

The Rise of Modern Science

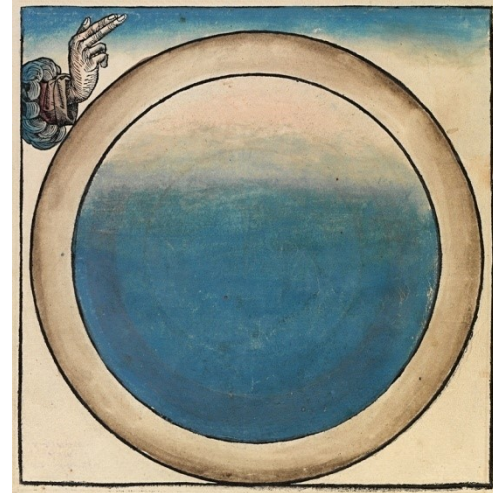
[Gustav Holst, "The Planets."](#)
(Images/Wikimedia Commons)

Origin of Species?

- ▶ Early humans have multiple creation stories
- ▶ Early Mesopotamia has stories like *Genesis* and the *Epic of Gilgamesh*

- Genesis 1: 1

In the beginning God created the heaven and the earth. And the earth was without form, and void; and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters. And God said, Let there be light: and there was light...



Top Right: First Day of Creation. 1493, Nuremberg Chronicles.



Interpretation

- ▶ Ancient Jews and early Christians interpret Genesis both symbolically and literally
- ▶ St. Augustine argues that the world was actually created all at one moment
- ▶ Maimonides, others believe that the days are symbolic
 - ▶ Other medieval thinkers debate what happens on the hours of each day!
- ▶ “The day of the Lord is a thousand years” (Psalm 90:4)

