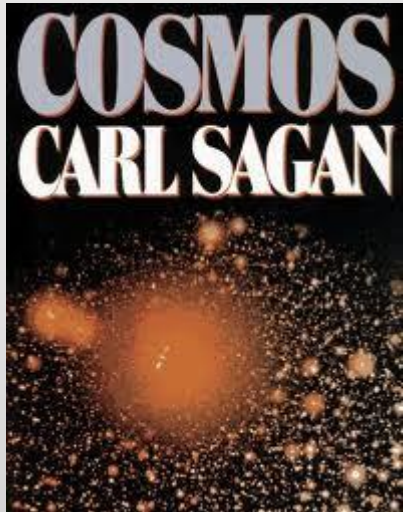




Our place in the Cosmos

Cosmic Year

More than a CD from progressive rock band from the US



(From The Dragons of Eden - Carl Sagan and the PBS Video
Cosmos and its new adaptation with Neal deGrasse Tyson)

Cosmos: A Spacetime odyssey-Cosmic calendar:

<https://www.dailymotion.com/video/x3sjrbk>

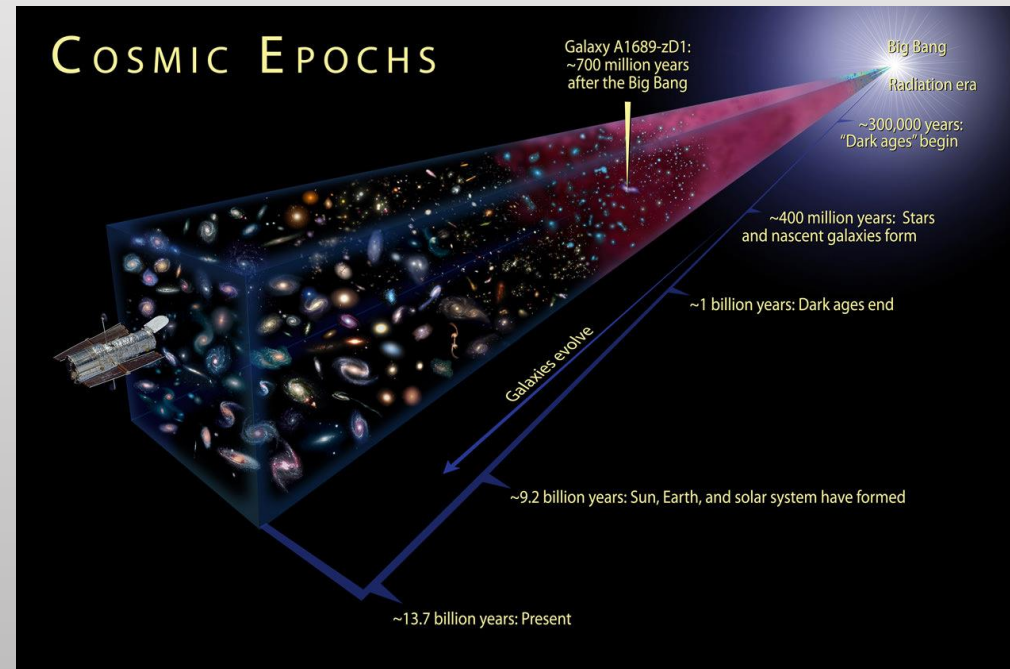
12'36"

The puzzle

In order to be able to build the puzzle...

