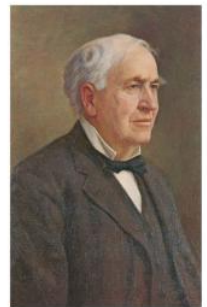
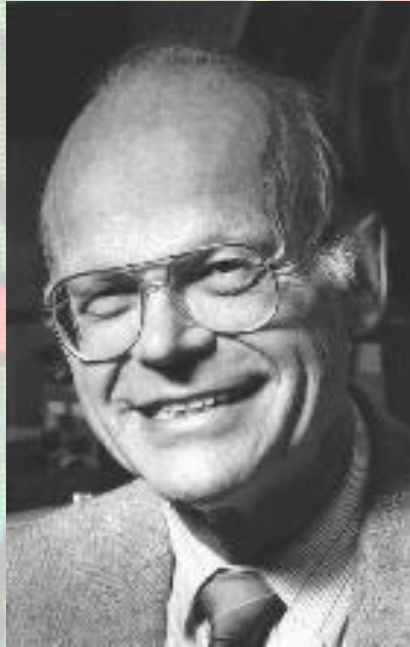


My Academic Genealogy

Over a century of mentors and students ...

- Roger T. Howe, Ph.D., UC Berkeley 1984
- Richard S. Muller, Ph.D., Caltech 1962
- R. David Middlebrook, Ph.D. Stanford 1955
- Joseph M. Pettit, Ph.D., Stanford 1942
- Frederick E. Terman, Ph.D., MIT 1920
- Vannevar Bush, Ph.D., MIT 1916
- Arthur E. Kennelly, Chief Electrical Assistant,
Edison Lab, Menlo Park, New Jersey, 1887-1894
- Thomas A. Edison, Inventor, 1847-1931





Richard S. Muller

Ph.D. (Caltech, 1962)

- **Born in New Jersey and educated in New Jersey and California**
 - **Mechanical Engineer (Stevens Institute of Technology, 1955)**
 - **M.S. in Electrical Engineering (Caltech, 1957)**
 - **Ph.D. in Electrical Engineering (Caltech, 1962)**
- **Professor at the University of California at Berkeley (1962 to present)**
- **Co-wrote *Device Electronics for Integrated Circuits* with Ted Kamins**
- **Co-founded BSAC with Prof. White and helped found the MEMS field**
- **Received many awards: UC Berkeley Citation (1994), IEEE Cleo Brunetti Award with Prof. Howe (1998), IEEE Millennium Medal (2000), NAE, Life Fellow of IEEE, ...**



R. David Middlebrook

Ph.D. (Stanford, 1955)

- **Born in northern England and educated in the U.K. and California**
 - **B.A. in Electrical Engineering (Cambridge University, 1951)**
 - **M.S. in Electrical Engineering (Stanford, 1953)**
 - **Ph.D. in Electrical Engineering (Stanford, 1955)**
- **Studied semiconductor device electronics and electronic circuits**
- **Richard P. Feynman Prize for Excellence in Teaching (1997)**
- **IEEE Centennial Medal - *deserving of special recognition* (1984)**
- **William E. Newell Power Electronics Award - *power electronics* (1982)**
- **Edward Longstreth Medal of the Franklin Institute (1991)**
 - **for the development of switched-mode power converters**

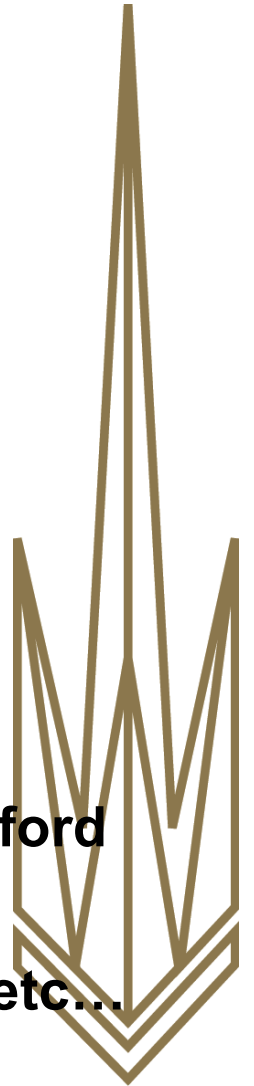


Joseph M. Pettit

Ph.D. (Stanford, 1942)

1916 - 1986

- **Born in Rochester, Minnesota and educated in California**
 - **B.S. in Electrical Engineering (Berkeley, 1938)**
 - **Engineer Degree in Electrical Engineering (Stanford, 1940)**
 - **Ph.D. in Electrical Engineering (Stanford, 1942)**
 - **Taught at the University of California, Berkeley**
- **Joined the Radio Research Laboratory of Harvard University**
- **Professor (1954) and Dean of Engineering (1958-1972) at Stanford**
- **President of Georgia Institute of Technology (1973-1986)**
- **Active in IEEE and NAE, founded WESCON and SOUTHCON, etc...**

