

**Serpents and Spitfires:
Marine Reptiles and Flying Reptiles**

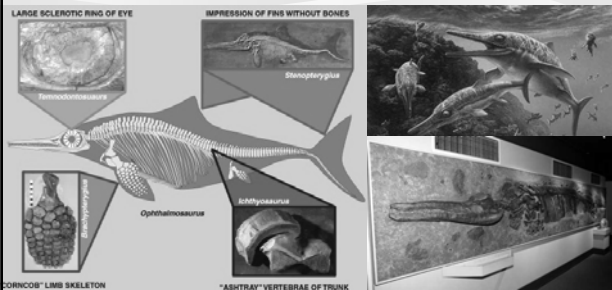


The great diversification of reptiles, beginning in the Triassic Period, and coming to a head in the Cretaceous Period, included the appearance and great success of marine and flying reptiles.

Among the marine reptiles were the ichthyosaurs (euryapsids), plesiosaurs (also euryapsids), marine turtles (anapsids or possibly diapsids) and mosasaurs (diapsids)

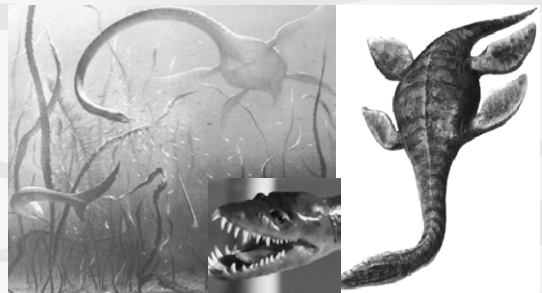
At least in the early part of the Mesozoic Era, pterosaurs ruled the skies

Ichthyosaurs



Evolved from land-dwelling reptile
Note modification of body for life in sea
(fins on back and tail, modification of limbs to form flippers_

Plesiosaurs

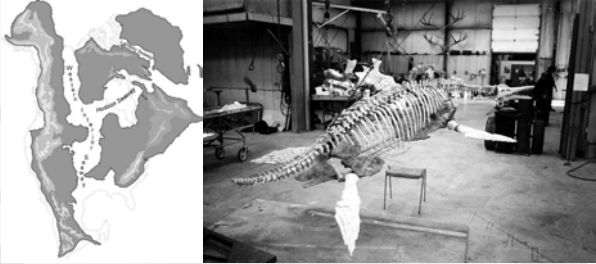


Long-necked forms:
Elasmosaurs

Long-necked forms:
Pliosaurus

As with ichthyosaurs, evolved from a land-dwelling reptile
Modification of limbs to form flippers, and lengthening of neck for darting movement to catch prey

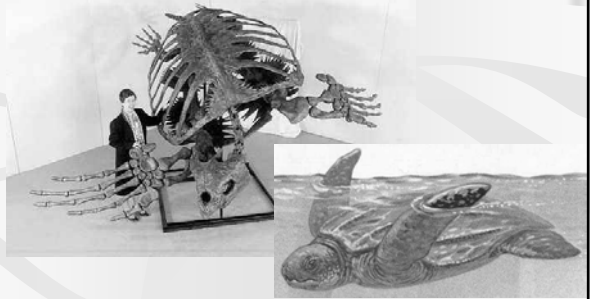
Plesiosaurs



Cretaceous plesiosaur from Manitoba

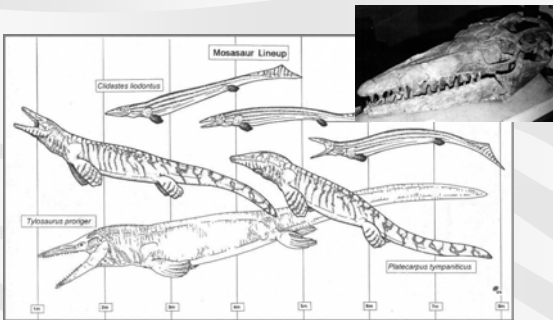
Turtles

During Mesozoic, marine turtles also got pretty darn big !



Cretaceous turtle *Archelon*

Mosasaurus



Giant marine lizards
(the Komodo Dragon is closest living relative to these)

Mosasaurus

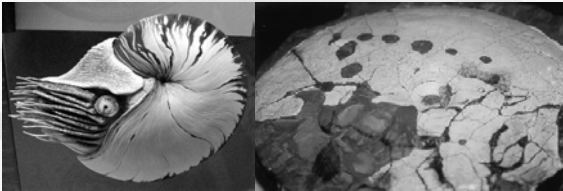


Evolved from land lizard, retaining lizard-like body
But limbs and tail modified for swimming

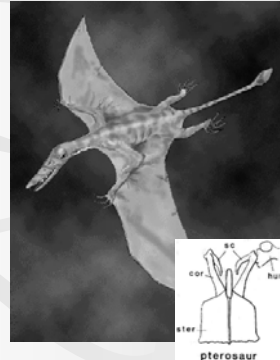
Mosasaurus

Common prey for mosasaurs:

Other marine reptiles,
Birds,
? Large ammonites (squid like molluscs)



Modifications for flight



Extremely lightweight skeleton
(hollow bones)

Long tail for balance in early forms
(but smaller tail in later forms)

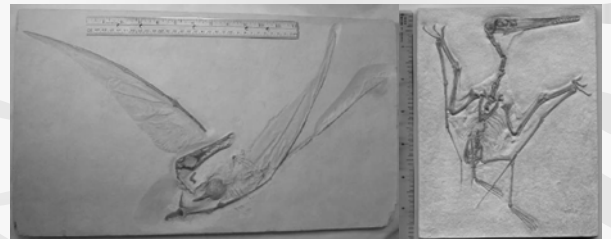
Wing produced by modification of
last finger and development of
membrane connecting the wing to
the body

Prominent sternum (breastbone)
for attachment of strong flight
muscles

Pterosaurs (flying reptiles)



Beautifully preserved pterosaurs from Jurassic limestones of Germany



Rhamphorhynchus
showing wing membrane
(from Solnhofen, Germany)

Pterodactylus
(Solnhofen, Germany)



END OF LECTURE