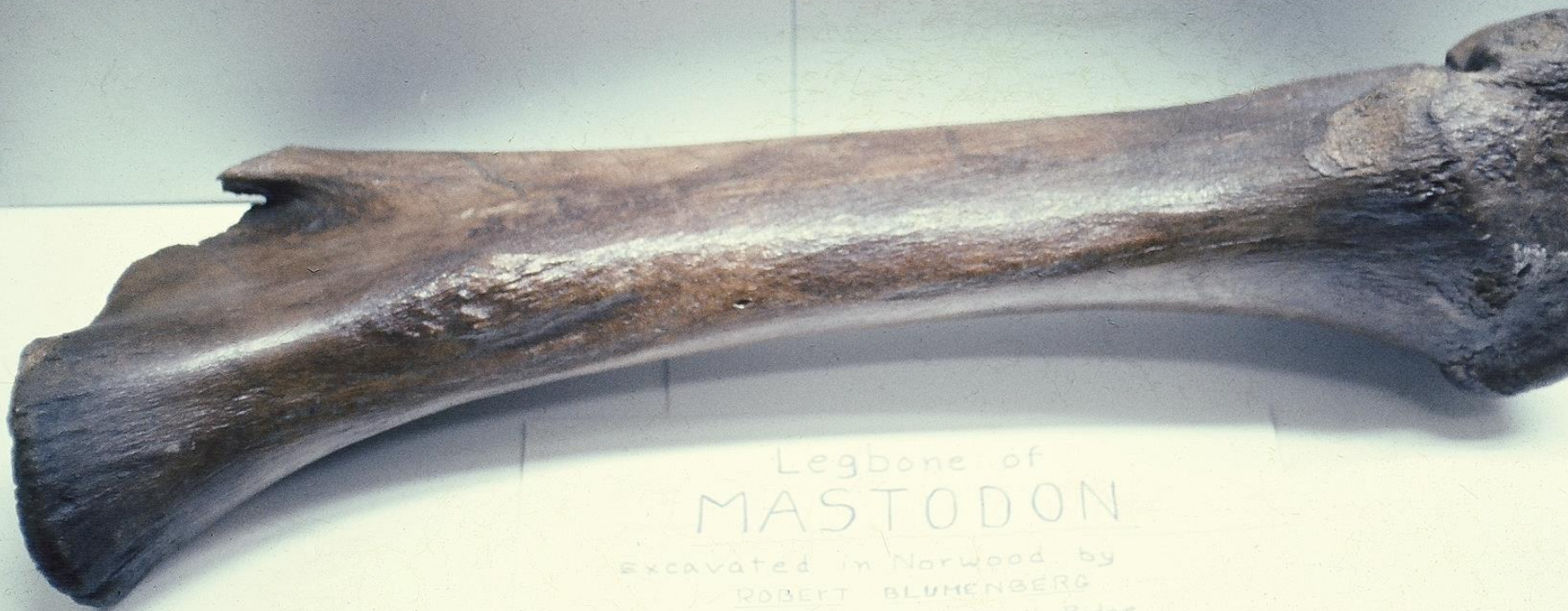


The Dwarskill Mastodon: Glimpse of the Distant Past, Hint of the Sixth Extinction?

