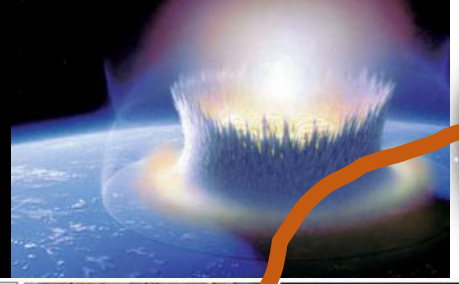
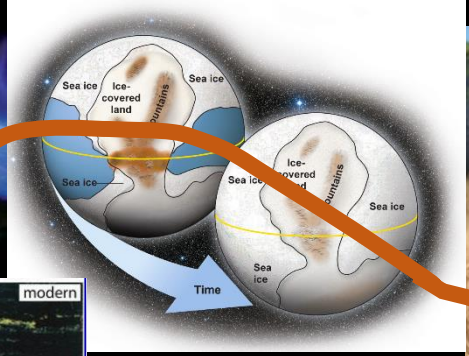
The Dragon Boat Festival has been held in honor of revered Chinese poet Qu Yuan (circa 339–278 B.C.E.) for over 2,000 years. People celebrate this traditional holiday by eating sticky dumplings called zongzi, and of course by racing dragon boats!

11. What do we know now?

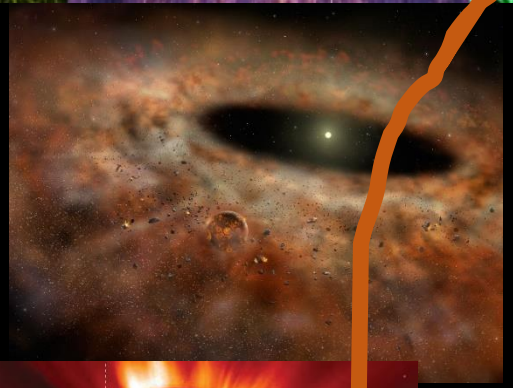
Climactic forces Change→

Homonids→ *Homo* as geologic Force

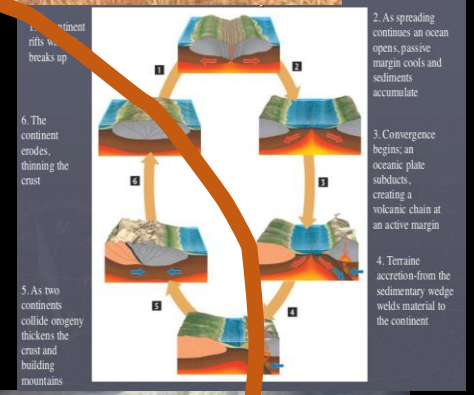


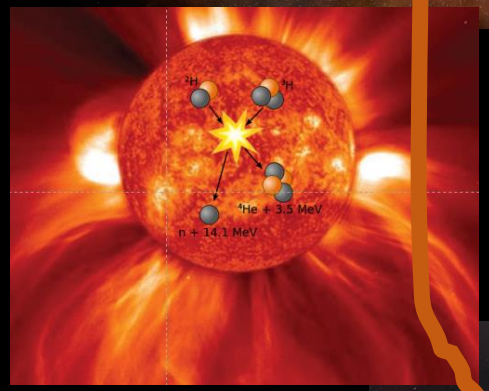

Sea ice
Ice-covered land
Sea ice
Sea ice
Ice-covered land
Sea ice
Sea ice
Time

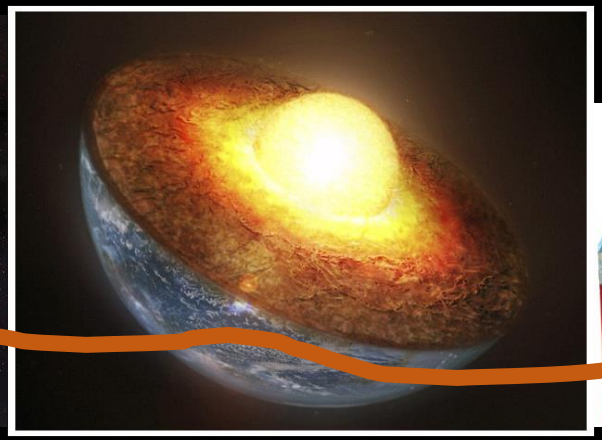

biolaminite
fossil
modern

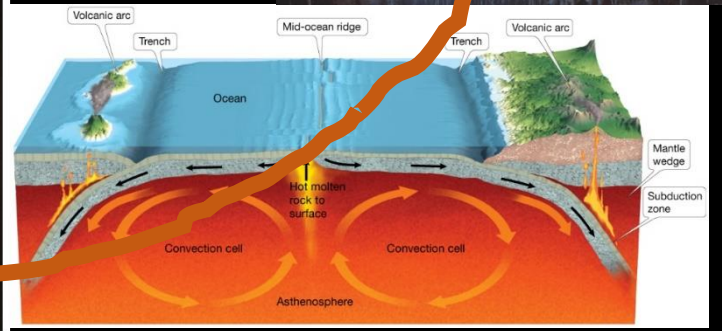



(b)