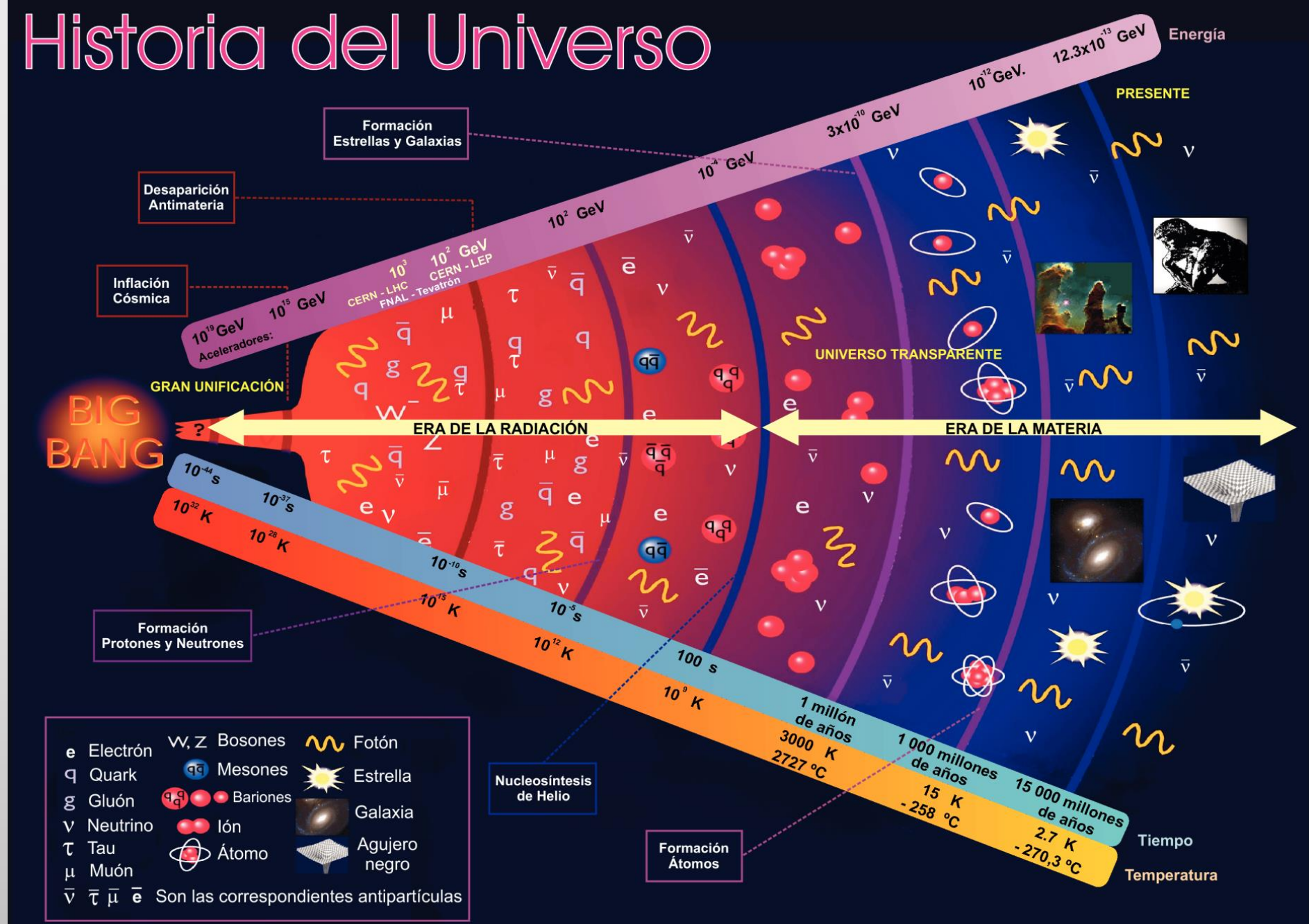
"You have to know the past to understand the present."

