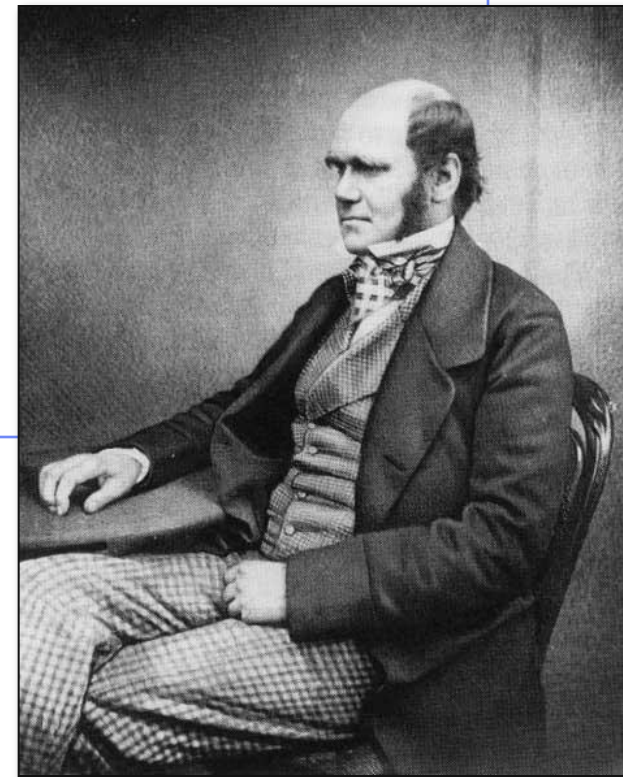
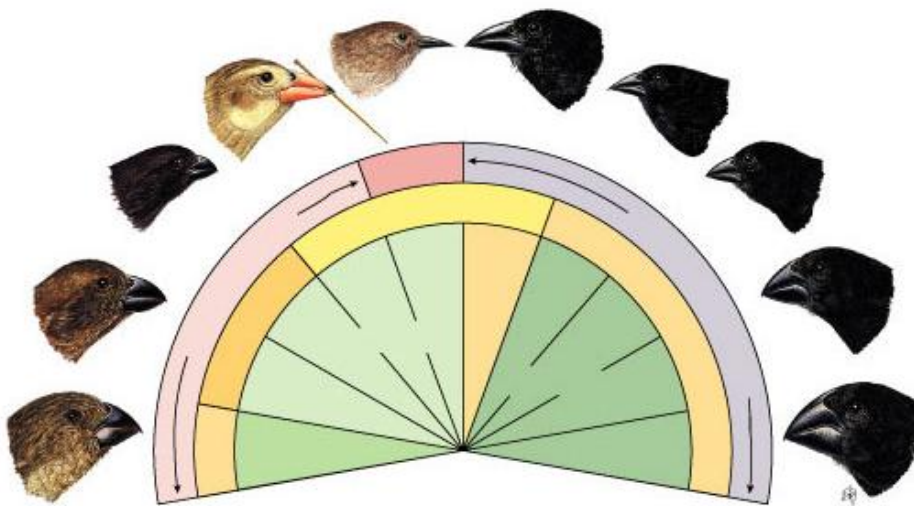


evolution

*a journey into where we're from
and where we're going*

Darwin's Principles



Darwin's finches

- Differences in beaks allowed some finches to...

