

## Lecture 17: The Dawn of Flight

### Terminology and Definitions:

flight feathers, contour feathers, downy feathers,

**People:** none

**Taxa:** *Pteranodon*, *Rhamphorhynchus*, *Archaeopteryx*, *Microraptor*, *Deinonychus*

### Classification:

Phylum Chordata

Subphylum Vertebrata

Class Diapsida

Subclass Pterosauria

-pterodactyloids

-rhamphorhynoids

Subclass Dinosauria

Order Dinosauria

Suborder Saurischia

-theropods

-birds

**Dates:** none

**Localities:** Solnhofen Limestone Quarries, Germany

### Review Questions:

What is the difference between powered flight and gliding?

Using which digits do pterosaurs build their wings?

What are the differences found in rhamphorhynoids and pterodactyloids

List four characteristics of pterosaurs that make them well-adapted to flight

How is the feeding mode of early tree-welling reptiles connected to the evolution of pterosaurs?

The toothless beak of *Pteranodon* might have had this form of soft-tissue, not preserved in the fossils

What is significant about *Microraptor*?

Explain how the Cretaceous feathered theropods may or may not be related to modern birds based on the fact that the earliest bird fossil is older than them

Explain the two major hypothesis about how theropods learned to fly