Carl Sagan

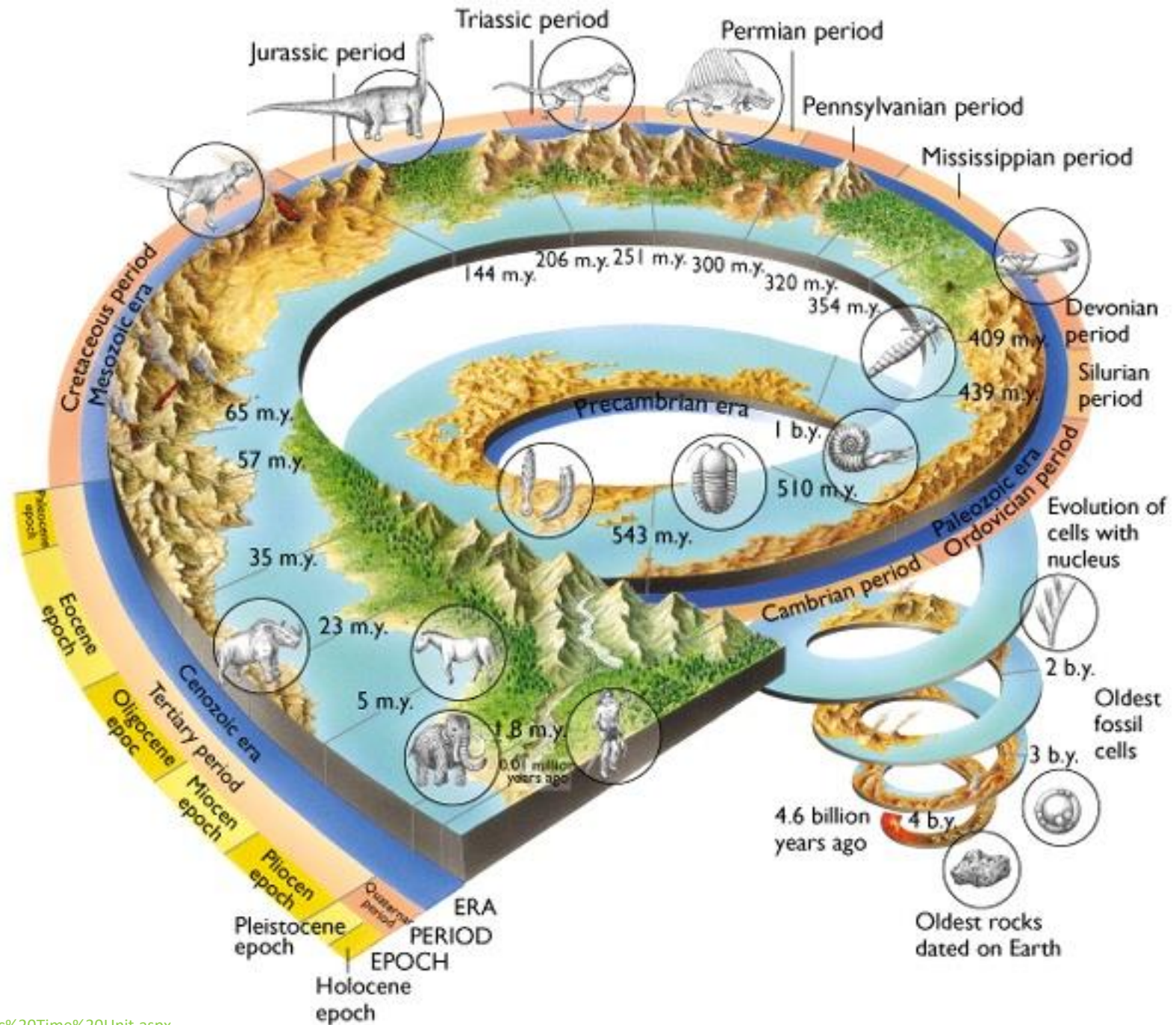


<https://www.universetoday.com/137048/universe-filled-light/>

Historia del Universo



Our distant past



Pre-December dates

Big Bang

January 1

Origin of Milky Way Galaxy

May 1

Origin of the solar system

September 9

Formation of the Earth

September 14

Origin of life on Earth

~ September 25

Formation oldest rocks known on Earth

October 2

Date of oldest fossils
(bacteria and blue-green algae)

October 9

Invention of sex (by microorganisms)

~ November 1

Oldest fossil photosynthetic plants

November 12

Eukaryotes (first cells w/nuclei) flourish

November 15



December 1-21st.



- 1 Significant oxygen atmosphere begins to develop on Earth.
- 5 Extensive vulcanism and channel formation on Mars
- 16 First Worms.
- 17 Precambrian ends. Paleozoic Era and Cambrian Period begin. Invertebrates flourish.
- 18 First oceanic plankton. Trilobites flourish.
- 19 Ordovician Period. First fish, first vertebrates
- 20 Silurian Period. First vascular plants. Plants begin colonization of land.
- 21 Devonian Period begins. First insects. Animals begin colonization of land.

December 22-31st.

- 22 First amphibians. First winged insects
- 23 Carboniferous Period. First trees. First reptiles
- 24 Permian Period begins. First dinosaurs
- 25 Paleozoic Era ends. Mesozoic Era Begins
- 26 Triassic Period. First mammals.
- 27 Jurassic Period. First birds.
- 28 Cretaceous Period. First flowers. Dinosaurs become extinct.
- 29 Mesozoic Era ends. Cenozoic Era and Tertiary Period begin. First cetaceans. First primates
- 30 First evolution of frontal lobes in the brains of primates. First hominids. Giant mammals flourish.
- 31 End of Pliocene Period. Quaternary (Pleistocene and Holocene) Period. First humans.