- ◆ successfully compete

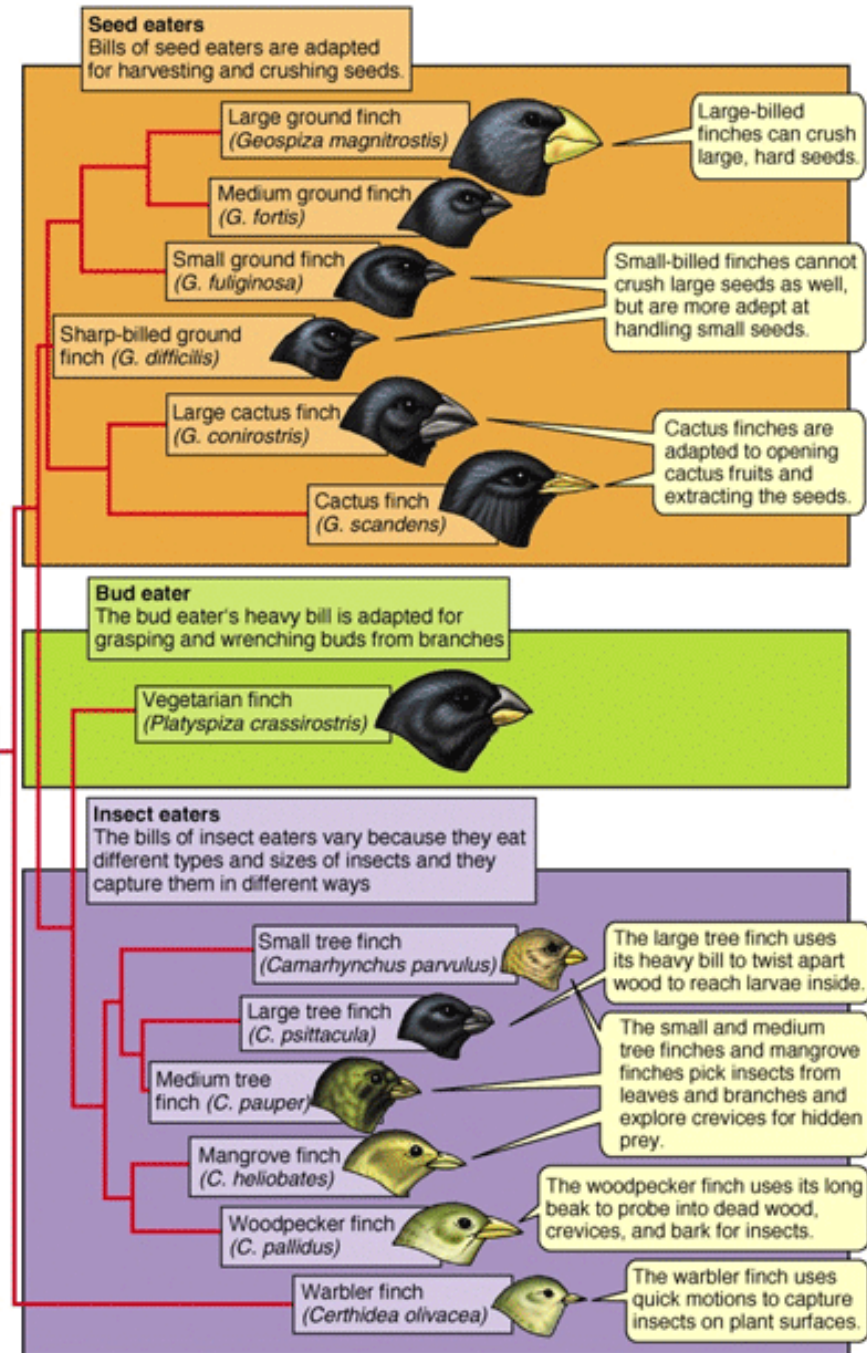
- ◆ successfully feed

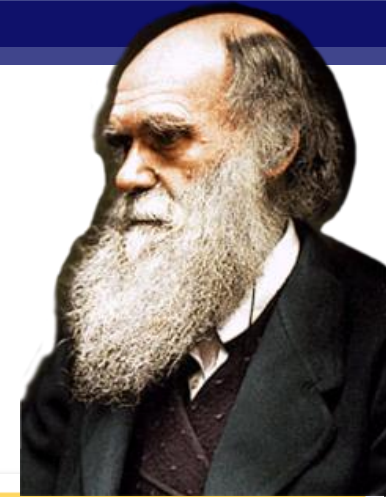
- ◆ successfully reproduce

