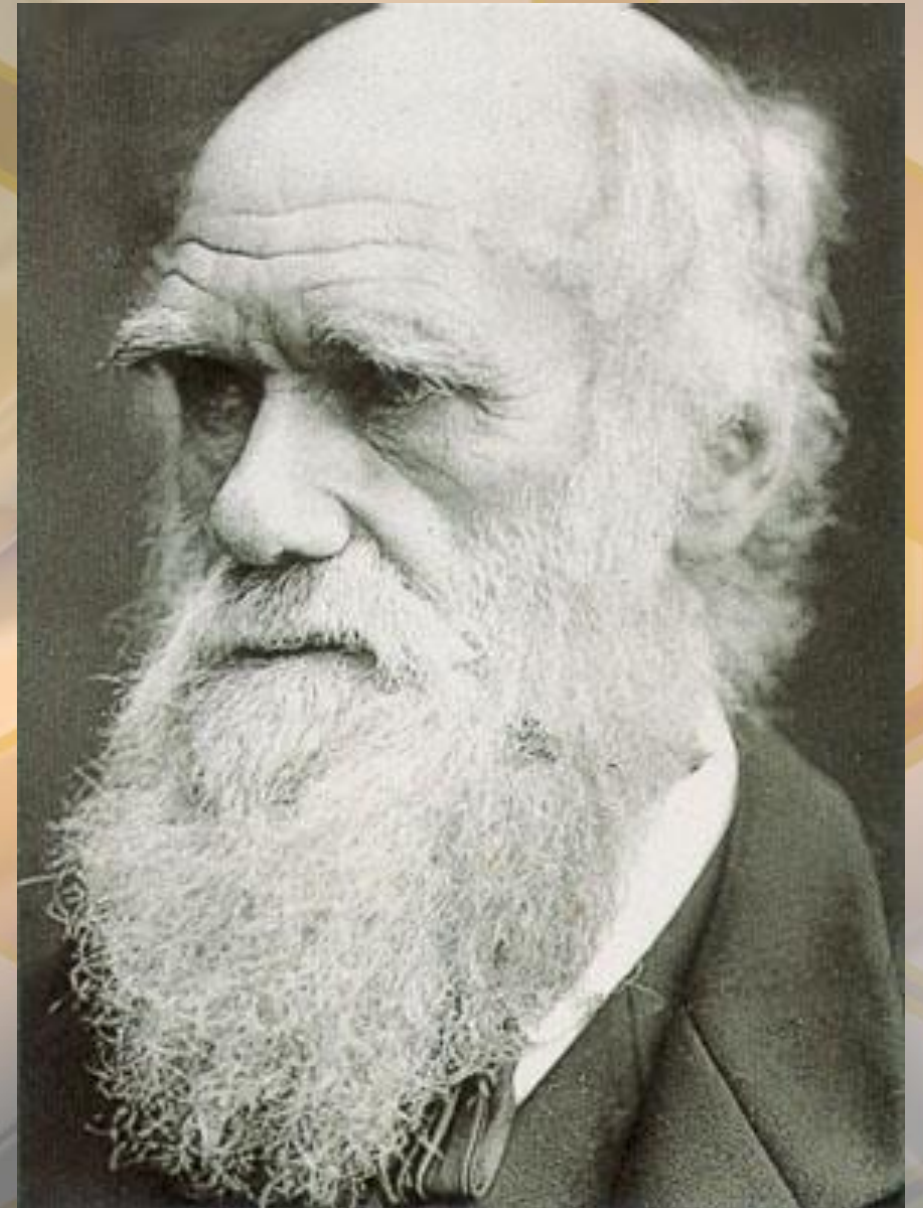


Darwin & Evolution

EQ: What are Darwin's contributions to evolution?