December 31

Origin of *Proconsul* and *Ramapithecus*,
probable ancestors of apes and men

~ 1:30 p.m.

First humans

~ 10:30 p.m.

Widespread use of stone tools

11:00 p.m.

Domestication of fire by Peking man

11:46 p.m.

Beginning of most recent glacial period

11:56 p.m.

Extensive cave painting in Europe

11:59 p.m.

Invention of agriculture

11:59:20 p.m.

Neolithic civilization; first cities

11:59:35 p.m.

First dynasties in Sumer, Ebla and Egypt;
development of astronomy

11:59:50 p.m. (10s)



<https://www.independent.co.uk/topic/human-evolution>

<https://www.intrepidtravel.com/adventures/guide-to-local-etiquette-in-egypt/>

Invention of the alphabet; Akkadian Empire

Hammurabic legal codes in Babylon;

Middle Kingdom in Egypt

Bronze metallurgy; Mycenaean culture; Trojan War;

Olmec culture; invention of the compass

Iron metallurgy; First Assyrian Empire;

Kingdom of Israel; founding of Carthage by Phoenicia

Asokan India; Ch'in Dynasty China;

Periclean Athens; birth of Buddha

Euclidean geometry; Archimedean physics;

Ptolemaic astronomy; Roman Empire; birth of Christ

Zero and decimals invented in Indian arithmetic;

Rome falls; Moslem conquests

Mayan civilization; Sung Dynasty China;

Byzantine empire; Mongol invasion; Crusades

11:59:51 p.m. (9s ago)

11:59:52 p.m. (8s ago)

11:59:53 p.m. (7s ago)

11:59:54 p.m. (6s ago)

11:59:55 p.m. (5s ago)

11:59:56 p.m. (4s ago)

11:59:57 p.m. (3s ago)

11:59:58 p.m. (2s ago)



December 31st. cont...

Renaissance in Europe; voyages of discovery from Europe and from Ming Dynasty China; emergence of the experimental method in science.



11:59:59 p.m. (2s ago)

Widespread development of science and technology;
emergence of global culture;
acquisition of the means of self-destruction
of the human species;
first steps in spacecraft planetary exploration and
the search of extraterrestrial intelligence

Now: The first second of New
Year's Day



How many humans have walked on earth?

So, the history of all humans, according to the Population Reference Bureau, the 108 billion (107'602'707,791 by mid 2011) humans that have lived on the earth since the origin of Homo sapiens; can be compressed into those final seconds of the final day, of the last month on the cosmic calendar."

Today estimated population (at 8:11 am): 7'262'405,500

-> Open link: www.census.gov/popclock/

-> Open link:

<http://www.worldometers.info/world-population/>



Evolution

"We are the product of 4.5 billion years of fortuitous, slow biological evolution.

There is no reason to think that the evolutionary process has stopped.

