

Important plesiosaurs in the National Museum of Ireland (Natural History)



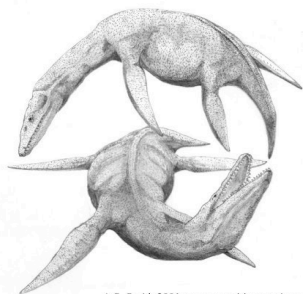
museum
National Museum of Ireland
Ard-Mhúsaem na hÉireann

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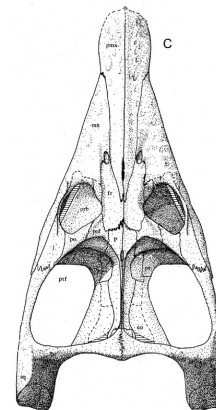
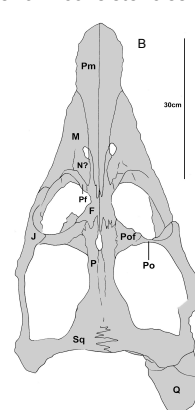
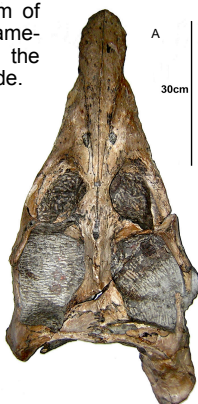
1. Plesiosaurs are a fascinating group of extinct Mesozoic aquatic reptiles. One group, the Rhomaleosauridae, combine a reasonably long neck (typically around 28 vertebrae), with a large skull (fig. 1), and range from the Lower Jurassic to the Early Cretaceous. Yet despite a number of excellently preserved specimens, the group remains understudied, and the systematics unresolved. Three rhomaleosaurid plesiosaurs are housed in the National Museum of Ireland (Natural History), including the holotype material of the name-bearing genus *Rhomaleosaurus*. These specimens are forming the basis for a long-overdue systematic revision of this perplexing clade.



A.S. Smith 2001. www.geocities.com/sci_saur

Left. Fig. 1. Restoration of a two rhomaleosaurid plesiosaurs.

Right. Fig. 4. The skulls of F.10194. and the type of *R. megacephalus*. A; Photograph of F.10194 in dorsal view. B interpretation of A. C; *R. megacephalus* interpretation (from Cruickshank, 1994)



2. *Rhomaleosaurus cramptoni* F.8785

Many casts of *R. cramptoni*, the type species of *Rhomaleosaurus*, were taken in the 1800s, and can be seen (amongst other places), at the Natural History Museum, London and Bath Royal Literary and Scientific Institute (fig. 2). These casts, and the brief original description (Carte and Bailey 1863), reveal an imposing and mostly complete skeleton. Unfortunately, the actual type material has been neglected during its time in the National Museum of Ireland (Natural History). To counter the affects of 150 years maltreatment (including breaking up of the specimen with a sledgehammer!), an initiative is being implemented to treat this specimen (and the other plesiosaurs in the collection), to make it suitable for a detailed study and for display.



Fig. 2. Cast of *R. cramptoni* at the Bath Royal Literary and Scientific Institute, with curator for scale.



Fig. 3. The recently restored skull of *R. cramptoni*.

All parts of the specimen have been located and cleaned, of dust and droppings(!). Thirty small (2-20cm) loose fragments of the skeleton, and the complete skull (fig. 3), have been restored to their natural relationships. The next stage will be to remove the skull from its wooden mount, clean and prepare the whole skull, including the palate, and to progress onto the preparation of the rest of the skeleton.

References

Carte, A. and Baily, W. H. 1863. Description of a new species of *Plesiosaurus*, from the Lias, near Whitby, Yorkshire. *Journal of the Royal Dublin Society*, **4**, 160-170.
Cruickshank, A. R. I. 1994. Cranial anatomy of the Lower Jurassic plesiosaur *Rhomaleosaurus megacephalus* (Stutchbury) (Reptilia: Plesiosauria). *Philosophical Transactions of the Royal Society of London, Series B*, **343**, 247-260.

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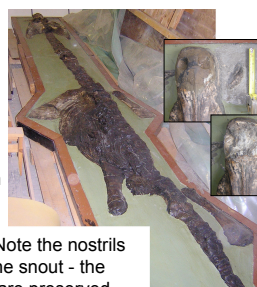
3. '*Thaumatosaurus' megacephalus* F.10194

An almost complete skeleton, the reconstructed skull (figs. 4a, b) shares many similarities with the holotype material of *Rhomaleosaurus megacephalus* (fig. 4c). However, there appear to be a number of inconsistencies.

F.10194 differs from Cruickshank's (1994) interpretation of *R. megacephalus* in several features: proportions of premaxillary rostrum, absence of a dorsomedian foramen, the shape and size of the frontal, possession of clear nasals, larger orbits, larger and more anterior positioned pineal foramen, and more limited anterior extension of jugal. However, the surface preservation of the holotype skull is poor and open to reinterpretation. The partially prepared palate of F10194, is identical to *R. megacephalus*. F10194 may not necessarily represent a new species, and may instead be providing new data on the condition in *R. megacephalus*. Thus the current differences may be explained by variation in preservation and interpretation.

Fig. 5.

Photographs of specimen F.8749, showing detail of the skull (far right), and snout tip (middle), taken before and after removal of plasticine. Note the nostrils sculpted into the snout - the actual nostrils are preserved, and retracted close to the orbits, as in other plesiosaurs. This also shows the typical state of the fossil marine reptile fauna in the NMNH collections - layered with paint.



4. *Euryclidus arcuatus* F.8749

This specimen is the least respectable of the three rhomaleosaurids, being highly reconstructed in plaster, cement, and plasticene (fig. 5). The soft plasticene has now been removed using hand tools, and preliminary preparation of the skull reveals much of it to be real bone. Although the specimen appears to be more-or-less complete, the mount is suspicious, in that the proportions are strikingly unusual, the cervical vertebrae are in unnatural positions, and the limbs on the right side of the body are wrongly mounted (the humerus is in the position of the femur and vice-versa). This specimen is certainly not preserved as in situ, and may well resolve to be a composite. Nevertheless, the material is valuable, as a comparative basis for the other rhomaleosaurids now under investigation.