

Reminiscence: 60 years of teaching within 84 years of life

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Anyone of my generation fortunate to have lived for 84 years could divide those years into pre-college, college, employment, and retirement (though I so far escaped the latter). My main employment has given me those exciting 60 years of university teaching. But I will start with my early years. None of my immediate ancestors went to college and I had no idea what was in store though the first Newcomb in my line came as a whaling captain to Nantucket in 1646 . At the age of 11 I began selling newspapers through WWII somehow being given the prime stations of Sears, Penny's, and Famous in Glendale, CA. During my junior high through high school I did some research on shaded pole motors for my father's company. From that he was willing to send me to Purdue for studies in electrical engineering. During the four years there I did some research on acoustic vibration of beams but still had no idea of going into teaching nor even knew the concept of Ph.D. except I got an invitation to join the teaching staff at the University of Nebraska which set me to thinking. However, I took up a research position at Stanford Research Institute that allowed me to get an MS at Stanford on their Honors Coop Program while supporting my wife and children. Although called up for the draft the existence of my daughter allowed, Eisenhower to exempt me. At SRI I helped design antennas for ICBMs and logic participated in the design of vacuum tube logic for the Bank of America computer ERMA. Having taken a course on teaching from Professor Skilling and network synthesis from Professor Tuttle, and being exposed to the general concept of an educated person I decided the Ph.D. was the thing for me. So at that point I talked to Professor Donald Pederson at near by UC Berkeley and he essentially put me into their new faculty teaching position with the opportunity to study for the Ph.D. under Professor Charles Desoer who was joining at the same time as I. This led to the first year of my university teaching

starting in the fall of 1957 when I taught magnetic amplifiers under Professor Henry Bourne. On obtaining my doctorate in the area of nonreciprocal multiport circuit design, Professor Skilling offered me a return to Stanford where I was again fortunate to become tenured while having some of the very best students under the sun. One of my doctoral students there was Bill Kerwin who was actually one of my previous teachers for control systems synthesis, a course taken for my MS. Most members in the CAS Society will also recognize Brian Anderson who returned with me after my Fulbright to the University of New South Wales, Australia, and Patrick Dewilde who returned with me from my leave to the Katholiek Universiteit Leuven, Belgium. This latter leave was set up due to a joint program I had with Professor Nicholas Rouche of their applied mathematics program via Louvanium in the Belgium Congo. His students did theoretical work in the Congo and practical work with me at Stanford. In those days silicon valley was just getting started primarily under the initiatives of Frederick Terman who I was also fortunate to often meet due to a common secretary. We helped set up the Santa Clara section of circuit design meetings which drew very large crowds along with the joint Stanford-Berkeley seminars on systems theory. My students worked on active and passive circuit designs, the practical aspects mainly associated with gyrator circuits and theoretical designs associated with extending to time-varying circuits. But we also initiated mems studies designing and fabricating a micromotor. And importantly we started biomedical engineering studies, working with the heart transplant doctors on models of the heart for transplant rejection investigations. In those days biomedical engineering was not looked upon as a profitable area but my colleague Professor Nicholas Declaris had just joined the University of Maryland and initiated a biomedical engineering degree. When he requested me to join him that seemed an excellent opportunity to build a whole new field so I decided to Join with him where I have remained until now, though with a number of overseas leaves. That gave me fascinating activities worldwide which I will discuss in the oral presentation\.