Hot Science Cool Talks

UT Environmental Science Institute

37

Dinosaurs in the Digital Age: Facts, Fictions, and Forgeries

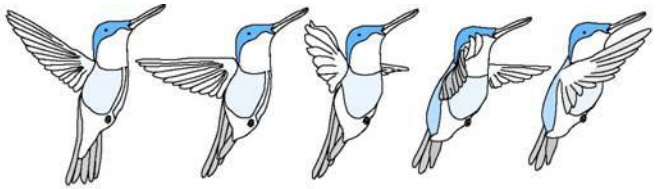
Dr. Timothy Rowe

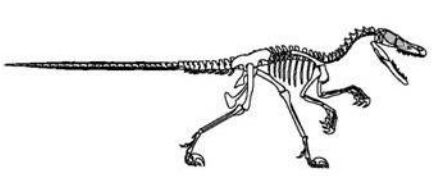
September 9, 2005

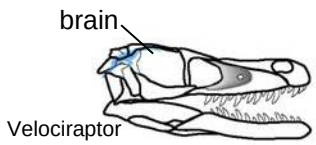
Dinosaurs in the Digital Age

Timothy Rowe
University of Texas
at Austin

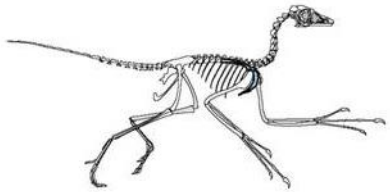
Paleontologists conclude that birds *ARE* dinosaurs - but what is the evidence?

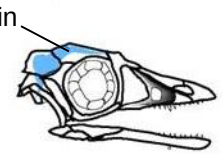






Dromaeosauridae





Archaeopteryx

Gallus skull

Aves (birds)

