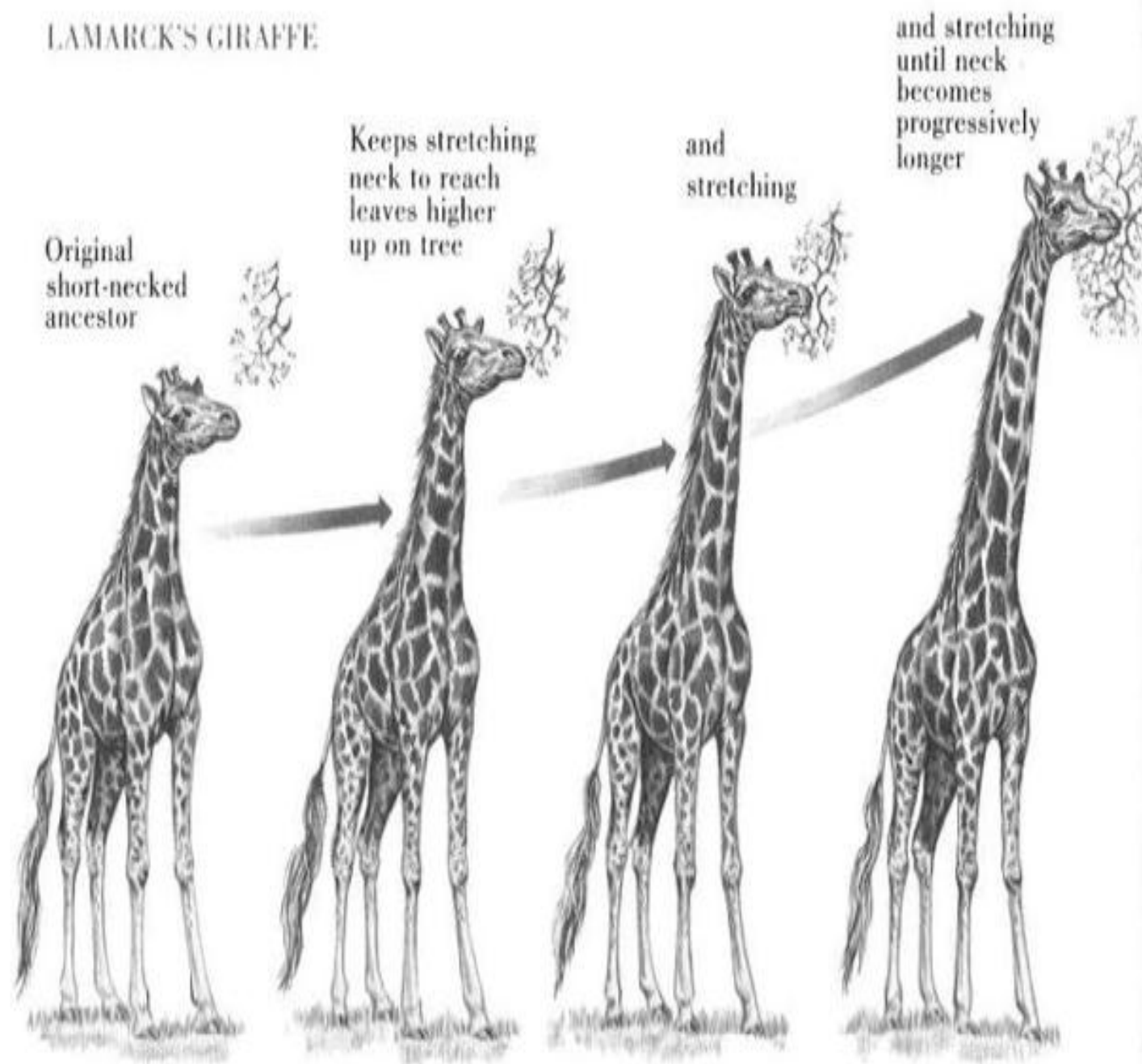


Lamarck's Theory of Evolution

Lamarck's Theory of Evolution

- Tendency toward Perfection(Giraffe necks)
- Use and Disuse (bird's using forearms)
- Inheritance of Acquired Traits