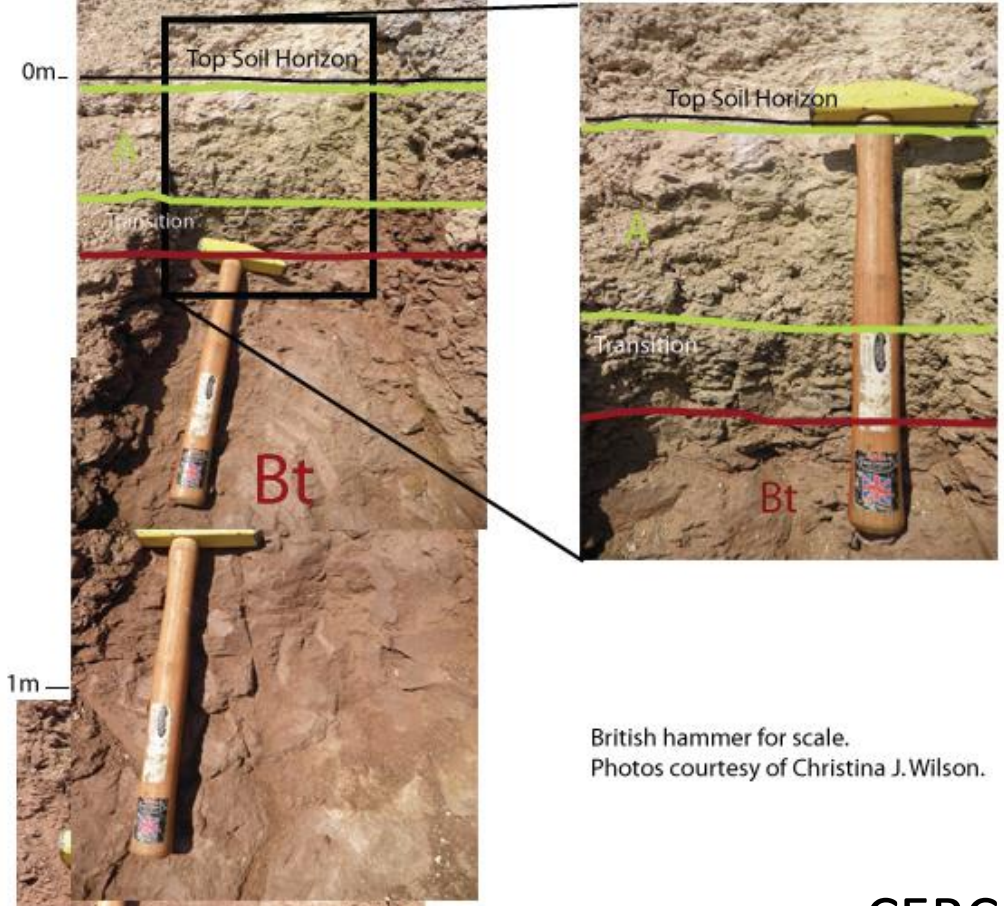

2. As spreading continues an ocean opens, passive margin cools and sediments accumulate
3. Convergence begins; an oceanic plate subducts, creating a volcanic chain at an active margin
4. Terraine accretion-from the sedimentary wedge welds material to the continent
5. As two continents collide orogeny thickens the crust and building mountains
6. The continent erodes, thinning the crust


^{2}H
^{3}H
^{4}He + 3.5 MeV
n + 14.1 MeV

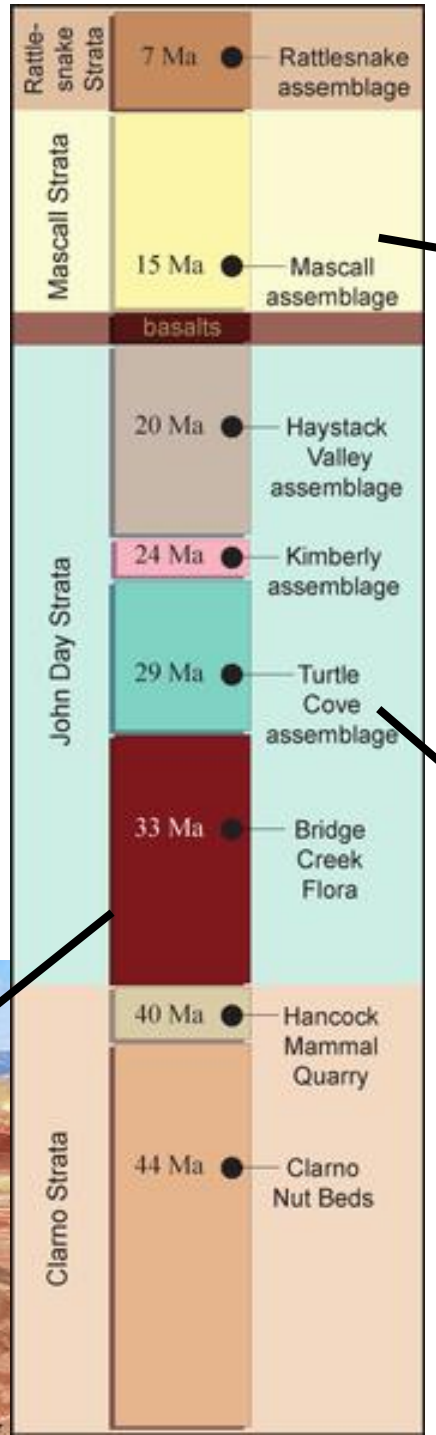



Volcanic arc
Trench
Mid-ocean ridge
Trench
Volcanic arc
Ocean
Mantle wedge
Hot molten rock to surface
Subduction zone
Convection cell
Convection cell
Asthenosphere

John Day Paleosols Show trend of Drying and Cooling Through the Neogene

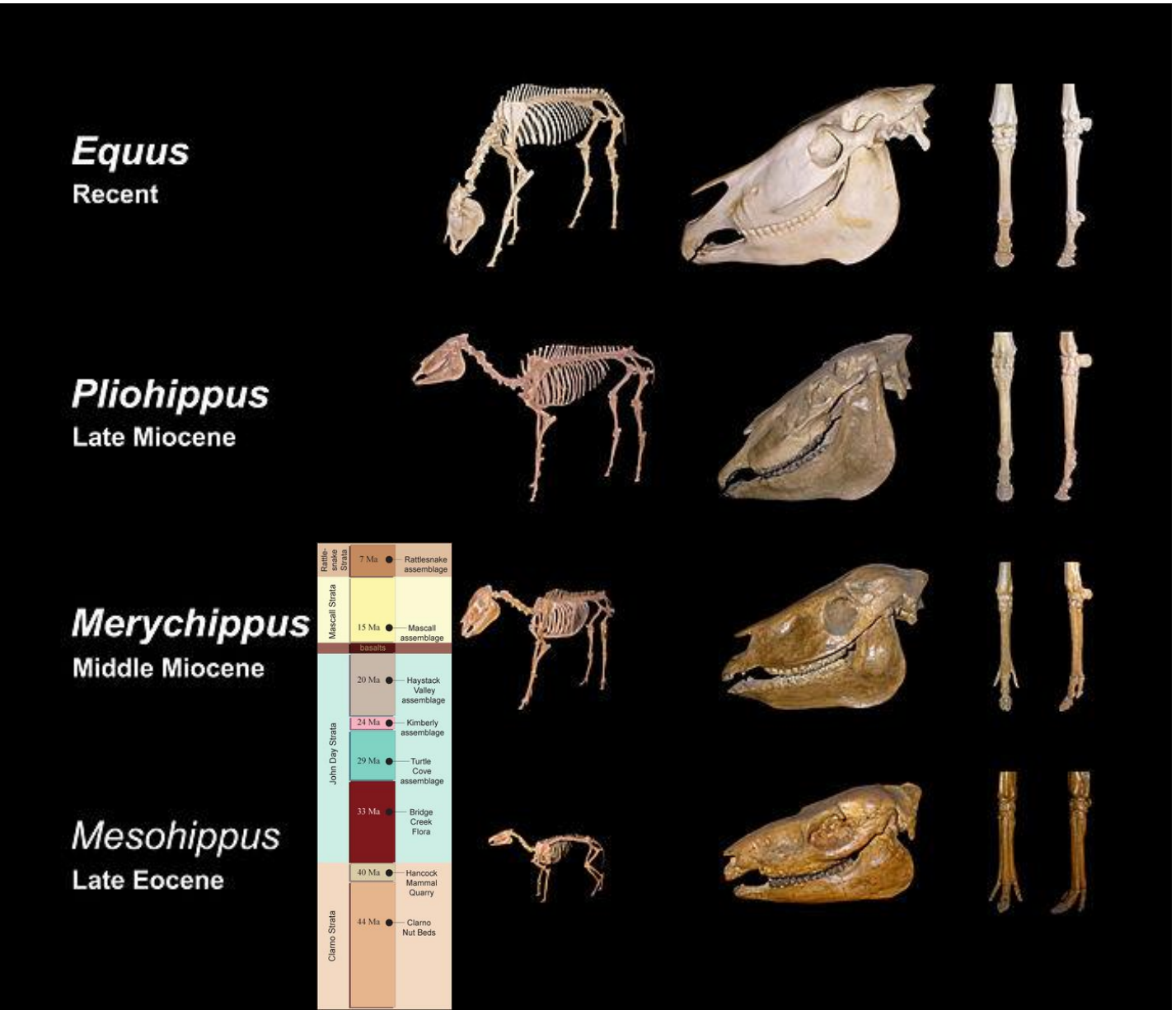


British hammer for scale.
Photos courtesy of Christina J. Wilson.



