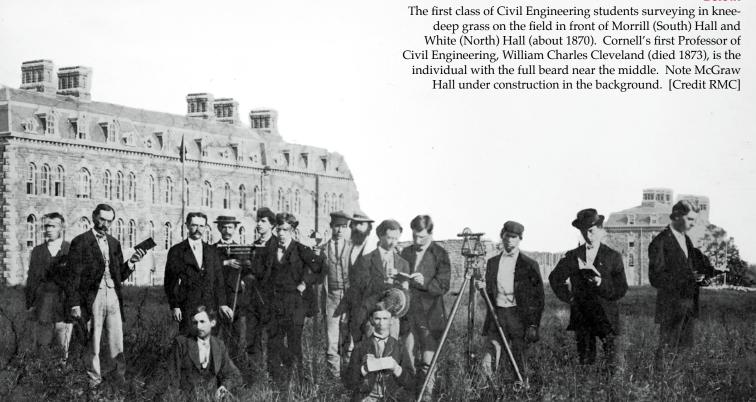
—By John F. Abel, Hannah McKinney, and Michael Roman

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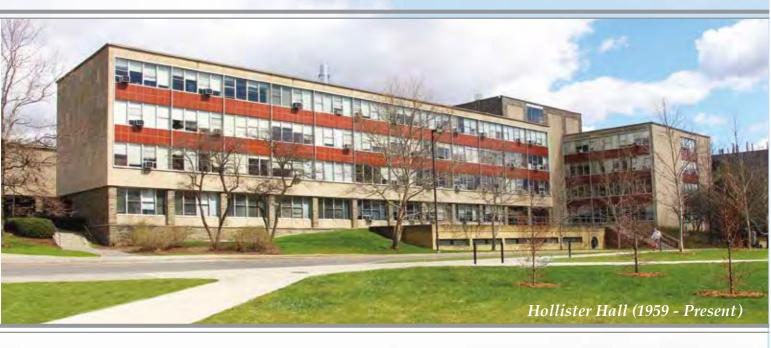
~150°



Below:







Below:

The Cornell ASCE Student Chapter team members celebrating their success in the 2012 steel-bridge competition held at Clarkson University [Credit CEE].



CEE HISTORY TIMELINE

1881: CE laboratory, museum

and library expansion begins by accelerated acquisition of equipment, instruments, models. photographs and books. The first 1868: At opening, Morrill primitive, temporary astronomical (South) Hall built and White observatory built near the (North) Hall and Laboratory Laboratory Building for use by CE Building nearing completion. and physics students. Museum of Technology and Civil Engineering has 5



1871: The large temporary wooden Laboratory Building on the quad houses the draughting & lecture rooms of CE. Collection of survey instruments expanded.

1875



opens, shared by CE and chitecture. Includes several CE teaching/research labs (10,000 sf), the CE library (3,000 volumes) and the CE museum (12 collections

1884: CE and Architecture fully occupy the wooden temporary Laboratory Building. Work begins on an enlargement of the temporary observatory.



1889: LINCOLN HALL



1898: FALL CREEK HYDRAULICS LAB [photo] opens, is continually expanded over the next few years, remains in use until largely abandoned in 1963, and collapses into the gorge in 2009.



1917: Current Fuertes Observatory north of Beebe Lake opens constructed and operated under the auspices of the Astronomy program in the College of CE.



opens just north of the present Barton Hall. Later renamed Fuertes Observatory, but demolished in 1914 to make way for the new State Drill Hall.

> **1906:** Architecture moves out of Lincoln Hall leaving the entire 5-floor building to the exclusive use of CE for the next 53 years.

> > 1910

Facilities



1923: The Irving Porter Church Memorial Telescope is officially dedicated at the Fuertes Observatory, honoring the generosity and instrumental efforts of its chief donor and advocate.



1929: Camp Cornell on Cayuta Lake is constructed by the School of CE and becomes the annual home of the 5-week summer surveying course until its last use in the summer of 1963.

1935



1954: CE STRUCTURAL AND MATERIAL TESTING LABS in Thurston Hall open, including a state-of-the-art high bay.

1960



1959: HOLLISTER HALL opens, an entirely new and modern home for the School of CE, including classroom, office and laboratory spaces with easy access to the testing labs in nearby Thurston Hall.

> 1963: Concrete lab wing added to Thurston Hall complex.

