

# *Memories From the SEAS Time Capsules*

*The Fifteenth Decade: 2005-2014*



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# From the SEAS Time Capsules

## The Fifteenth Decade: 2005-2014



- 2005 – Students make a cardboard cutout of Dean Zvi Galil.
  - From the Spring 2007 *SEAS Engineering News*.
- The real dean and his cardboard likeness attend numerous events on campus.



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## The Fifteenth Decade: 2005-2014



- The Columbia chapter of Engineers Without Borders initiates projects in three countries.
  - 2004/2005 – Ghana: water management (sanitation and distribution).
  - 2008 – Uganda: energy platform/stationary diesel engines and harvesting rainwater.
  - 2011 – Morocco: building a footbridge for the rainy season, and wells.



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- February 2006 - Vampire Weekend play their first gig at SEAS E-Weeks Battle of the Bands at Lerner Hall.
  - Composed of Columbia students (who would become 2006/2007 grads).
- They finished in third place (four groups competed), and then they took off.
- They were declared "The Year's Best New Band" by *Spin* magazine in the March 2008 issue.



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Above image in Hamilton Hall, from May/June 2007 *Columbia College Today*, photo by Esther S. White.



# New York Moments

## The Fifteenth Decade: 2005-2014



- 2005-7 – The City approves steps in building the new Second Avenue Subway.
- This is the first major expansion of the subway system since 1932.
- Originally proposed in 1929 as part of an expansion of the Independent Subway System (IND), but work never began; the project was considered several times in subsequent decades.
- Left photo, the Second Avenue El looking south on First Avenue from 13<sup>th</sup> St. during its demolition in September 1942.
- Upper right photo, construction of the subway: the 72<sup>nd</sup> St. station cavern in January 2012; lower right, 83<sup>rd</sup> St. during construction.

# From the SEAS Time Capsules

## The Fifteenth Decade: 2005-2014

### NW Science Project Begins

Building Will Integrate University's Existing Science Facilities



**GOING UP** | The northwest corner project will provide the University with a new research building, seen here, as well as bridges integrating existing chemistry facilities with the science and engineering terraces.

COURTESY OF COLUMBIA UNIVERSITY



- The April 2, 2007 *Spectator* reports that excavation has begun on the Northwest Corner Building, which will house modern laboratories in science and engineering research.
- Shown are the rendition and final building.
- The Monell Engineering Library, long located in the Mudd Building, will be integrated into the new science and engineering library in the NWC Building.



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# New York Moments

## The Fifteenth Decade: 2005-2014

- 2010 - "Empire State of Mind" by Jay-Z (featuring Alicia Keys) continues a long and distinguished history of New York City in song, which has included (among many others):
  - 1894 - "Sidewalks of New York" by Blake and Lawlor, *East Side, West Side, all around the town ... Tripped the light fantastic on the sidewalks of New York*
  - 1925 - "Manhattan" by Rodgers and Hart, *We'll have Manhattan, The Bronx and Staten Island too... We'll turn Manhattan into an isle of joy, ... We'll go to Coney and eat baloney on a roll*, most famously sung by Ella Fitzgerald
  - 1932 - "42nd Street" by Warren, Dubin, *Come and meet those dancing feet, on the avenue I am taking you to, 42<sup>nd</sup> St.*
  - 1939 - "Take the 'A' Train" by Billy Strayhorn, the signature tune of Duke Ellington
  - 1944 - "New York, New York" (musical On the Town by Bernstein, Comden and Green), *New York, New York, a helluva town. The Bronx is up but the Battery's down, The people ride in a hole in the groun'.*
  - 1949 - "Give Me Your Tired, Your Poor" - Irving Berlin set to music (musical Miss Liberty) the inspiring 1883 Emma Lazarus sonnet "The New Colossus", a plaque with this sonnet was mounted inside the Statue of Liberty in 1903
  - 1963 - "Sunday in New York" by Coates and Nero, sung by Bobby Darin, Mel Torme, and others
  - 1965 - "Boy From New York City" by Davis and Taylor, sung by The Ad Libs and The Manhattan Transfer
  - 1976 - "New York State of Mind" by and sung by Billy Joel
  - 1977 - "NYC" (musical Annie by Strouse and Charnin), *NYC, What is it about you, You're big, You're loud, You're tough*
  - 1977 - "Theme from New York, New York" by Kander and Ebb, *If you can make it here, you can make it anywhere*, sung by Frank Sinatra and others
  - 1977 - "Native New Yorker" by Linzer and Randell, *You grew up riding the subways*, sung by Odyssey



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### SEAS introduces big changes to Gateway

Revamped course allows first-years to choose from nine projects

When freshman engineers sit down for their first Gateway class on Friday, they'll be starting a class that is radically different from the one their predecessors took.