Dr. Michael J Passow







Legbone of
MASTODON

Excavated in Norwood, by
ROBERT BLUMENBERG

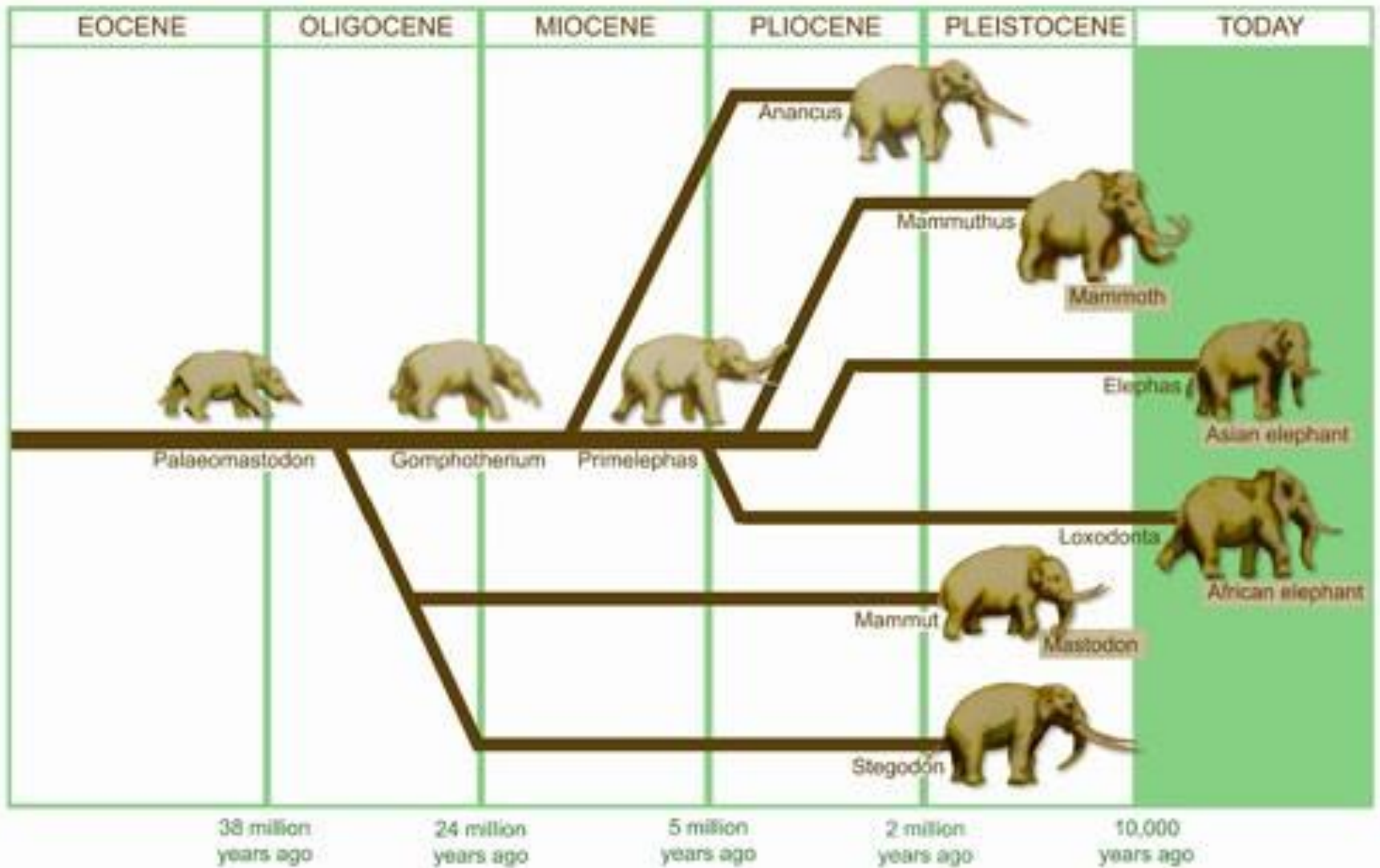
February 17, 1974

Park Ridge









http://www.reed.edu/biology/professors/srenn/pages/teaching/web_2006/georgia_lacy_elephants/images/evolution.jpg