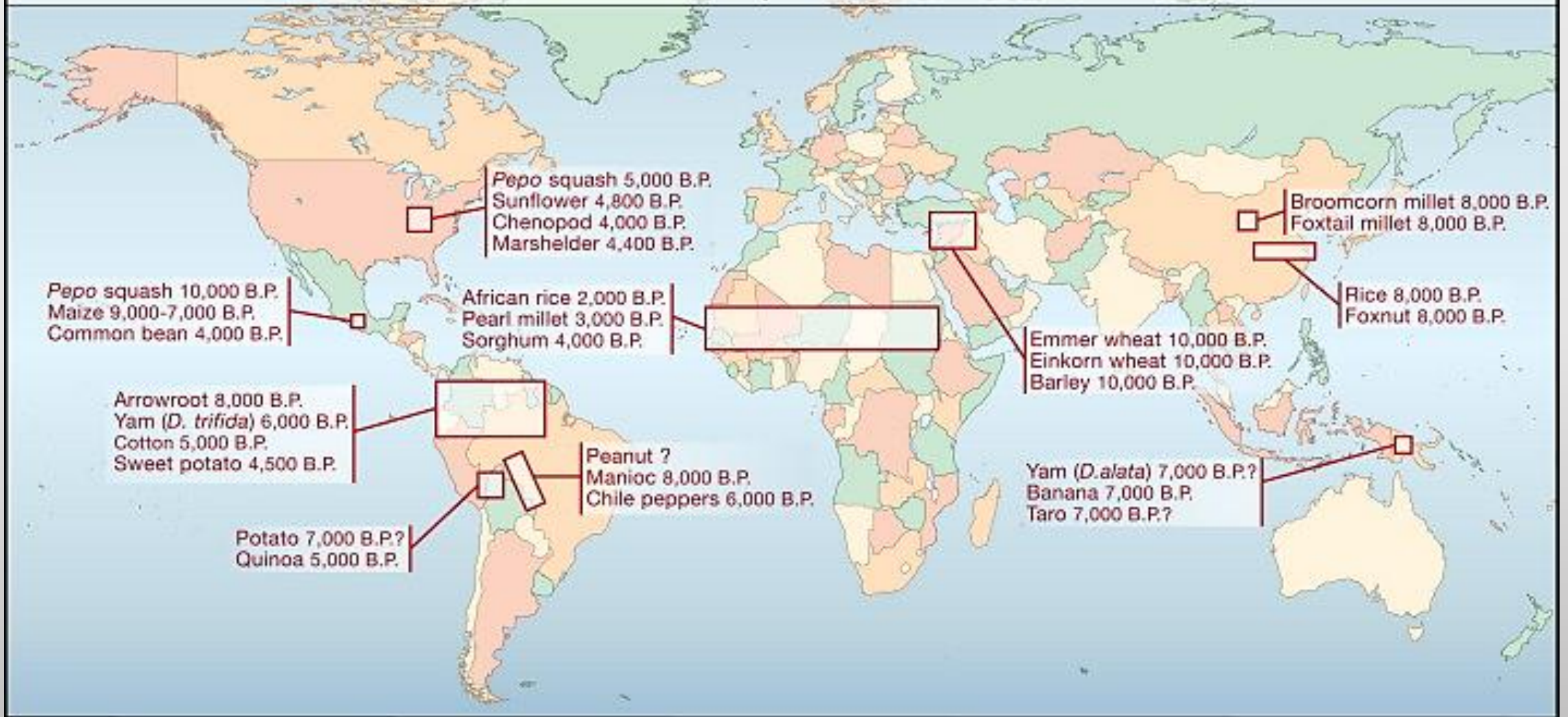
Humans are a transitional animal. We are not the climax of creation."