> > 1970



1987: Takeo Mogami Geotechnical Lab

is dedicated in a renovated space in

Environmental Engineering Instructional and Research Lab is created in Hollister Hall.

create the CEE

Center, a suite

seminars, classes

and receptions

for internet

2000

MCEER

consortium,

one of three

EERCs that

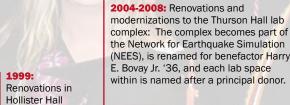
replace

NCEER.

conferencing.

that is equipped

for meetings,



2005



2009: The Environmental Fluids Teaching Lab in Hollister Hall is completely renovated and re-equipped.

1920-1971: School of Civil Engineering within the College of Engineering

1930

collections

1870

1868: 4-year B.C.E. degree, 2 more years to get a C.E. degree. Post B.C.E., Licentiate certificates can be earned in Surveying and/or

Draughting. Ph.D. offered.

1873: Meteorology observations begin. **1874:** Hydrographic surveys of Cayuga Lake full-time for 2 weeks begin.



begins as a required annual course and as a model of experiential learning adopted at most U.S. CE departments.

1877: Summer survey camp

1889: Meteorological Bureau of State of NY established at College of CE with Professor Fuertes as Director of the Bureau.

1893: Observatory moved and

reassembled at the current site

of Stimson & Day Halls, though

still a temporary eyesore, was

demolished in 1903.

1895

1885-86: Degree designations changed to 4-year C.E. and 5-year M.C.E., both requiring a thesis in the spring term. The graduate courses offered are in Bridge, Railroad, Sanitary, Hydraulic and Geodetic Engineering.

1875: 4-year B.C.E., 5-year C.E., and 2 Licentiate certificates offered. "Methods of instruction include ...textbooks, lectures profusely illustrated on the screen, or by diagrams or models, and actual practice in the field, laboratories and workshops.

1890-1920: College of Civil Engineering

1905

1904: In addition to the 4-year C.E., 5-year B.C.E., and Ph.D. degrees offered, a 6-year A.B. + C.E. program is established.

> 1900: Weather Bureau for NYS changed from NYS to U.S. Federal administration, but continues to be housed in CE until 1907, when moved to the College of Agriculture.

1920: With formation of College of Engineering, a common firstyear curriculum is established for all three Schools (CE, ME, EE) in the College. Senior thesis no longer required for C.E. degree.

1925

1920

1915

1932: Astronomy is transferred from the School of CE and is established as a Department in College of Arts & Sciences

1943-45: A wartime degree added for the Navy v-12 program is a B.S. in CE.

1945



1936: With establishment of national accreditation by ECPD (precursor of ABET), the B.C.E. is 1946: With the College-wide introduction of the 5-year undergraduate curriculum, the B.C.E. becomes a 5-year degree program. Other degrees offered are the M.C.E., M.S. and Ph.D.

1965: Five-year B.C.E. degree ends in favor of a 4-year B.S. degree. The one-year M.Eng. (Civil) professional degree program begins. M.S. and Ph.D. degrees continue. 1986: Cornell CEE becomes one of the 5 founding university

1975

1984: DeFREES HYDRAULIC

added to Hollister Hall

entities of the NSF-sponsored

National Center for Earthquake

Engineering Research (NCEER).

LAB is dedicated, a major wing

1963: Last offering of the 86-year-old summer survey course, although other surveying courses continue to be offered until the late 1970s.

1997: CEE **1994:** Two options becomes offered within the part of the

1971 forward: Name change: School of Civil and Environmental Engineering within the College of Engineering

1995

1991: The Class of 1949

Electronic Classroom is

such teaching spaces in

the College.

dedicated, one of the first

and Environmental options. 1988: M.Eng. program in Engineering Management

begins in CEE.

1996: CEE becomes lead institution of NYSDOT sponsored Transportation Infrastructure Research Consortium (TIRC)

accredited Civil B.S.

degree: the Civil

2001: Engineers for a Sustainable World (ESW) founded at Cornell CEE.



2007: ABET first accredits B.S. degree in Environmental Engineering, offered jointly by CEE and BEE.

2010

CEE formally initiates an exchange program with the University of Cantabria, Santander, Spain for a iunior vear abroad.



2005: Environmenta Engineering major begins, jointly supervised by CEE and BEE.

2004: AguaClara founded at Cornell CEE.