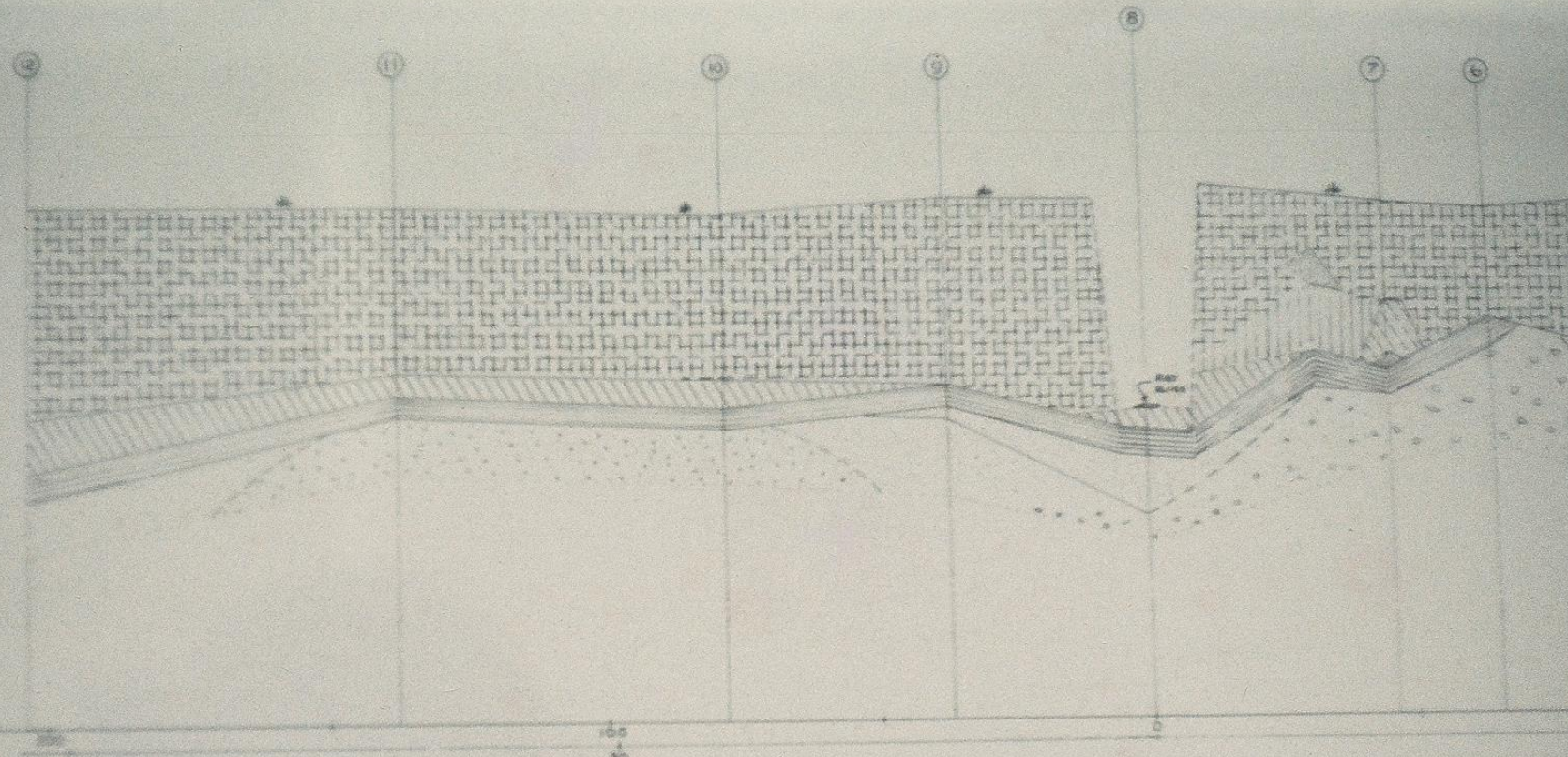










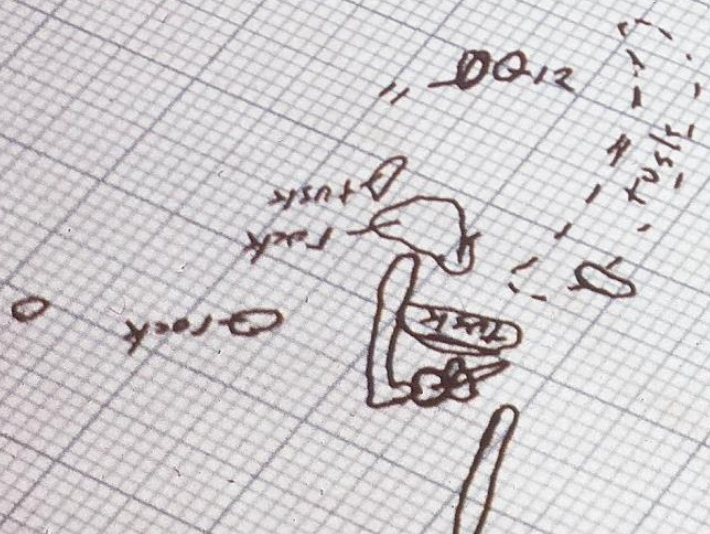
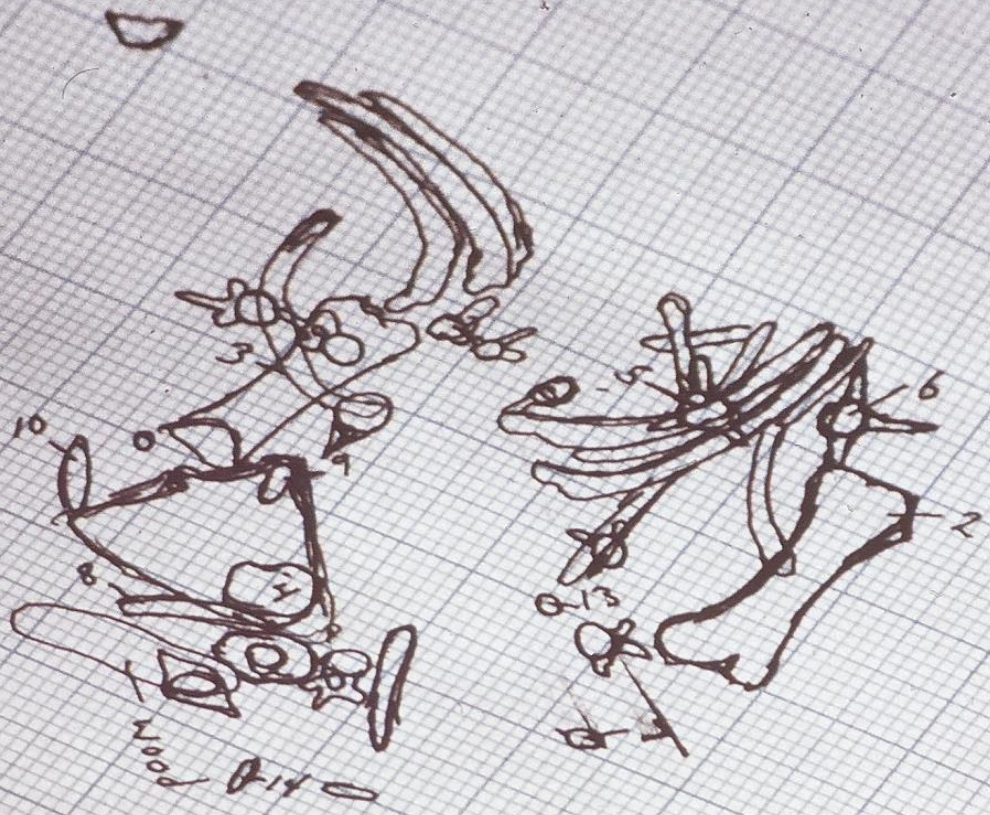