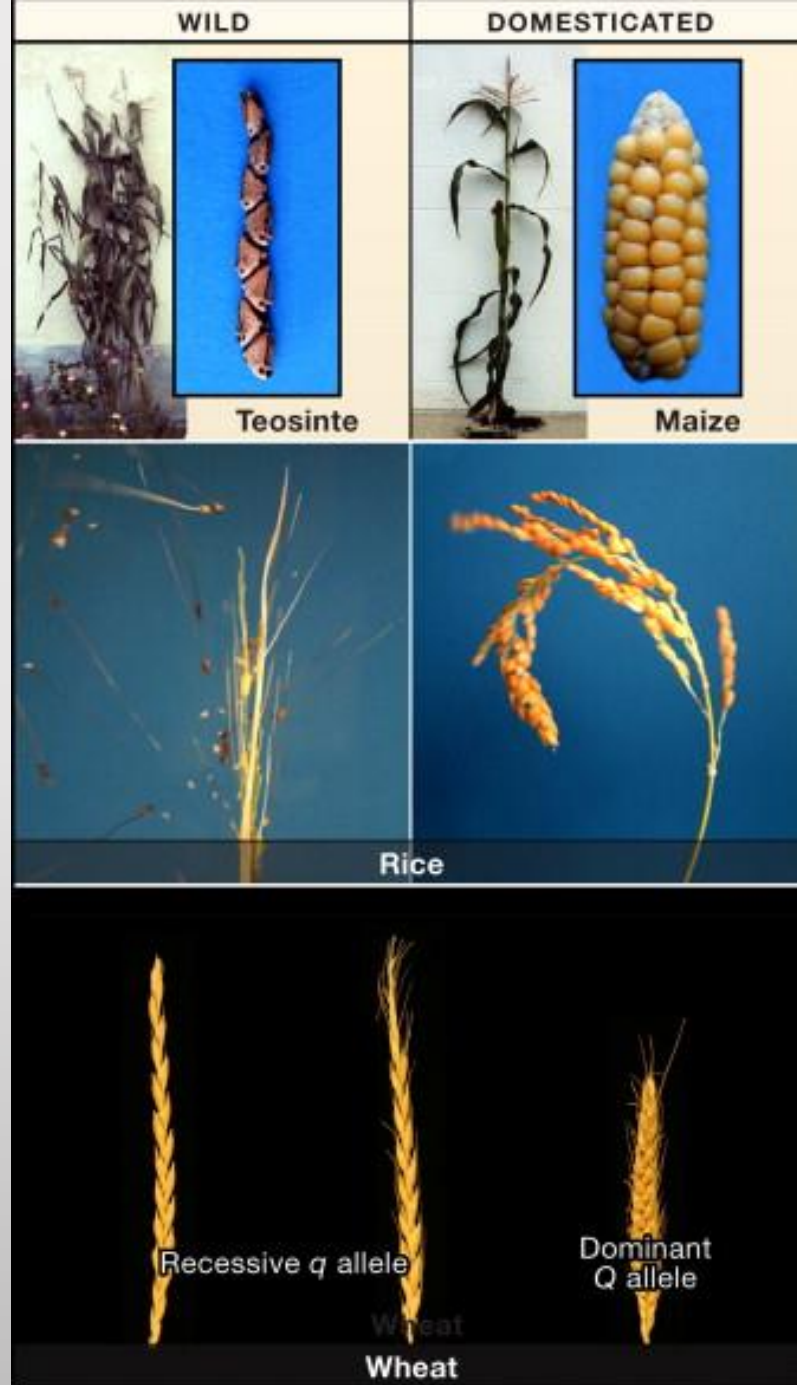
Carl Sagan

VIDEO: <http://www.openculture.com/2014/03/carl-sagan-explains-evolution-in-an-eight-minute-animation.html> 7'55"

Plant domestication

The location of the known independent centers of domestication





<https://www.sciencedirect.com/science/article/pii/S0092867406015923>

How many humans and agricultural systems

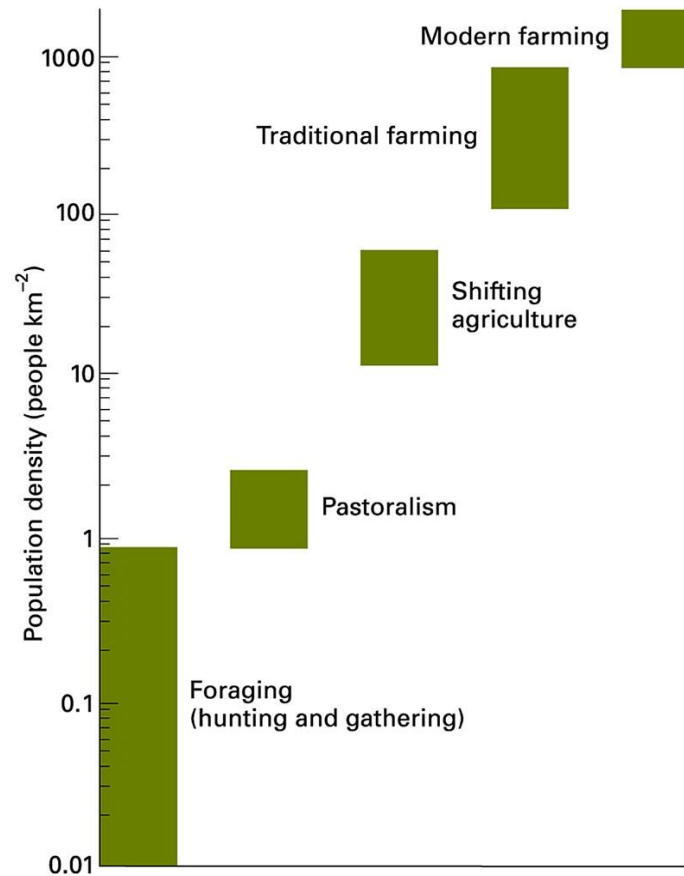


Figure 1.6 Comparison of carrying capacities of foraging, pastoralist and agricultural societies.

