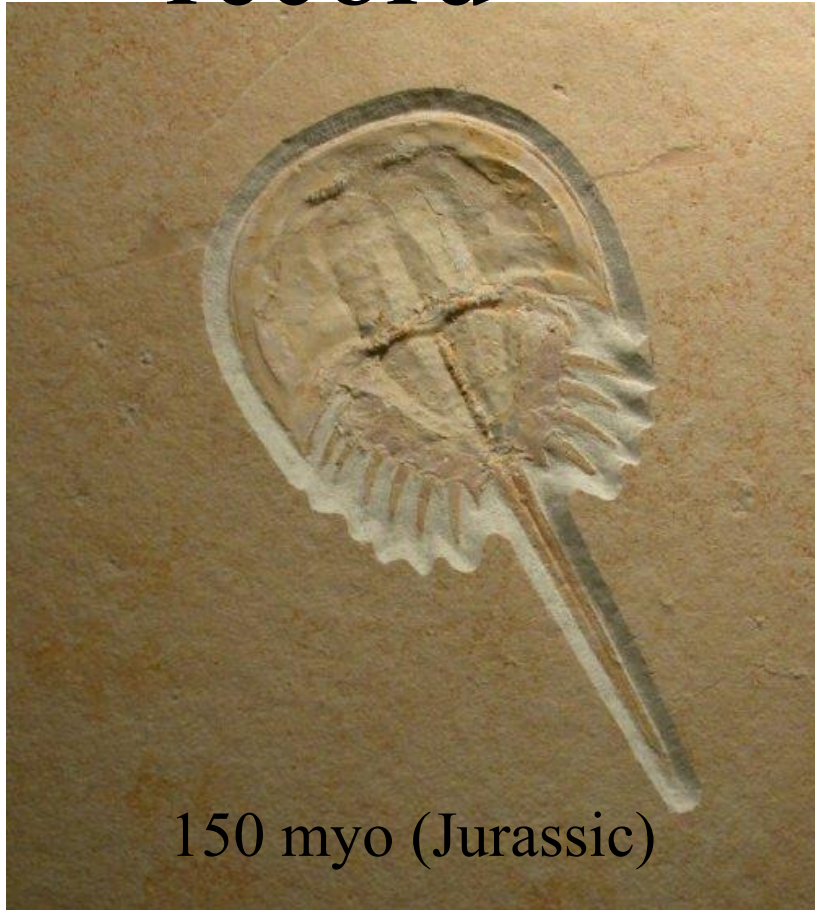


15.2

Evidence for
Evolution

A. The fossil record



today

1. Darwin suggested
“intermediate forms” of a
species

a. Called “transitional”
species today

a. *Archeopteryx*



2. Traits

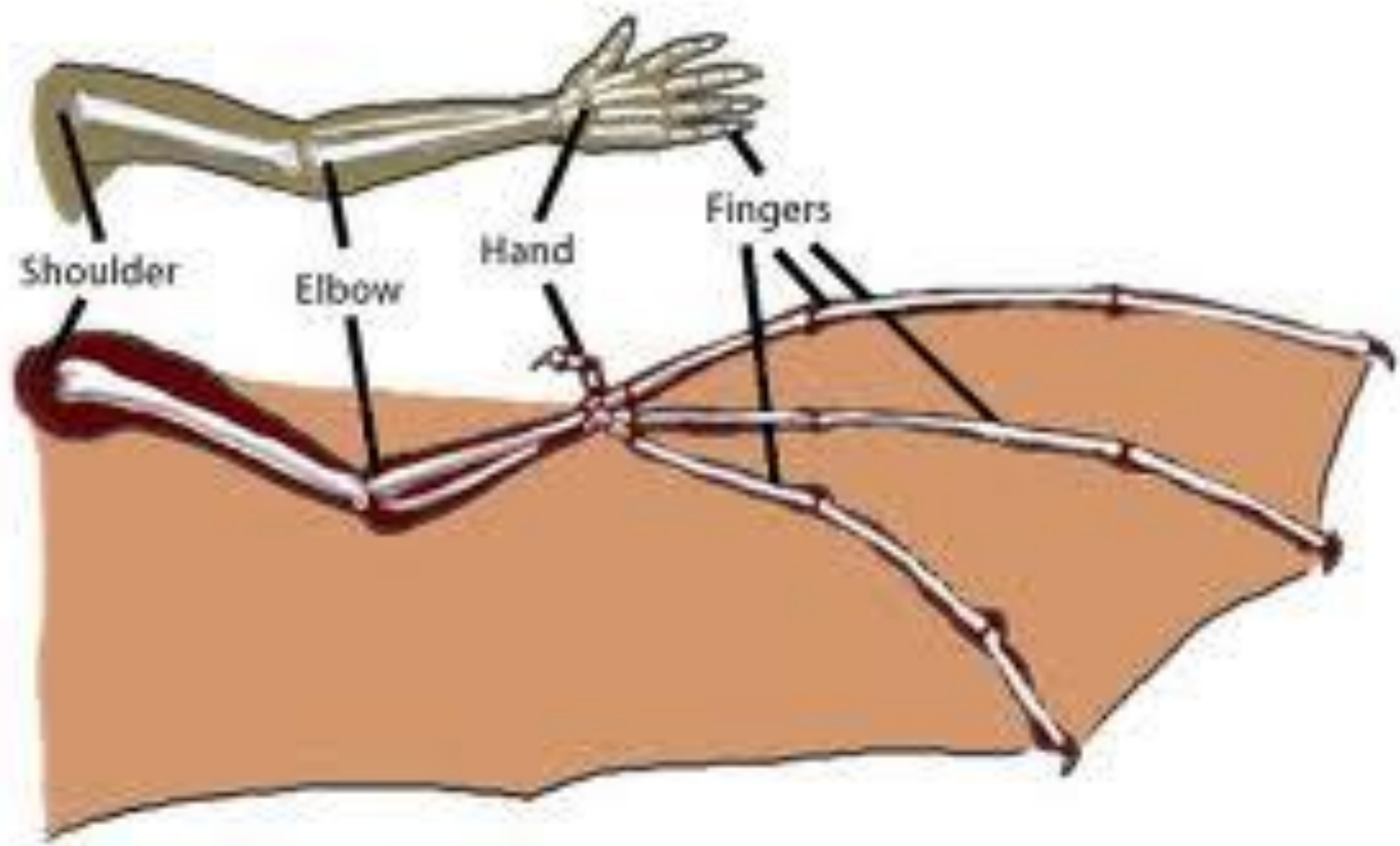
- a. Ancestral: common trait to the ancestral species
(ex. scales)
- b. Derived: newly evolved features
(ex. feathers)