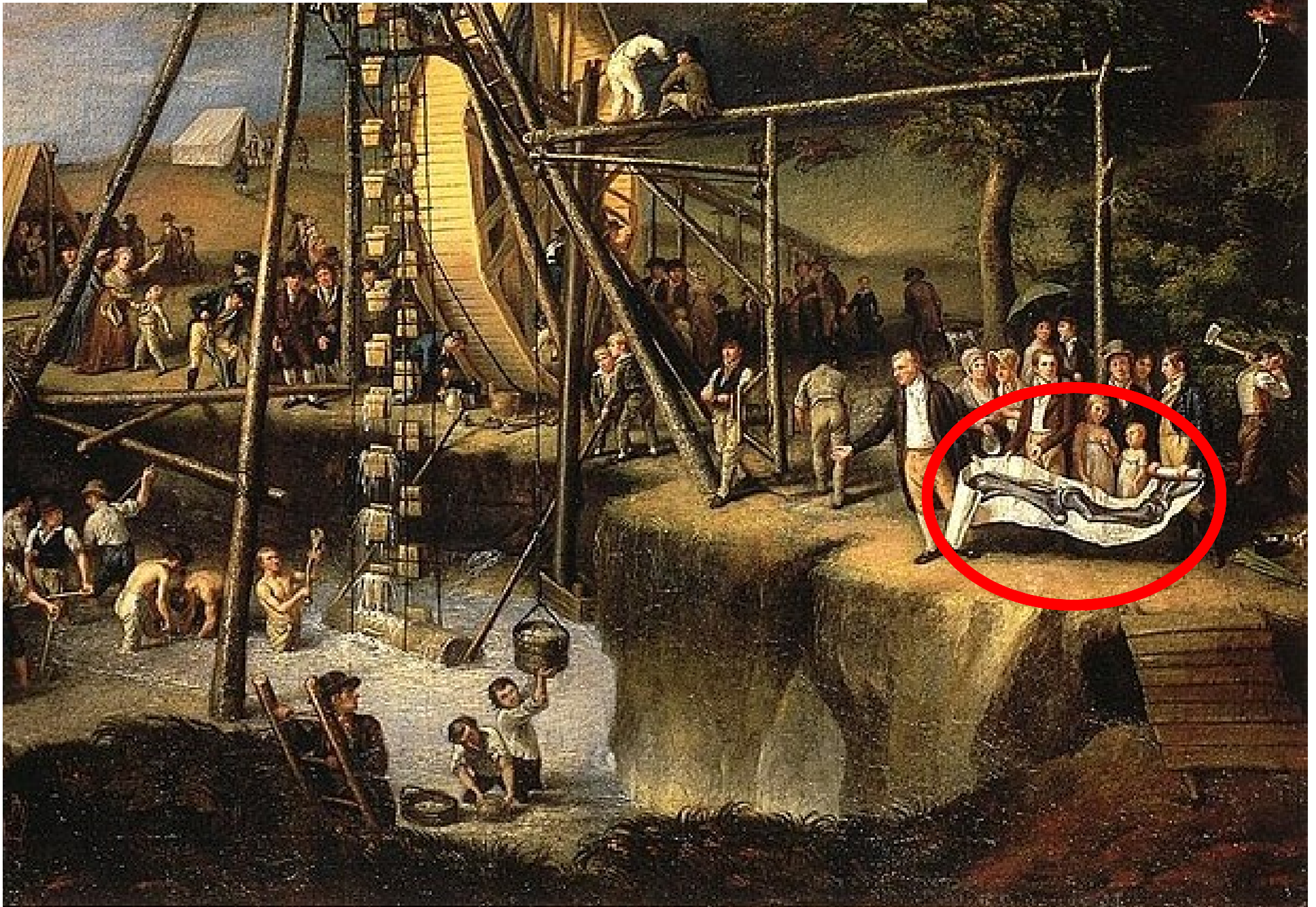


Later Developments

- ▶ 1787 – Massive bone discovered in Woodbury Creek, New Jersey and described by Dr. Caspar Wistar
- ▶ Stirs up controversy: Old World scholars consider American fauna inherently inferior to those in Europe
- ▶ Still later, bones from the “Great American Incognitum” are discovered nationwide



“Exhuming the First American Mastodon.” Charles Willson Peale, 1806.



Britain

- ▶ Mary Anning (1799-1847) discovers a “sea monster,” then spends the rest of her life searching for fossils
 - ▶ She sells sea-shells by the sea shore while she’s at it.
- ▶ We now know her monster as *Temnodontosaurus*, an ichthyosaur



Royal Institution

- ▶ Founded 1799 for:

“diffusing the knowledge, and facilitating the general introduction, of useful mechanical inventions and improvements; and for teaching, by courses of philosophical lectures and experiments, the application of science to the common purposes of life.”

- ▶ Receives funding from Society for Bettering the Conditions and Improving the Comforts of the Poor
 - ▶ Still exists!
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Reigning Celebrity: Humphrey Davy

- ▶ (1778-1829)
- ▶ Charismatic early chemist
- ▶ Comfortable background, like most scientists of time
- ▶ Built reputation of Royal Institution lecture series with dramatic chemistry demonstrations



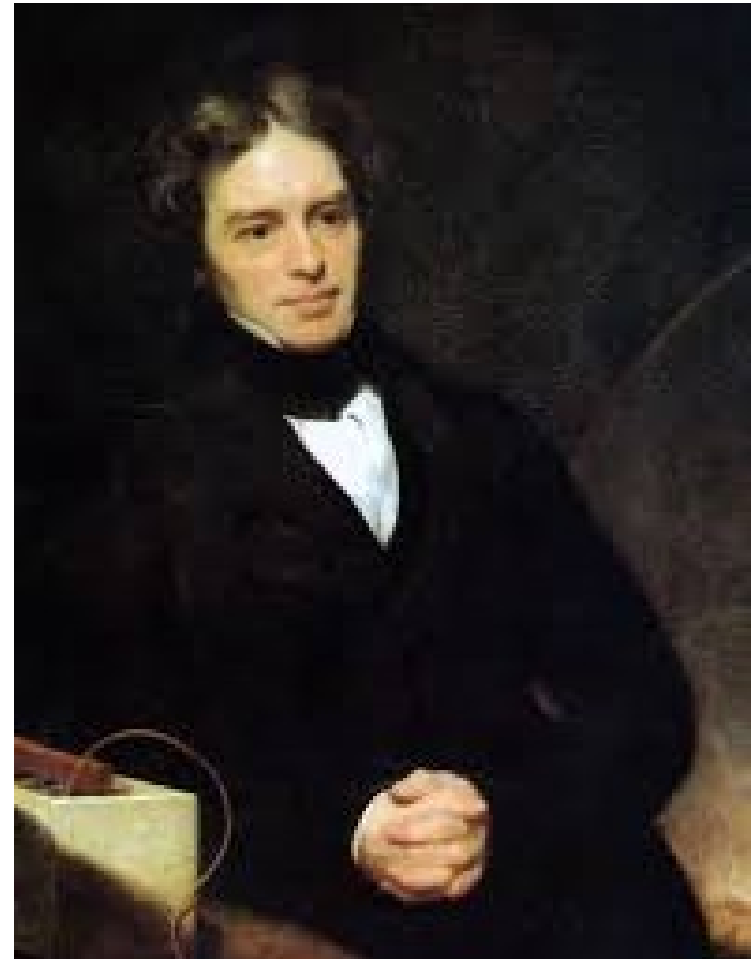
On right: Engraving by John A. Paris, ca. 1830.



New Kid on the Block: Michael Faraday

- ▶ (1791-1867)
- ▶ Innovator of electromagnetism, electrochemistry
- ▶ Father died young
- ▶ Poor Nonconformist family
 - ▶ “Sandemanian”: similar to modern Fundamentalists
 - ▶ Believe saving money is sinful
 - ▶ Religious throughout his life

On right: Portrait by Thomas Phillips, 1842.



