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物種起源

The Origin of Species, 1859

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本PPT內容之部份圖片取材自Campbell, N. A. and J. B. Reece. Biology. Pearson and Benjamin Cummings.

Full Title:

On the Origin of Species by Means of
Natural Selection, or the Preservation of
Favoured Races in the Struggle for Life

Charles Darwin, M.A.,

*Fellow of the Royal, Geological, Linnæan, etc. societies; Author
of Journal of researches during H. M. S. Beagle's Voyage round
the world. London: John Murray, Albemarle Street, 1859*

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*The Greek philosopher Aristotle
viewed species as fixed and
unchanging*

*The Old Testament of the Bible
holds that species were
individually designed by God and
therefore perfect*

Carolus Linnaeus

- Linnaeus interpreted organismal adaptations as evidence that the Creator had designed each species for a specific purpose
- Linnaeus was a founder of taxonomy, classifying life's diversity "for the greater glory of God"

Theories of Gradualism

- Gradualism is the idea that profound change can take place through the cumulative effect of slow but continuous processes

- **拉馬克 (Lamarck) 在 1800s 初期指出：**
「化石反映出生命型式的演變。」



□ Jean Baptiste
Lamarck

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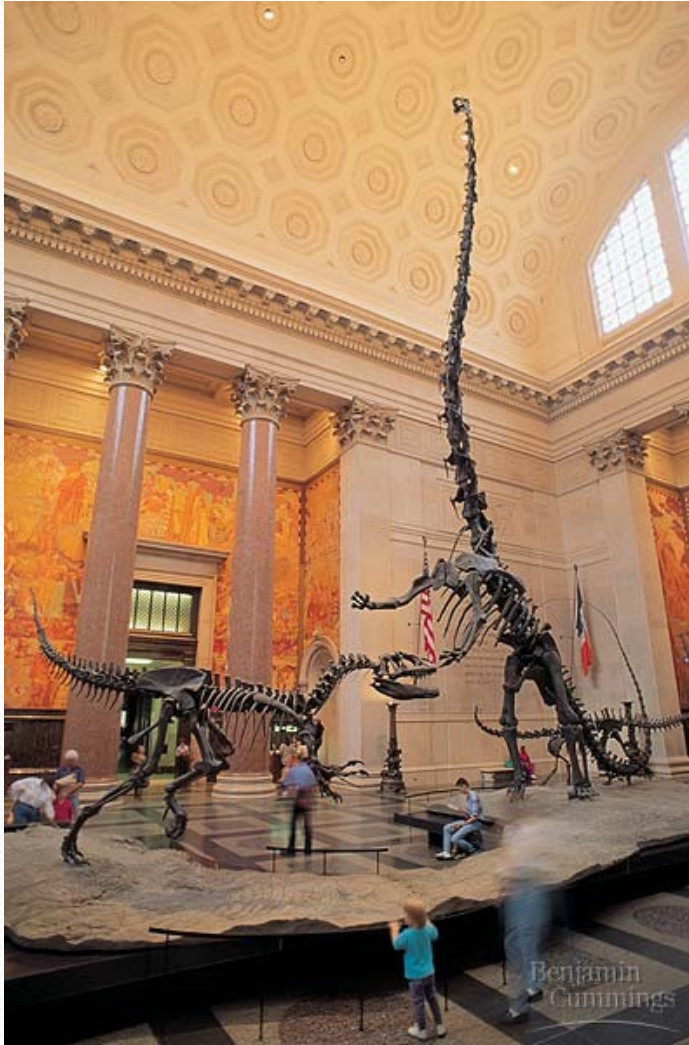
EVIDENCE OF EVOLUTION



• Fossil perch (河鱸)



• Ammonite (菊石)





