

# ***HEWLETT-PACKARD***

## **Innovation and Business Transformation**

**Chuck House**

SIRS – August 19, 2009

<http://hpphenom.blogspot.com/>

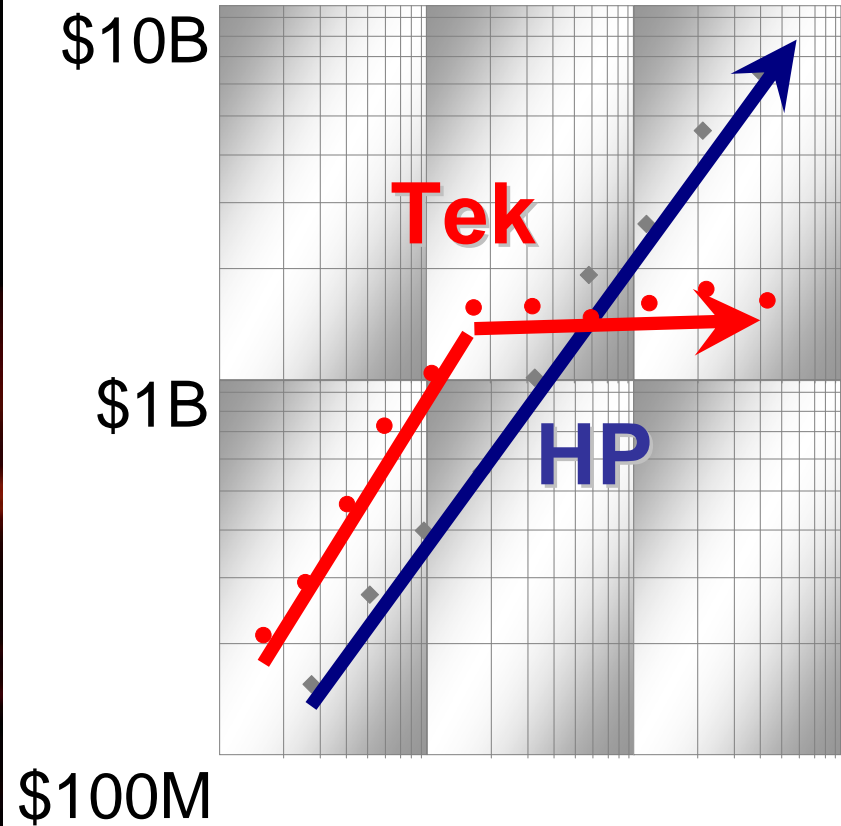
<http://mediax.stanford.edu/video/2008Apr16ChuckHouse.mov>

