

Over 80 years ago, as America struggled with an economic decline, a young University of California physicist named Ernest Lawrence built a new device for producing high energy elementary particles. His invention, the cyclotron, led to quantum advances in science and medicine. His proteges at the Berkeley Laboratory pushed the United States ahead of Germany in the global race for technological primacy.

Upon accepting the 1939 Nobel Prize for Physics, Lawrence paid special tribute to his financial benefactors for "the encouragement of fundamental scientific research," adding, "The day when the scientist, no matter how devoted, may make significant progress alone and without material help is past."

46 years ago, I immigrated to the US.

Bell Laboratories



The two largest companies in the world were AT&T and General Motors



In 1968, I immigrated to the US to join Bell Laboratories, a pre-eminent industrial lab and a leader in my field. Truly a leader.



Two largest companies in the world. AT&T, GM. They dominated their businesses in the world and they both supported research labs. I thought they would never end. They are gone today!



There were other industrial labs. Prominent, excellent and dominating. One only has to think about the accomplishments of Xerox labs, the mouse, desktop computing Ethernet, the copier etc to recognize how far these labs kept America ahead and offered stimulating alternative career opportunities to university research. These are all mostly gone in the world of R&D.



Founded: April 4, 1975, [Albuquerque, NM](#)



Founded: April 1, 1976, [Cupertino, CA](#)

Next generation? Created in the '70's. R&D contributions?



Founded [Menlo Park, California](#)
September 4, 1998



Founded February 4, 2004
Cambridge, MA



January 1994 (1994-01) (as **Jerry and David's**
guide to the World Wide Web)

And then came Yahoo, Google, Facebook etc. I am worried about a decreasing life-cycle and internationalization.

Private Universities



Founded:
September 8, 1636

Founded:
November 11, 1885



Established 1891



On the other hand, the life cycle of the Universities is very large. The private research universities in America have had a distinguished history.

Public Universities



The Morrill Land-Grant Acts are United States statutes that allowed for the creation of land-grant colleges, including the Morrill Act of 1862

The strength of the public research universities (mostly) following the Morrill Act is remarkable.

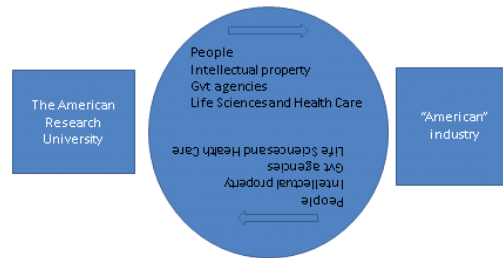


I keep the University of California separate for reasons of pride and loyalty. Together the privates and the public research universities have been the envy of the world (strength and breadth) for a long time.

For Profit Universities



We should always be aware of clouds on the horizon.



OK. This is all history. What message am I trying to convey. Complex relationship between American Research universities and “American industry” So many barrier. It is common to gripe about the demise of Bell Labs but lets take Xerox as an example. Rochester NY, copier, desktop computing, mouse, Ethernet..etc.,. Part of the innovative research landscape of America. Interactive with universities, other industries etc etc etc.

Board said..lets get out of this computational business. Stick with copiers. The Xerox [consent decree](#) resulted in the forced licensing of the company's entire [patent](#) portfolio, mainly to Japanese competitors. Within four years of the consent decree, Xerox's share of the U.S. [copier](#) market dropped from nearly 100% to less than 14%