The lecture component of the new Gateway will be taught by electrical engineering professor David Vallancourt, who has recreated the lecture material from scratch based on the course's new textbook. The course will still feature a semester-long team project, but students will now have nine projects to choose from—one from each department at the School of Engineering and Applied Science.

- The Gateway course for first-year students undergoes a major revision, as reported in the Sept. 7, 2011 *Spectator*.



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# From the SEAS Time Capsules

## The Fifteenth Decade: 2005-2014



- 2011 – TEDxColumbia Engineering, Columbia University's independently organized TED, begins holding events, with the goal of presenting a dynamic array of speakers and presentations to bring to life the power of ideas.
- Shown, the team from the 2012 event (upper) and the team and Prof. Nayar from the 2013 event (lower).



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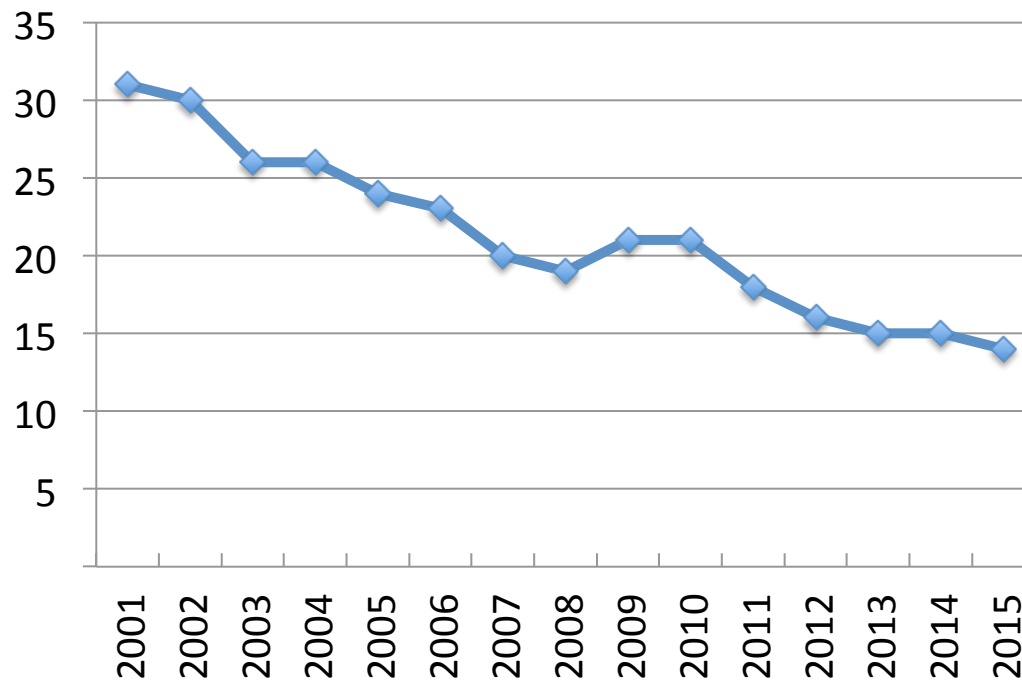
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# *From the SEAS Time Capsules*

## *The Fifteenth Decade: 2005-2014*

- SEAS continues its climb in the USNWR ranking of engineering schools.



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The rankings for a given year are announced in the spring of the previous year.

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## The Fifteenth Decade: 2005-2014



- 2012 - To help manage the ever-increasing avalanche of data around the world, SEAS establishes the Institute for Data Sciences and Engineering (IDSE), teaming up with other schools in the University.
- The Institute is focused on conducting data science research across disciplines and developing programs to train urgently needed scientists.
- It is initially centered around five key sectors -- smart cities, new media, health analytics, financial analytics, and cybersecurity, along with the foundations of data science to support these five areas.