 PEAT (DARK BROWN)
 GREY SILT

PROFILE SCALE $\frac{1}{2}$ VERT 1"=2'
HORIZ 1"=20'

 GREY SILT











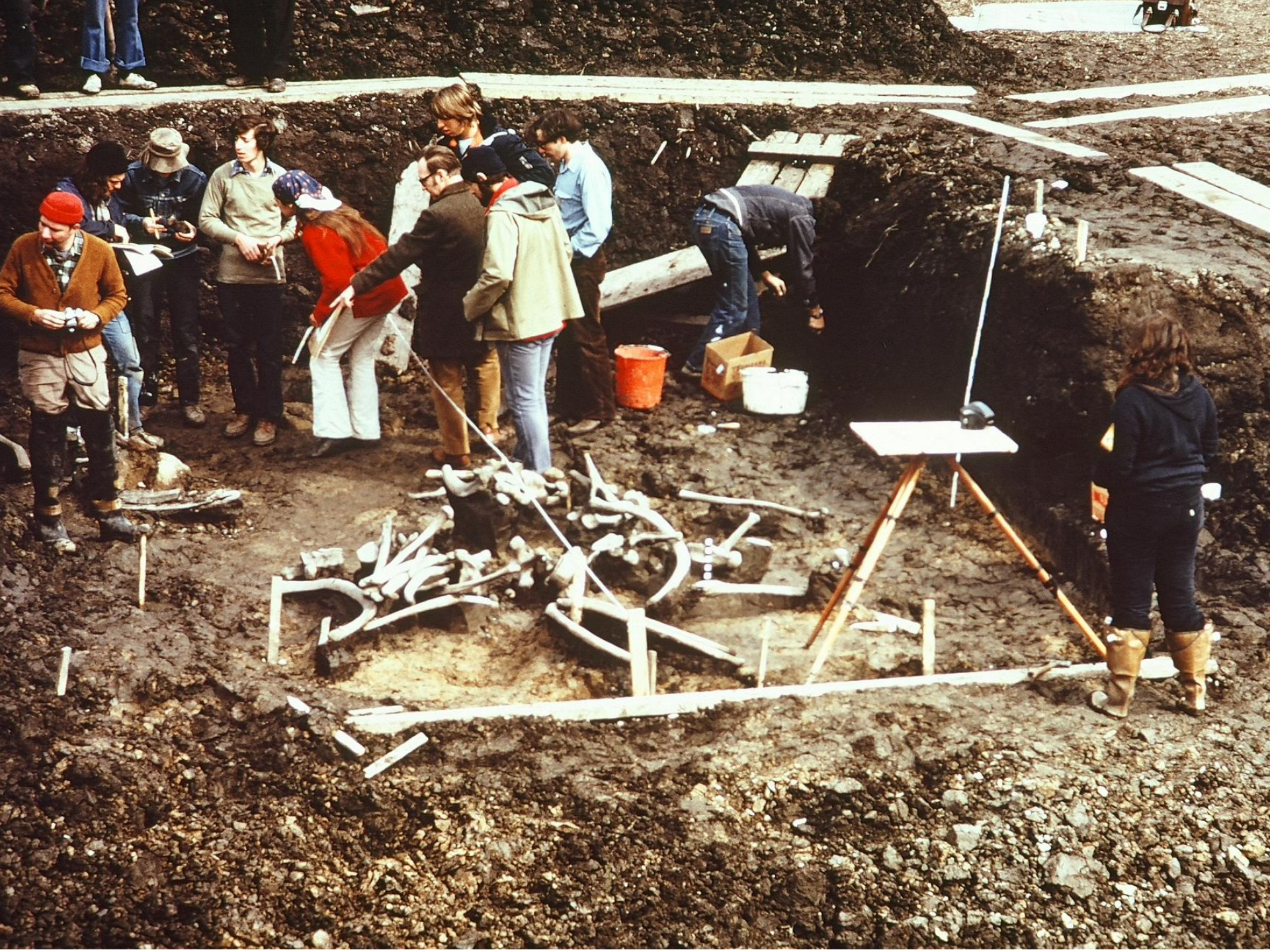


















BERGEN COUNTY OFFICES

HALL OF HISTORY

BERGEN COUNTY
CIVIL DEFENSE
AND
DISASTER CONTROL

BERGEN
COUNTY















THORACIC (BACK) VERTEBRAE

RIB

















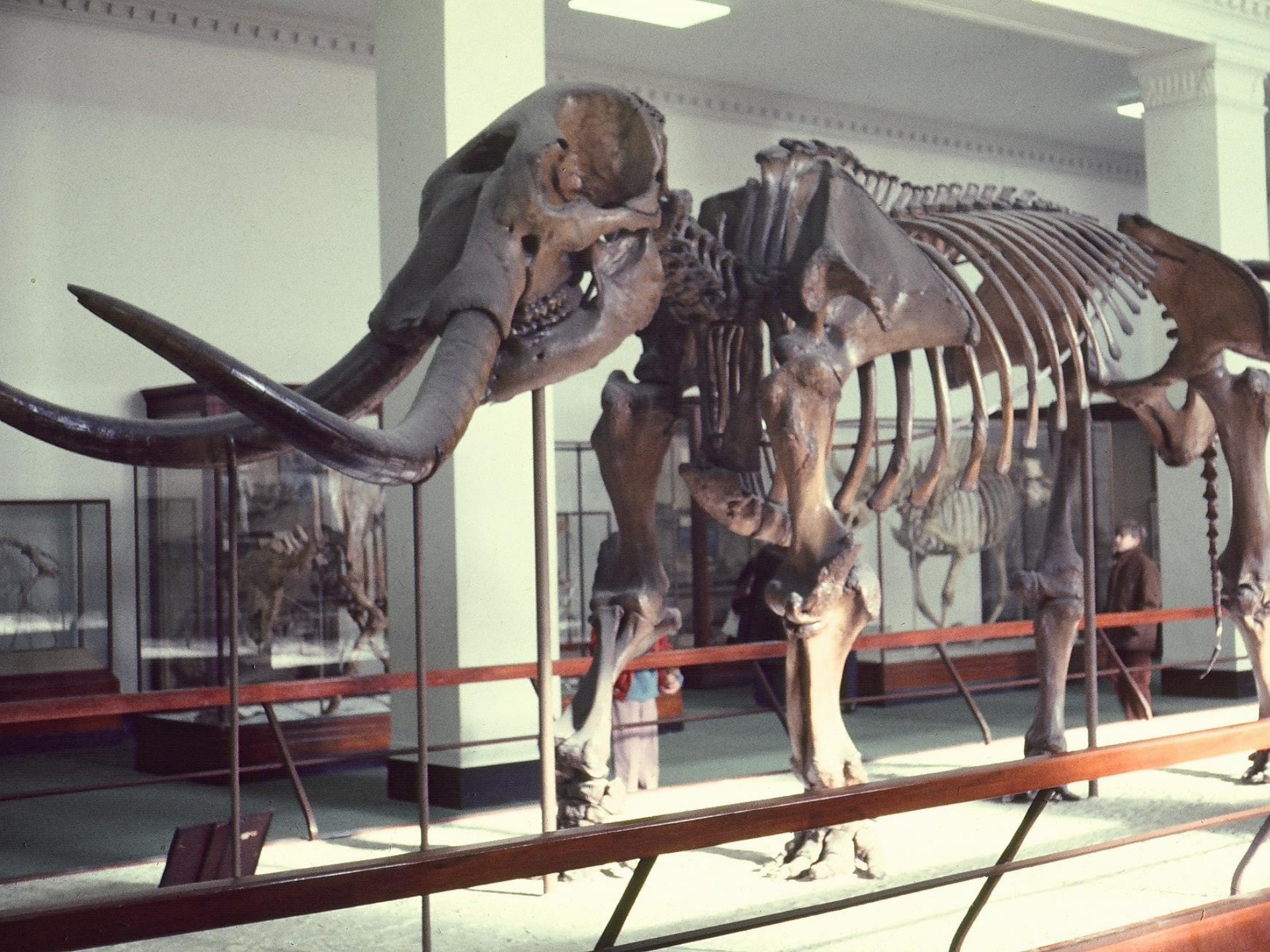






PROGRESSIVE MACH







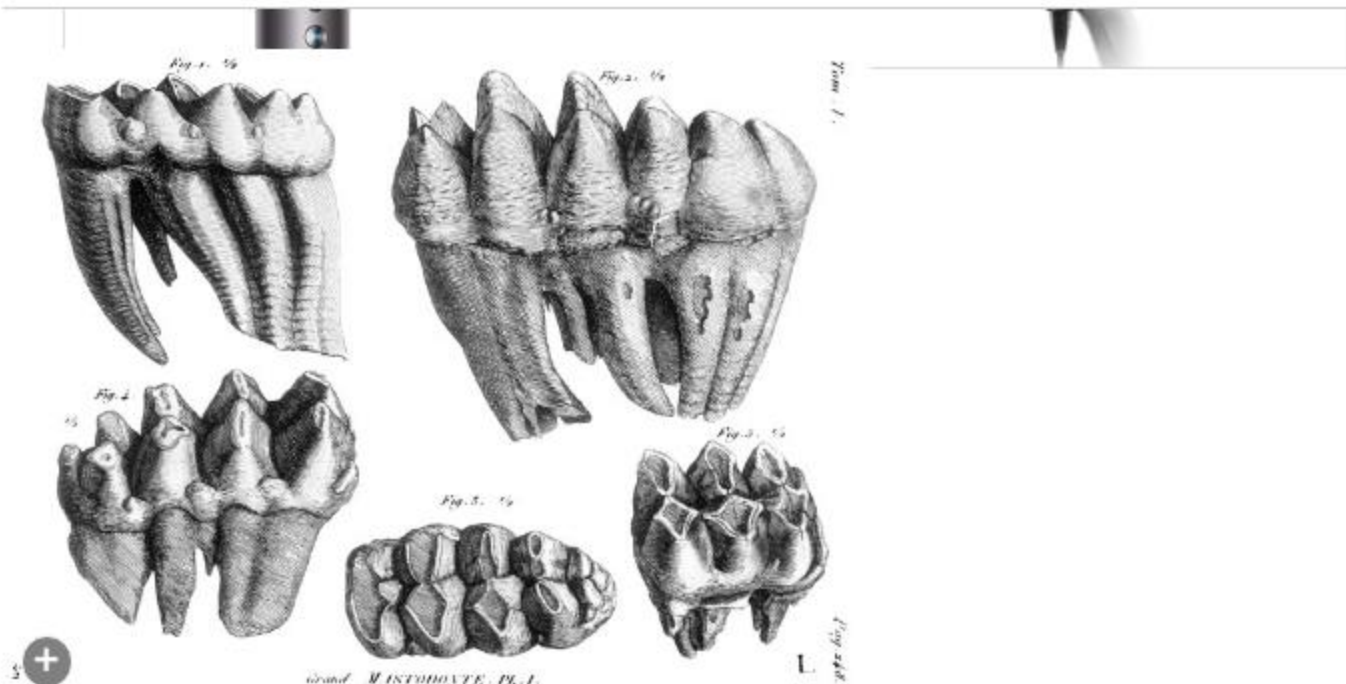
ANNALS OF EXTINCTION PART ONE DECEMBER 16, 2013 ISSUE

THE LOST WORLD

The mastodon's molars.



By Elizabeth Kolbert



