

ANTH151 HUMAN EVOLUTION AND BIODIVERSITY

Key Terms in Human Evolution:

- **Anthropology** is the study of cultural diversity through fieldwork. Traditionally Anthropology was the study of supposedly 'primitive' non-Western cultures.
- **Atavisms** are the reappearance of a lost characteristic or trait typical of remote ancestors (such as coccygeal mass - a tail) in humans. These are remnants of a remote evolutionary ancestor and are often not exhibited in parents but instead rarely show up in the phenotype (physicality) of an individual.
- **Mutations** are considered an error in DNA replication and can cause things such as six digit fingers/toes.
- **Vestigial Organs** exist in most organisms and are present in adulthood. They can be useless or still have use or an organ that was present in the common ancestor e.g appendix, gill slits, hiccups.
- **Homologous structures** are similarities in underlying ancestors which shows that it is descended from a common ancestor e.g bats, whales, cats and humans all having 5 digits appendages which show they once upon a time perhaps had use for this.
- **Kluge(s)** are sub-optimal solutions to design problems such as human throat plumbing - which carries out breathing, eating and drinking at the same time. This means humans have learnt to adapt to doing these things accordingly and are not an example of a designed, perfected product but in fact have these evolutionary errors.

Natural Selection and Genes:

Contributors to the Theory of Evolution:

- **Carl Linnaeus** classified species (taxonomy) and highlighted their similarities.
- **George Buffon** challenged the idea of a stable perfect creation because species in fact has kluges.
- **Erasmus Darwin** argued 'Natural theology'. Believed in a divine creation, but also a process of speciation.
- **James Hutton/Charles Lyell** argued geological uniformitarianism and concept of deep time.
- **Jean Baptiste Lamarck** argued species changed in response to their environments, they change, inherit and adapt. He also argued that characteristics were acquired during a lifetime of an organism and are passed onto its offspring (which was later proved wrong as they have evolved as a species over many millennia and could not pass on something they had acquired in their lifetime).
- Contemporaries were contemplating how and why species change.
- Geological discoveries suggested the Earth was very ancient.
- Most theories based on ideas of degeneration ('post-Lapsarian'), aspirational change or catastrophism.
- Many proposals of evolution, but none were as compelling as Darwin's