# The **HP** Phenomenon

Innovation and Business Transformation



Charles H. House  
Raymond L. Price



***Powers of Ten***

*The Rodney Dangerfield  
of the Computing World*

# Powers of Ten

Charles and Ray Eames



$10^0$



$10^1$



$10^2$



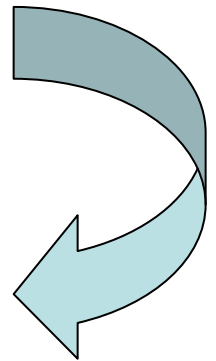
$10^8$



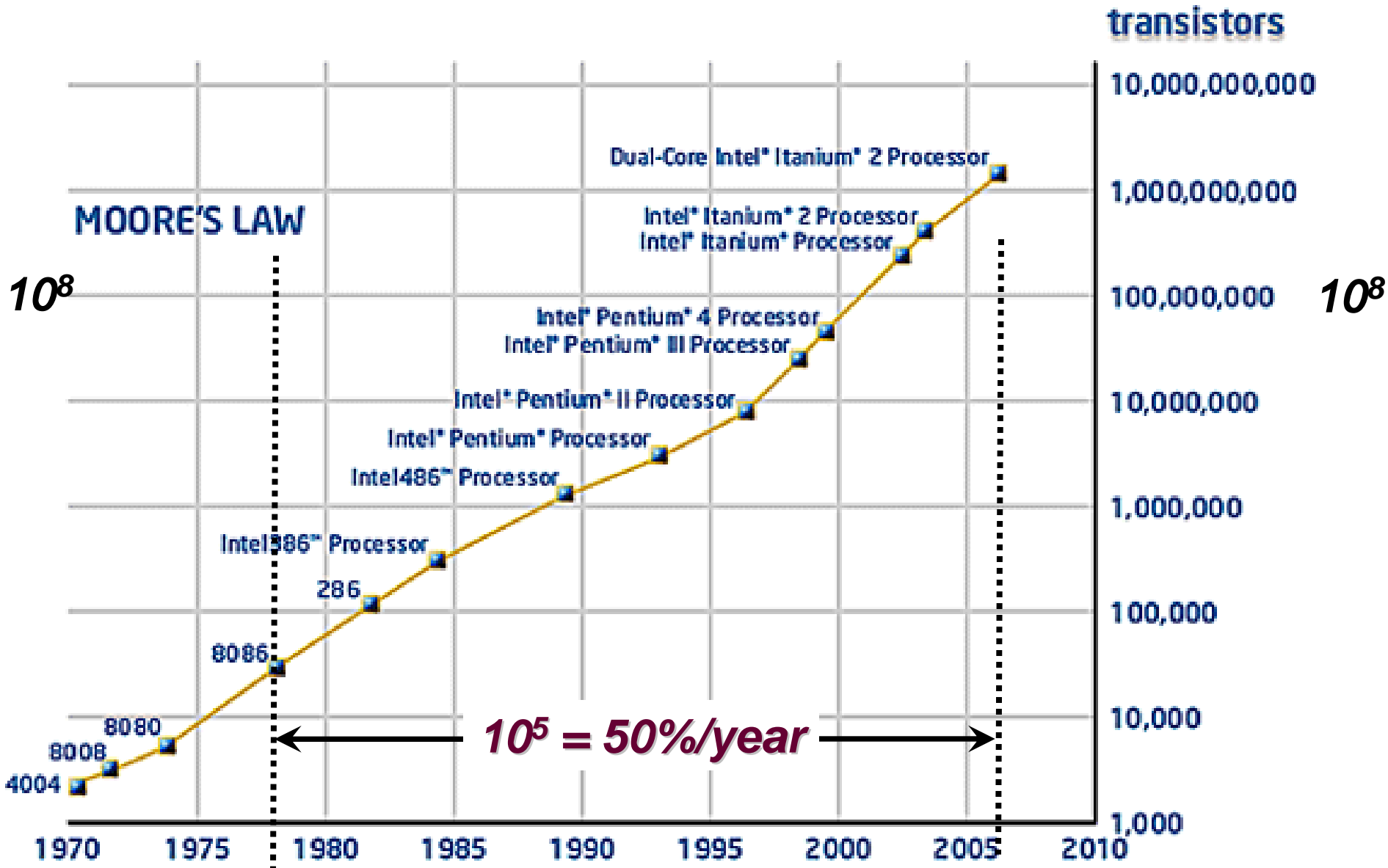
$10^6$



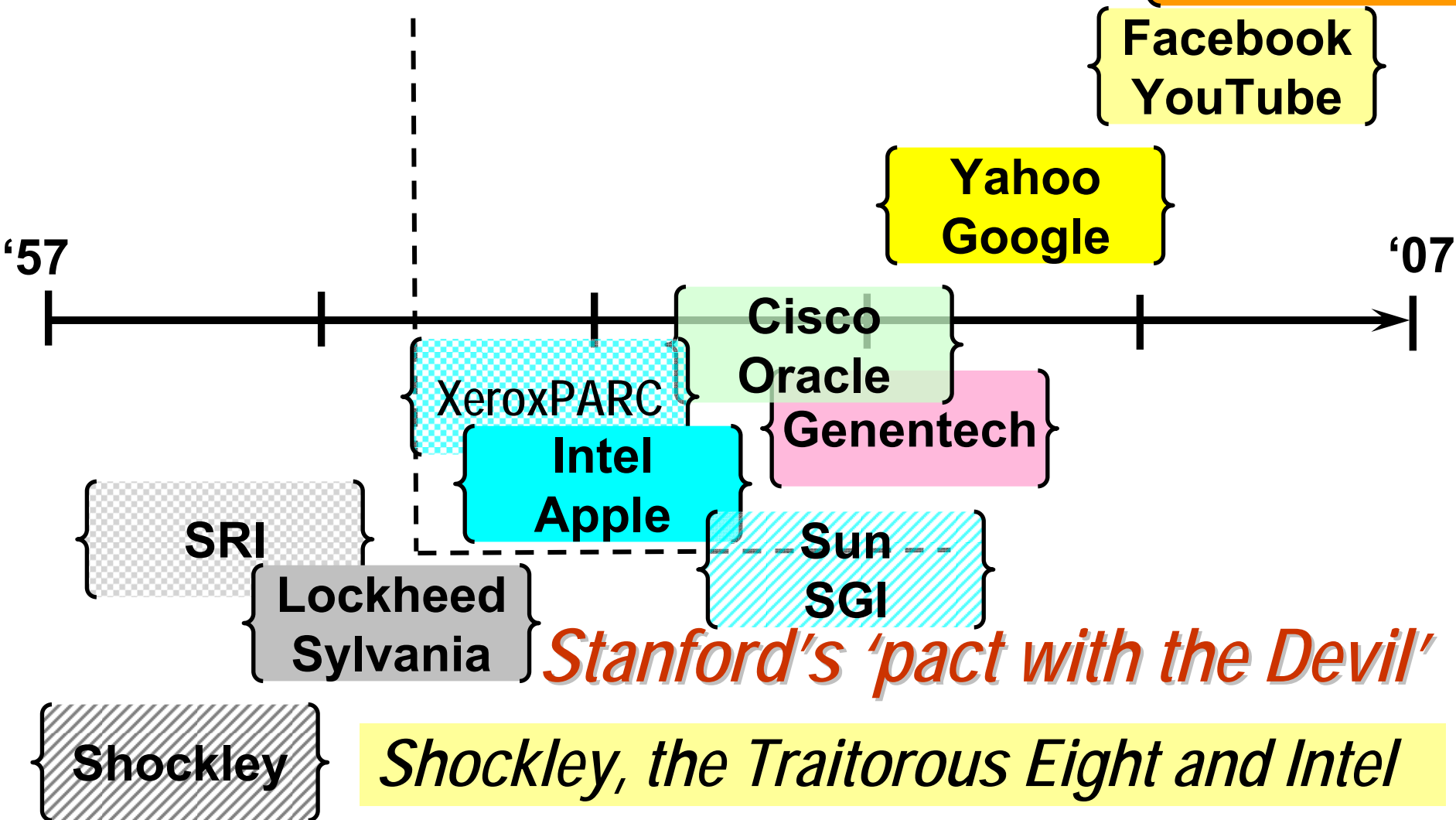
$10^4$



# Moore's Law

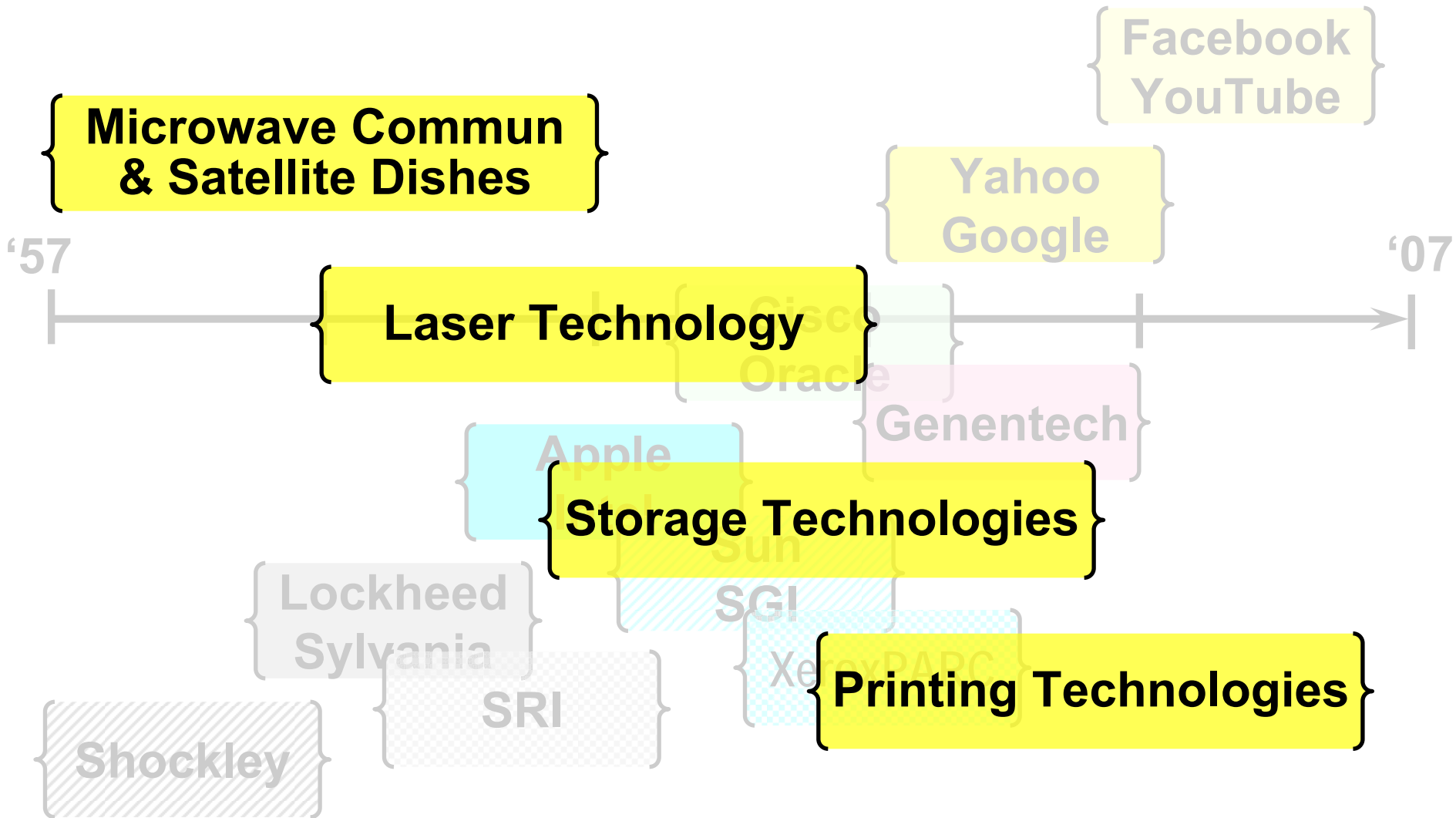


# Waves of Innovation in "Silicon" TWITTER



*Steve Blank, Lockheed et al, Terman*

# Some 'Unwritten' Stories in "Silicon Valley"





# The Valley of Heart's Desire → “The Garage”

Aside from “the Garage” though, it’s almost like the Valley has forgotten HP, if indeed they ever knew...

Back East, there is surprisingly little interest...



# Waves of Innovation in “Silicon Valley”

US Forestry → Radio

*US Forestry – signed by Teddy Roosevelt  
Stimulated by John Muir, David Starr Jordan*