LAMARCK'S GIRAFFE



Population Growth

- **Thomas Malthus**-19th century English economist
- If population grew (more Babies born than die)
 - Insufficient living space
 - Food runs out
 - Darwin applied this theory to animals



Publication of Orgin of Species

- Russel Wallace wrote an essay summarizing evolutionary change from his field work in Malaysia
- Gave Darwin the drive to publish his findings



Natural Selection & Artificial Selection

- **Natural variation**--differences among individuals of a species
- **Artificial selection**- nature provides the variation among different organisms, and humans select those variations they find useful.

Evolution by Natural Selection

- **The Struggle for Existence**-members of each species have to compete for food, shelter, other life necessities
- **Survival of the Fittest**-Some individuals better suited for the environment

Natural Selection

- Over time, natural selection results in changes in inherited characteristics of a population. These changes increase a species fitness in its environment



Descent

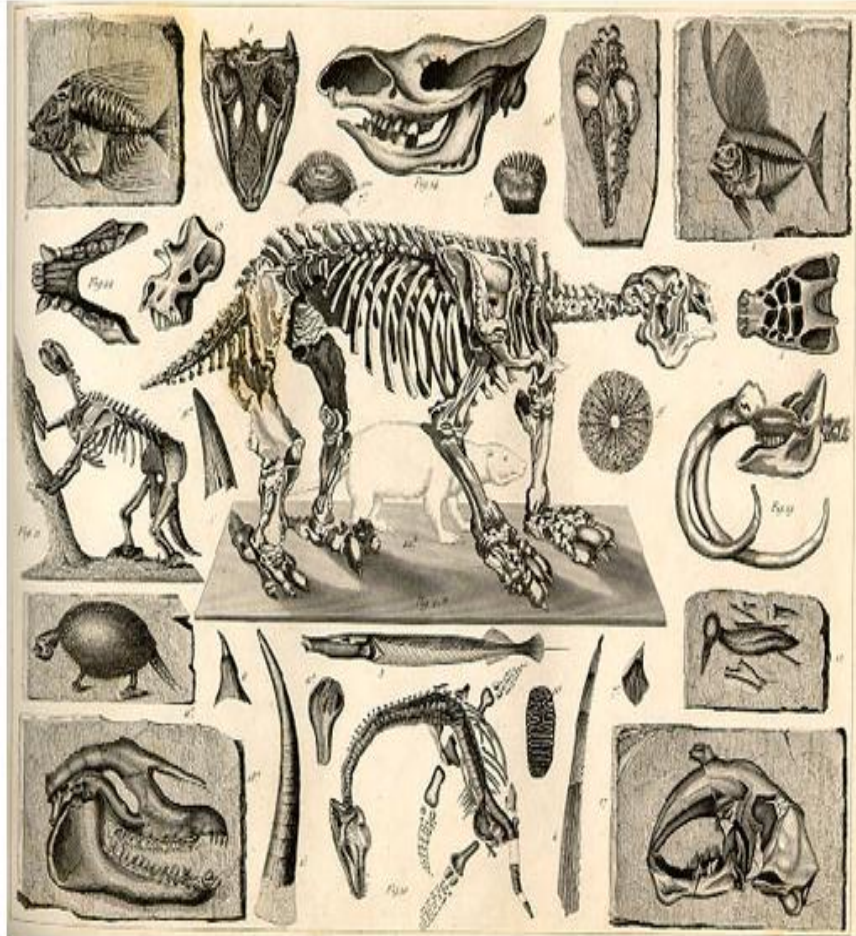
- **Descent with Modification**-Each living organism has descended, with changes from other species over time
- **Common Descent**- were derived from common ancestors



