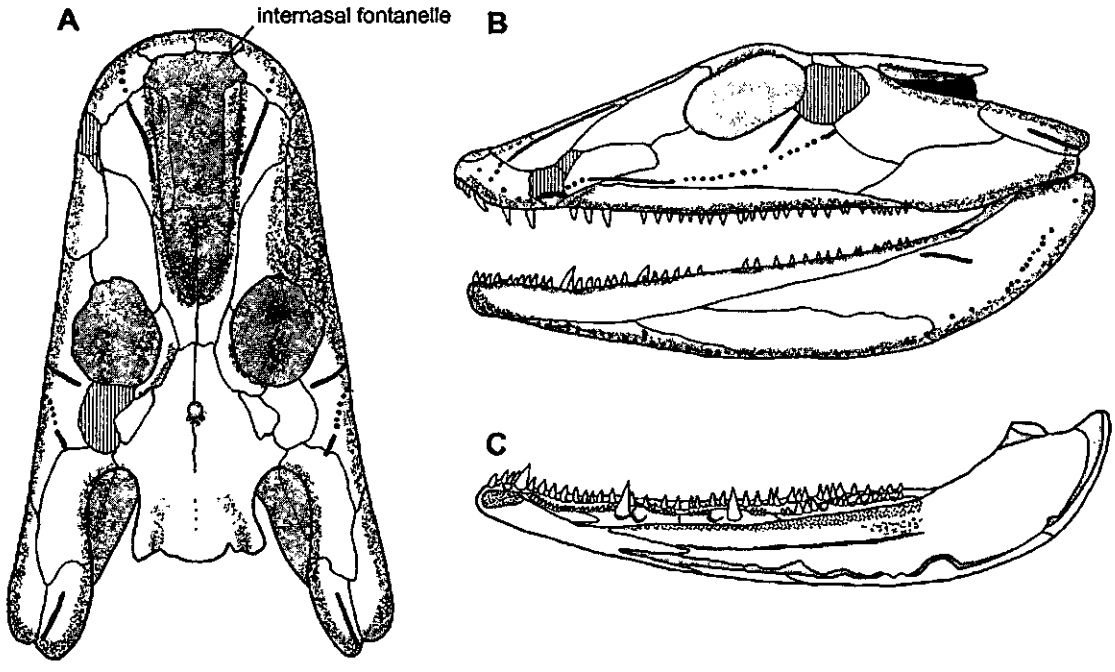


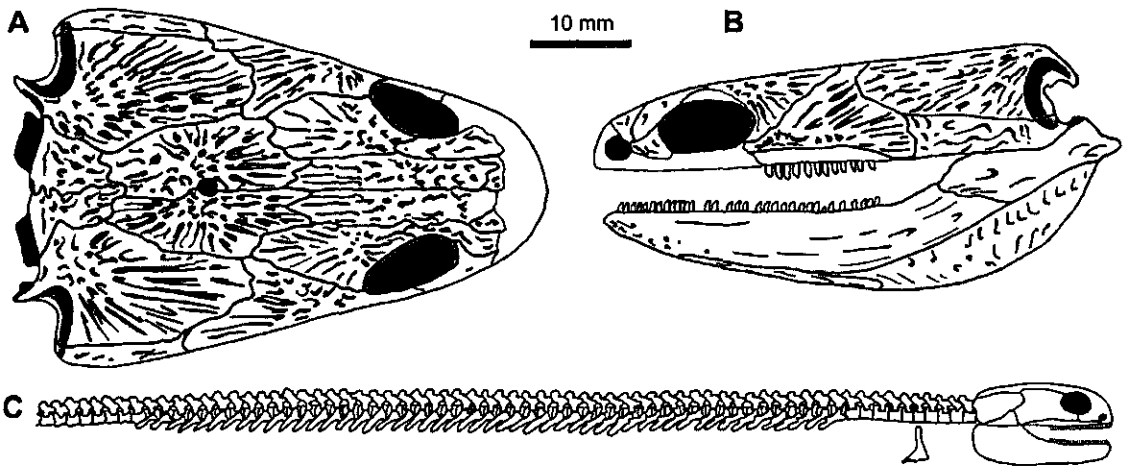
5.27. Reconstruction drawings of skull of *Ventastega (from Ahlberg et al. 2008).* (A) Dorsal view. (B) Left lateral view. (C) Lower jaw in internal view. Skull is about 190 millimeters long.

it may represent the area in fish where a mosaic of small bones is found, and that the hole might result from the loss of some of these.