US Navy

Ship-to-shore

*Marconi, GE failed! Navy commandeered...*

'07

'57

**First Broadcast  
Radio Station  
San Jose, CA**

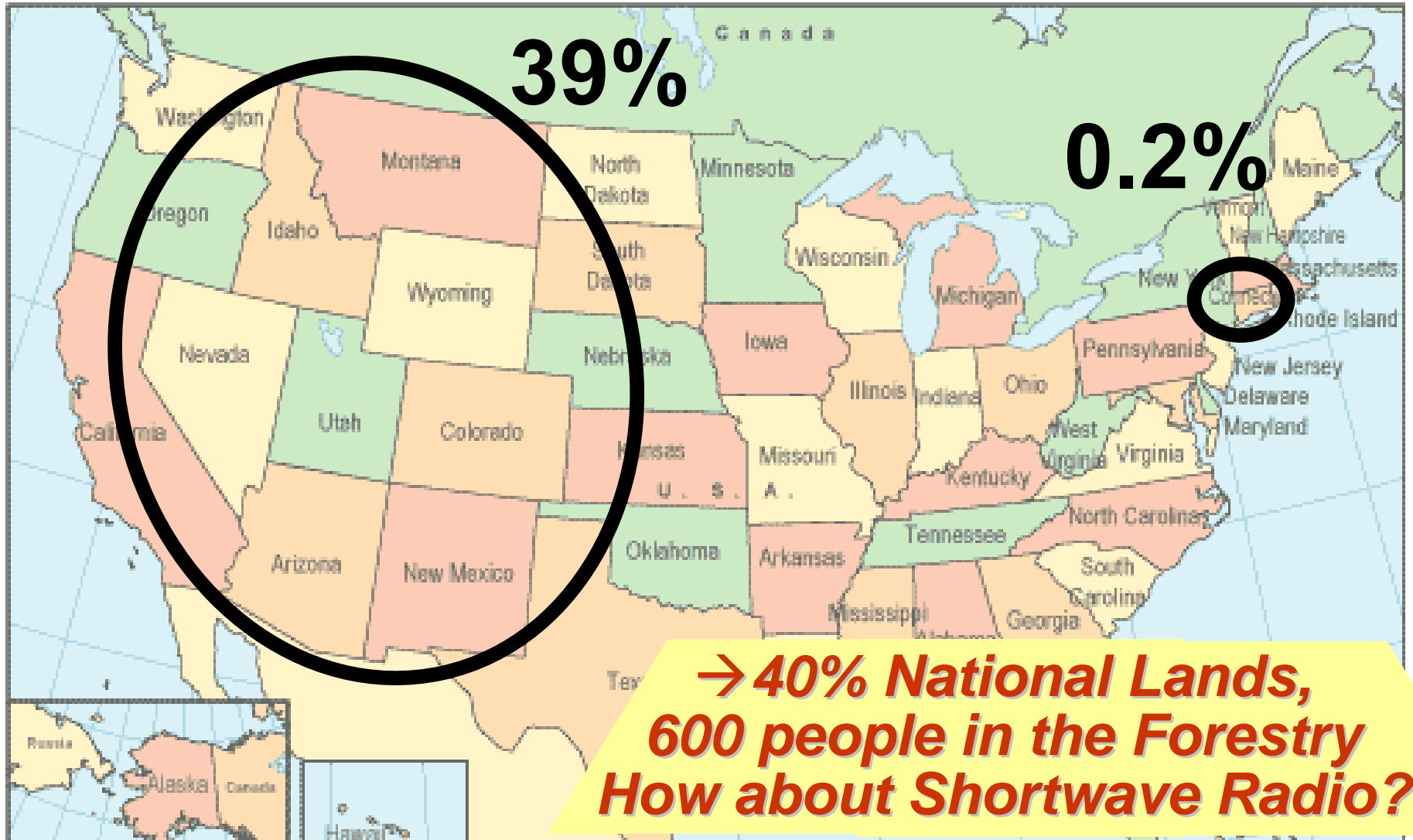
**Fed Telegraph  
& Radio**

**1910 – First Si Valley Venture Capitalist  
“kids” hire De Forest who moves west**

**DeForest**

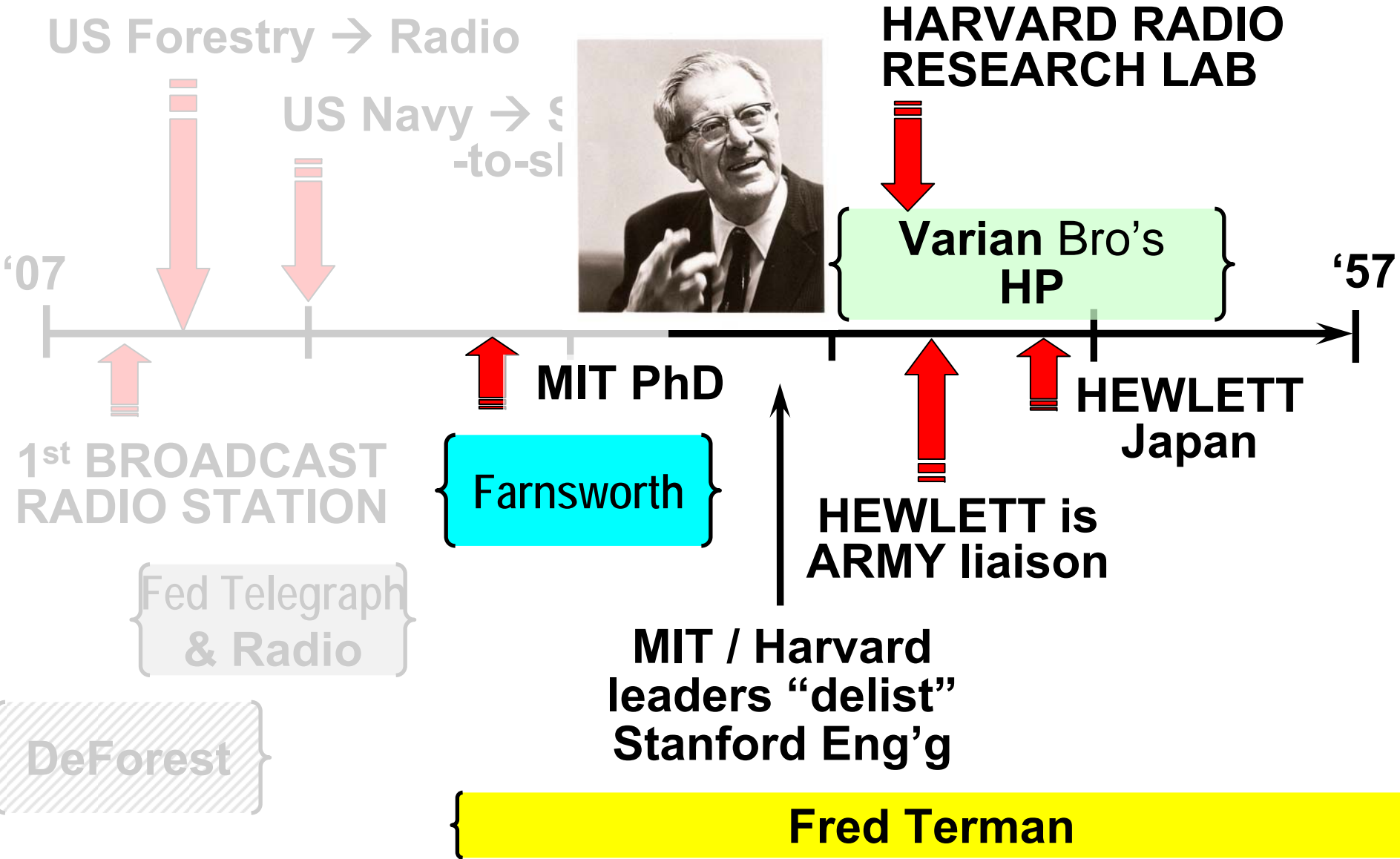
**1906 – Invents the Audion (amplifying  
Vacuum Tube) in Menlo Park, NJ**