- enlarged brain
- peripheral senses

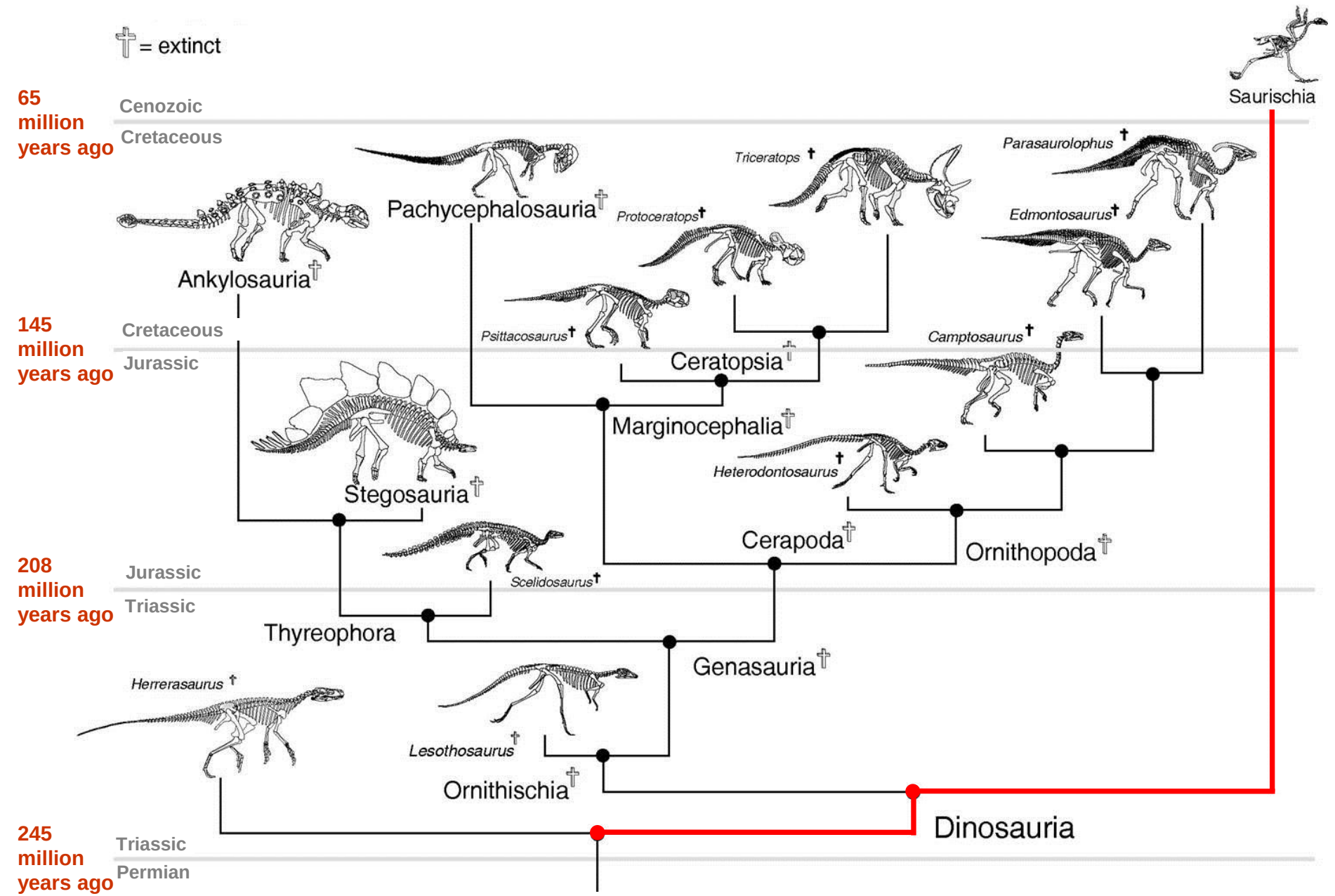
Avialae

- flight feathers

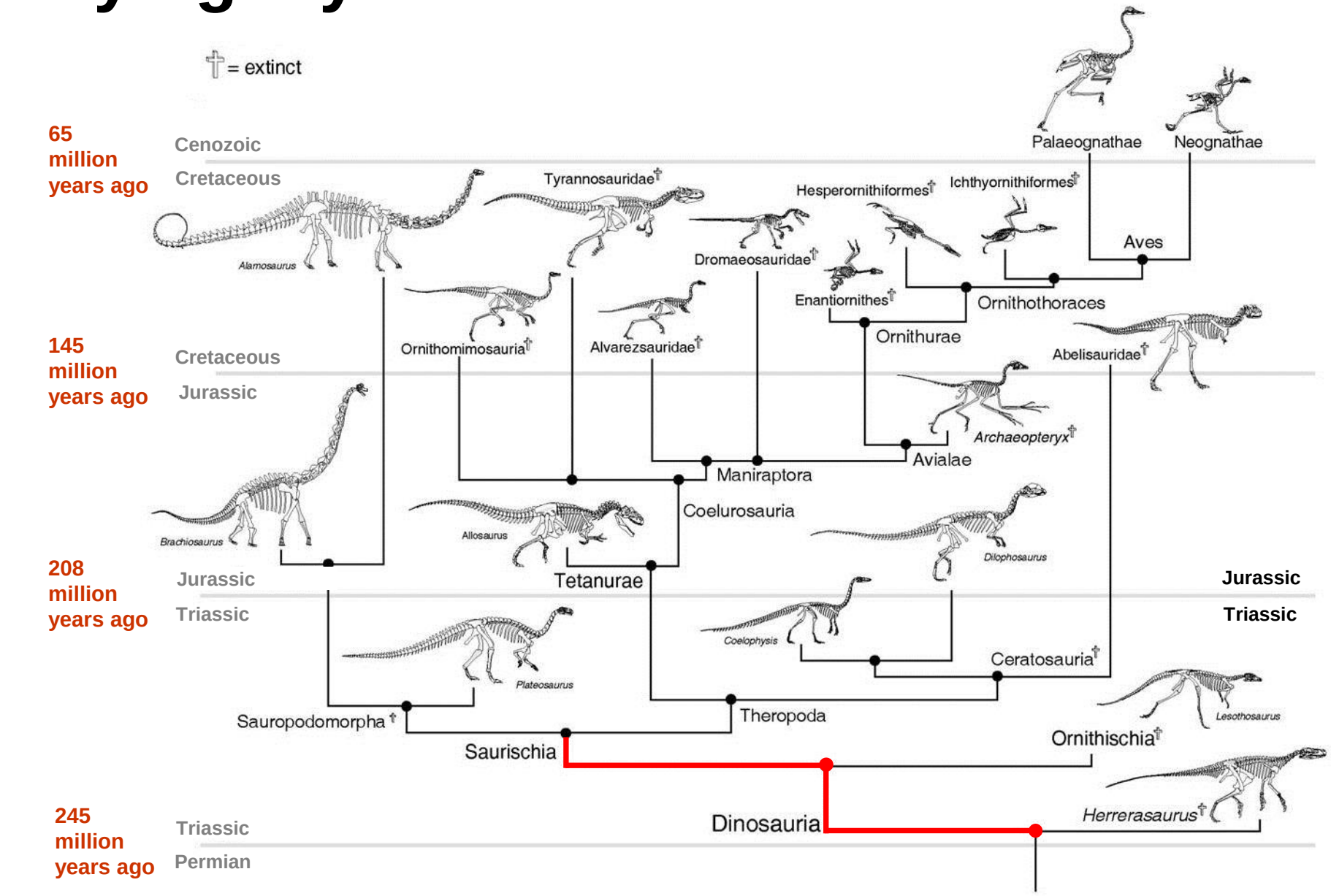
Maniraptora

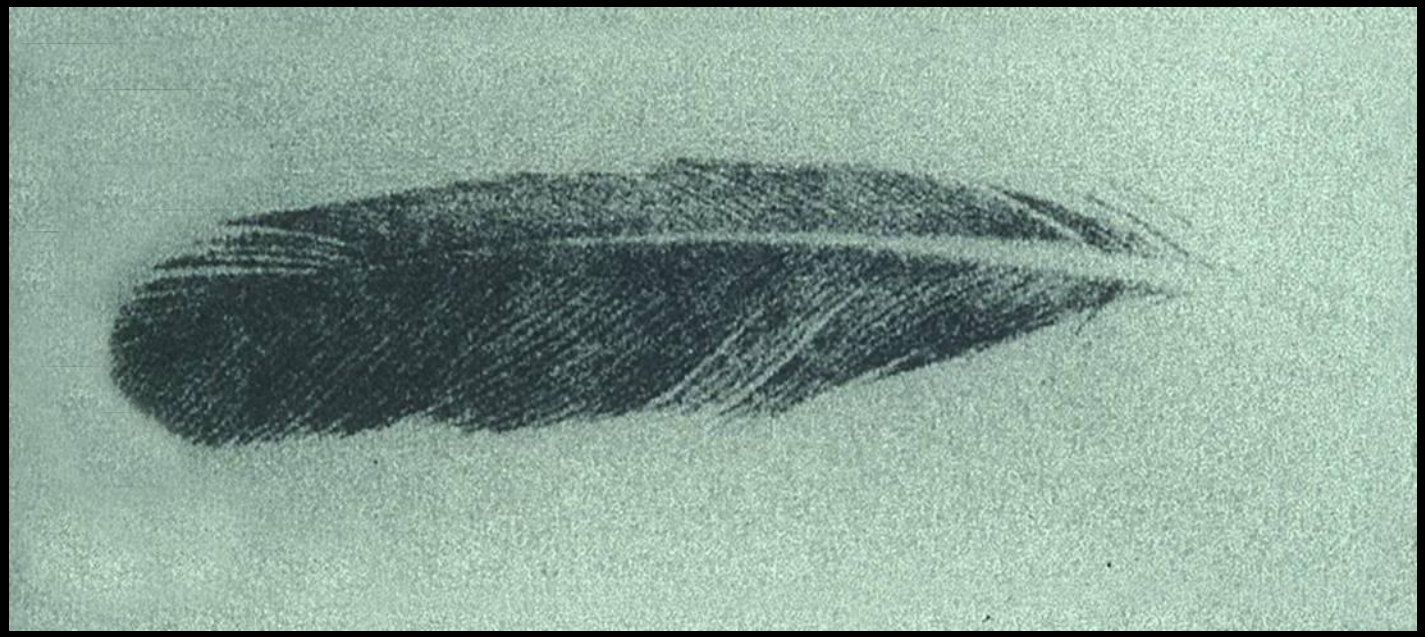