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# From the SEAS Time Capsules

## The Fifteenth Decade: 2005-2014



- 2012 – In recognition of his unwavering dedication to the School, SEAS renames the Dean’s Conference Room, located on the fifth floor of the Mudd Building, the Morton B. Friedman Conference Room. “Mort” Friedman was a longtime professor of civil engineering and engineering mechanics, of applied physics and applied mathematics, and served as vice dean (later renamed senior vice dean) from 1995-2010.



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# From the SEAS Time Capsules The Fifteenth Decade: 2005-2014



- Students at Fall 2013 *NY Cares* event.



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# *From the SEAS Time Capsules* *The Fifteenth Decade: 2005-2014*

Feb. 2014 - SEAS 150<sup>th</sup> Anniversary Celebration: Launch week



150 

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# New York Moments

## The Fifteenth Decade: 2005-2014



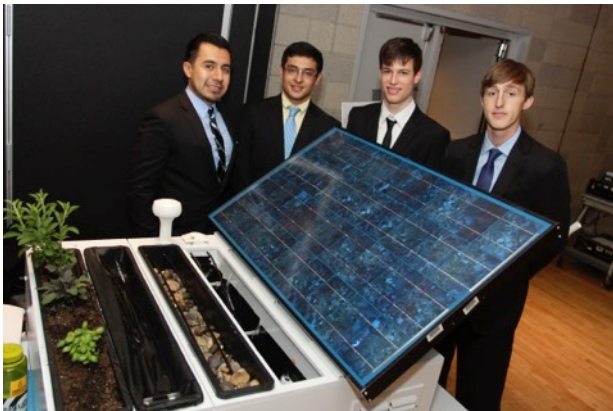
- 2014 – On February 17 Jimmy Fallon brings *The Tonight Show* back to New York City.
  - Originally hosted by Steve Allen when it started in 1954, the iconic show was moved to the west coast by Johnny Carson in 1972.

[http://en.wikipedia.org/wiki/The\\_Tonight\\_Show#mediaviewer/File:Jimmy\\_Fallon\\_at\\_desk.jpg](http://en.wikipedia.org/wiki/The_Tonight_Show#mediaviewer/File:Jimmy_Fallon_at_desk.jpg)



# From the SEAS Time Capsules

## The Fifteenth Decade: 2005-2014



- The SEAS 150<sup>th</sup> Anniversary celebration Senior Design Expo is held in Roone Arledge Auditorium on May 8, 2014, with 66 projects and participation from each department and ~250 students (over half of all seniors).
- It is a great success and hopefully will become an annual event.



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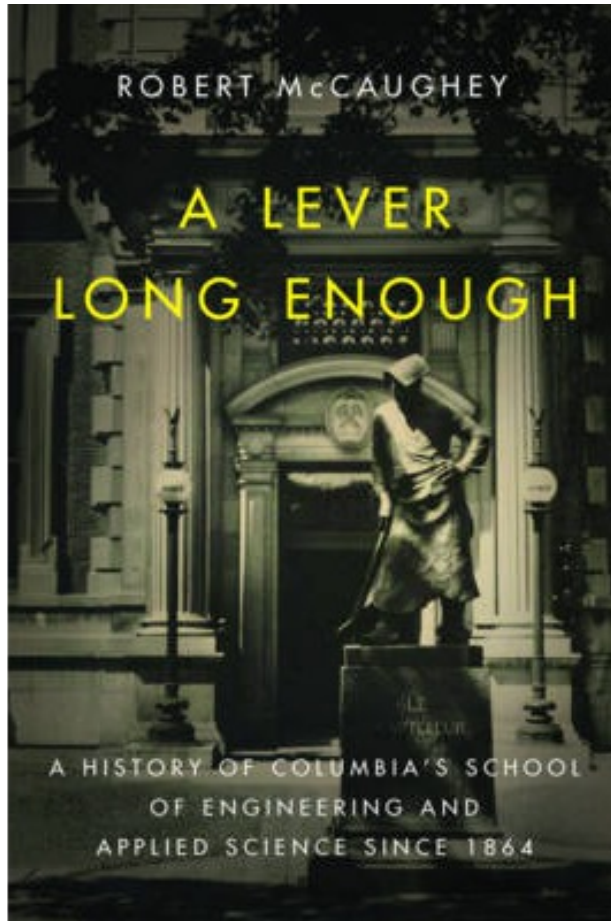
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## The Fifteenth Decade: 2005-2014



- 2014 – The SEAS History, *A Lever Long Enough* by Barnard professor Robert A. McCaughey, is published.
- The book is part of SEAS' 150<sup>th</sup> Anniversary celebration.



