

## Notes on Darwin's Origin of the Species

What most surprised you?

Theory vs Hypothesis

Occam's razor – economy of hypotheses.

Science vs. Pseudoscience – he raises and attempts to address serious objections

Darwin's work is not a sacred text. His theory can be tested. Creation can be tested.

Careful observation and experiment

How much Darwin knew about so much! Sheer amounts of stuff he knows and plants and animals he considers

Now know mechanism of natural selection: DNA RNA etc.

What does the word "natural" in Natural Selection contrast to?

Time - lots of time. Role of huge range of time. He talks of hundreds of millions, now we know billions.

Common structure: selection not creation.

Bats but no frogs on isolated Pacific islands hard to explain creation.

Nature does not make jumps *natura non facit saltum*

"higher," "lower" forms of life

One big error: does not believe continents once united

Selection acting on a species does no injury to that species; maybe to others co-existing.

Fossils rare

In transition, selection is slow => extinction, fossils rare

Fossil record - new supplants the old

Geology: subsidence vs uplift, intermittent

Eyes – evolve in steps from photo-sensitive neurons

When the Sun turns into a red giant, will our eyes evolve?

Bee sting – modified by selection, but not perfected, bees die.

Organs acquire different functions

Can you turn a cat into a dog?

Why no intermediate species between cat and dog?

Instinct

Altruism

Not one living species will transmit as unaltered likeness to a distant futurity.