CERCA, Claudia Moore, #99

Evolution of the Horse



-Environmental Change encourages morphological change

Grasslands

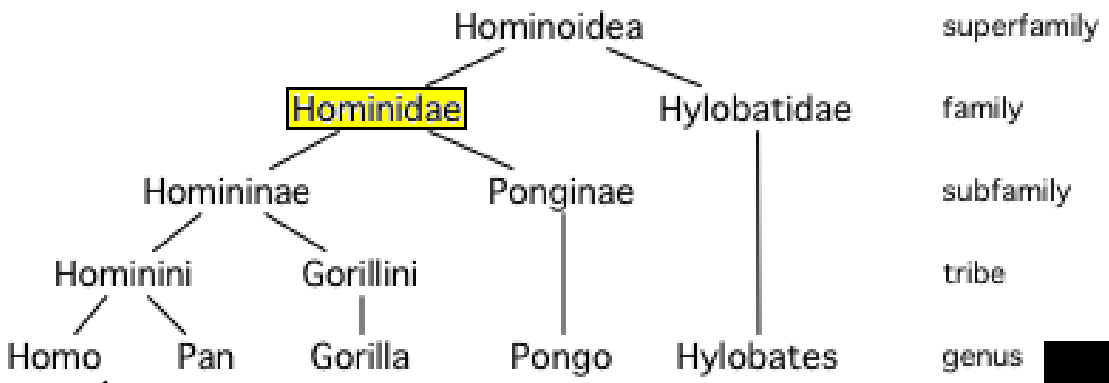
Grazers

Dry/Coo

Forests

Browsers

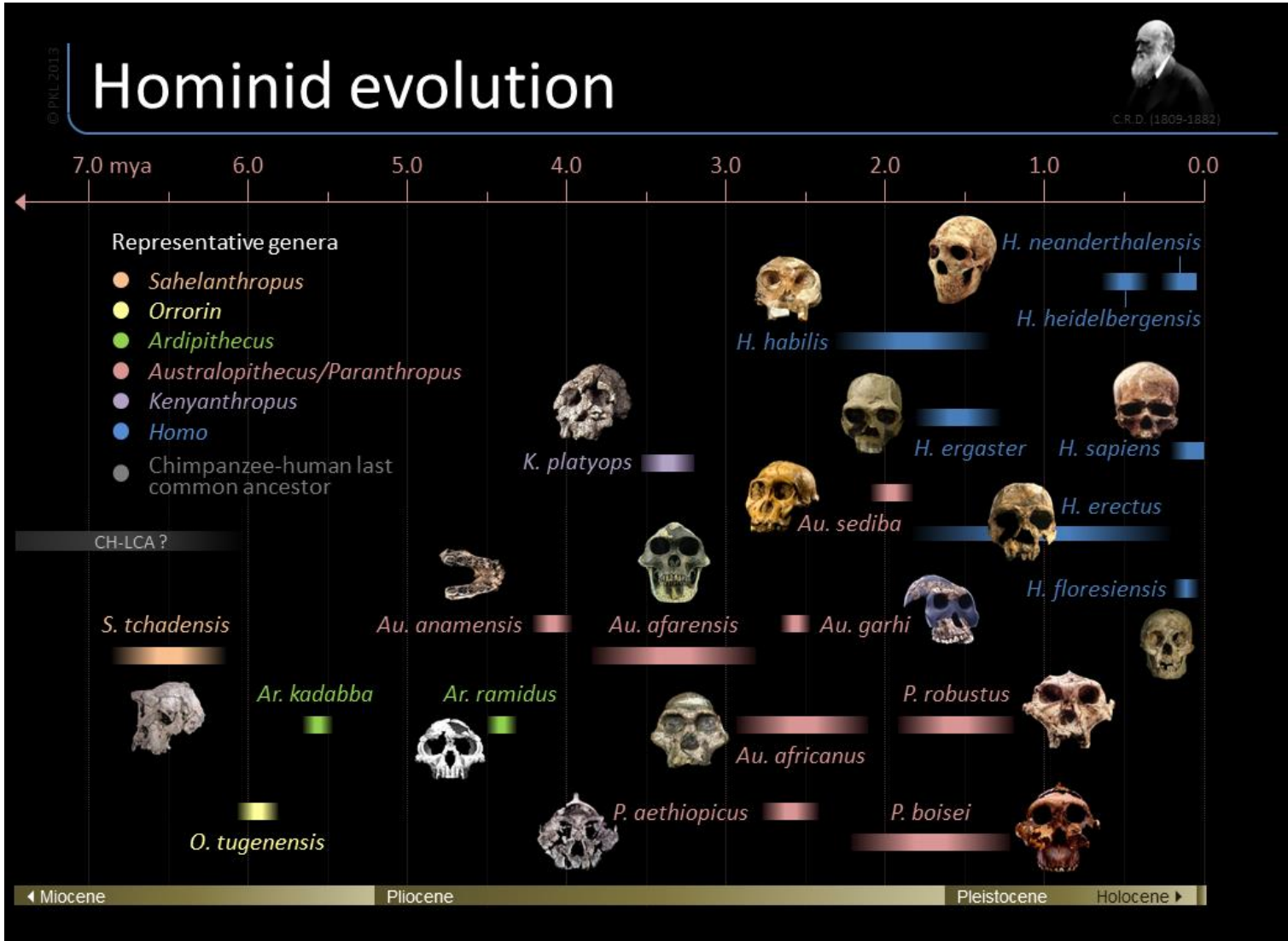
Wet/Warm



Reduction of closed canopy forests
And expansion of scrub savanna

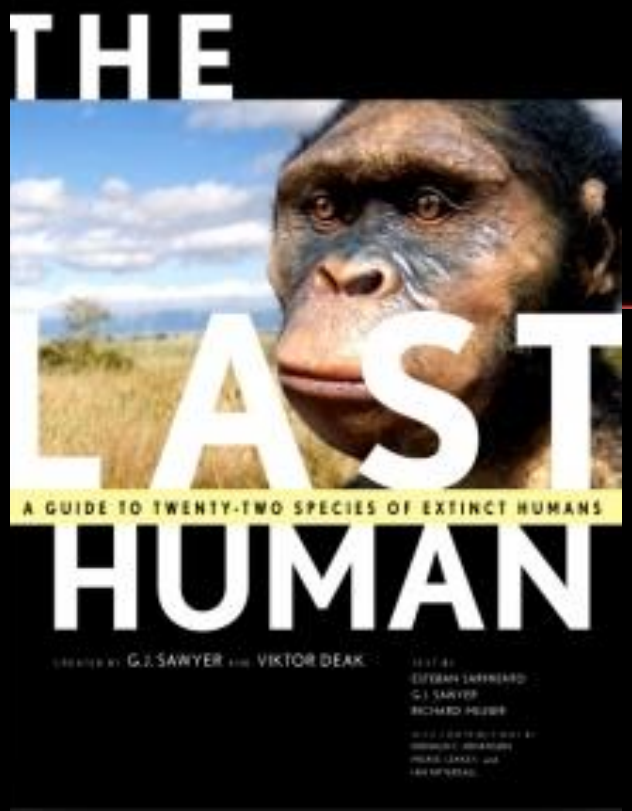
“facultative opportunism”