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# From the SEAS Time Capsules

## The Fifteenth Decade: 2005-2014

### Top SEAS Alumni Over the 15 Decades of SEAS\*

#### Honorable Mention

- Melvin L. Baron, Ph.D. 1953 - Head of Appl. Sci. Div. of Weidlinger Assoc., a prestigious consulting firm, NAE.
- Alfred Chester Beatty, 1898 - A world leading mining entrepreneur, knighted by Queen Elizabeth.
- Jeff Bleustein, M.S. 1962, Ph.D 1965 - Engineering Mechanics-CEO Harley Davidson.
- Ursula M. Burns, M.S. 1982 - Chairman and chief executive officer of Xerox.
- Kevin P. Chilton, M.S. 1977 - Piloted NASA Space Shuttle Endeavour; Space Radar Laboratory; Russian space station Mir.
- Henry "Lou" Gehrig, CC/pre-engineer 1921-1923 - Hall of Fame first baseman of the New York Yankees.
- Gregory H. Johnson, M.S. 1985 - Piloted the Space Shuttle Endeavour in 2008 and again in 2011.
- Matthys Levy, M.S. 1956, C.E. 1962 - Chairman Weidlinger Assoc., world class structural engineer (Javits Center), NAE.
- Grover Loening, CC 1908; M.S. 1910 - Engineers the first "short-hulled flying boat," novel designs for monoplanes.
- Michael J. Massimino, SEAS B.S. 1984 - NASA astronaut; two space shuttle missions; repaired Hubble Space Telescope.
- Henry L. Michel, B.S. 1949 - Chairman of Parsons Brinckerhoff, a top consulting engineering firm, NAE.
- Pete Slosberg, SEAS B.S. 1972 - Founded Pete's Brewing Company (craft brewing), Cocoa Pete's Chocolate Adventures.

# From the SEAS Time Capsules

## The Fifteenth Decade: 2005-2014

### Top 15 SEAS Alumni Over the 15 Decades of SEAS\*

- Charles Gordon Curtis, Mines 1881 - Invented the Curtis steam turbine for electric power plants and naval vessels.
- Edmund DiGiulio, SEAS B.S. 1950 - Revolutionized how directors film movies with advances in camera technology.
- Joseph Engelberger, SEAS B.S. 1946, M.S. 1949 - Founded the first industrial robot company, Unimation Inc., in 1961.
- Arthur Hauspurg, SEAS BS 1945, M.S. 1947 - Improved Con Edison's transmission system; Con Ed's chairman & CEO.
- Eliahu I. Jury, SEAS Ph.D. 1953 - Initiated the field of discrete-time systems, pioneered Z-transforms.
- Rudolf Kalman, SEAS D.Sci. 1958 - Creator of modern control/system theory; Kalman filter; National Medal of Science.
- Edward Kendall, SEAS B.S. 1908, Ph.D. 1910 - Won the 1950 Nobel Prize in Physiol./Medicine for adrenal cortex work.
- Irving Langmuir, Mines B.S. 1903 - Won the 1932 Nobel Prize in Chemistry for discoveries in surface chemistry.
- Robert C. Merton, SEAS B.S. 1966 - Won the 1997 Nobel Prize for Economics for determining the value of derivatives.
- Robert Moog, SEAS M.S. 1956 - Demonstrated groundbreaking music synthesizer in 1964, transforming popular music.
- William Barclay Parsons, CC 1879, Mines 1882 - Designed first interborough subway; consulted on the Panama Canal.
- Hyman G. Rickover, SEAS M.S. 1930 - "Father of the Nuclear Navy"; oversaw building nuclear-powered submarines.
- Alvin Roth, SEAS B.S. 1971 - Won the 2012 Nobel Prize in Economics for theory of stable allocations and market design.
- David Steinman, SEAS Ph.D. 1911 - Master bridge builder; his Ph.D. work led to the Henry Hudson Bridge design.
- Lotfi Zadeh, SEAS Ph.D. 1949 - Founder of fuzzy mathematics, fuzzy set theory, and fuzzy logic.