Green stripes indicate the changing CE/CEE identity

A 1868-1871: School of Civil Engineering within the College of Mathematics and Civil Engineering **B** 1871-1873: School of Engineering within the College of Civil Engineering and Architecture

C 1873-1890: Department of Civil Engineering (independent, with no umbrella College)

Key to photo credits

R Division of Rare & Manuscript Collections, Cornell University Library

C School of Civil and Environmental Engineering

1900

M Courtesy of Michael Roman

Programs/Curriculum

LEGACIES OF THE FACULTY

added by Fuertes were alumni—Charles

1917) and Irving Porter Church, B.C.E.

their full careers to Cornell CE. 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

Fred Asa Barnes C.E. 1897, M.C.E. 1898

texts over the next half-century include

on sanitary engineering as well as Henry

Church Urquhart C.E. 1909 (1886-1960)

(1896-1947) on structural engineering.

notable faculty who contributed to the

legacy of Cornell CE during the 20th

and were co-authored by his CE colleague

(1876-1950). Notable authors of influential

Henry Neely Ogden C.E. 1879 (1868-1947)

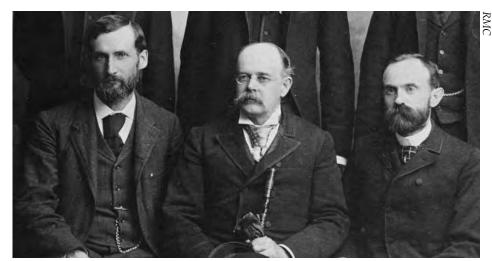
Sylvester Jacoby (1857-1955) and Leonard

with Charles Edward O'Rourke C.E. 1917

The following provides a sample of

Lee Crandall, B.C.E. 1872, C.E. 1876 (1850-

1873, C.E. 1878 (1850-1931)—who devoted



Early faculty members Charles Lee Crandall, Estévan Antonio Fuertes, and Irving Porter Church

he reputation of a leading university entity springs primarily from its people—the alumni on one hand and the faculty and staff on the other. Outstanding faculty members shaped Cornell CE/CEE, beginning with the first two: William Charles Cleveland, the sole faculty member from 1868 until his death in 1873, and his replacement Estévan Antonio Fuertes (1838-1903). Patriarch of CE, Fuertes built the faculty from one in 1873 to seventeen at the time of his death in 1903. By 1906, the faculty size reached 28, a number that approximates today's headcount.

The first two faculty members



William Charles Cleveland

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 hydraulicians were either educated at Cornell or participated in tests conducted here.



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 1934, he invigorated both research and professionalism in CE. 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.



George Winter

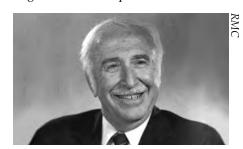
George Winter Ph.D. '40, [supervised by Hollister]; NAE (1907-1982) authored textbooks and contributed to structural specifications for several different structural materials and types. He also carefully built up a faculty group that became one of the nation's best in structural engineering, including William McGuire M.C.E. '47 (1920-2013), Floyd Owen Slate (1920-2008), Arthur H. Nilson M.S. '56 (1926-2014), Richard Norman White, NAE (1933-2009), Peter Gergely (1936-1995) and Richard H. Gallagher,



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 capitol 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 cofounded 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 to a chaired professorship. In 2012, she was elected to the National Academy of Engineering (NAE). With only three tenured women faculty members



Christine Shoemaker

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 oralhistory interviews with faculty may be viewed at http://ecommons.library.cornell.edu/handle/1813/33202.

—John F. Abel and Hannah McKinney

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DISTINGUISHED ALUMNI

A FIRST COMPILATION



Franklin W. Olin 1886

he 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 (C.E., B.C.E., B.S.), 2,500 professional degrees (M.C.E and M.Eng.) and 1,100 researchoriented 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 the 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.



Nora Stanton Blatch 1905. Olive Dennis 1921

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. granted by Cornell. He later became President of the University of Cincinnati and of Rose Polytechnic Institute.
- Nora Stanton Blatch Barney, C.E. 1905 (1883-1971) was the first American woman to earn an engineering degree and was also

the first to become a junior member of ASCE. Although she continued her engineering career, she was denied full ASCE membership without cause, a reflection of early sexism in the profession. Following her mother and grandmother, well-known suffragettes, Nora was also active in the movement for women's voting rights.

- George Biddle Kelley, C.E. 1908 was the first black engineer to be licensed in New York. In 1906, he co-founded Alpha Phi Alpha at Cornell, the first black intercollegiate Greeklettered fraternity.
- Olive Wetzel Dennis, C.E. '21 (1885-1957) was the second woman to graduate from CE and became the first "service engineer" for the B&O Railroad, transforming the nature of railroad travel through her patents and innovations. She was the first female member of the American Railway Engineering Association (AREA).
- Trueman T. Goba, M.Eng. '86 is the Executive Chairman of Goba Moahloli Keeve Steyn in Johannesburg and was the first black president of the South African Institution of Civil Engineers.