The Naked Ape

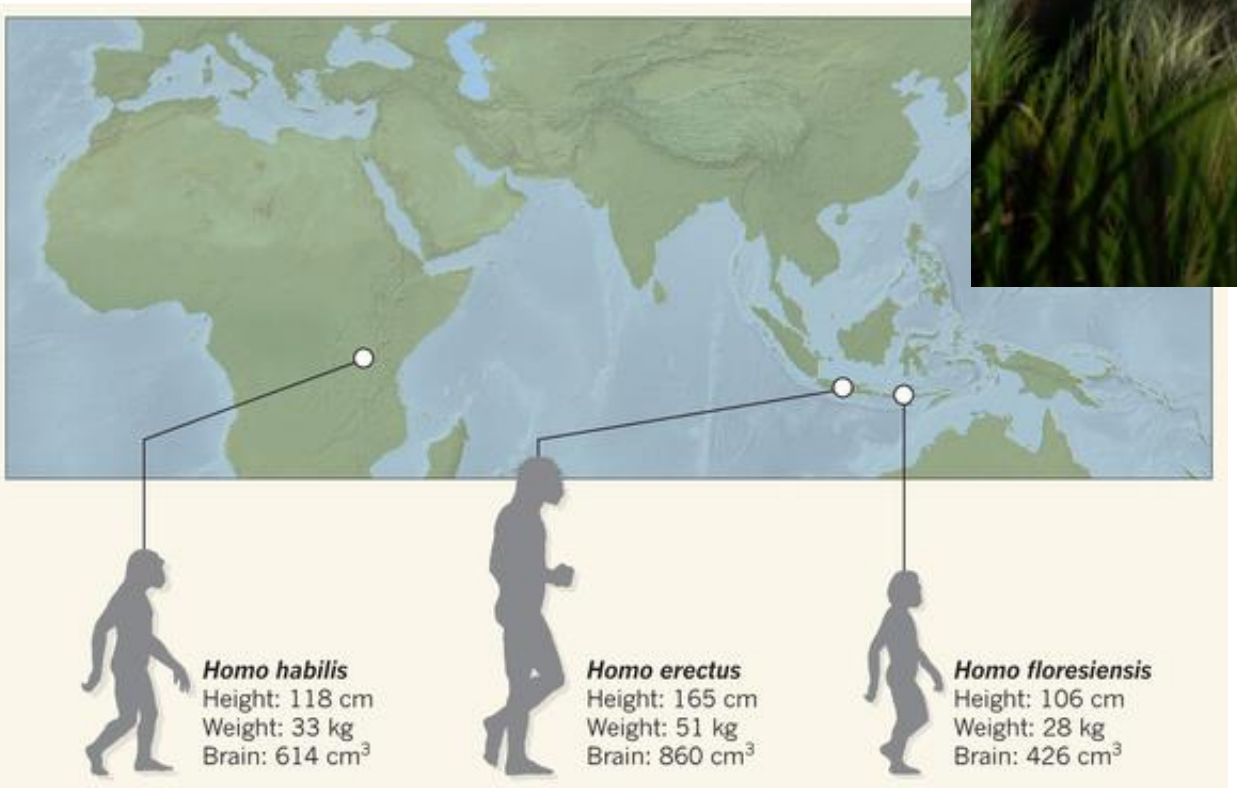


We were Not Alone…

Sahelanthropus tchadensis
Orrorin tugenensis
Ardipithecus ramidus/kadabba
Australopithecus anamensis
Kenyanthropus platyops
Australopithecus afarensis
Paranthropus aethiopicus
Australopithecus garhi
Australopithecus africanus
Paranthropus robustus/crassidens
Homo rudolfensis
Homo habilis
Paranthropus boisei
Homo ergaster
Homo georgicus
Homo erectus
Homo pekinensis
Homo floresiensis
Homo antecessor
Homo rhodesiensis
Homo heidelbergensis
Homo neandethalensis

