

# Economics of Complexity and the Collapse of Complex Societies

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# Conway's Law

Effective systems design emerges from system-oriented organizations and the processes employed.

Conway, M. E. (April, 1968), "How do Committees Invent?", *Datamation* 14 (5): 28–31.

# Burdens of Complexity

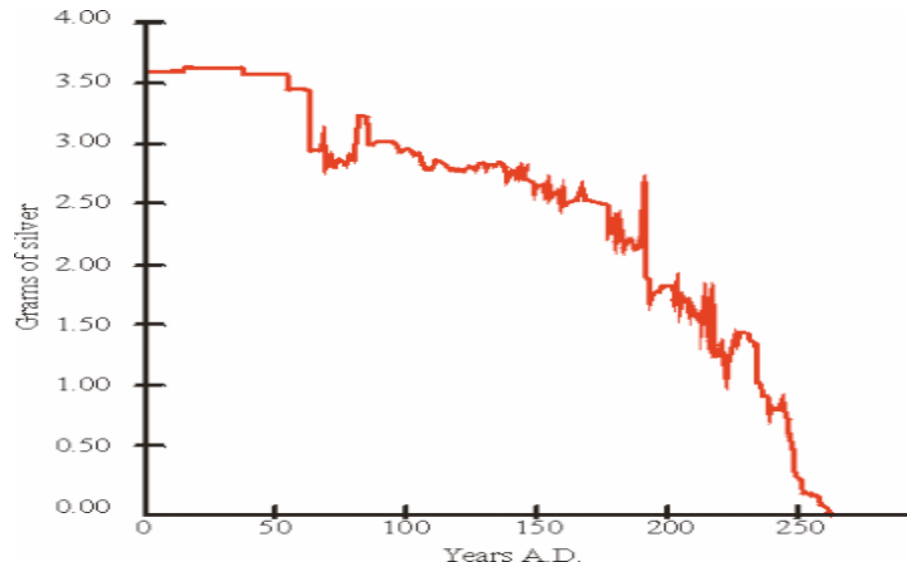
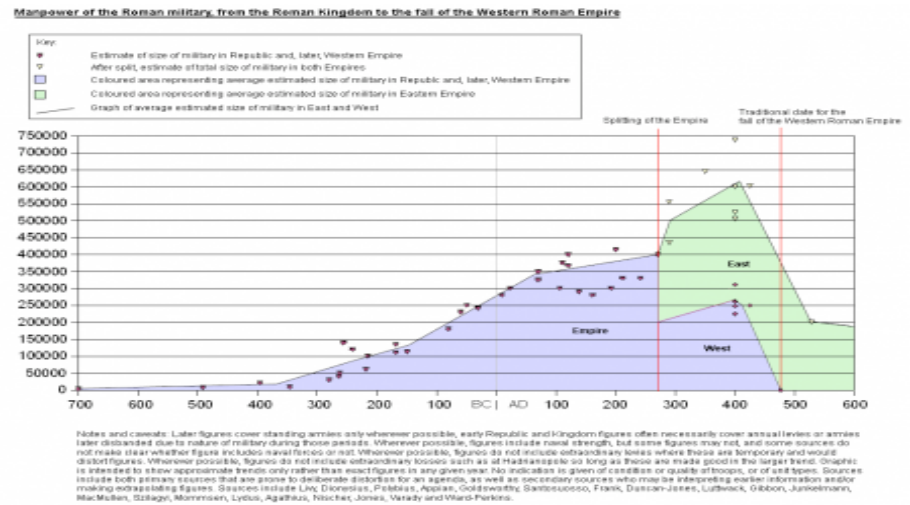
- The “Null Program”
  - Coordination and oversight are the main determinant of the critical path
- Complexity is not free
- The circumvention of ineffective processes makes societies vulnerable of collapse



