

Duncan, R.

**The Olduvai Theory: Sliding Towards a Post-Industrial Stone Age.** Institute on Energy and Man, June 27, 1996. (<https://dieoff.com/page125.htm>)

- Duncan first developed the “transient-pulse theory of Industrial Civilization” in 1989 that suggests that the Industrial Civilization’s life expectancy is very short
- he began thinking about the implications of resource depletion on species survival after listening to a lecture by cosmologist Sir Fred Hoyle who argued that there existed only a singular opportunity for life to climb from ‘primitive’ conditions to high-level technology
- this differs from those who suggest a cyclical rise and fall of civilizations in that “Global Industrial Civilization has no cycles. It’s a one shot affair. Exponential growth, exponential decline. That’s it.” (p. 2)
- Duncan believes that our industrialized society is not evolving towards sustainability but is evolving unsustainably
- he suggest that there are three basic historical phases:
  - 1) Pre-industrial, characterized by limited economic growth, simple tools, and weak tools;
  - 2) Industrial Civilization, composed of powerful machines and significant growth;
  - 3) De-industrial, when “the exhaustion of non-renewable resources and continuing deterioration of the natural environment” leads to a new equilibrium
- using the average energy use per person as a measure of industrial civilization, Duncan postulates that “Industrial Civilization can be described by a single pulse waveform of duration  $x$ , as measured by average energy-use per person per year [and that] the life expectancy of Industrial Civilization is less than one-hundred (100) years: i.e.  $x < 100$  years.” (p. 3)
- data confirms that energy use per capita peaked in the mid-1970s and has declined since
- Duncan suggests that any future attempts at industrialization will fail
- the pre-industrial phase spanned three million years where the species lived in sustainable conditions powered by immediate solar energy; simple tools increased energy use, e.g. fire, agricultural revolution, etc.
- the transition to Industrial Civilization began with James Watt’s invention of the condensed steam engine in 1765 and lasted to about 1930; IC is that 100 year period between 1930 and 2030
- Duncan characterizes this period as “a short, extravagant period when transportation, commerce, and industry were powered predominantly by (non-renewable) fossil fuels” (p. 4)
- Duncan feels that the descent to far less energy per capita will be quick
- this post-industrial phase will see the establishment of farming villages, kinship tribes, and rogue bands
- data indicate a decline of almost 1% per year since the mid-1970s
- Duncan concludes that IC consumes rather than evolves, in fact, he states that “it rapidly consumes, ‘the necessary physical prerequisites’ for its own existence” (p. 7)