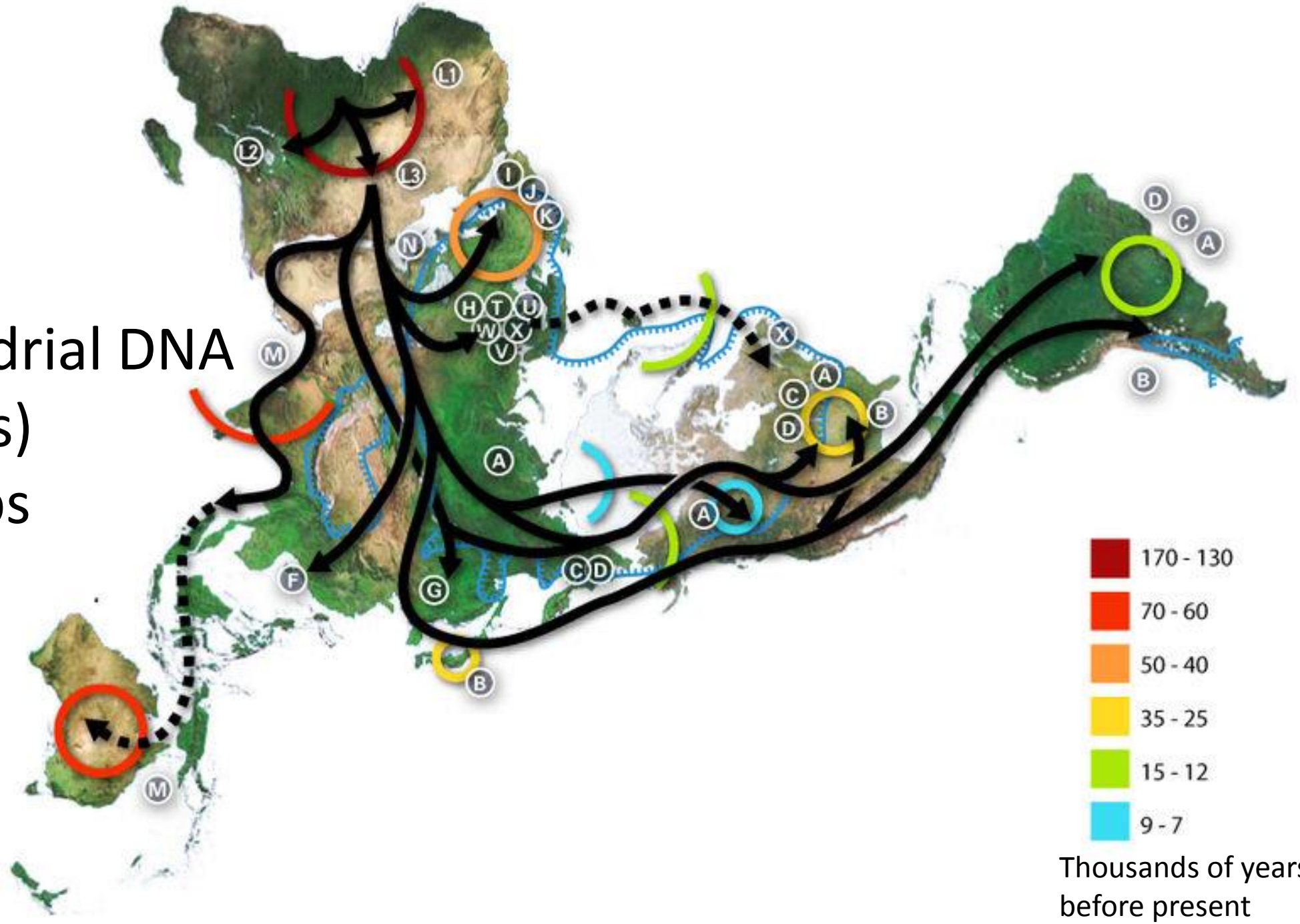


Homo floresiensis
“hobbit humans”