# *From the SEAS Time Capsules*

## *The Fifteenth Decade: 2005-2014*

### Top Donors Over the 15 Decades of SEAS\*

- Robert Carleton, C.E. 1904 - Endowed Carleton lab (1962).
- Z. Y. Fu, Fu Foundation - Gift to SEAS, SEAS then renamed Fu Foundation SEAS (1997).
- Percy and Vida Hudson (P.H., Mines 1899) - Funds for Mudd and Eng. Terrace (1978).
- Henry and La Von Krumb (H.K., E.M. 1898) - HKSM endowment; half of Mudd (1962), most of Engineering Terrace (1964).
- Adolph Lewisohn -1904, building then called Mines Bldg. (1905), now named after him.
- Ambrose Monell Foundation, E.M. 1896 - Mudd library and student center.
- Seeley Wintersmith Mudd Foundation - Helped start Mudd construction.
- Morris A. Schapiro CC 1923, EE 1925 - Schapiro CEPSR (1992) (& Schapiro Dormitory, 1988).





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### Top 15 Columbians Over the 15 Decades of SEAS\*

#### Honorable Mention

- **Maurice A. Biot** (Faculty, 1937-1946) - Porous mechanics, aeroelasticity, National Academy of Engineering, ASCE Biot Medal and Biot Conference on Poromechanics established.
- **Hans Bleich** (Faculty, 1946-1977) - Theory and applications of structural mechanics, National Academy of Engineering, Theodore von Karman Medal.
- **Shu Chien** (Faculty, 1969-1988) - Pioneer in biomedical engineering and blood flow in the cardiovascular system.
- **C.K. (John) Chu** (Faculty, 1965-2003, then emeritus) - Developed finite difference approximations for fluid dynamics, coins phrase, “Computational Fluid Dynamics,” helped advance Fu SEAS and applied mathematics.
- **Francis Bacon Crocker**, E.M. 1882 (Faculty 1889-1907) - Cofounded electrical engineering department; founded an electric motor company that was an early leader in electrical machinery; co-inventor of the first helicopter.
- **John Dunning** (Dean, 1950-1969) - Transformed School with direct admissions and the Mudd Building; advances in nuclear science.
- **Colin Fink** (Faculty, 1920-1950, then emeritus) - Made electroplating practical, introduced tungsten for incandescent lamp filaments.
- **Dudley Dean Fuller**, M.S. 1945 (Faculty, 1954-1979) - Developed the hydrostatic bearing; established; tribology as a field.
- **Robert Gross** (Faculty, 1961-1994, then emeritus, Dean, 1981-1989) - Led CEPSR establishment, co-founded plasma physics program.
- **Peter Likins** (Dean, 1976-1980) - As Dean, began the School turnaround.
- **Walter F. Rittman**, Ph.D.1914 - Important new process for the cracking of petroleum.
- **Mischa Schwartz** (Faculty, 1973-2006, then emeritus) - Co-led The Center for Telecommunications Research, National Academy of Engineering member, IEEE Hall of Fame.



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\* Known primarily for contributions while at Columbia, including alumni, but who are not currently at Columbia. Ranking by I. P. Herman. Includes input from the 2003-2004 *Spectator* top 250 Columbia alumni.

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## Top 15 Columbians Over the 15 Decades of SEAS\*



15. (Henry) Marion Howe  
(1897-1913)

Metallurgical expert who developed the phase diagram for high temperature steel.



14. Cyril Harris  
(1952-1984)

Acoustics expert who designed many prominent concert halls.  
National Academy of Engineering



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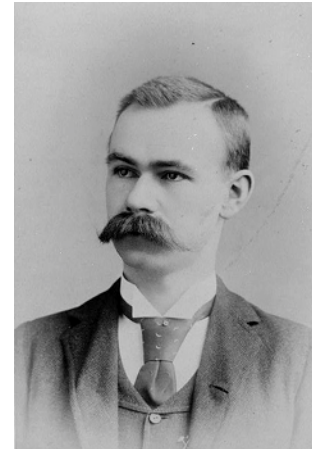
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## Top 15 Columbians Over the 15 Decades of SEAS\*



13. Mario Salvadori  
(1940-1997)

Renowned architect, structural engineer, and applied mathematician, known for developing thin concrete shells for buildings and teaching inner-city students.  
National Academy of Engineering



12. Herman Hollerith  
(1876-79, Mines; 1890, Ph.D.)

Pioneer in developing tabulating machine using punch cards that was used to conduct the U.S. census. He founded the Tabulating Machine Company, which later helped form IBM.