Petrified trees

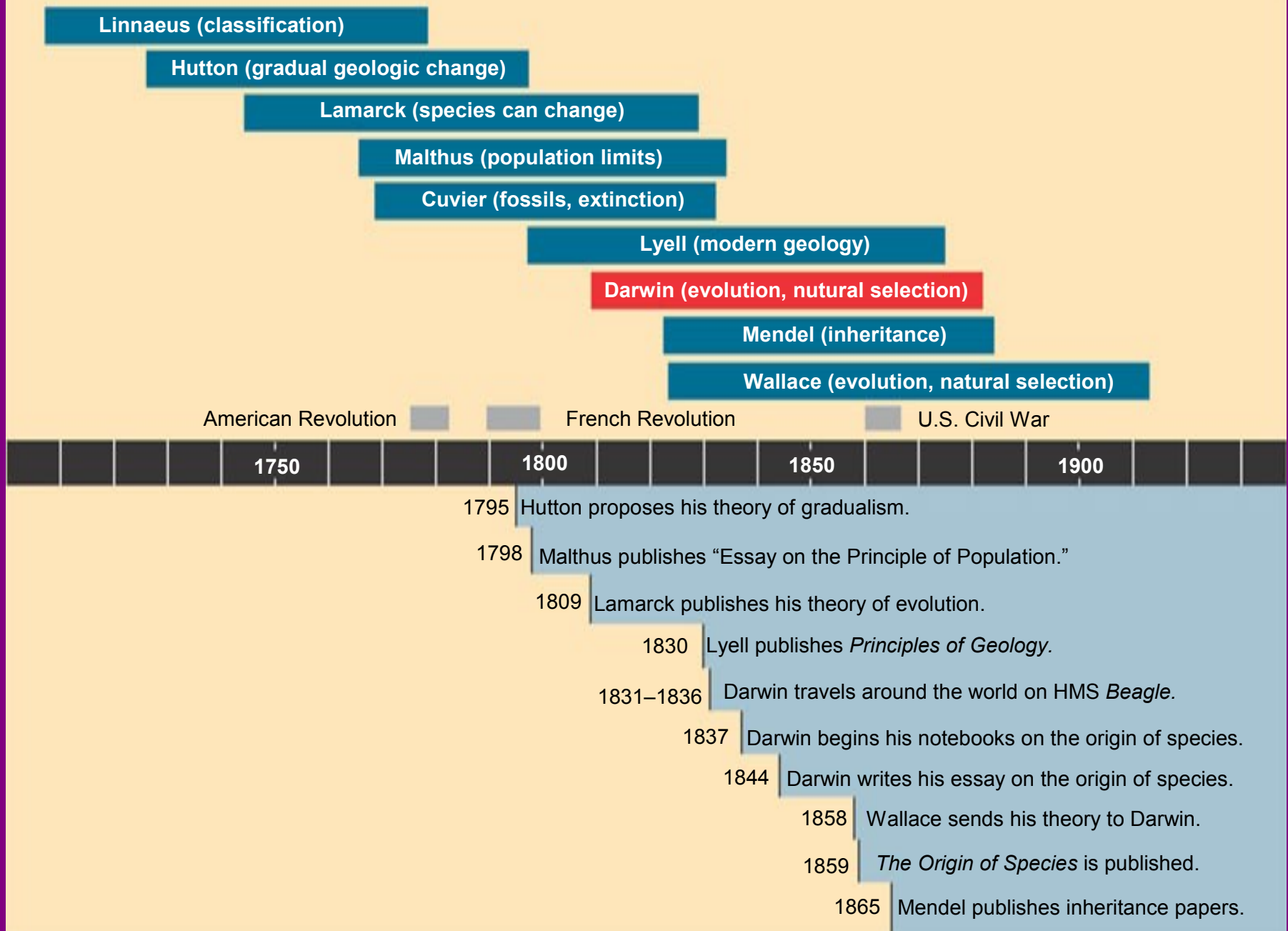


Hominid (直立人屬) skull

- Lamarck hypothesized that species evolve through use and disuse and the inheritance of acquired (養成) traits
- The mechanisms he proposed are unsupported by evidence

用進廢退?!