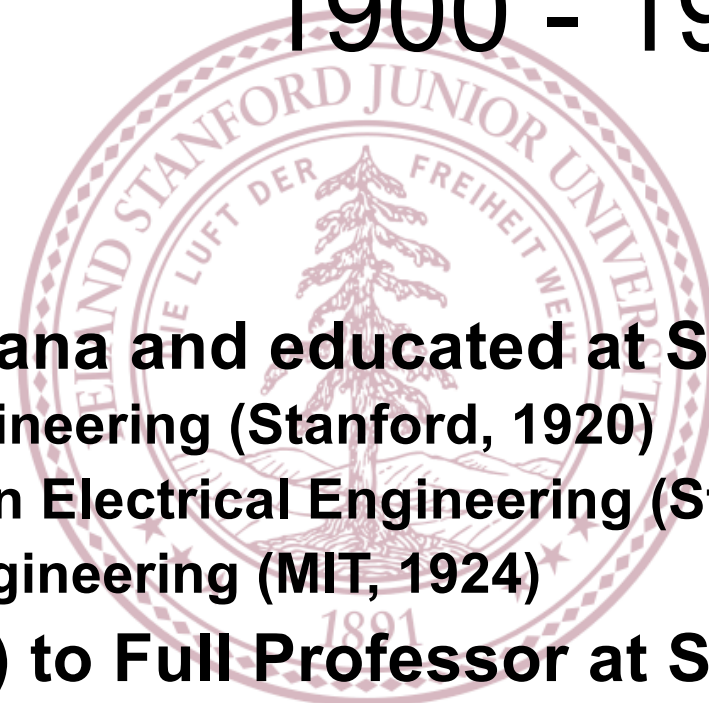




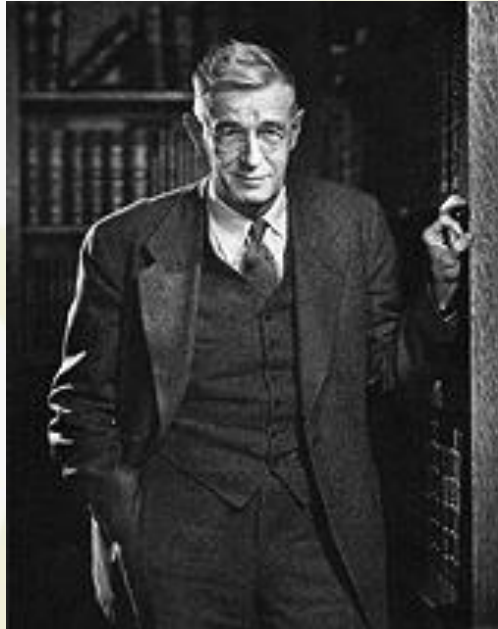
Frederick E. Terman

Ph.D. (MIT, 1920)

1900 - 1982



- **Born in English, Indiana and educated at Stanford and MIT**
 - B.A. in Chemical Engineering (Stanford, 1920)
 - Engineering Degree in Electrical Engineering (Stanford, 1922)
 - D.Sc. in Electrical Engineering (MIT, 1924)
- **From Lecturer (1925) to Full Professor at Stanford (1942)**
- **EE Department Head (1942-1945)**
- **Led the Harvard University Radio Research Laboratory**
- **Dean of Engineering, Stanford (1945)**
- **Key role in the early days of Silicon Valley**



Vannevar Bush

Ph.D. (MIT, 1916)
1890 - 1974

- **Developed machines capable of solving mathematical problems by measuring voltages and movement**
 - **Product Integraph, Network Analyzer, Differential Analyzer (1931)**
 - **could solve sixth- order differential equations or three simultaneous second-order differential equations**
 - **During World War II Vannevar Bush served as Pres. Roosevelt's adviser and chief contact on all military technology**
 - **Launched the Manhattan Project; established the NSF**
 - **Developed the concept of multimedia and hypertext (Memex, 1945)**
 - **“As We May Think” in the July 1945 issue of *The Atlantic Monthly***



Arthur E. Kennelly

1861 - 1939

- **Born in Bombay, India and raised in England**
- **Left school at 13 (University School London), and taught himself physics while working as a telegrapher**
- **Emigrated to the U.S. in 1887**
- **Edison's chief electrical assistant (1887-1894)**
- **Professor at Harvard (1902-1930) and MIT (1913-1924)**
- **Deduced the existence of an atmospheric ionized reflecting layer, the Kennelly-Heaviside layer (ionosphere)**



Thomas A. Edison

1847 - 1931

- **Born in Milan, Ohio and home-schooled by his mother**
 - parents paid for tutors when he exceeded their abilities
 - discovered libraries and became a voracious reader
 - preferred Newton's physical laws to the more formal *Principia*
- **Published & sold newspapers (12), learned telegraph (15)**
 - Western Union Company in Boston (the "Silicon Valley" of 1860's)
 - attended lectures at Boston Tech (became MIT in 1916)
 - exposed to multiplexed telegraph – crude voice (became phone)
- **Developed and acquired 1,093 patents (1 every 2 weeks):**
 - light bulb, phonograph, electricity generation, movies, "talkies", ...