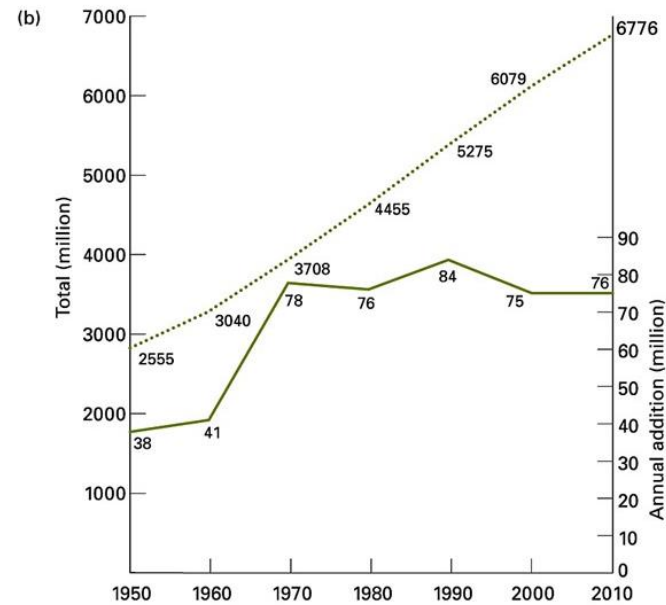
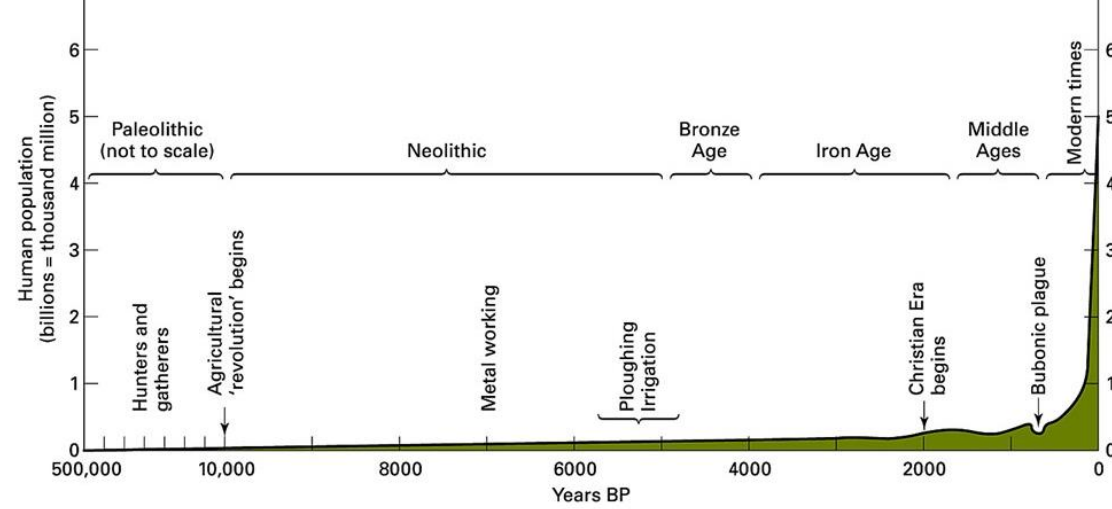


Figure 1.2 (a) The growth of human numbers for the past half million years (modified from Ehrlich et al., 1977, figure 5.2).
(b) Annual growth of population since 1950.