- feathers

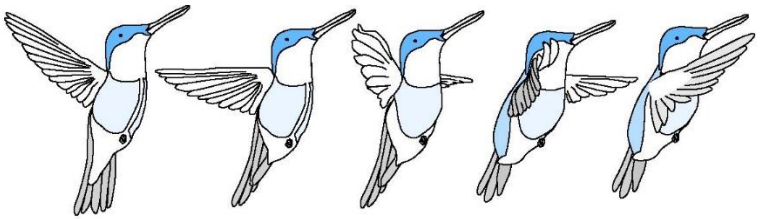
Phylogeny of Ornithischian Dinosaurs

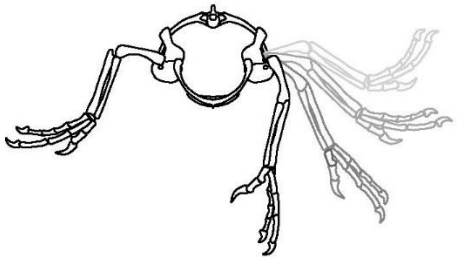


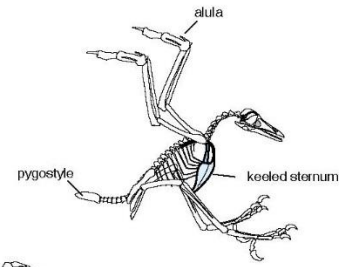