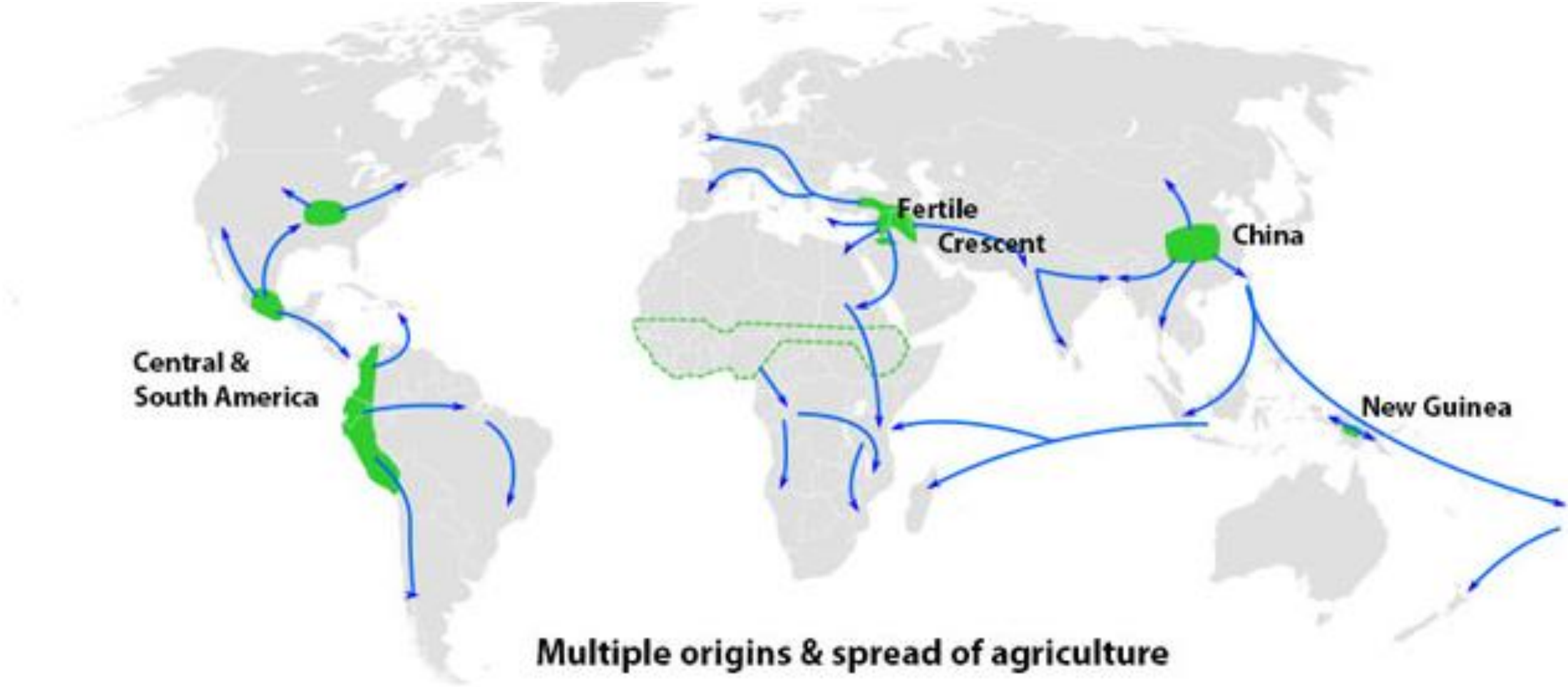


Homo neanderthalensis
Robust European human

Mitochondrial DNA (not fossils) Halogroups

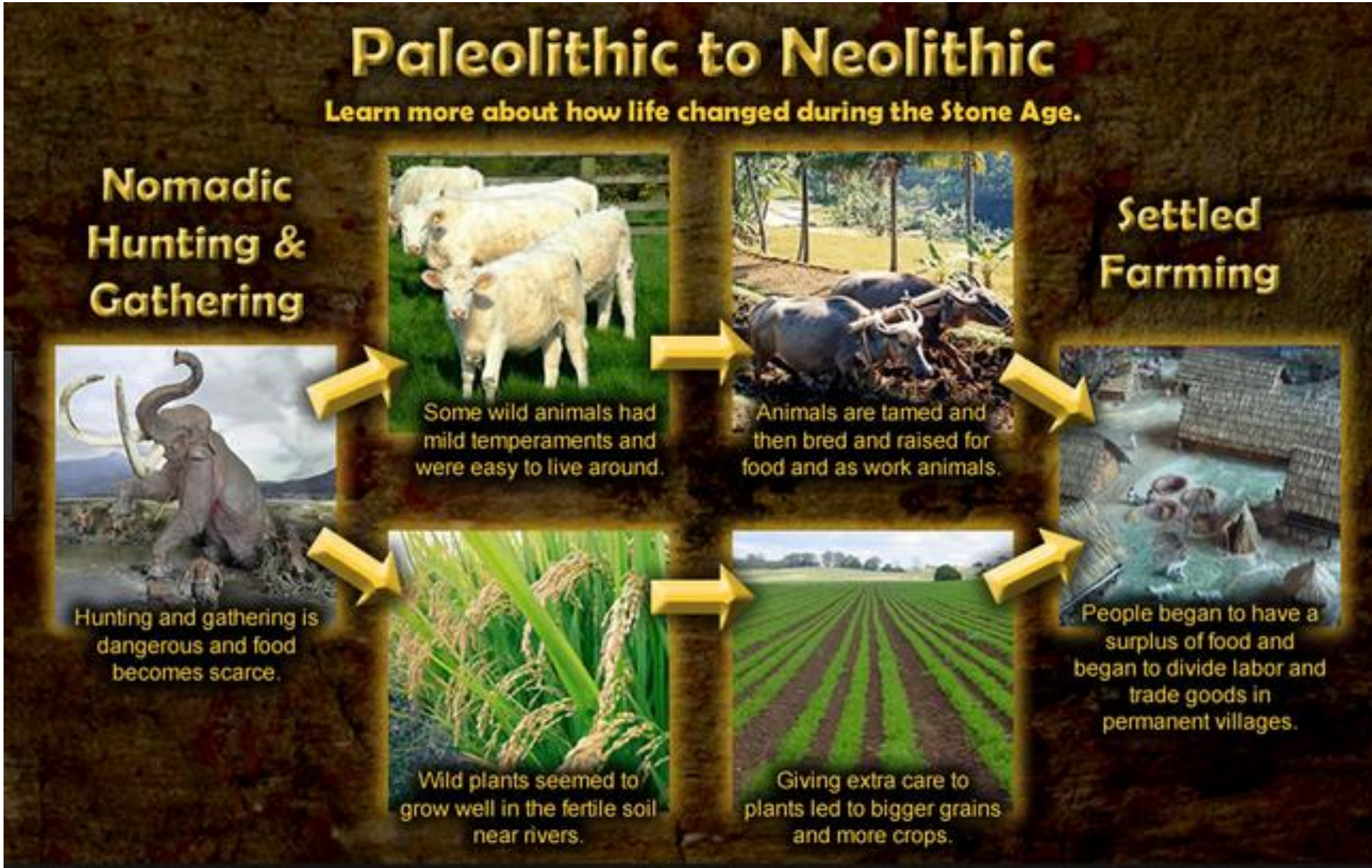


10,000 B.C. – A New Way to live

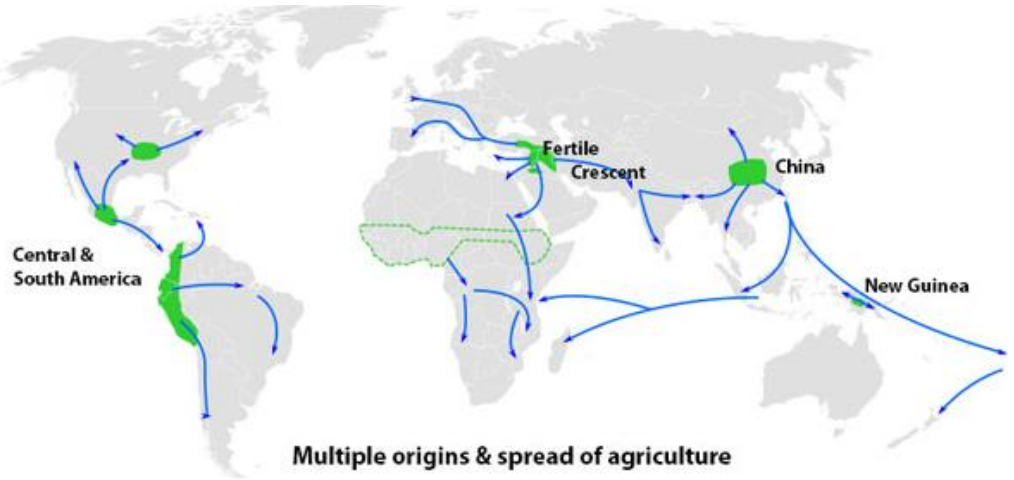


10,000 B.C. – A New Way to live

~240,000 years humans lived
A variety of other ways



10,000 B.C. – The Great Forgetting

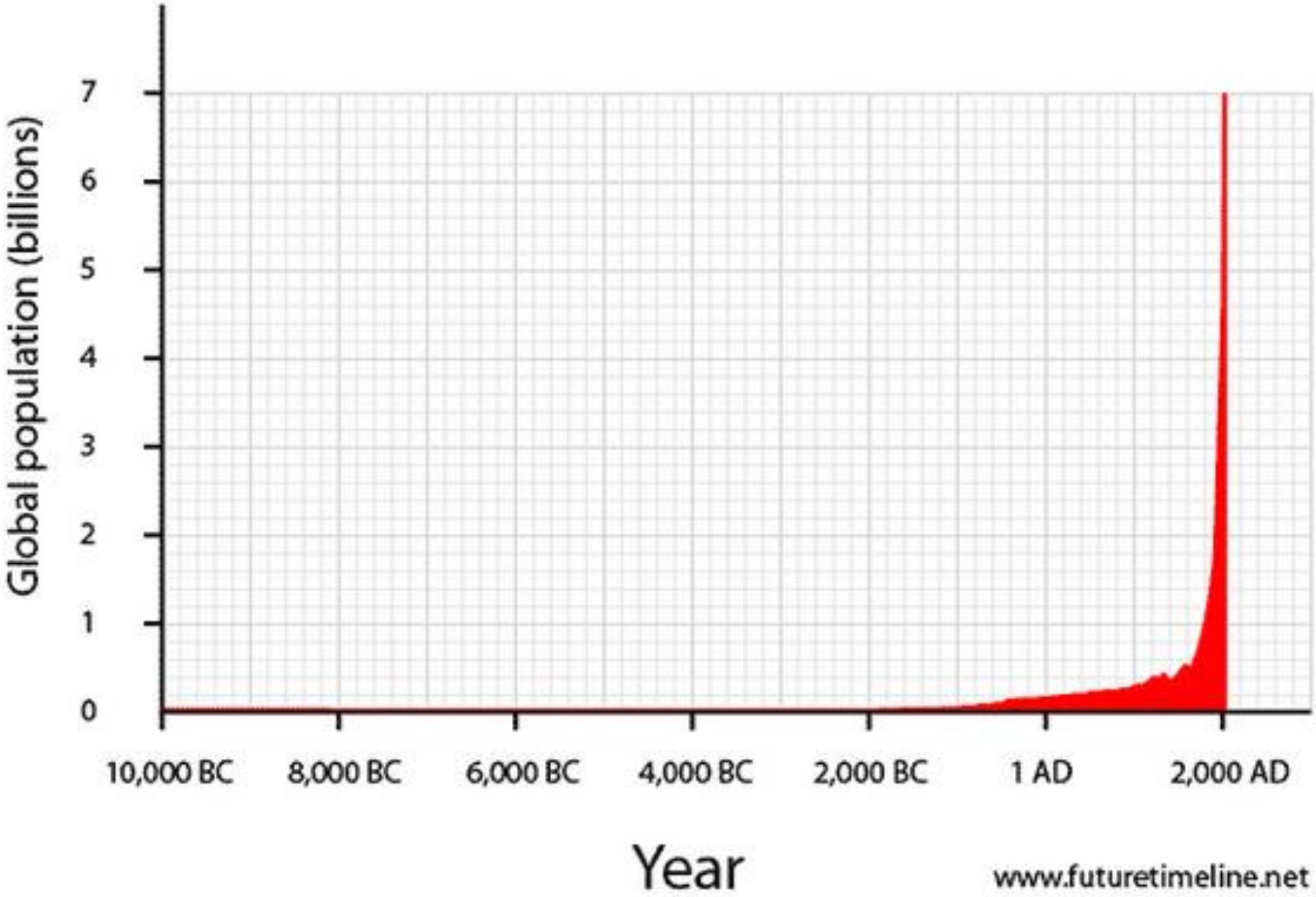


Seems like the ONLY way to live…

-Control of nature, no longer living at whim of Natural food supply

-Clearly, we are different than animals

-The world must be meant for US to use


Global population (billions)