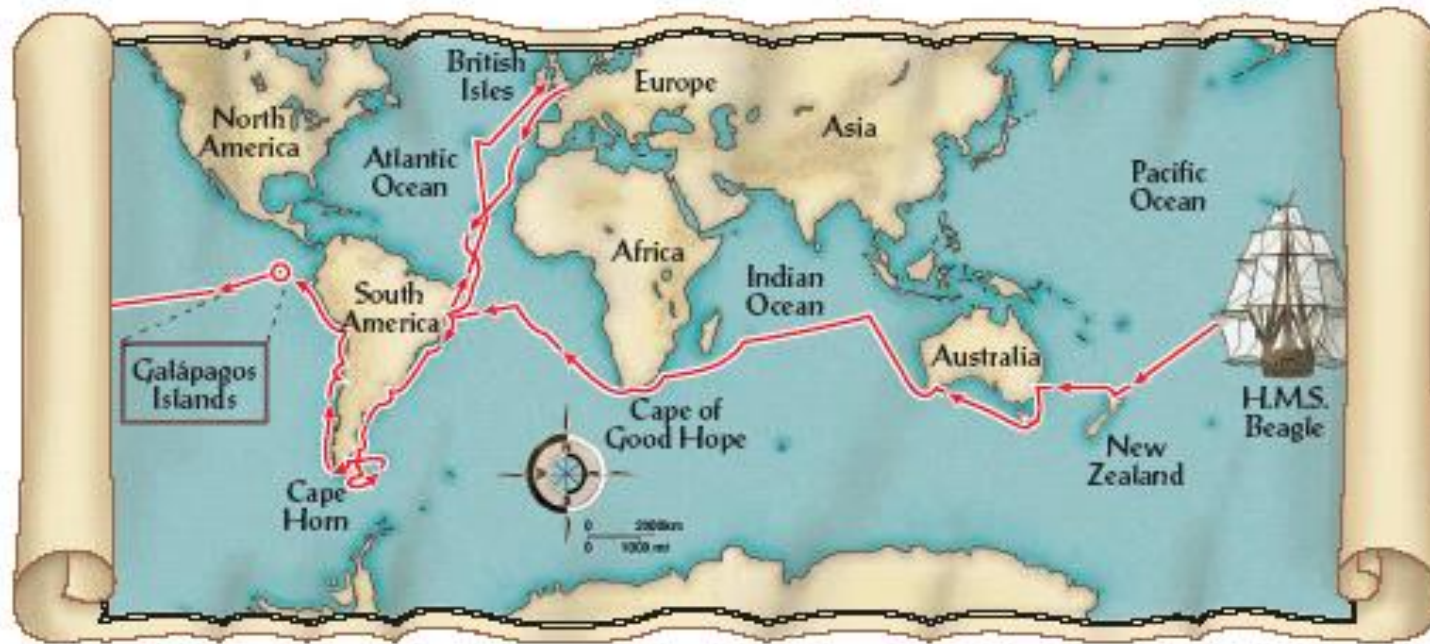
Charles Darwin

- “The Father of Evolution”
- The Theory of Evolution – theory that all various species of living organisms originate from common ancestors, and that the differences are due to heritable modifications.
- Not the first to speak of the theory of evolution, but was the first to describe natural and artificial selection



How did Darwin come up with evolution?

- In 1831, he began a 5 year voyage on the HMS Beagle that would change his life.



Darwin's Voyage On a five-year voyage on the *Beagle*, Charles Darwin visited several continents and many remote islands. 🌍 Darwin's observations led to a revolutionary theory about the way life changes over time.

What were Darwin's observations?