Evidence of Evolution

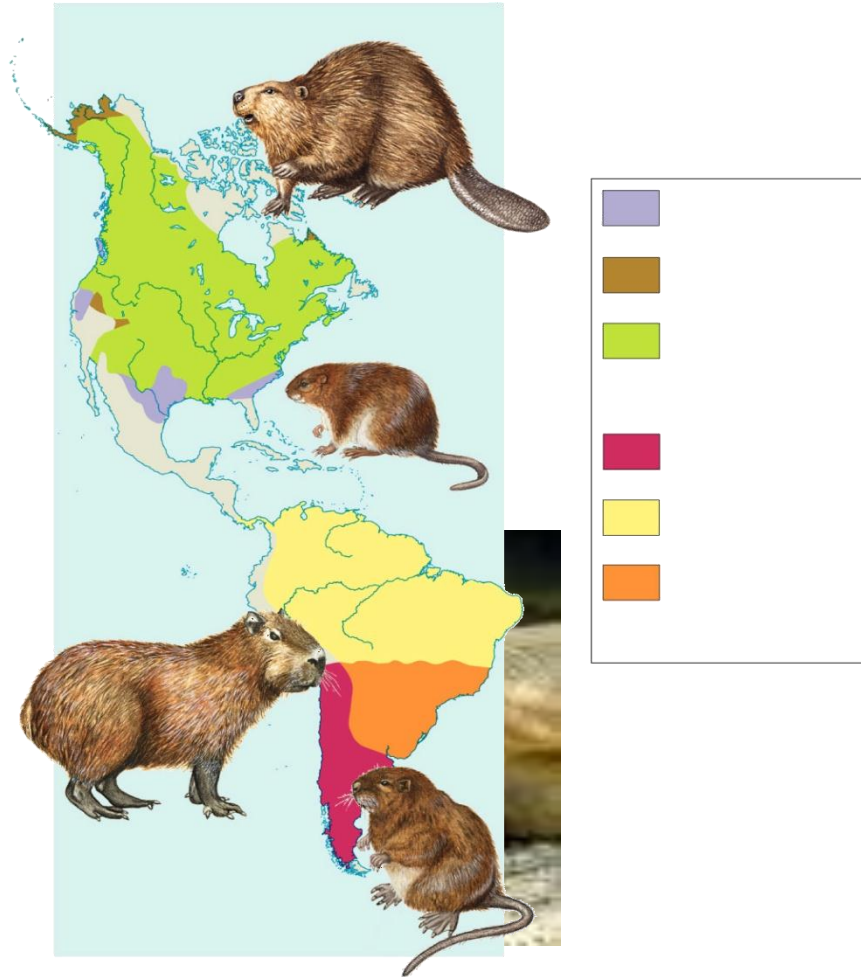
- **The Fossil Record**
- **Geographic Distribution of Living Things**
- **Homologous Body Structures**
- **Similarities in Early Development**

Evidence for Evolution



- **The Fossil Record-**
Layer show change
- Geographic
Distribution of Living
Things
- Homologous Body
Structures
- Similarities in Early
Development

Evidence of Evolution



- The Fossil Record
- **Geographic Distribution of Living Things**-similar environments have similar types of organisms
- Homologous Body Structures
- Similarities in Early Development