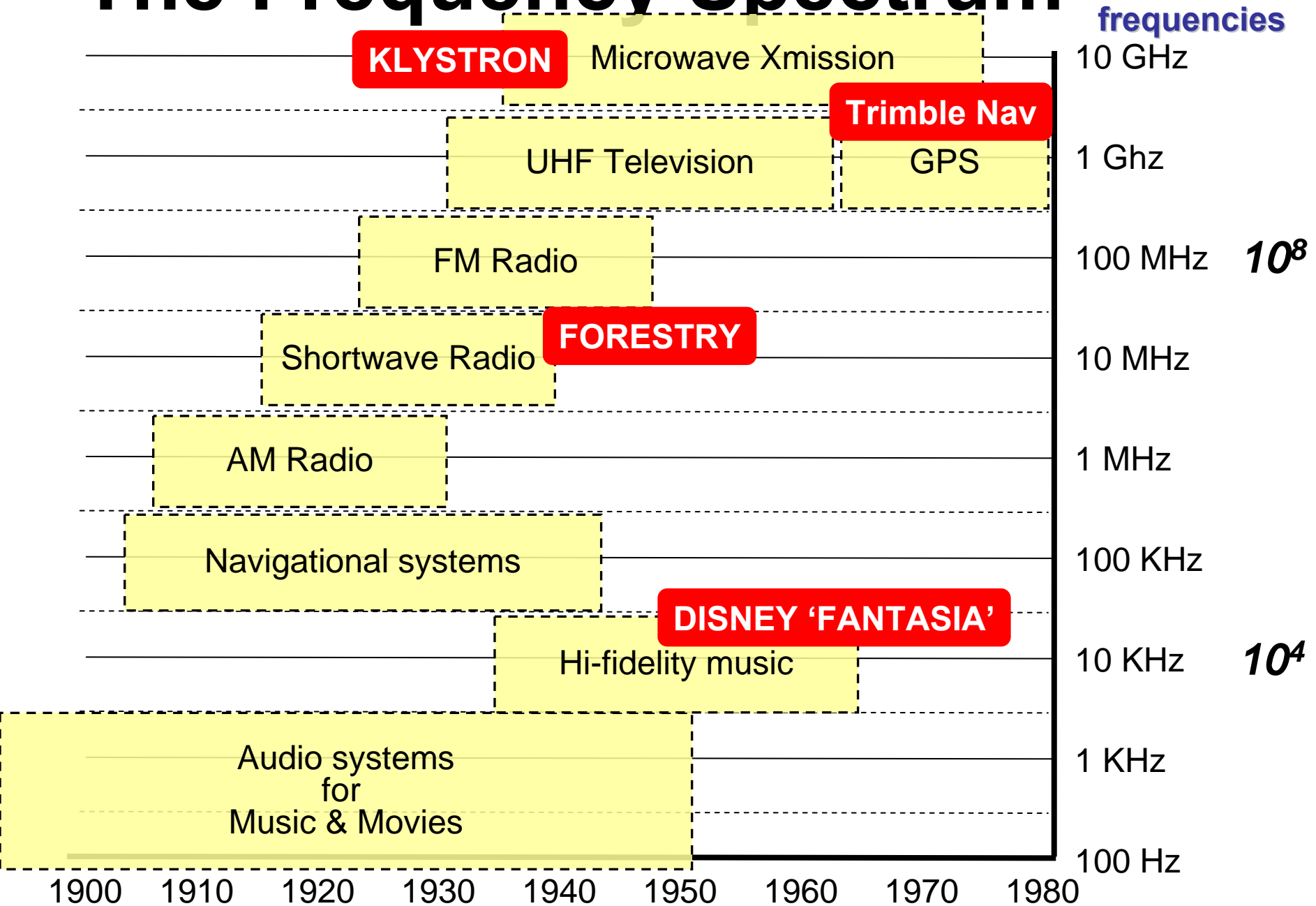


**1950 – the small area had more towns of any given size than the large area**

# Waves of Innovation in "Silicon Valley"



# The Frequency Spectrum





# The Valley of Heart's Desire → "The Garage"



**Richard Foster's  
Creative Destruction**