0
1
2
3
4
5
6
7
10,000 BC
8,000 BC
6,000 BC
4,000 BC
2,000 BC
1 AD
2,000 AD
Year
www.futuretimeline.net

Anthropocene
“Humans as Geologic Agents”

270-370 ppm

Preboreal (10.3–9 ka)
Boreal (9–7.5 ka)
Atlantic (7.5–5 ka)
Subboreal (5–2.5 ka)
Subatlantic (2.5 ka–present)

July 16th, 1945

Review

THE ANTHROPOCEN REVIEW

The Anthropocene Rev
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DOI: 10.1177/2053019614564
anr.sagepub.c
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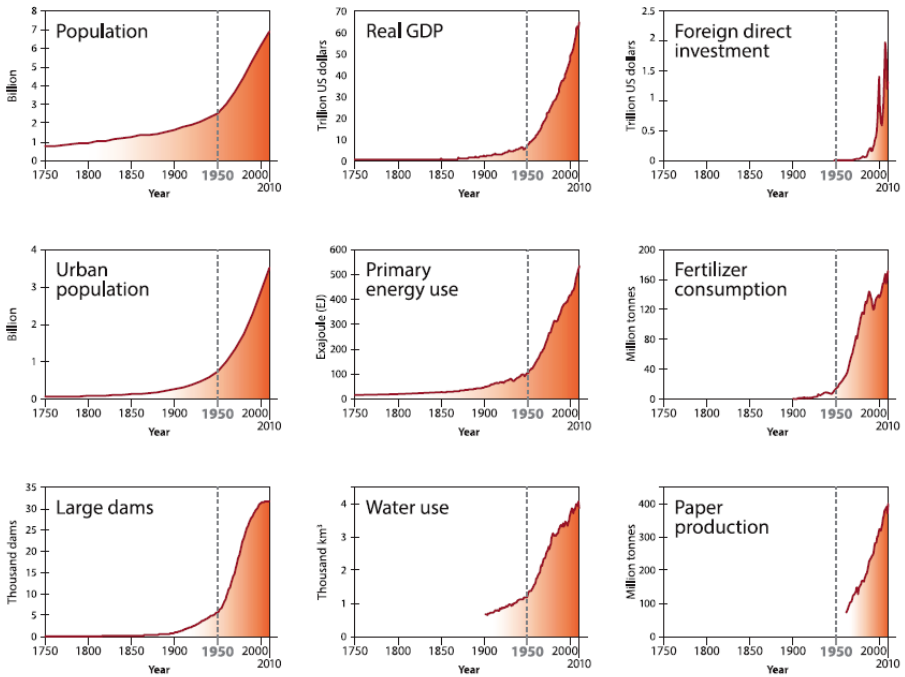
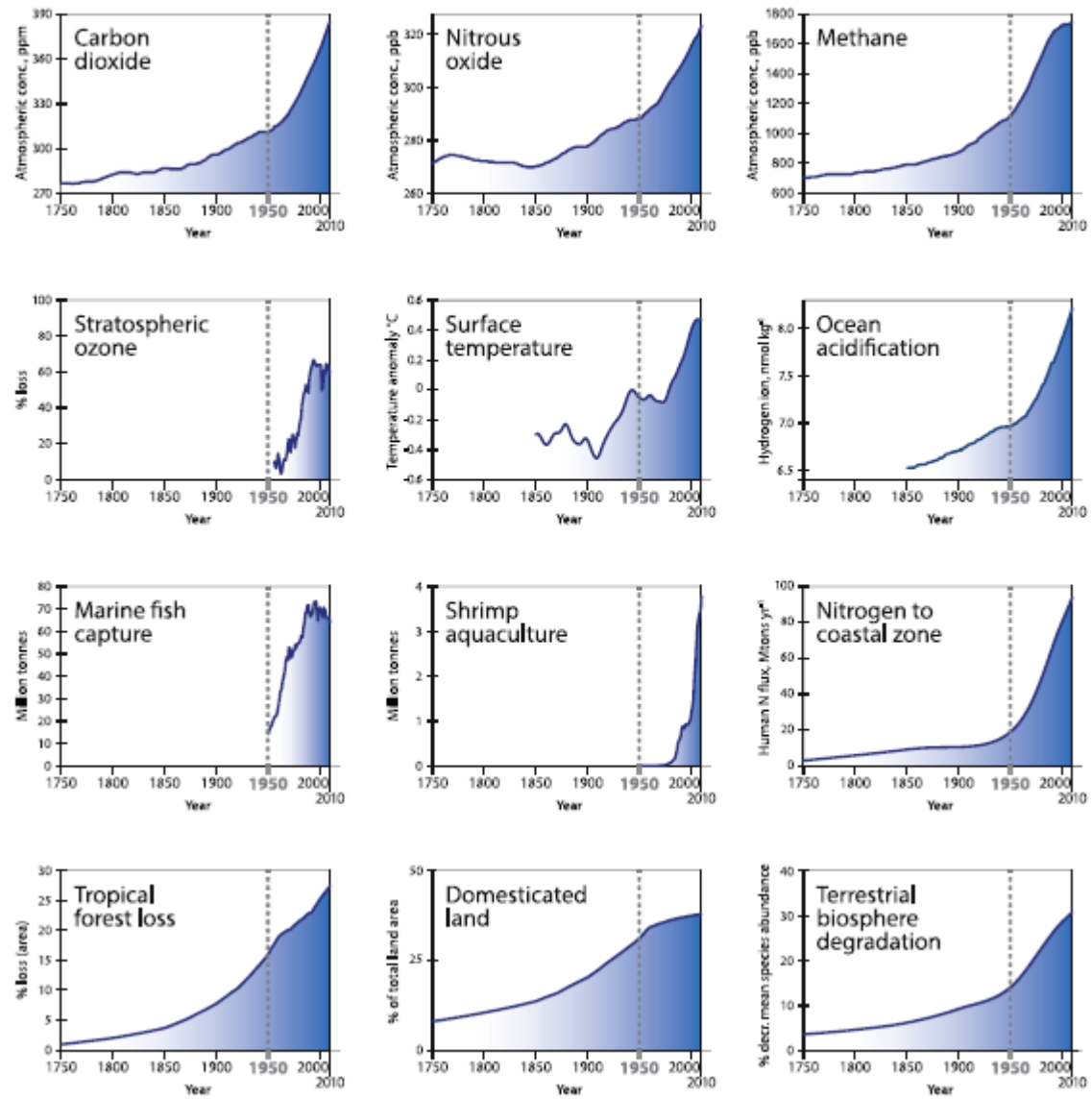
The trajectory of the Anthropocene: The Great Acceleration