Phylogeny of Saurischian Dinosaurs

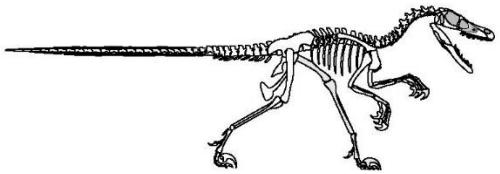


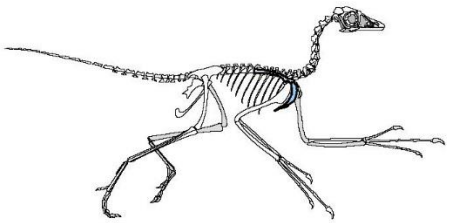


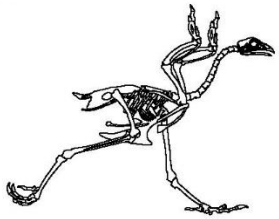


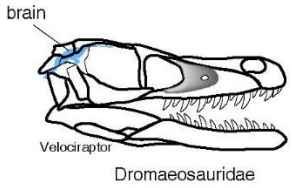


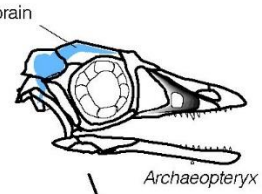


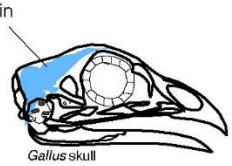








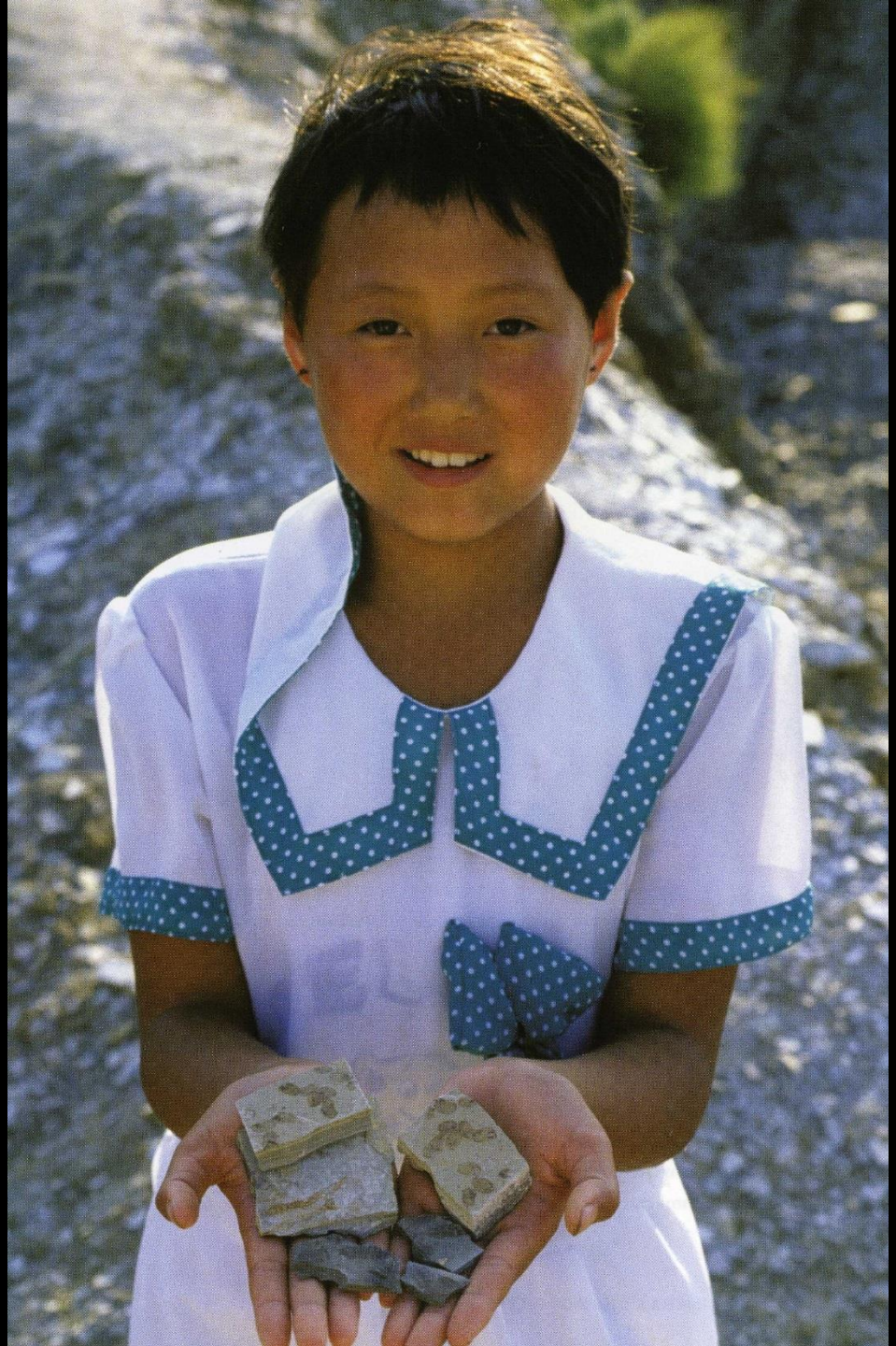


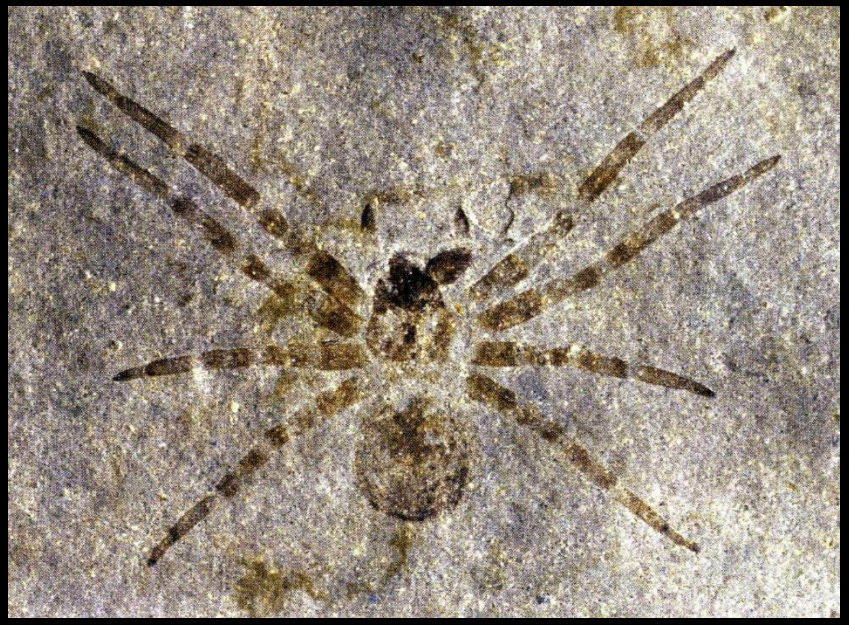


Aves