Gerard Fox '48 advises M.Eng.students

NATIONAL ACADEMY MEMBERS

Alumni from professional practice or academia who have been elected to the NAE include the following (although alumni who are also CEE faculty members are separately listed on the School website).

- Harry E. Bovay, Jr., B.C.E. '36 (1914-2011) established Bovay Consulting Engineers, Inc. and later Mid South Telecommunications, Inc. Elected to the NAE in 1972, he was also a significant benefactor to Cornell and CEE.
- Jackson L. Durkee, M.S. '47 (1922-2007) became Chief Bridge Engineer at Bethlehem Steel and was elected to NAE in 1995.
- Gerard F. Fox, B.C.E. '48 (1923-2008) was a bridge designer and partner at HNTB who was elected to NAE in 1976.
- James J. O'Brien, B.C.E. '51 was elected to the NAE in 2012 for "development of standards of practice for computerized scheduling of construction projects and capital

programs."

- Donald P. Greenberg, B.C.E. '58, Ph.D. '68 is the Jacob Gould Schurman Professor of Computer Graphics at Cornell and was elected to the NAE in 1991.
- Joseph Andrew Yura, M.S. '61 is Professor Emeritus of CEE at the University of Texas Austin and was elected to NAE in 2000.
- Kenneth E. Arnold, B.C.E. '64 founded Paragon Engineering Services in Houston, and was elected to NAE in 2005.
- Surendra P. Shah, Ph.D. '65 is the Walter P. Murphy Professor of CEE, Emeritus at Northwestern University and was elected to NAE in 2007.
- Henry T. Y. Yang, Ph.D. '68 is Chancellor and Professor of Mechanical Engineering, University of California at Santa Barbara and was elected to NAE in 1991.
- W. David Goodyear, B.S. '73, M.Eng. '74, Chief Bridge Engineer and Senior VP of T.Y. Lin International, was elected to NAE in 2013.
- Charles T. Driscoll, M.S. '76, Ph.D. '80 is University Professor of Environmental Systems Engineering, Syracuse University and was elected to NAE in 2007.
- Gregory L. Fenves, B.S. '79 is President of the University of Texas at Austin, where he had successively served as Dean of Engineering and Provost. He was chair of CEE at University of California at Berkeley and was elected to NAE in 2014.
- Gregory G. Deierlein, B.S. '81 is the John A. Blume Professor of Engineering at Stanford University and was elected to NAE in 2013.

PROFESSIONAL PRACTICE

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

- David Joseph Macpherson, C.E. 1887 (1854-1927) was the city planner for San Antonio, Texas and designer of the Santa Fe Railroad.
- Ezra B. Whitman, C.E. 1901 (1880-1963) founded Whitman, Requardt & Associates, an environmental consulting firm, in Baltimore in 1915. He was President of ASCE in 1943 and a Cornell Trustee for 27 years (1921-48).
- Glenn B. Woodruff, C.E. 1910 (1890-1973) was the "Engineer of Design" of the San Francisco-Oakland Bay Bridge and served on the three-person FWA panel to investigate the 1940 failure of the Tacoma Narrows Bridge.
- Charles S. Whitney, C.E. 1915 (1892-1959) co-founded Amman & Whitney, a renowned US structural consulting firm based in NYC.
- Joseph H. DeFrees, C.E. '29 (1905-1982) was an inventor who founded the Allegheny

Valve Company. As a supporter of CEE, he donated the hydraulics lab used today.



Joseph DeFrees '29 with Prof. Richard White

- Howard Simpson, B.C.E. '42 is a founding Principal & Director of Simpson Gumpertz & Heger Inc., a consulting firm that now is known as SGH.
- Lev Zetlin, M.S. '51, Ph.D. '53 (1918-1992) 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.
- Terrance 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 G. McLaren, B.S. '73 is the founder and CEO of the McLaren Engineering Group.
- Jorge 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. '74 offers consulting services through her company Geo Environmental Group, LLC in Silver Spring, MD.
- SawTeen See, B.S. '77, M.Eng. '78 is the managing general partner of LERA, a renowned structural firm. She is an Honorary Member of ASCE
- Jennifer Benaman, Ph.D. '03 is a Principal at the Saratoga Springs, NY, office of Anchor QEA, a national environmental and water resources firm.
- Justin Vandever, B.S. '04 was recently recognized by ASCE as one of the "New Faces of Civil Engineering." He is currently a coastal engineer in the San Francisco office of AECOM, a global provider of infrastructure services.