Will Steffen,[1,2] Wendy Broadgate,[3] Lisa Deutsch,[1] Owen Gaffney[3] and Cornelia Ludwig[1]

Socio-economic trends



Earth system trends



The Anthropocene is functionally and stratigraphically distinct from the Holocene

Colin N. Waters,* Jan Zalasiewicz, Colin Summerhayes, Anthony D. Barnosky, Clément Poirier, Agnieszka Gałuszka, Alejandro Cearreta, Matt Edgeworth, Erle C. Ellis, Michael Ellis, Catherine Jeandel, Reinhold Leinfelder, J. R. McNeill, Daniel deB. Richter, Will Steffen, James Syvitski, Davor Vidas, Michael Wagreich, Mark Williams, An Zhisheng, Jacques Grinevald, Eric Odada, Naomi Oreskes, Alexander P. Wolfe

When did the Anthropocene begin? A mid-twentieth century boundary level is stratigraphically optimal

Jan Zalasiewicz[1], Colin N. Waters[2], Mark Williams[1], Anthony D. Barnosky[3], Alejandro Cearreta[4], Paul Crutzen[5], Erle Ellis[6], Michael A. Ellis[2], Ian J Fairchild[7], Jacques Grinevald[8], Peter K. Haff[9], Irka Hajdas[10], Reinhold Leinfelder[11], John McNeill[12], Eric O Odada[13], Clément Poirier[14], Daniel Richter[15], Will Steffen[16], Colin Summerhayes[17], James P.M. Syvitski[18], Davor Vidas[19], Michael Wagreich[20], Scott L. Wing[21], Alexander P. Wolfe[22], An Zhisheng[23] and Naomi Oreskes[24].

Anthropocene
“Humans as Geologic Agents”

270-370 ppm

Preboreal (10.3–9 ka)
Boreal (9–7.5 ka)
Atlantic (7.5–5 ka)
Subboreal (5–2.5 ka)
Subatlantic (2.5 ka–present)

July 16th, 1945

An anthropogenic marker horizon in the future rock record

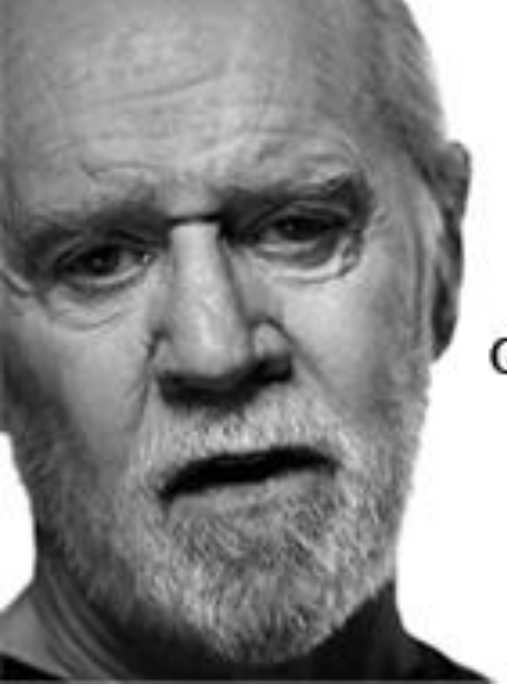
Patricia L. Corcoran, *Dept. of Earth Sciences, University of Western Ontario, London, Ontario, Canada, N6A 5B7, pcorcor@uwo.ca;* **Charles J. Moore,** *Algalita Marine Research Institute, Long Beach, California, 90803-4601, USA; and* **Kelly Jazvac,** *Dept. of Visual Arts, University of Western Ontario, London, Ontario, Canada, N6A 5B7*

Plastiglomerate

ABSTRACT

Recognition of increasing plastic debris pollution over the last several decades has led to investigations of the imminent dangers posed to marine organisms and their ecosystems, but very little is known about the preservation potential of plastics in the rock record. As anthropogenically derived materials, plastics are astonishingly abundant in oceans, seas, and lakes, where they accumulate at or near the water surface, on lake and ocean bottoms, and along shorelines. The burial potential of plastic debris is chiefly dependent on the material's density and abundance, in addition to the depositional environment. Here, we report the appearance of a new "stone" formed through intermingling of melted plastic, beach sediment, basaltic lava fragments, and organic debris from Kamilo Beach on the island of Hawaii. The material, herein referred to as "plastiglomerate," is divided into in situ and clastic types that were distributed over all areas of the beach. Agglutination of natural sediments to melted plastic during campfire burning has increased the overall density of plastiglomerate, which inhibits transport by wind or water, thereby increasing the potential for burial and subsequent preservation. Our results indicate that this anthropogenically influenced material has great potential to form a marker horizon of human pollution, signaling the occurrence of the informal Anthropocene epoch.

The Sixth Mass Extinction: Terraforming for Fungi?



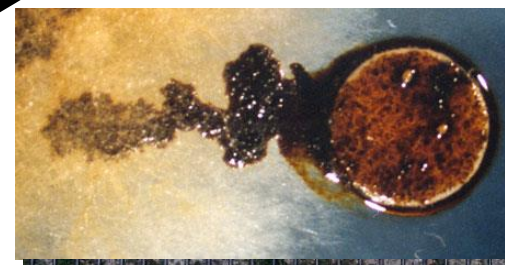
GEORGE CARLIN
1937-2008

--Comedian

--Terrance McKenna 1946-2000
Ethnobotanist and Philosopher

‘Humans are here to make plastics’

‘Fungi takes advantage Of human evolution’



Biodegradation of Polyester Polyurethane by Endophytic Fungi[▽]

Jonathan R. Russell,[1]# Jeffrey Huang,[1]# Pria Anand,[1]# Kaury Kucera,[1] Amanda G. Sandoval,[1] Kathleen W. Dantzler,[1] DaShawn Hickman,[1] Justin Jee,[1] Farrah M. Kimovec,[1] David Koppstein,[1] Daniel H. Marks,[1] Paul A. Mittermiller,[1] Salvador Joel Núñez,[1] Marina Santiago,[1] Maria A. Townes,[1] Michael Vishnevetsky,[1] Neely E. Williams,[1] Mario Percy Núñez Vargas,[2] Lori-Ann Boulanger,[1] Carol Bascom-Slack,[1] and Scott A. Strobel[1]*

Yale,
Applied and Environmental Microbilogy, 2011

Mycocene* "When fungi rule the earth"

* Crazy geo prof speculation