- enlarged brain
- peripheral senses

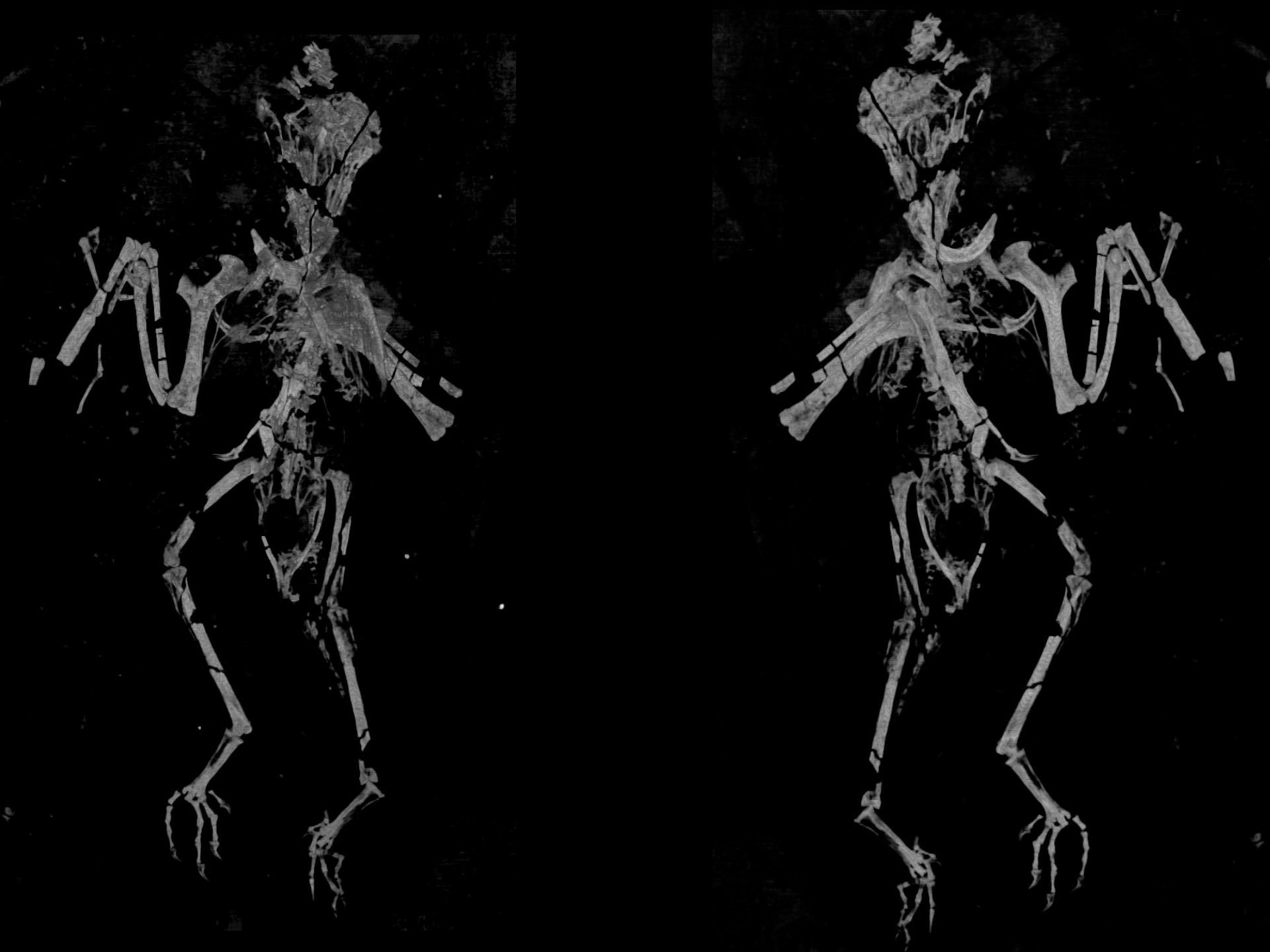
Avialae
- flight feathers

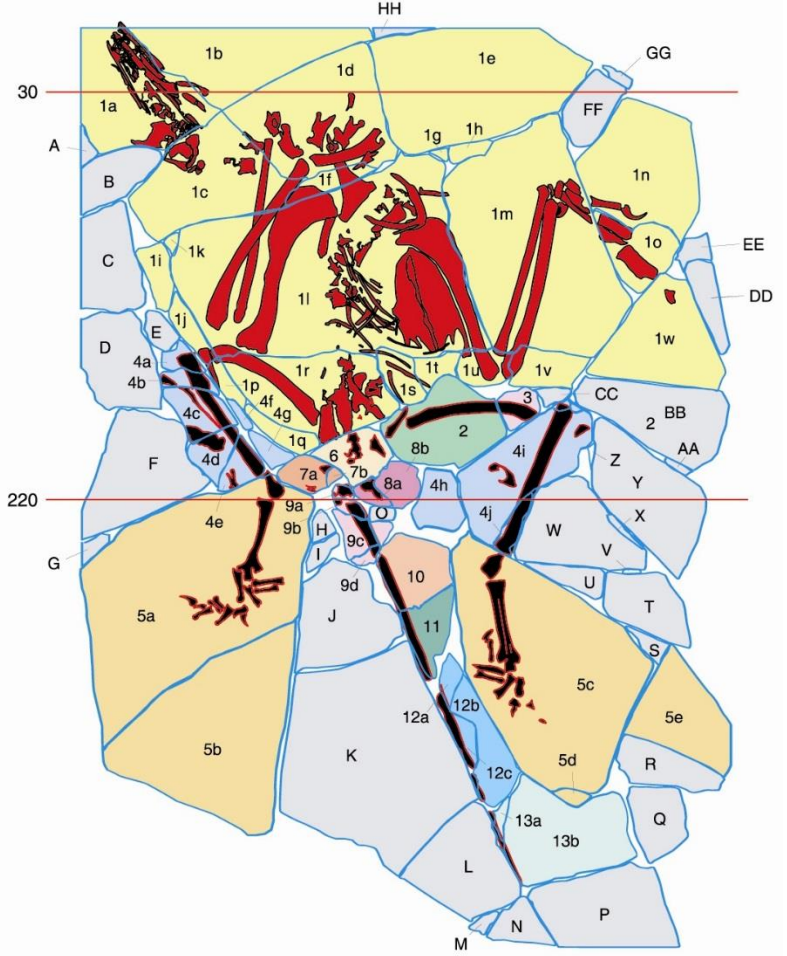
Maniraptora
- feathers






中科院
IVPP





A.

B.

A. Volumetric model

- bone
- slab materials
- air

B. Map of slab face

Bones

- verifiably associated bird skeleton, lying in natural burial position
- unverified "associated bones"

