

OCGC Seminar

New fossils reveal a complex early history of Turtles

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Carleton University
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The developmental studies believe that the evolution of the highly modified morphology of turtles is a good example of “hopeful monsters”. This is also known as the “hopeful monster hypothesis” of evolution, which suggests that major evolutionary transformations have occurred in large leaps between species due to macromutations. The fossil record of turtles appears to have supported this hypothesis because no intermediate morphologies of transformation have been found since the 210 million years old turtle (*Proganochelys quenstedti*) was discovered from the Upper Triassic of Germany in 1887. On the other hand, the early evolution of turtles continues to be a contentious issue in vertebrate palaeontology. Traditional view of the anapsid origin of turtles was challenged by true fossils only a few years ago, but the phylogenetic position of turtles within Diapsida is controversial and the sequence of acquisition of turtle features remains unclear. Since 2008, new fossils unearthed around the world have been gradually unfolding the early history of turtles, which appears to be more complicated than we have thought before.

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