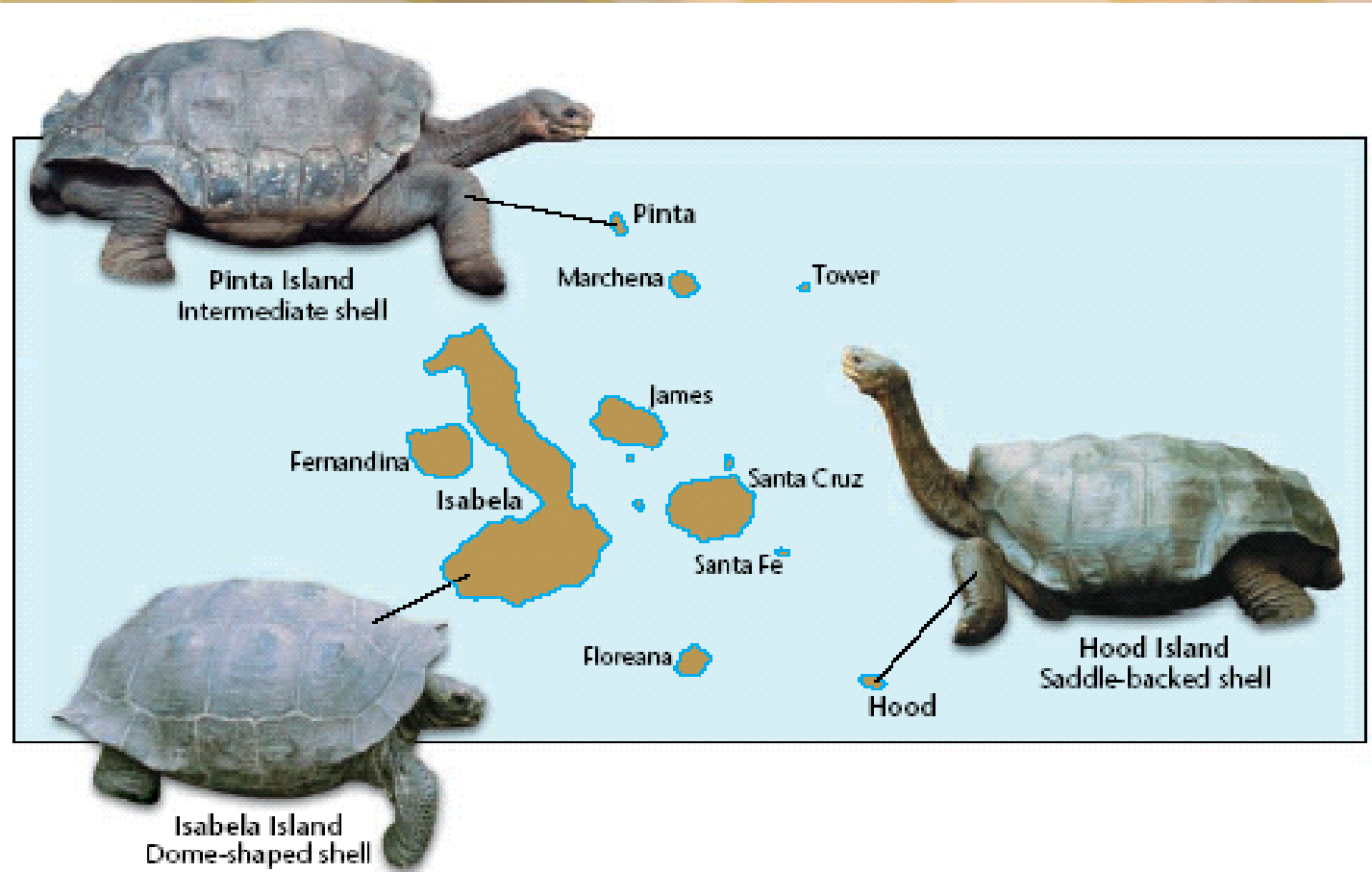
Species Vary Globally

- Different, but similar, animals inhabited separate, but similar, habitats
 - Ex.
- That some similar environments have very different animals.
 - Ex. Kangaroos in Australia but not England.



Darwin's Observations Cont...