**10x in 10 years = 27% per year  
(1000x in 30 yrs; 1,000,000x in 60 yrs)**



# The CHM timeline will include...



**HP 2116A**  
1966

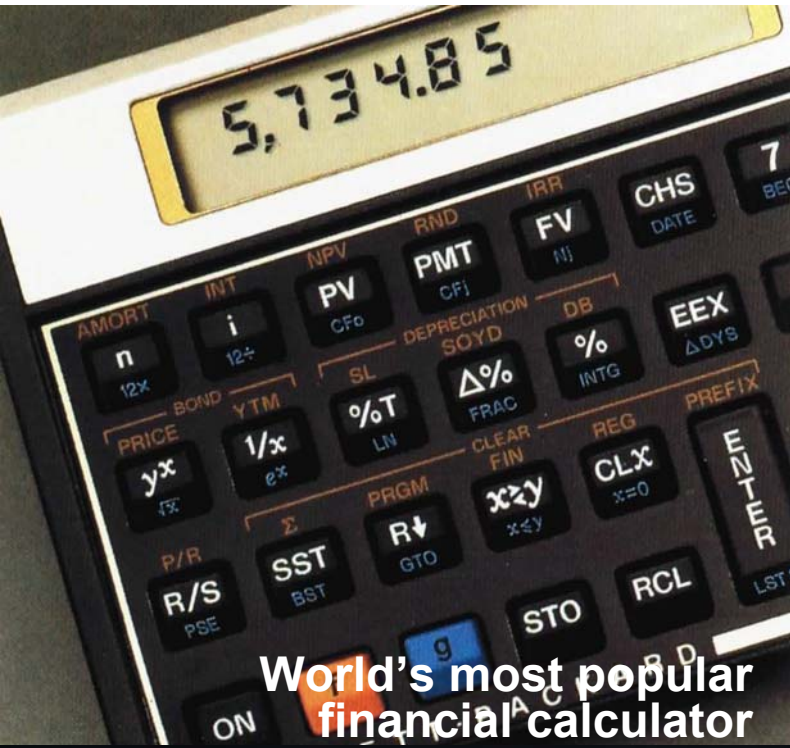
**HP 35**  
1972



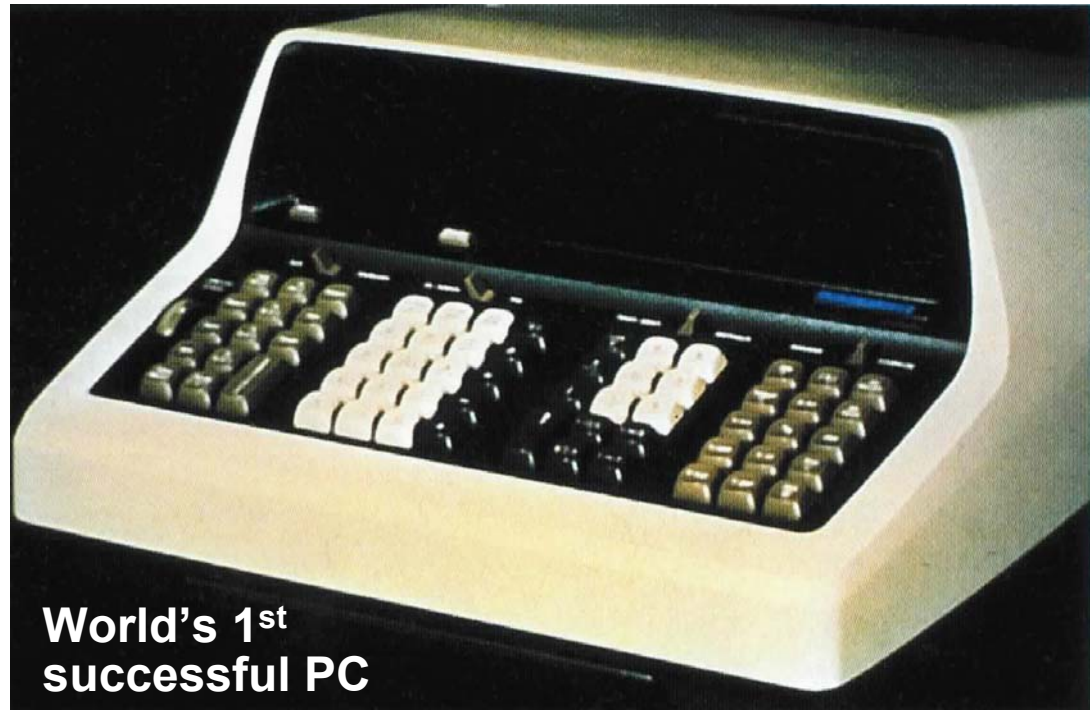
**Laserjet 1**  
1984



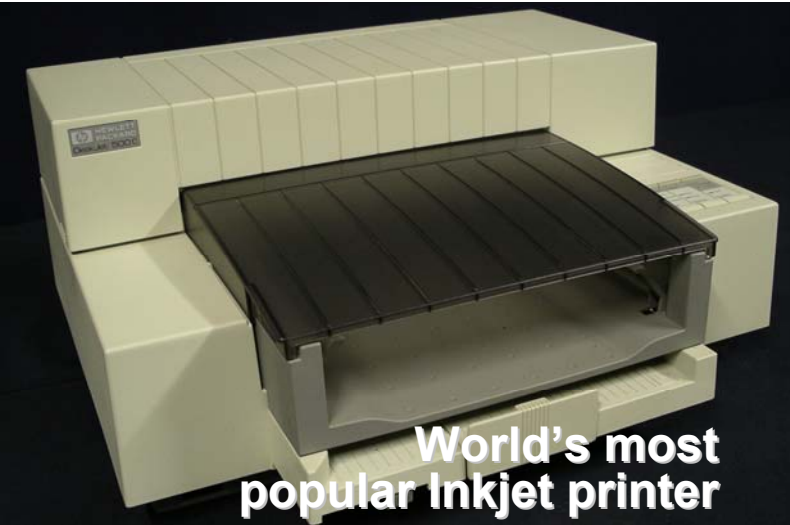
# The CHM timeline won't include...