B. Comparative anatomy

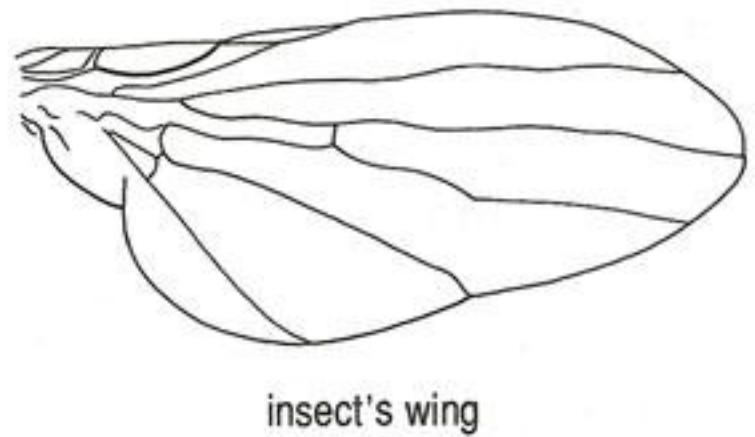
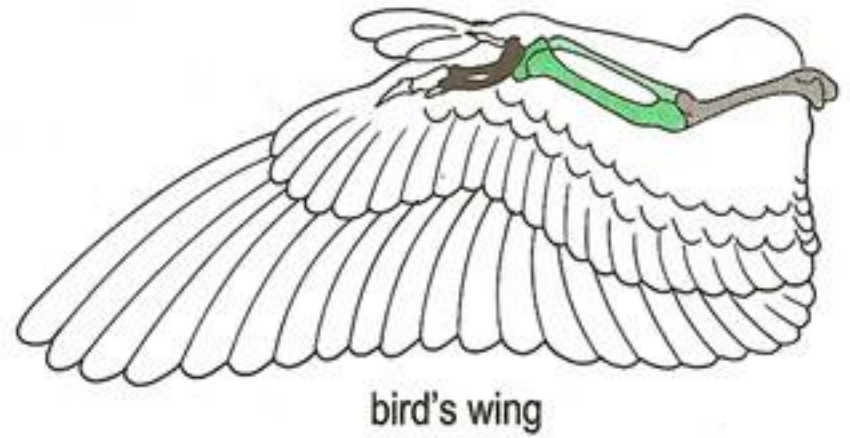
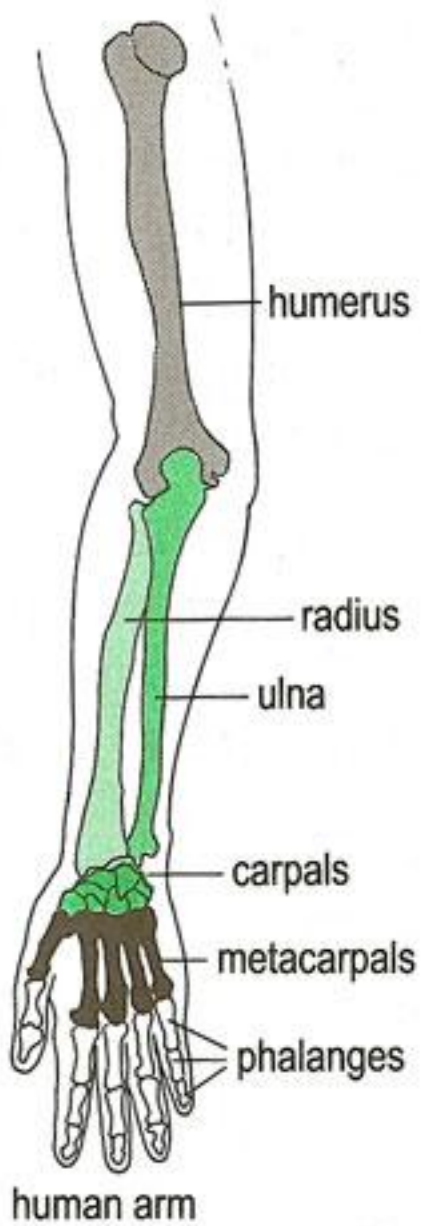
1. Homologous: structures inherited from a common ancestor