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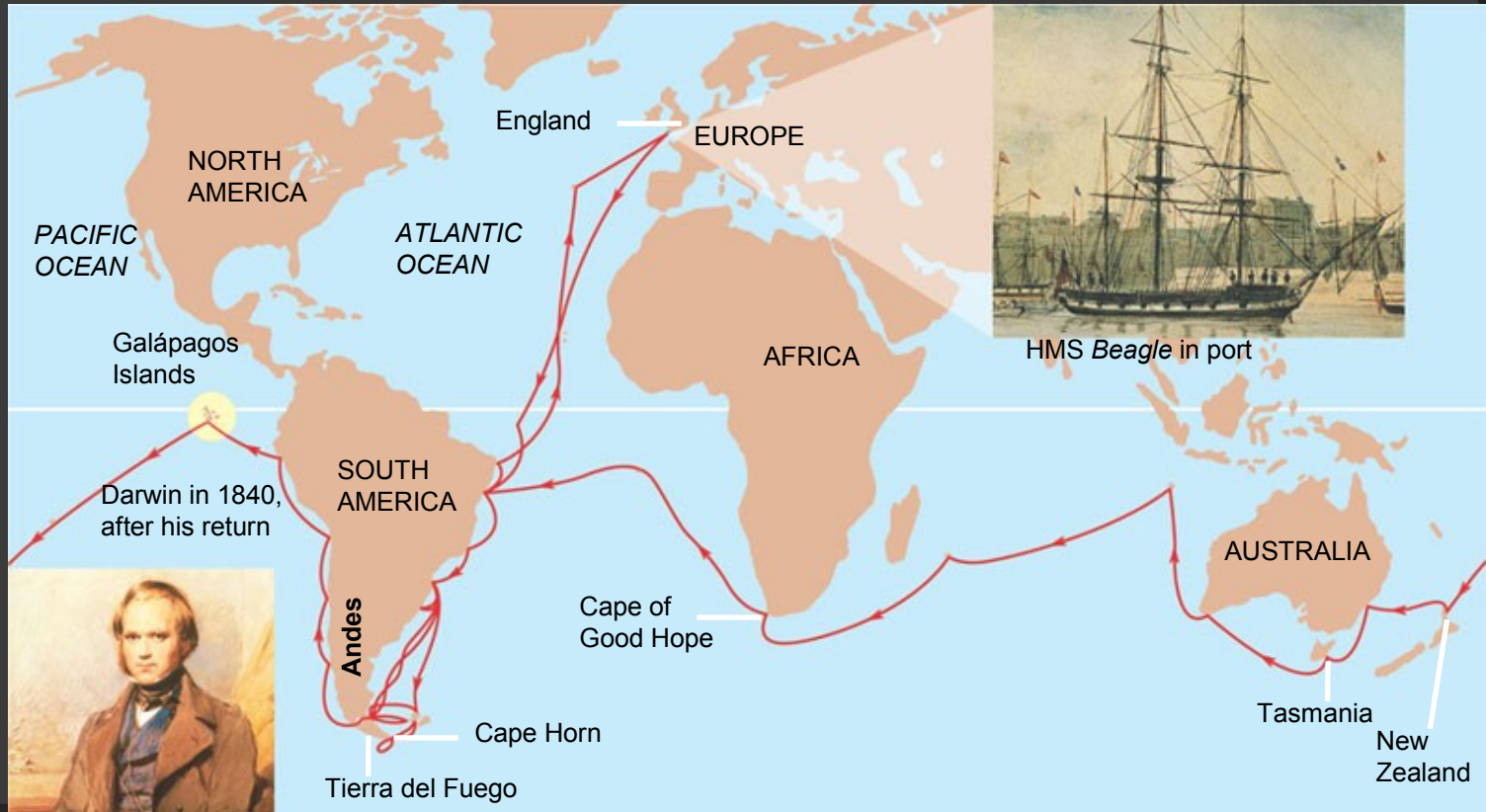


DARWIN'S RESEARCH

- ◎ As a boy and into adulthood, Charles Darwin had a consuming interest in nature.
- ◎ Soon after Darwin received his B.A. (文學士) degree, he was accepted on board the HMS *Beagle* (小獵犬號), which was about to leave for a voyage around the world.

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- Darwin's interest in the geographical distribution of species was kindled by the *Beagle*'s stop at the Galápagos Islands near the equator west of South America



✕ Darwin made two major points in his book

+ He presented evidence that the many species of organisms presently inhabiting the Earth are descendants of ancestral species

+ He proposed a mechanism for the evolutionary process, natural selection



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- These five canine species evolved from a common ancestor through natural selection



African wild
dog



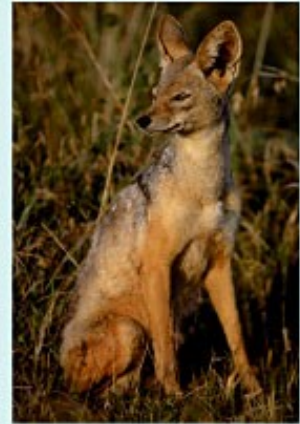
Coyote



Fox



Wolf



Jackal

Thousands to
millions of years
of natural selection

Ancestral canine

- ▣ 物種不是被獨立創造出來的，而和變種一樣，是從其他物種傳下來的
- ▣ 物種不是不變的，那些所謂同屬的物種都是另一個普通已經絕滅的物種的直系後裔
- ▣ 自然選擇是變異的最重要的、雖然不是唯一的途徑