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## Top 15 Columbians Over the 15 Decades of SEAS\*



11. Alfred Freudenthal  
(1949-1969)

“Father of Structural Reliability”

who is the namesake of the ASCE Freudenthal Medal.

National Academy of Engineering



10. Horst Stormer

(1998-2011, then emeritus)

Awarded the 1998 Nobel Prize in

Physics for discovering fractional

quantum Hall effect.



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### 9. Zvi Galil

(1982-2007)

As Dean (1995-2007), led SEAS' extraordinary rise exemplified by rapid growth and rising in the rankings. National Academy of Engineering



### 8. Ferdinand Freudenstein

(1950-2006)

“Father of Modern Kinematics” and developer of the Freudenstein Equation for linkage mechanisms. National Academy of Engineering



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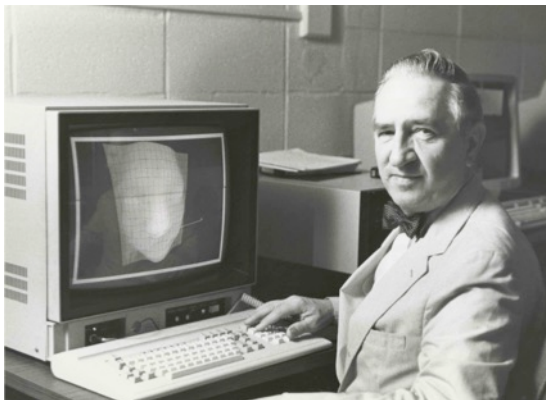
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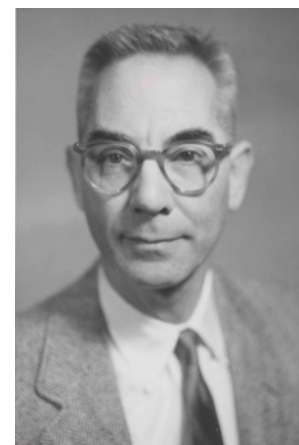


### 7. Richard Skalak

(1943-1987)

Pioneering biomechanical engineer who combined engineering mechanics and biomedical sciences.

National Academy of Engineering



### 6. Raymond D. Mindlin

(1930-1976)

Pioneer in elasticity theory and photoelastic properties, and namesake of the ASCE Mindlin Medal.

National Academy of Engineering

National Medal of Science



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## Top 15 Columbians Over the 15 Decades of SEAS\*



### 5. Elmer Gaden

(1944-1974)

“Father of Biochemical Engineering”  
who pioneered mass production of antibiotics  
including penicillin.

National Academy of Engineering



### 4. Thomas Egleston

(1864-1900)

Metallurgist and mineralogist who co-founded  
the School of Mines in 1864 with the  
“Egleston Plan” to establish the school.



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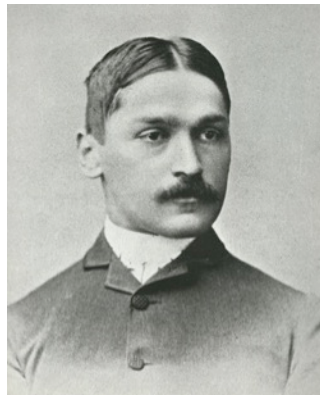
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## Top 15 Columbians Over the 15 Decades of SEAS\*



3. Michael Idvorsky Pupin  
(1889-1931)

Renowned applied physicist and engineer who invented the overload coil, which enabled long-distance calls, and greatly improved the use of x-rays in medicine, in addition to working on sonar during WWI.

National Academy of Sciences



2. Edwin H. Armstrong  
(1909-1954)

Legendary inventor who laid the foundation behind modern radio, television, and radar, with many major advances, including FM radio. First recipient of IRE (now IEEE) Medal of Honor

National Inventors Hall of Fame



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### 1. Charles Chandler (1864-1910)

Pioneering chemist who co-founded the School of Mines and served as the first Dean (1865-1897), who advanced public health with the New York Metropolitan Board of Health, serving as NYC Health Commissioner from 1873 to 1883, and who was an important force in organizing the American Chemical Society.



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