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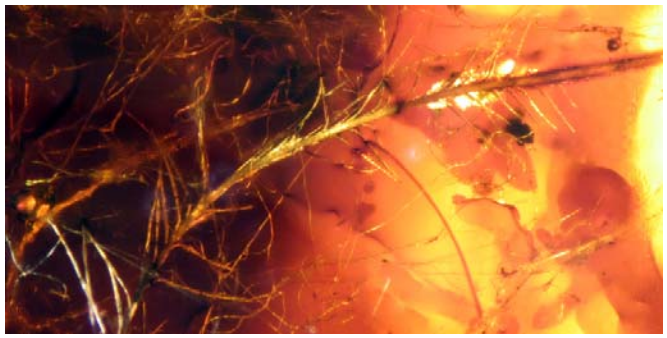
Trapping time in amber



A feather from the late Cretaceous is trapped in amber.

(Edmonton) Secrets from the age of the dinosaurs are usually revealed by fossilized bones, but a University of Alberta research team has turned up a treasure trove of late Cretaceous feathers, which have been discovered trapped in tree resin.

The resin turned to resilient amber preserving some 80-million-year-old protofeathers, possibly from non-avian dinosaurs, as well as plumage that is very similar to modern birds, including those that can swim under water.

U of A paleontology graduate student Ryan McKellar discovered a wide range of feathers trapped in amber in collections at the Royal Tyrrell Museum and in the private collection of the Leuck family in Medicine Hat.

“Most of the feather specimens were probably blown into contact with the sticky surface of the resin and encapsulated by subsequent resin flows,” said McKellar.

The 11 feather specimens used by the U of A team were all found near the community of Grassy Lake in southern Alberta. The research specimens are described as the richest amber feather find from the late Cretaceous period.

“The amber preserves microscopic detail of the feathers and even their pigment or colour,” said McKellar. “I would describe the colours as typically ranging from brown to black.”

During the late Cretaceous, southern Alberta was a warm coastal region. “The trees that produced the resin were probably comparable to the redwood forests of the Pacific Northwest,” said McKellar.

No dinosaur or avian fossils were found in direct association with the amber feather specimens, but McKellar says comparison between the amber and fossilized feathers found in rock strongly suggest that some of the Grassy Lake specimens are from dinosaurs. The non-avian dinosaur evidence points to small theropods as the source of the feathers.

McKellar says that some of the feather specimens can take on water, enabling the bird to dive more effectively and are very similar to those of modern birds like the Grebe, which are able to swim underwater.

“The preservation of microscopic detail and pigmentation has provided a unique snapshot of feathers and their uses in the late Cretaceous forests of Alberta,” said McKellar.

The U of A team’s research was published Sept. 15, in the journal Science.