- pass successful traits onto their offspring



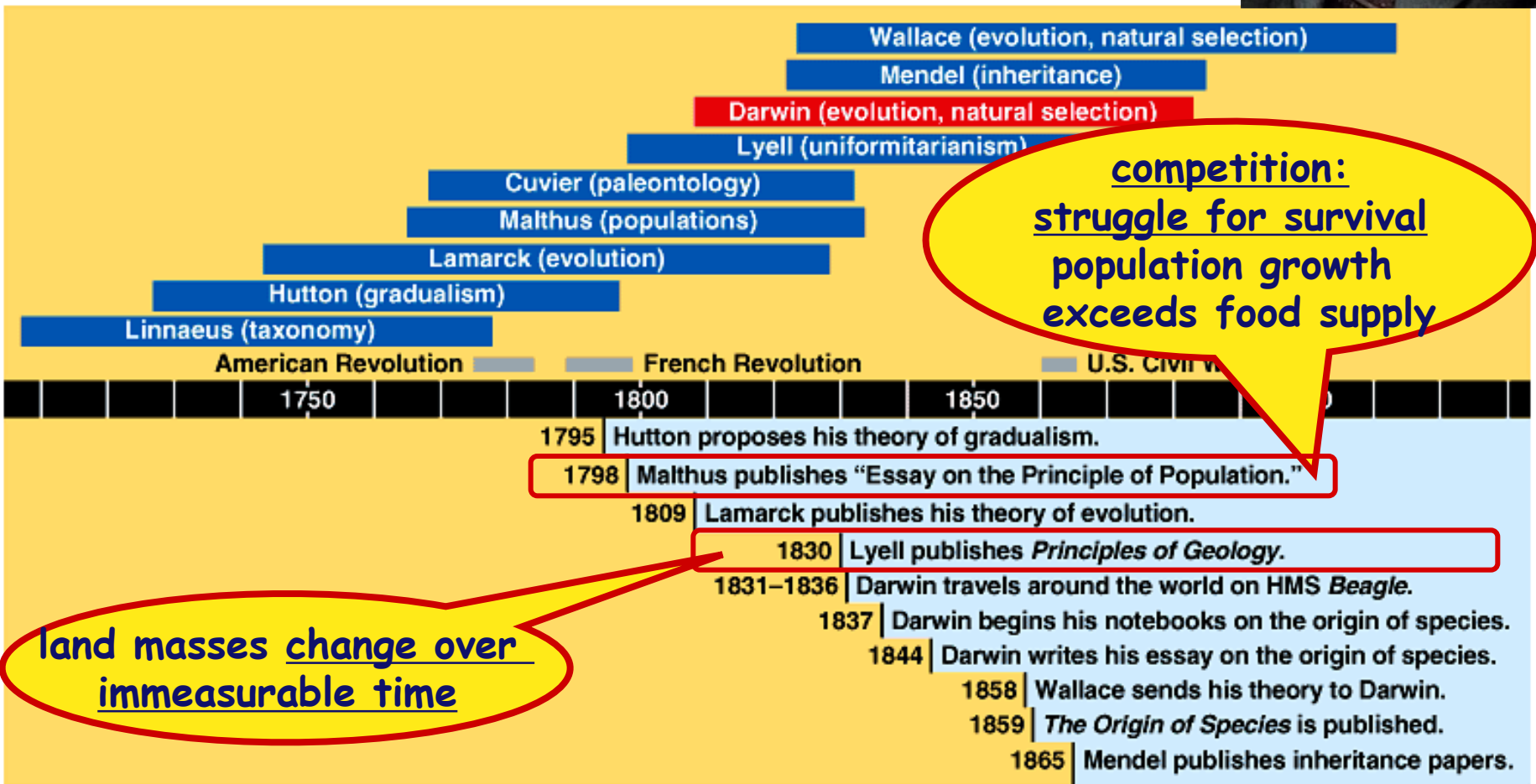
ANCESTOR FINCH from South America mainland.