Others

▶ Parson-naturalists:

- ▶ Anglican priests, often from wealthy, educated families
- ▶ Make many of the discoveries that become the foundation for paleontology
- ▶ Rev. William Buckland, (1784-1856) who often works at dig sites in academic robes, discovers Megalosaurus
- ▶ Belief develops that Earth may be up to 40 million years old



WILLIAM BUCKLAND, D.D., F.R.S.
President 1824-26; 1839-41.

On right: Portrait of Buckland by Richard Ansdell, 1908.



Charles Darwin

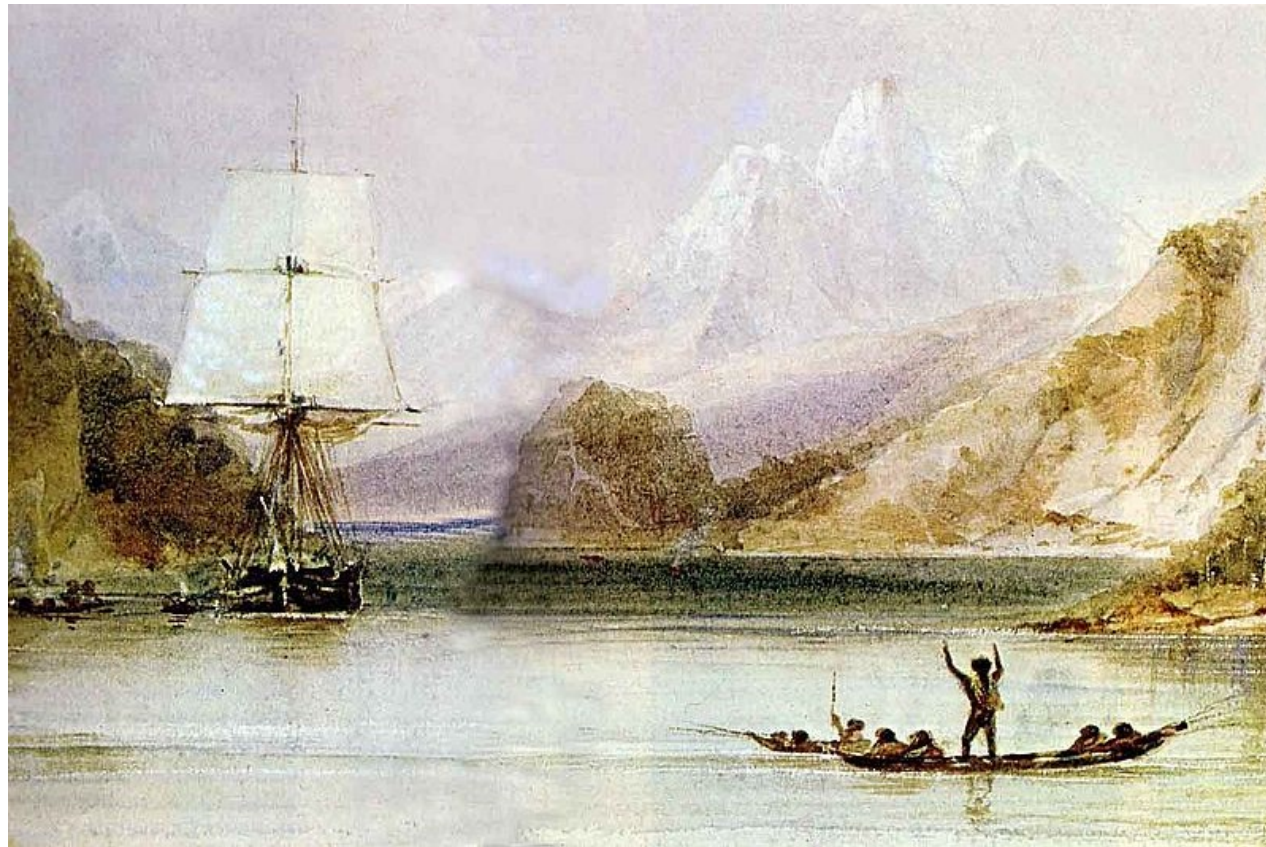


Portrait by George Richmond, ca. 1830s

- ▶ (1809-1882)
 - ▶ Wealthy abolitionist family
 - ▶ Raised in both Unitarian and Anglican Churches
 - ▶ Father privately a freethinker
 - ▶ Studies medicine at University of Edinburgh
 - ▶ Nearly an average parson-naturalist like Buckland
 - ▶ Darwin becomes the naturalist on the Voyage of the H.M.S. *Beagle* instead of a clergyman
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The Ultimate Internship



H.M.S. Beagle in 1832. Painting by Conrad Martens.



Darwin's Observations

Finches