(ex bat wing and human arm)



2. Analagous: structures that may appear the same (form or function) but do not have a common ancestor

(ex. Bird wing and insect wing)



3. Vestigial: structures that are reduced in function or form

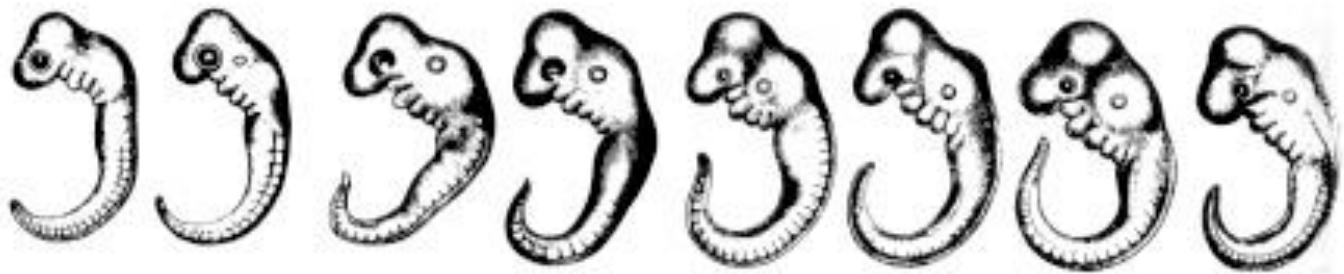
(ex. A kiwi's wing)



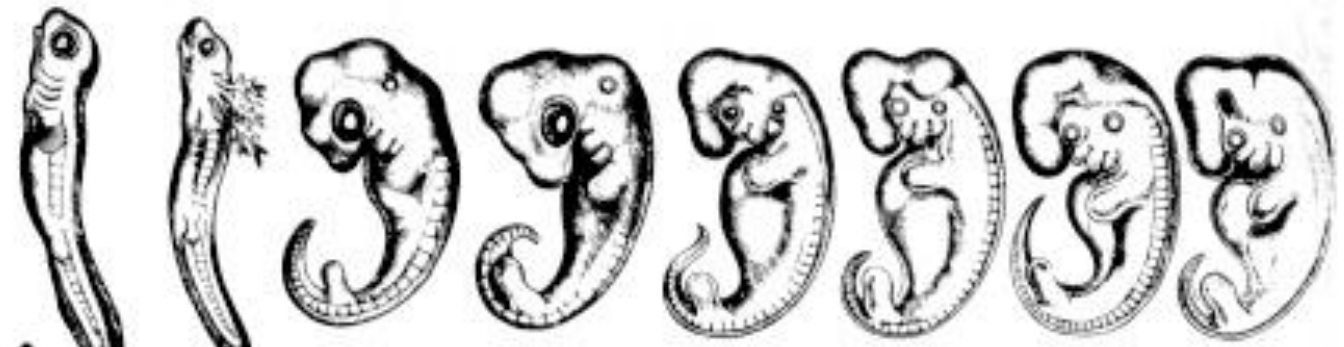
C. Comparative embryology

1. Looking at the development of embryos shows common traits
2. Follow tail in fish, chick, pig, human embryos
3. “Ontogeny recapitulates phylogeny”

I



II



III



Fish Salamander Tortoise Chick Hog Calf Rabbit Human

D. Comparative biochemistry

1. Looks at the molecular similarities (proteins' structure and function)

Ex. Amino acid lab

2. Can look at the genetic similarity

Ex. nucleotides/bases

E. Geographic distribution

1. Different species in different areas occupy the same niche (role in the ecosystem)

Ex. The deer in N.A. and the antelope in Afr.



2. Biogeography is a study that looks at distribution, climate, geology, plate tectonics and ancestry

F. Adaptation

1. Fitness
2. Camouflage
3. Mimicry



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Viceroy butterfly
(The mimic -
palatable species)



Monarch butterfly
(The model -
distasteful species)