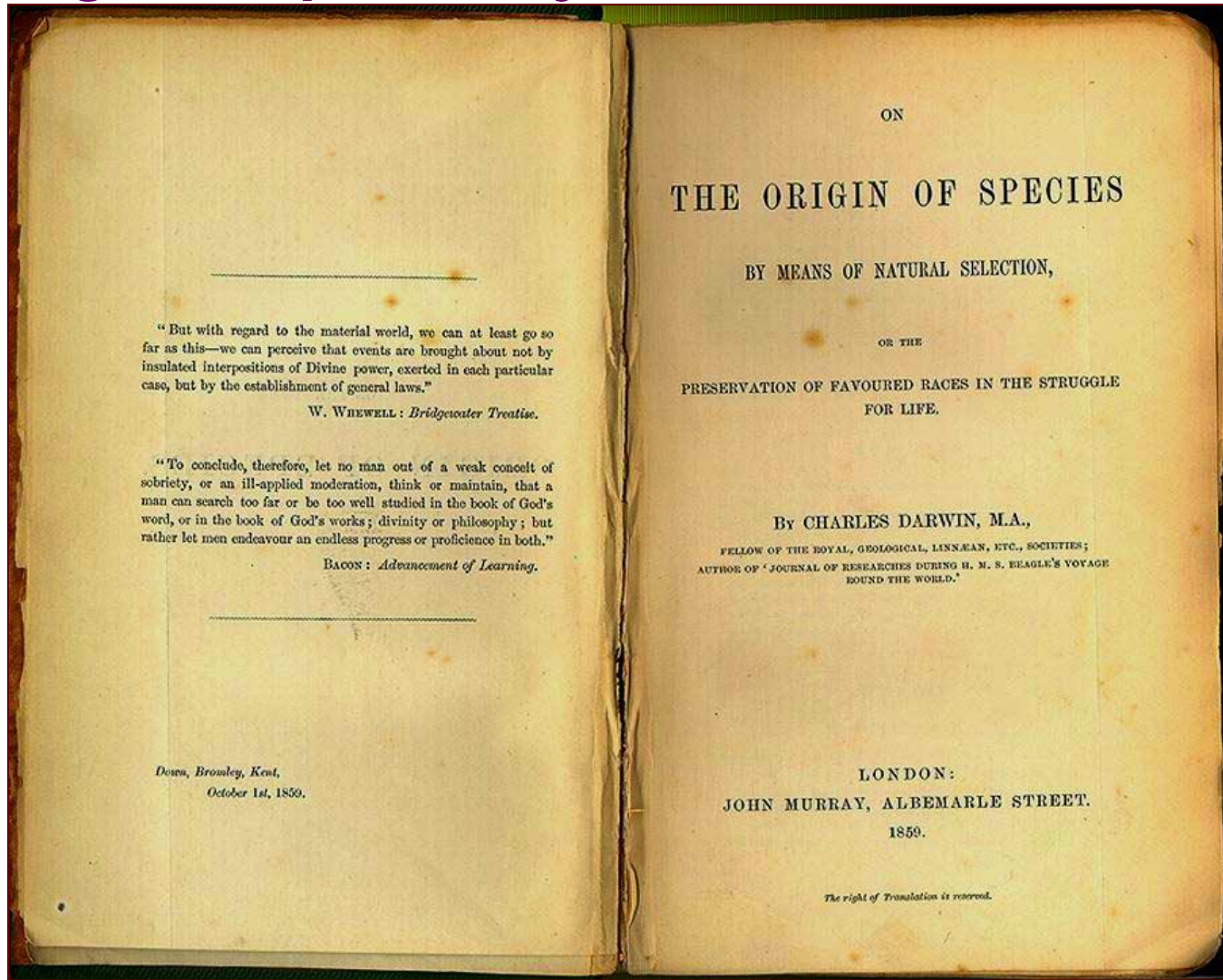
In historical context

- Other people's ideas paved the path for Darwin's thinking



November 24, 1859, Darwin published

“On the Origin of Species by Means of Natural Selection”