Cuvier's proof of extinction, of "a world previous to ours," was a sensational event.

Illustration Courtesy Muséum National d'Histoire Naturelle

On April 4, 1796—or, according to the French Revolutionary calendar in use at the time, 15 Germinal, Year IV—Jean-Léopold-Nicholas-Frédéric Cuvier, known, after a brother who had died, simply as Georges, delivered his first public lecture at the National Institute of Science and Arts, in Paris. Cuvier, arrived in the city a year earlier, shortly after the end of



Georges Cuvier

- First to recognize that extinctions of species could occur
- One of the most prominent scientists in early 19th Century
- Studied mastodons, pterodactyls, and other fossil discoveries

“Life on Earth has often been disturbed by terrible events.”

“Living organisms without number have been victims of these catastrophes.”

First suggested only one, but later realized there were multiple events.

Evolution and Extinction

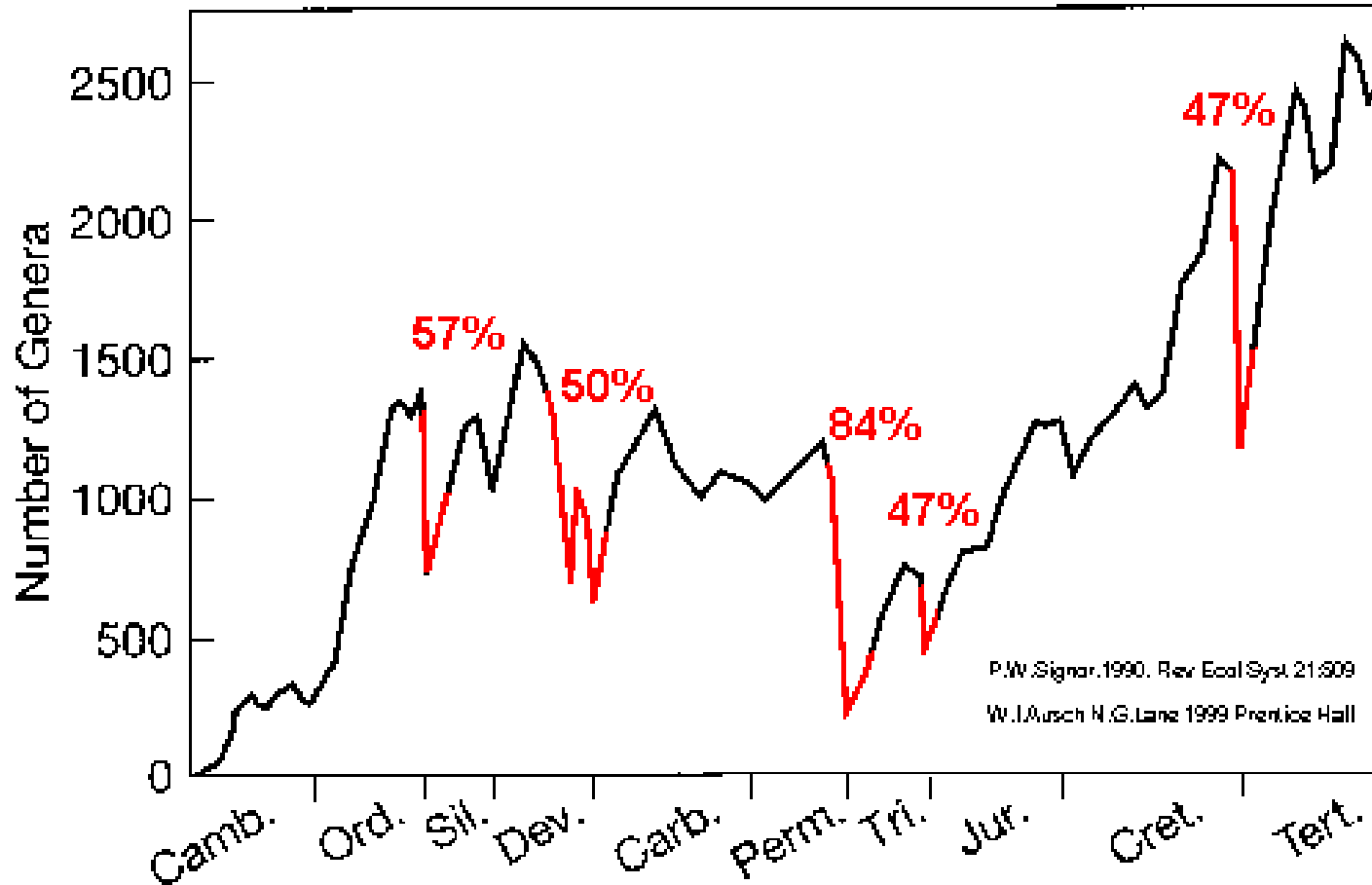
“The theory of natural selection is grounded on the belief that each new variety, and ultimately each new species, is produced and maintained by having some advantage over those with which it comes into competition...