World's most popular financial calculator



World's 1<sup>st</sup> successful PC



World's most popular Inkjet printer



World's best-selling mini in history

# The essence...

***10, 25, 370***

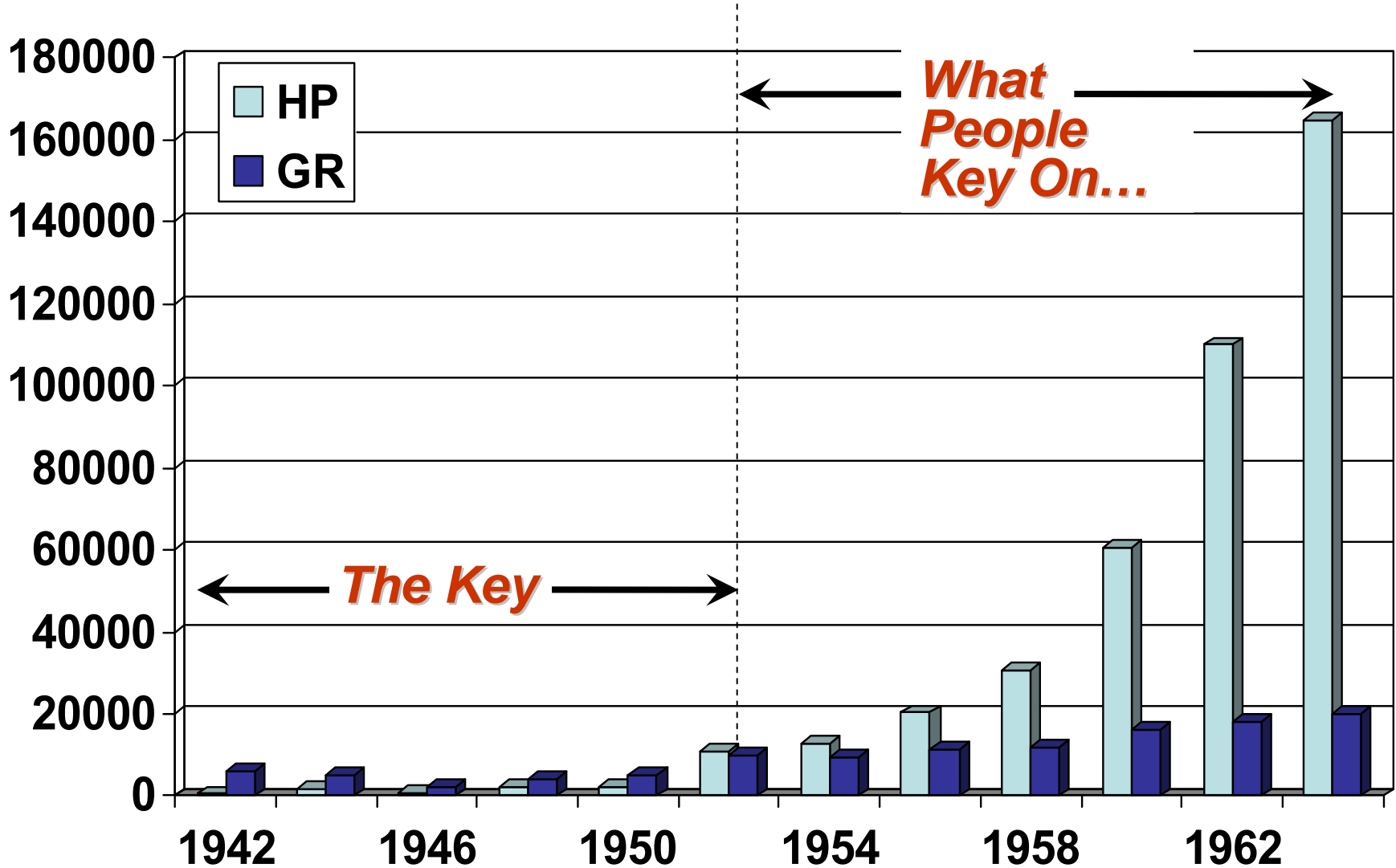
**10,000+; 500,000; 700,000,000**

***The HP Way***

**6 “Morphs”**

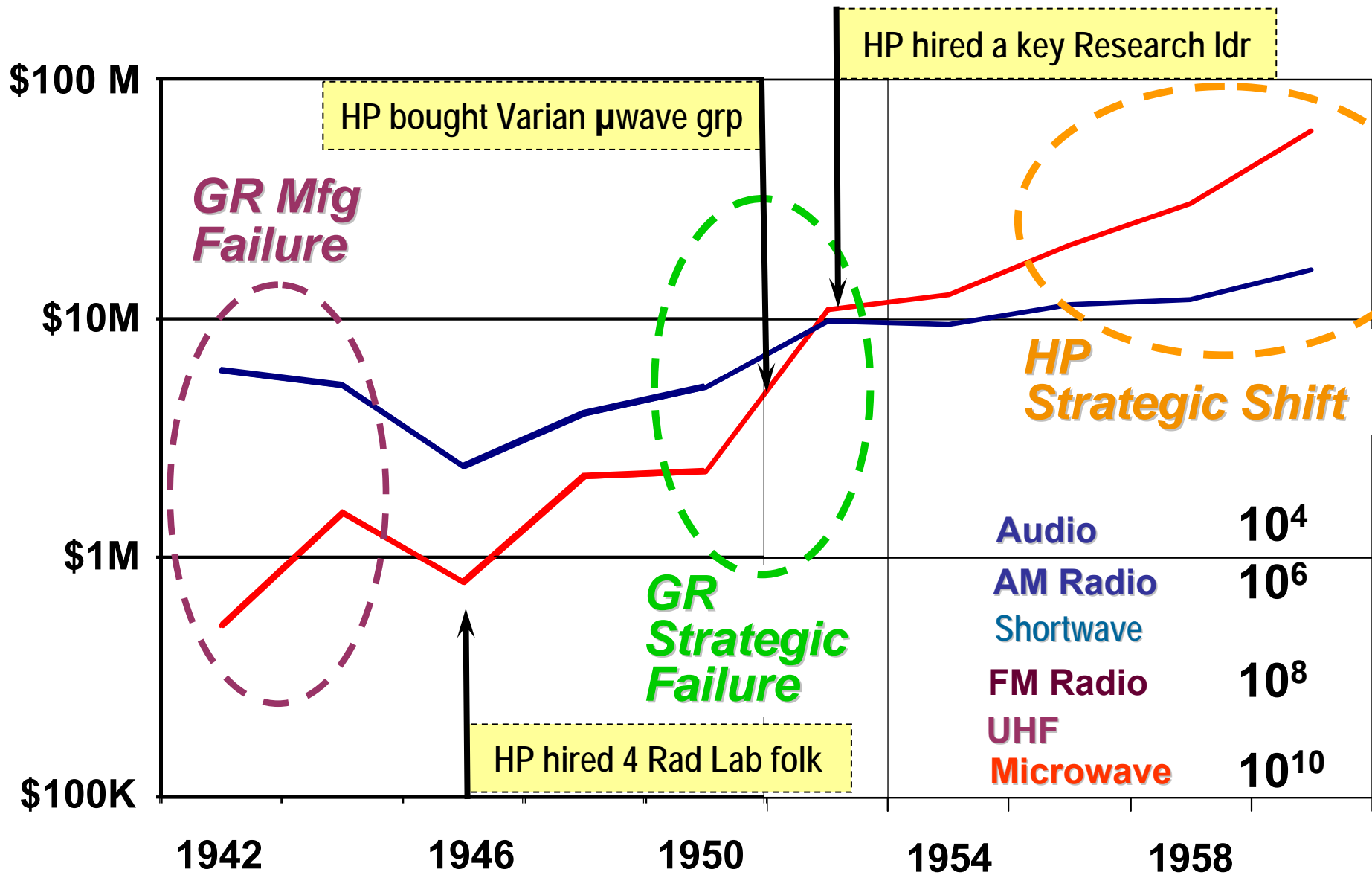
# HP vs General Radio

\$K Annual Revenue

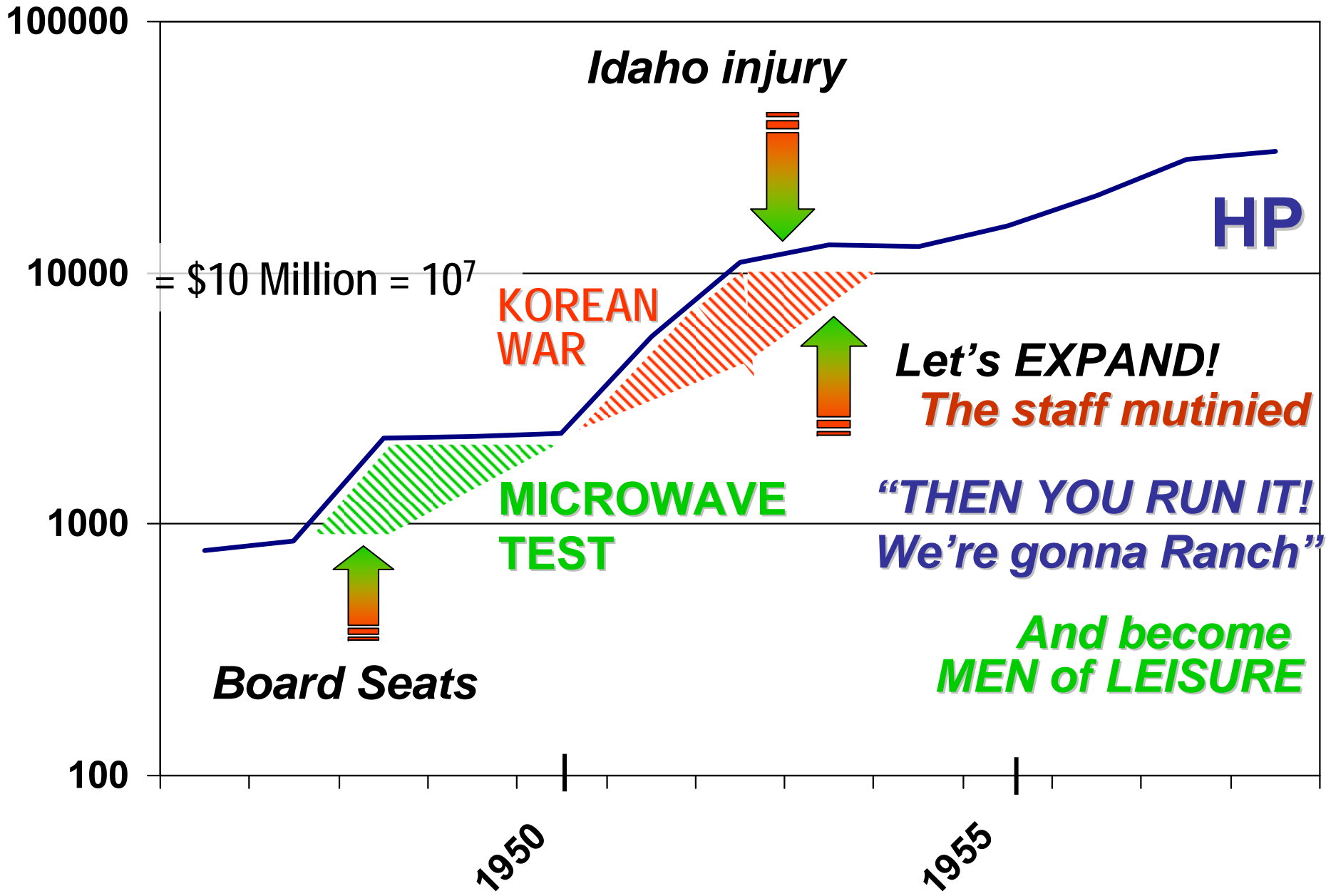




# HP vs General Radio



# A small Palo Alto firm...



# A major competitor arises... 1954

*HP*

*TEKTRONIX*

Revenue  
growth

(2)



23%



Profit  
growth

(29%)



108%



# What was going on?

## Frequency Domain

*Telephony, Music, Radio, TV*

*New technologies*

*Advocates*

*AT&T<sub>5,000</sub>, Bell Labs, RCA  
DoD, FCC*

***Stanford, Terman***

*Stimulus/Response Test:*

*Spectrum Analyzer*

## Time Domain

*Radar, Sonar, Computers*

*New technologies*

*Advocates*

*RCA<sub>240</sub>, IBM<sub>119</sub>  
ARPA*

***MIT, V. Bush***

*Stimulus/Response Test:*

*Oscilloscope*



# The Watershed ... for Bill 'n Dave

***UN-RETIRED, didn't IMMERSE***

***DELEGATED → MBO***

- 'scope business

*lost badly, but pioneered...*

- codified an explicit **“HP Way”**
- “went public”

# Unrecognized contribution...?



**The ASR-33 Teletype**

*a lot of people were very negative about using CRT's. The argument was 'oh well, the paper tape gives you a printed copy and you could punch out a tape and that's good enough.' ... now everybody uses a CRT."*



***"A 'scope for Near-sighted Long-armed Engineers..."***

# The Watershed ... for Bill 'n Dave

*UN-RETIRED, but they didn't IMMERSE*

- “went truly international”
- “wildly decentralized” out of Palo Alto
- → major acquisition program
- → Scientific Instrumentation

# The Watershed Decade 1957-1967