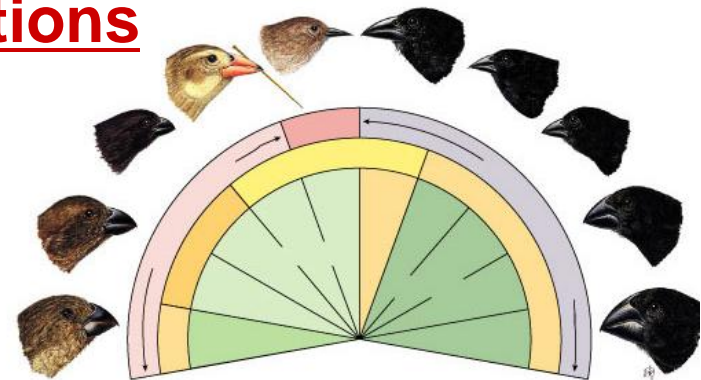


Essence of Darwin's ideas



■ Natural selection

- ◆ heritable variation exists in populations
- ◆ over-production of offspring
 - more offspring than the environment can support
- ◆ competition
 - for food, mates, nesting sites, escape predators
- ◆ differential survival
 - successful traits = adaptations
- ◆ differential reproduction
 - adaptations become more common in population



Where does Variation come from?

■ Mutation

◆ random changes to DNA

- errors in mitosis & meiosis
- environmental damage

■ Sexual reproduction

◆ mixing of alleles

- genetic recombination

◆ new arrangements of alleles in every offspring

- new combinations = new phenotypes



LaMarckian vs. Darwinian view

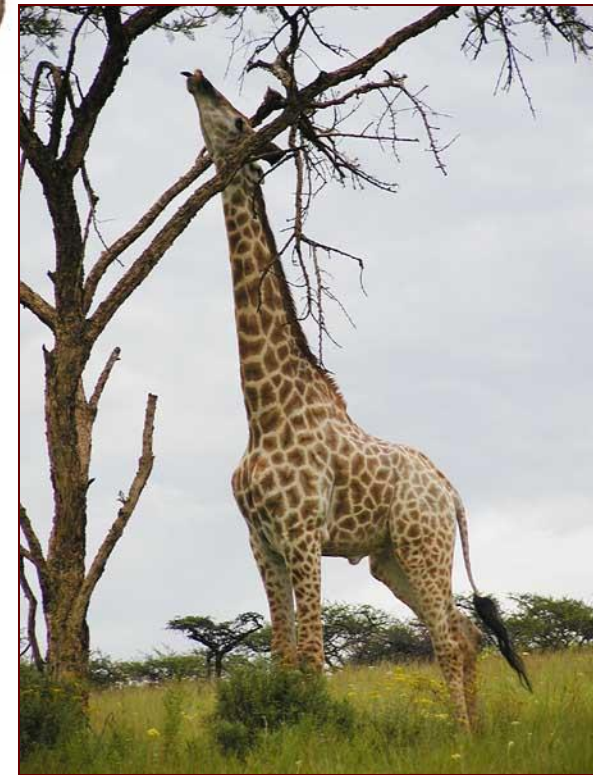
■ LaMarckian

- ◆ in reaching higher for vegetation giraffes stretch their necks & transmit the acquired longer necks to offspring



■ Darwinian

- ◆ giraffes born with longer necks survive better & leave more offspring who inherit their long necks





**Stick your neck out...
Ask Questions!**