...and the consequential extinction of less favored forms almost inevitably follows.”

---Charles Darwin



The 5 Extinctions



“The Five Mass Extinctions”

Ordovician-Silurian (443 mya)

- Ordovician-Silurian
443 mya
- Glaciation?
- Marine life, including graptolites



Late Devonian (359 mya)



- Asteroid/climate change?
- Shallow seas organisms
- Placoderms extinction



http://www.bbc.co.uk/nature/extinction_events/Late_Devonian_extinction

Permian “The Great Dying” (248 mya)

- 96% of all Life
- Flood basalts? Methane?
- Many land and marine organisms, incl. trilobites



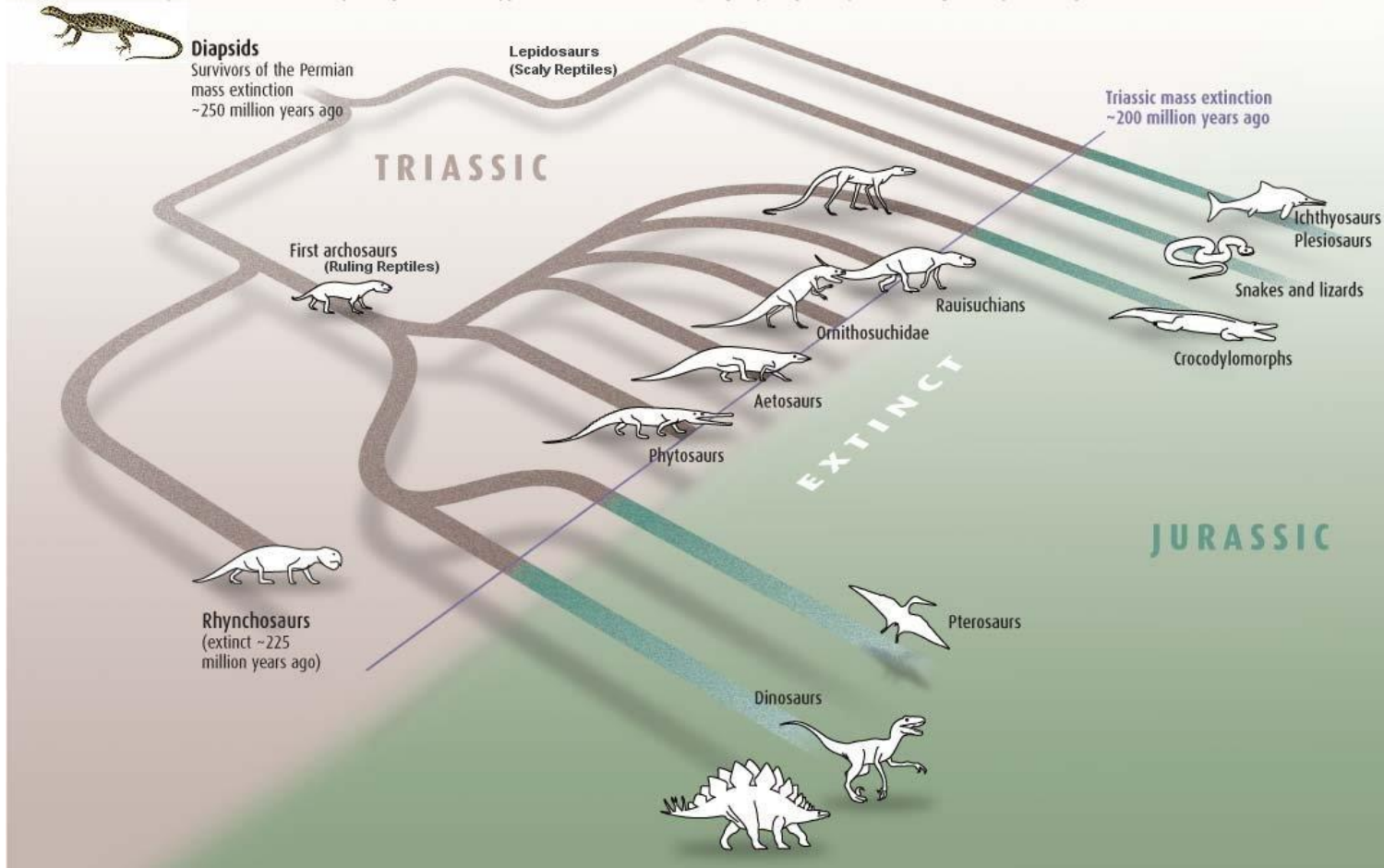
Triassic-Jurassic (200 mya)