ACADEMIA

Dozens of 19th-century graduates were influential in spreading the Cornell CE approach to other American universities, and a few are cited here. Since WWII, many alumni have gone on to successful academic careers, and a sampling follows to supplement those already cited as NAE members.

• Charles David Marx, B.C.E. 1878 (1857-1939), a faculty member at Cornell and then Wisconsin, was one of the first ten faculty members at Stanford University where he established the CE department. He was President of ASCE in 1915.

- John Fillmore Hayford, C.E. 1889 (1868-1925) became the first Dean of the College of Engineering at Northwestern University (1909-1925). A geodesist, he was elected to the National Academy of Sciences in 1911.
- Anson Marston, C.E. 1889 (1864-1949) became the first dean of the College of Engineering at Iowa State (1904-32) and served as President of ASCE in 1929.
- Frederick Eugene Turneaure, C.E. 1889 (1866-1951) became dean of the College of Engineering at the University of Wisconsin-Madison from 1902-37.
- Daniel Sperling, B.S. '73 won the Blue Planet Award in 2013. He is Professor of CEE and of Environmental Science & Policy as well as Director of the Institute of Transportation Studies at the University of California at Davis.
- Yeong-Bin Yang, Ph.D. '84 was successively Chair of CE and Dean of Engineering at National Taiwan University before serving as President of National Yunlin University of Science & Technology. He is a member of the Chinese Academy of Sciences, the first from Taiwan to be admitted to the mainland academy.
- Christis Chrysostomou, B.S. '85, M.Eng. '86, Ph.D. '91 is currently Dean of the Faculty of Engineering & Technology at the Cyprus University of Technology.
- Maria E. Moreyra Garlock, M.S. '93 is Associate Professor of CEE and Director of the Program in Architecture and Engineering at Princeton University.
- Abena Sackey Ojetayo, B.S. '07, M.Eng. '09 was recently recognized by ASCE as one of the "New Faces of Civil Engineering." In 2014,



Abena Sackey Ojetayo '07, M.Eng. '09

she became the Chief Sustainability Officer at Florida A&M University and Executive Director of the FAMU Sustainability Institute.

GOVERNMENT

Several alumni who have held government positions include:

- Mario Garcia Menocal, C.E. 1888 (1866-1941) became President of Cuba for two terms from 1913 to 1921.
- Carlos I. Pesquera, M.S. '81, Ph.D. '84 was the Secretary of Transportation and Public Works of Puerto Rico from 1993-1999 and ran for Governor in 2000.
- San-cheng Chang, Ph.D. '81 has been Vice Premier of the Republic of China (Taiwan) since December 2014 after serving as Minister of Technology. He is one of three CEE alumni who have recently served in the Taiwan government.
- Ingrid Marie Vila Biaggi, B.S. 1996 served as Chief of Staff for the Governor of Puerto Rico, 2013-14. She is now a consultant in project management.

BUSINESS, MILITARY AND OTHER ENDEAVORS

A sampling of alumni follows.

- Frank Parsons, C.E. 1872 (1854-1908) became a lecturer at the Boston University School of Law, was a public intellectual and well-known social reformer as the father of the vocational guidance movement.
- Franklin Walter Olin, C.E. 1886 (1860-1951) was the founder of the Olin Corporation and was a benefactor of Cornell through the Olin Foundation.
- John F. Sobke, B.C.E. '62 rose to the rank of Major General in the U.S. Army Corps of Engineers and served as Deputy Chief of Engineers before retiring in 1995.
- Thomas J. Peters, B.C.E. '65, M.C.E. '66 is a business management motivational guru who co-authored the best selling *In Search of Excellence* (1982) and has since written over a dozen works in the management sphere.
- John M. Paxton, Jr., B.S. '73, M.Eng. '74 is a Lieutenant General who is currently serving as the Assistant Commandant of the Marine Corps.
- Jamie Reed Kovac, B.S. '01, M.Eng. '02 is an actress best known for playing "Fury" on American Gladiators and is currently an executive at Yorke Construction in NYC.

CEE ADVISORY COUNCIL

Several distinguished alumni from practice, academia and business (together with friends of Cornell CEE who are not alumni) have served on the Advisory Council, currently chaired by Jim Becker, B.C.E. '65, M.S. '67, Vice President of Skanska USA Building. A listing is on the School website (http://www.cee.cornell.edu).

CornellEngineeringCivil and Environmental Engineering

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SAVE THE DATES

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



Join us for Cornell Engineering's

Sesquicentennial Celebration
October 23-25, 2015



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