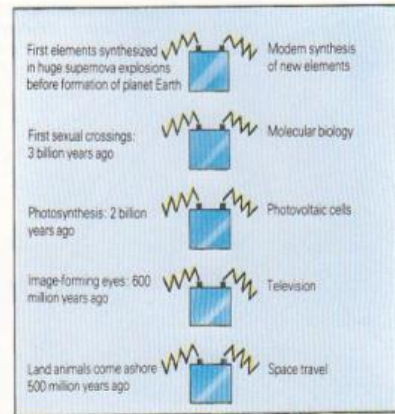
Population

Energy

Information

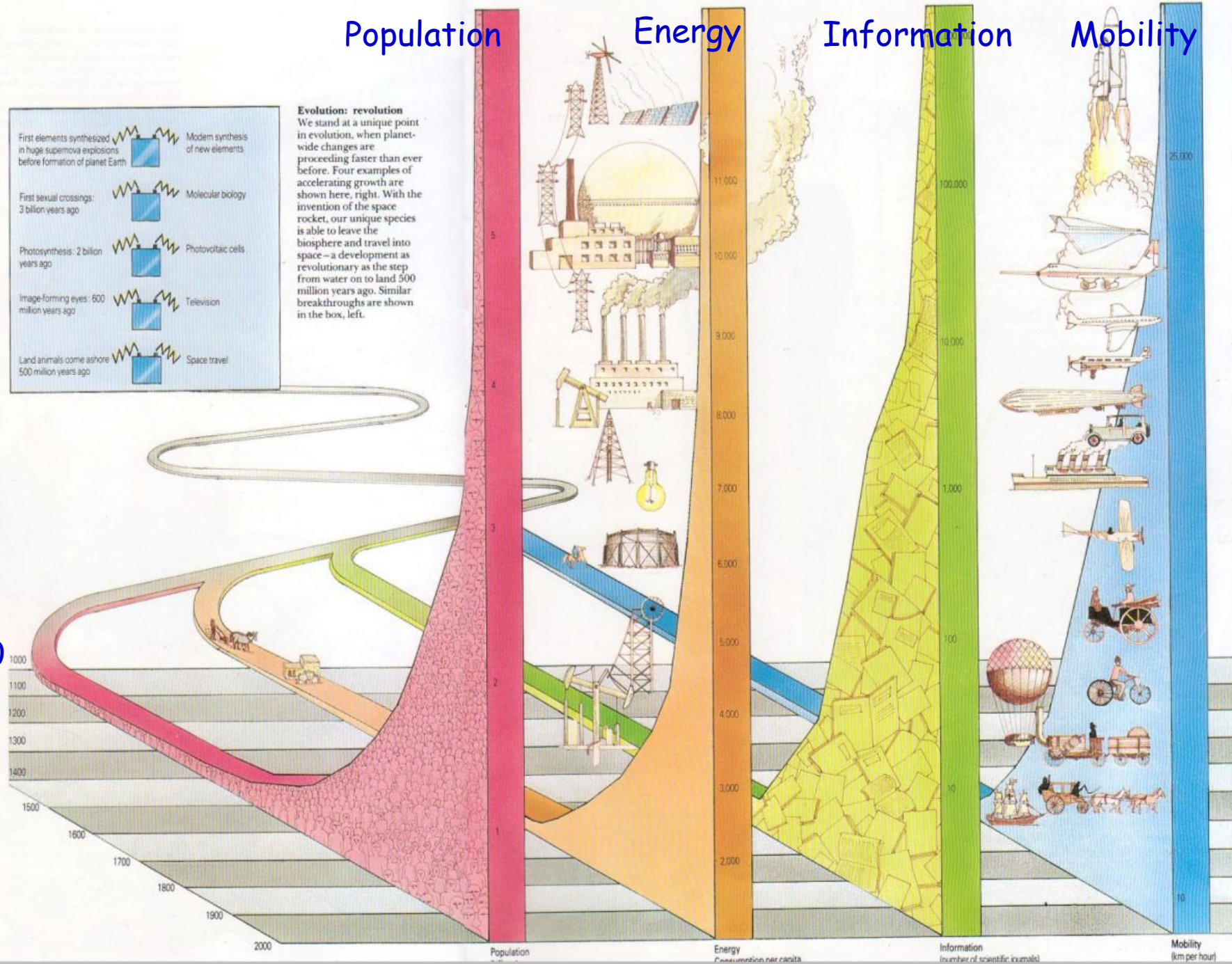
Mobility

Aparición del ser humano



Evolution: revolution
We stand at a unique point in evolution, when planet-wide changes are proceeding faster than ever before. Four examples of accelerating growth are shown here, right. With the invention of the space rocket, our unique species is able to leave the biosphere and travel into space – a development as revolutionary as the step from water on to land 500 million years ago. Similar breakthroughs are shown in the box, left.

1,000



Gaia Book

The long shadow of humans

