

Some slides relating to lecture 4 (Mon 2 iv 2007):

McNeill and McKibben's books suggest the need to appreciate time and space, over vast ranges from small to large. Human civilization is very young, only 330-400 human generations old. This is just an instant, in comparison with the generations of life of other species. There are trees...individual trees older than human civilization.

Human intelligence apparently is less than 100,000 years old (and one theory, *The Emergence of Mind*, from William Calvin of UW suggests that it arose due to the stress of climate change the arrival of the last Ice Age...100,000 years ago puts us in the previous warm period, as the Earth was cooling down. entering the most recent Ice Age

Some of the first known art works by humans are shown in slides below, dating to about 32,000 years ago.

Many environmental issues have both local and global aspects. Air pollution was local, only, until the 20th Century. Medieval cities were sometimes badly polluted, but the ability of humans to 'change the rain' and the global atmosphere is recent. It is a major subject of all our authors. It is analogous to Jonathan Schell's book, *The Fate of the Earth*, (1982) in which he argued that nuclear weapons for the first time gave us the power to destroy humanity...until then all we could summon up were wars with limited (though still terrible) destruction....the sorcerer's apprentice?

We spoke of the two 'environmental wars' of leaded gasoline and CFCs. Even in small amounts, lead is poisonous, and accumulates in animal tissue. CFCs destroy the 'good' ozone high in the atmosphere which acts as a UV shield (UV is ultraviolet light from the sun, which itself is damaging to humans, animals and plants). Both these technologies seemed benign but turned out to be toxic. A brilliant chemical engineer, Thomas Midgley invented both of them. These are example of new technologies that solve one problem only to introduce far worse effects. Fortunately both of the Midgley Wars were won by the environment, or almost so. Lead and CFCs are outlawed in most countries and the damage they did is on the mend.

Neanderthal horse carved from mammoth tusk: perhaps the first known art creation of a human, about 34,000 years ago in Vogelherd, Germany. 6 cm long. This exquisite piece is no simple rendition of the chunky horses of the Ice Age European steppes; instead, it is a quintessentially symbolic piece: an abstraction of the graceful essence of the horse.



Chauvet, France cave painting from the last ice age ~ 31,000 years ago yet discovered only in 1994.

<http://www.culture.gouv.fr/culture/arcnat/chauvet/en/index.html>

<http://www.bradshawfoundation.com/chauvet/>

migration out of Africa:<http://www.bradshawfoundation.com/journey/>

Notice the delicate and subtle drawings, by no means primitive. The radiocarbon decay dating of the charcoal samples is somewhat controversial and some archeologists argue that these paintings are too sophisticated to be so old.