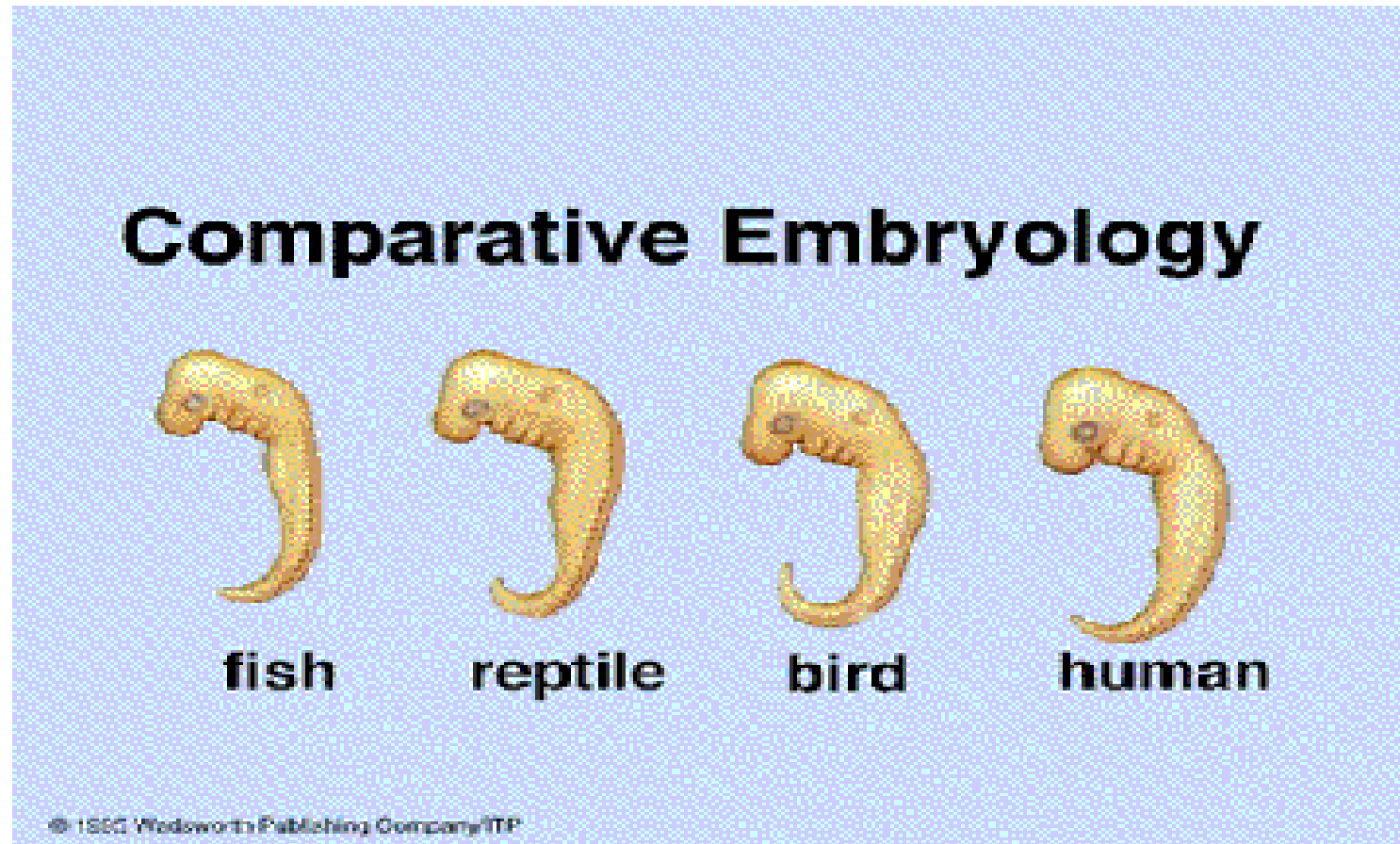
Homologous Structures

- **Homologous Structures**-structures that have different mature forms in different organisms, but develop from the same embryonic tissue

Evidence for Evolution

- **Vestigial organs**-organs that serve no useful function in an organism
- i.e.) appendix, miniature legs, arms

Similarities in Early Development



Summary of Darwin's Theory

- Individuals in nature differ from one another
- Organisms in nature produce more offspring than can survive, and many of those who do not survive do not reproduce.

Summary of Darwin's Theory

- Because more organisms are produced than can survive, each species must struggle for resources
- Each organism is unique, each has advantages and disadvantages in the struggle for existence

Summary (cont.)

- Individuals best suited for the environment survive and reproduce most successful
- Species change over time

Summary (cont.)

- Species alive today descended with modification from species that lived in the past
- All organisms on earth are united into a single family tree of life by common descent