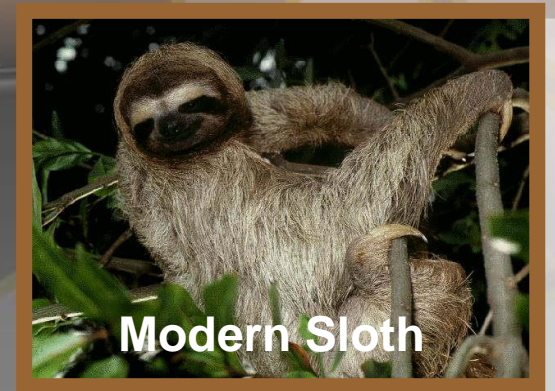
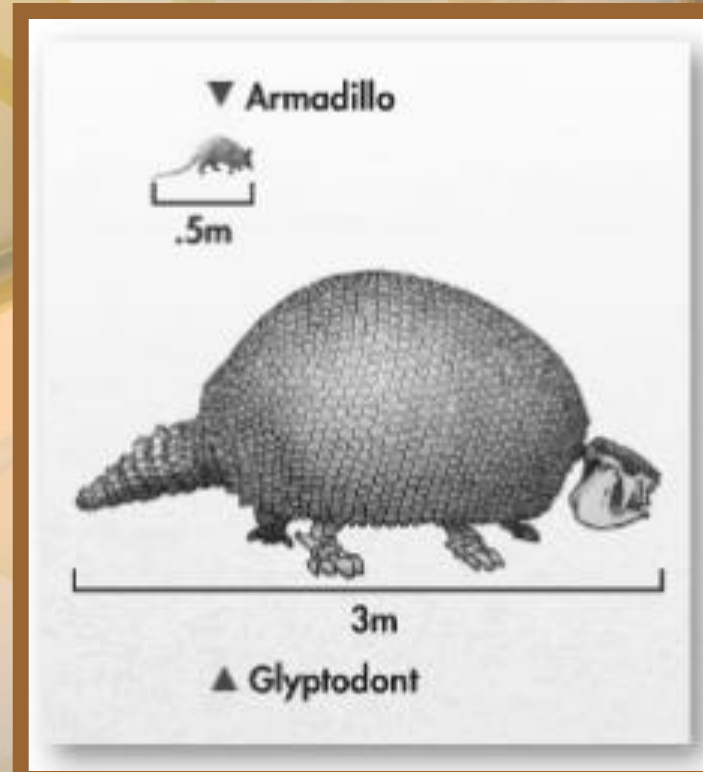
- **Species Vary Locally**
- Different, yet related, animals occupied different habitats within a local area
 - Exs. – Tortoises and Birds in the Galapagos Islands varied from island to island



Variation Among Tortoises 🇺🇸 Darwin observed that the characteristics of many animals and plants varied noticeably among the different Galapagos Islands. Among the tortoises, the shape of the shell corresponds to different habitats. The Hood Island tortoise (right) has a long neck and a shell that is curved and open around the neck and legs, allowing the tortoise to reach the sparse vegetation on Hood Island. The tortoise from Isabela Island (lower left) has a dome-shaped shell and a shorter neck. Vegetation on this island is more abundant and closer to the ground. The tortoise from Pinta Island has a shell that is intermediate between these two forms.

Darwin's Observations Cont...

- Species Vary Over Time
- Some fossils of extinct animals were similar to living species
 - Ex. - Extinct giant armored Glyptodont is similar to and lived in the same area as the Armadillo



What was Darwin's Conclusion?

- Darwin thought about the patterns he'd seen on his voyage
- He realized that there were many similarities between the animals he'd seen
- There was evidence that suggested that species were not fixed and that they could change by some natural process



What Darwin didn't know about natural selection

Survival of the Fittest

- Darwin felt that there must be a connection between an animal's environment and how it survives
- Ability to survive and reproduce in a specific environment is called fitness
- Fitness depends upon how well an organism is suited for its environment
- Fitness is a result of adaptation



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Survival of the Fittest

- Good adaptations allow organisms to survive and are passed on to their offspring.
- He referred to “survival of the fittest” as Natural Selection
- Survival means more than just staying alive. It means reproducing and passing adaptations on to the next generation
- Favorable characteristics are inherited over several generations.