The skull table, rather than being similar to that of *Acanthostega*, instead bears close comparison with that of *Tiktaalik*. It retains some of the projections and notches along the posterior margin seen in *Tiktaalik*, but more conspicuously, it possesses a widely open, oval spiracular notch. A comparison between *Tiktaalik*, *Ventastega*, *Acanthostega*, and *Ichthyostega* shows that not only is *Ventastega* more similar to *Tiktaalik* than to either of the tetrapods, but also that the differences between *Tiktaalik* and *Ventastega* are largely only ones of proportion (Ahlberg et al. 2008).

Underneath the skull table, a key specimen retains the attached otic capsules and parts of the sphenethmoid region of the braincase. These, though incomplete, show some important features. The slots for the anterior and posterior semicircular canals can be seen, and the walls of the otic capsule show that it had a fenestra vestibulae. In other words, it had lost the fish lateral commissure where the hyomandibula attaches, and instead can be inferred to have had a stapes, probably like that in *Acanthostega*. The part of the sphenethmoid that is preserved shows one interesting difference from that of *Acanthostega*, in that it was more or less a solid wall pierced by a few small foramina for cranial nerves and blood vessels instead of the large interorbital foramen in *Acanthostega*. In this, *Ventastega* is the more primitive.

Parts of the postcranial skeleton that have been found include the cleithrum with a small portion of the scapulocoracoid integrated at its base, showing the condition found in most other Devonian tetrapod shoulder girdles. Not much of the scapulocoracoid portion is preserved,



7.11. Adelogyrinids. (A, B) Skull of *Adelospondylus watsoni* in dorsal and left lateral views. (C) Skeletal reconstruction of an adelogyrinid. Scale bar for skulls = 10 millimeters. *Based on Andrews and Carroll (1991).*

Like the aïstopods, they have elongated bodies and highly modified skulls with the eyes placed far forward. Unlike the aïstopods, they retain a substantial dermal shoulder girdle, and though no limb elements have been recognized, such an extensive dermal girdle suggests that the limbs were present but that the bones remained as cartilage and so were not preserved. The vertebrae were holospondylous—single complete cylinders—but the ribs were not modified like those of aïstopods, but more like those of a conventional primitive tetrapod.

Unlike the aïstopod skull, that of the adelogyrinids was completely roofed with ornamented dermal bones, though the complement was different from any other tetrapods and appears reduced by comparison with more primitive tetrapods. At the back was a rounded embayment or temporal notch occupying the rear margin of the cheek.

They appear to have been capable of a large gape. The teeth were sharply chisel shaped and arranged in close order, like a hacksaw blade. These might possibly have been used as a filter-feeding device through which water could be expelled once the mouth was closed, and several specimens are found in strata that preserve numerous small crustaceans called ostracods. The teeth show no evidence of wear and are unlikely to have been used either for eating plants or subduing active prey. The hyoid apparatus was extremely well ossified and relatively large, though it does not show the grooving found in that of *Acanthostega*; more likely it contributed to a mechanism of suction feeding rather than breathing. This would be consistent with the tooth morphology and large gape and implies that the animals were aquatic.

Though adelogyrinids share several derived characters with other animals usually included among the "lepospondyls" (see Chapter 9), such as vertebral construction, and have elongate bodies with small or absent limbs, in other respects, they appear to be the most primitive members of this assemblage. In several recent phylogenetic analyses, they consistently cluster with colosteids such as *Greererpeton* (Ruta et al. 2003; Ruta and Clack 2006; Clack and Klembara 2009), though