# Societies collapse from the same processes by which they become more complex

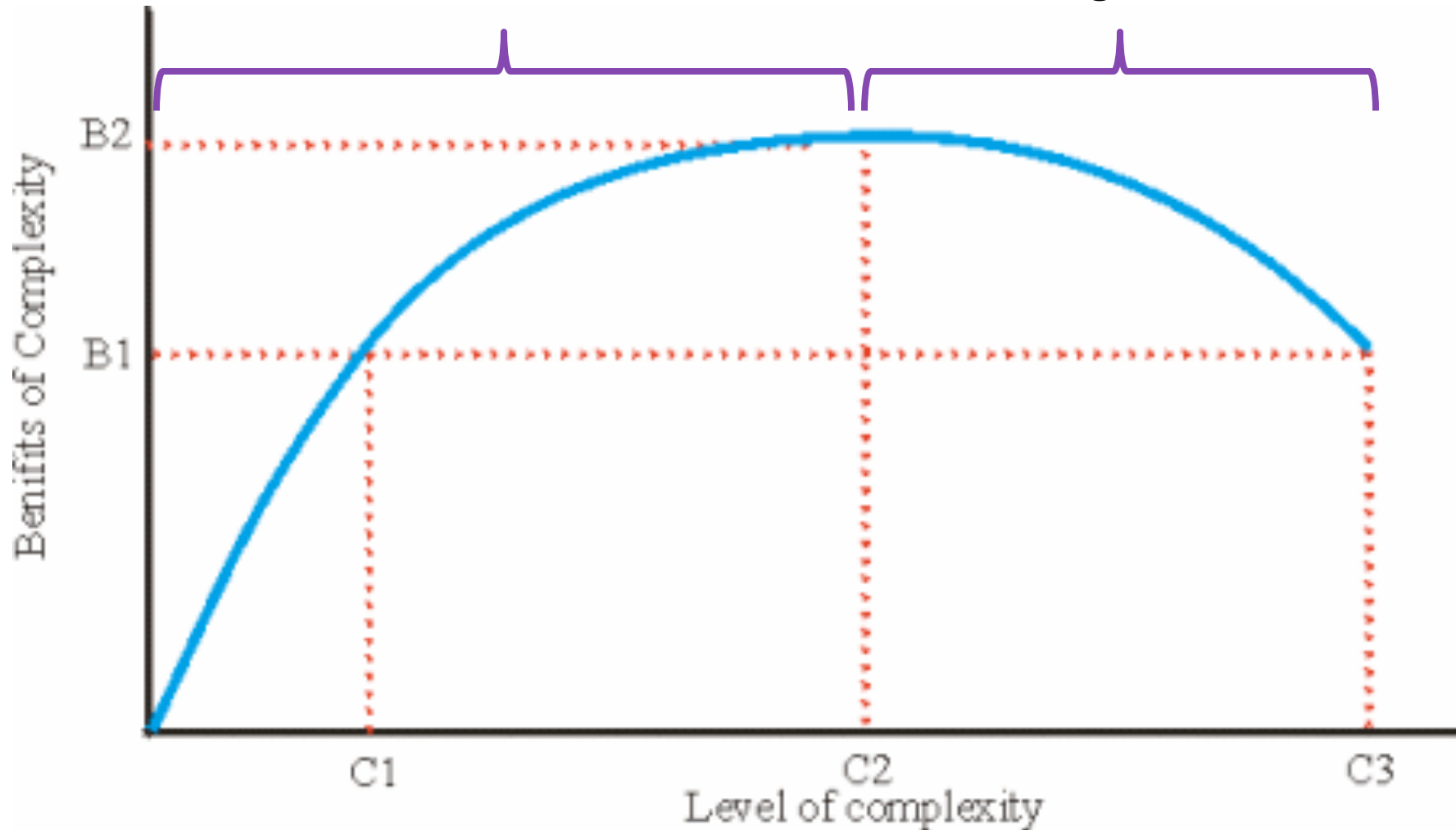


Roman Empire  
27 BC – 476 AD



Elaboration of structure and control simplifies and channels human behavior

Continued investment in complexity as a problem solving strategy yields a declining marginal return



Tainter, J., *The Collapse of Complex Societies* (1988), Cambridge University Press.

# Self-organized Criticality

The ability to dampen the negative effects of complexity cascades is the fundamental reason civilization has advanced



# Augustine's Law

In the year 2054, the entire defense budget

will purchase just one aircraft. This aircraft will have to be shared by the Air Force and Navy 3 ½ days each per week except for the leap year, when it will be made available to the Marines for the extra day.

N. R. Augustine, Augustine's Laws. Reston, VA: AIAA, 1997.