Slab Facing Pieces

- 1a-w: naturally associated facing pieces

"Associated pieces" with no verifiable relationship to 1a-w

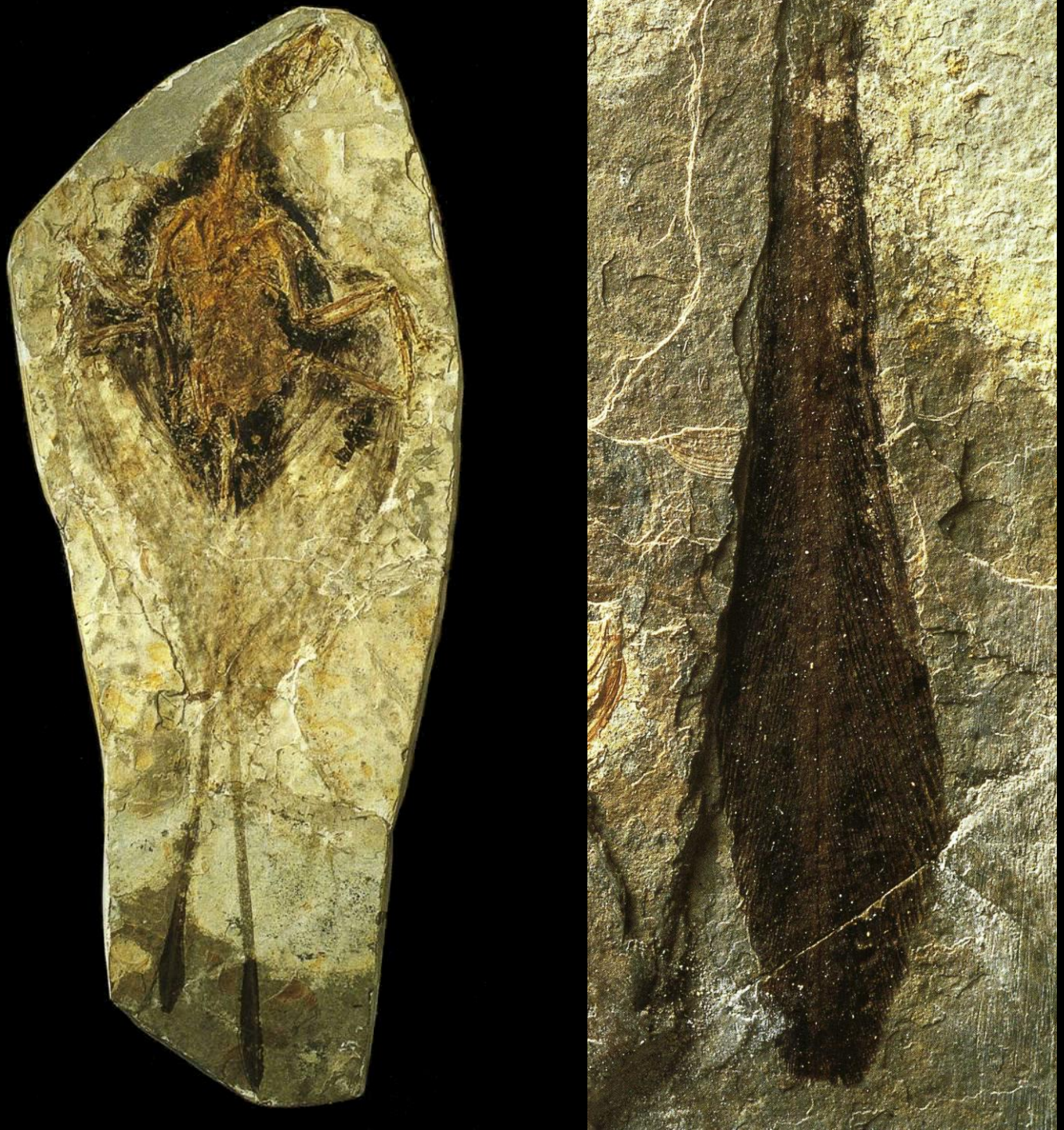
- 2, 3: unverified associated "left" femur pieces
- 4a-j: piece and counter-piece of left tibia/fibula
- 5a-e: piece and counter-piece of right foot/ankle
- 6, 7a-b, 8a-c: bone fragment pieces
- 9a-b, 10, 11, 12a-c, 13a-b: dromaeosaur tail pieces
- A-HH: shims

A Flying Dinosaur?

"It's a missing link between terrestrial dinosaurs and birds that could actually fly."

-Stephen Czerkas

National Geographic Magazine
November 1999, Sloan, C. P.,
"Feathers for *T. rex?*"




Allison 01

Dr. Timothy Rowe

Professor and J. Nalle Gregory Regents Professor in Geological Sciences, Director - Vertebrate Paleontology Laboratory

Dr. Rowe's primary research focuses on the evolution and development of the vertebrate skeleton. In this work, Dr. Rowe uses phylogenetic systematics to study the evolution of skeletal form as well as the evolution of skeletal development in the ontogeny of living species. This work is directed mostly at the early history of mammals and their extinct relatives among Synapsida, and on the history of birds and their extinct relatives among Dinosauria, and on other amniotes. An important tool for this research is high-resolution X-ray computed tomography, which has become a secondary research focus. This breakthrough technology permits the non-destructive inspection of internal structure in even the smallest and most delicate of vertebrate specimens.
In collaborative research with scientist from many countries, Dr. Rowe is scanning and studying the anatomy of some of the world’s most significant fossils. An interest in publishing these exquisite digital datasets has also carried him into the realm of informatics. Tim maintains an active program in field paleontology that explores Mesozoic terrestrial sediments of Texas and the American Southwest.