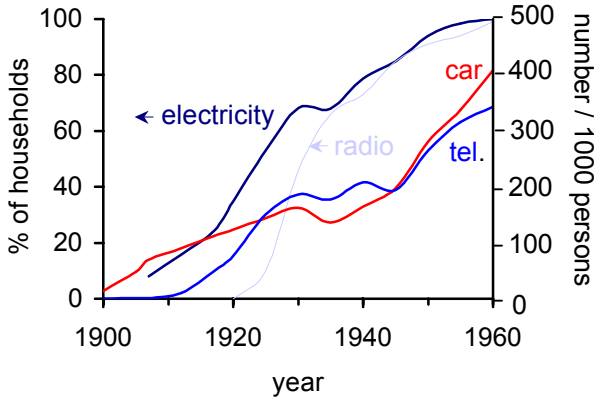


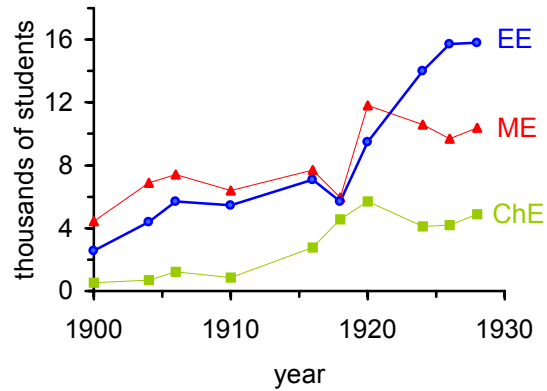
## Engineering and technology in the Second Industrial Revolution

### Penetration of Technologies



(a)

### Engineering Student Bodies



(b)

(a) Left scale: percentage of households with electricity and radio; right scale: number of telephones and registered passenger cars per one thousand population in the United States. Electrification of factories and industries proceeded more rapidly than the residential service shown here. Telephone service appeared earlier but spread slower; only 78 percent of households had service in 1960, when the nation boasted 408 telephones per thousand population, because a third of these were business installation, Source: Census Bureau, *Historical Statistics of the United States*, tables 716, 783, 872.

(b) Numbers of students attending electrical (EE), mechanical (ME), and chemical (ChE) engineering courses in American universities, (Haber, 1971: 63, 370). The numbers in years from 1882-1890 include only students in MIT and Cornell, which were the earliest and largest universities offering courses in electrical engineering. In both, notice the effects of the depression in the early 1930s and wars in the late 1910s and early 1940s. Sources: L. H. Haber, *The Chemical Industry: 1900-1930* (New York: Oxford University Press, 1971), pp. 63, 370. R. Rosenberg, The origin of EE education. *IEEE Spectrum* 21(7): 60-8, 1984.