About 50% of animals

Flood basalts? Climate?

THE FORGOTTEN EXTINCTIONS

The end of the Triassic period about 200 million years ago saw the disappearance of at least four major groups of giant reptiles, clearing the way for the age of the dinosaurs



Cretaceous-Tertiary (K-T) (65 mya) [Cretaceous-Paleogene]

- Dinosaurs, ammonoids +
- Asteroid? Lava flows? Both?
- Impact layer on land and deep-sea cores
- Iridium-rich layer at distinct boundaries



Megafauna Extinction



Mastodons, mammoths, Megatherium (giant sloth), and other huge animals all became extinct as the last glaciation ended.

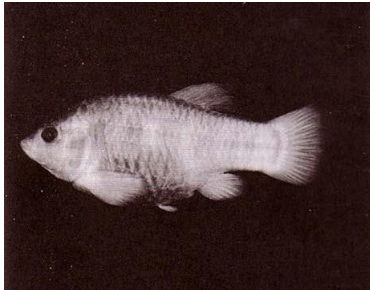
Coinciding with climate change was the spread of humans across the globe.

6th/Holocene?/Anthropocene?

- Human activities have contributed to 'transformation of the ecological landscape
- Altering the atmosphere, acidifying the ocean, destroying rainforests, etc.
- Release of chemicals

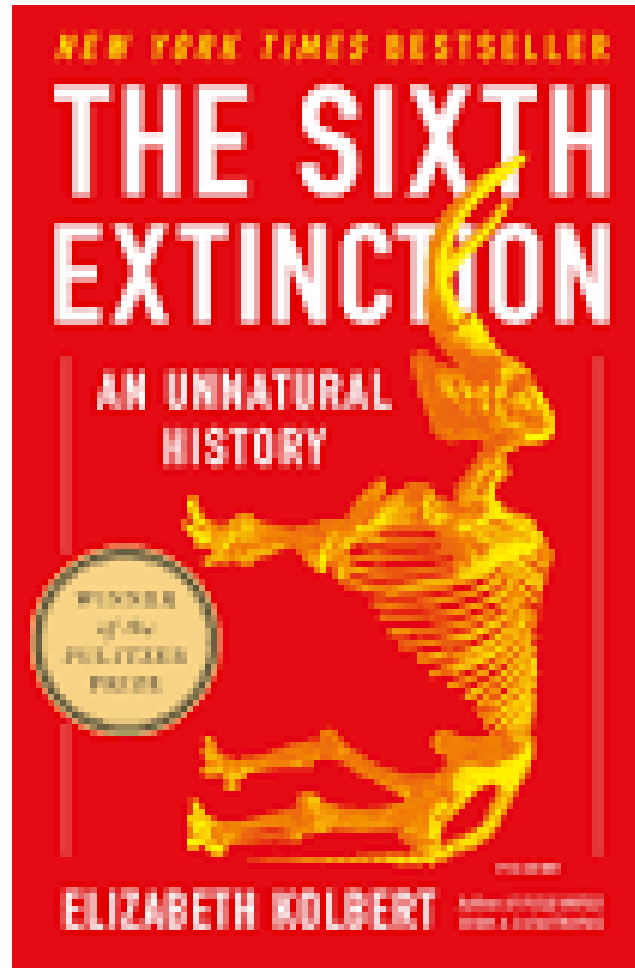


Gone But Not Forgotten



- EPA Endangered Species List
1,300 spp. just in the US
- How many more across the globe?





https://www.nytimes.com/2014/02/16/books/review/the-sixth-extinction-by-elizabeth-kolbert.html?_r=0

As Elizabeth Kolbert writes:

- “Past performance is no guarantee of future results.”
- Graptolites were everywhere and then they were nowhere
- Trilobites & ammonites swam for hundreds of millions of years
- Human actions will determine the course of Life long after there are no humans

Take-Home Points

- Glimpses into “Past Worlds” —such as the Dwarskill Mastodon” —are unpredictable, illuminating, and fascinating
- Origins and extinctions have always been occurring, and much can be learned from their study
- But the question now:
 “Are humans becoming the prime agent—
 and possibly a victim of--the Sixth Extinction?”