



Pressmeddelande

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25 juni 2008

Closing the gap between fish and land animals

New exquisitely preserved fossils from Latvia cast light on a key event in our own evolutionary history, when our ancestors left the water and ventured onto land. Swedish researchers Per Ahlberg and Henning Blom from Uppsala University have reconstructed parts of the animal and explain the transformation in the new issue of Nature.

It has long been known that the first backboned land animals or "tetrapods" - the ancestors of amphibians, reptiles, birds and mammals, including ourselves - evolved from a group of fishes about 370 million years ago during the Devonian period. However, even though scientists had discovered fossils of tetrapod-like fishes and fish-like tetrapods from this period, these were still rather different from each other and did not give a complete picture of the intermediate steps in the transition.

In 2006 the situation changed dramatically with the discovery of an almost perfectly intermediate fish-tetrapod, *Tiktaalik*, but even so a gap remained between this animal and the earliest true tetrapods (animals with limbs rather than paired fins). Now, new fossils of the extremely primitive tetrapod *Ventastega* from the Devonian of Latvia cast light on this key phase of the transition.

“*Ventastega* was first described from fragmentary material in 1994; since then, excavations have produced lots of new superbly preserved fossils, allowing us to reconstruct the whole head, shoulder girdle and part of the pelvis”, says Professor Per Ahlberg at the Department of Physiology and Developmental Biology, Uppsala University.

The reconstructions made by Professor Ahlberg and Assistant Professor Henning Blom together with British and Latvian colleagues show that *Ventastega* was more fish-like than any of its contemporaries, such as *Acanthostega*. The shape of its skull, and the pattern of teeth in its jaws, are neatly intermediate between those of *Tiktaalik* and *Acanthostega*.

“However, the shoulder girdle and pelvis are almost identical to those of *Acanthostega*, and the shoulder girdle is quite different from that of *Tiktaalik* (the pelvis of *Tiktaalik* is unknown), suggesting that the transformation from paired fins to limbs had already occurred. It appears that different parts of the body evolved at different speeds during the transition from water to land”, says Per Ahlberg.

Captions:

1) This lower jaw with teeth is one of the new fossils of *Ventastega* found in Latvia. Photo: Ivars Zupins, Latvian Museum of Natural History

2) Reconstruction of *Ventastega* in side view. With the help of new, superbly preserved fossils, Per Ahlberg and his colleagues have been able to reconstruct the whole head, shoulder girdle and part of the pelvis. The rest of the picture is based on fossils of one of its contemporaries, *Acanthostega*, Scale bar 10 cm. Photo: Per Ahlberg.

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