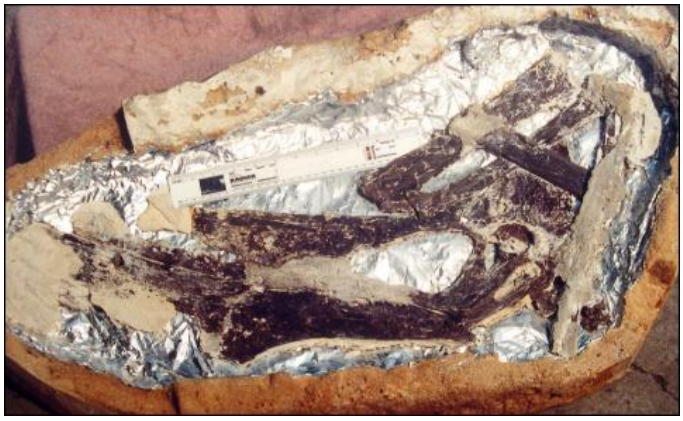
AWESOME stories

Pteranodon - Fossilized Skull after Cleaning



This story is about a Pteranodon, a flying reptile who lived during the Cretaceous Period in the area of America we now know as Kansas, Nebraska (and some other mid-western states).

The Pteranodon is a pterosaur, neither a bird nor a dinosaur (but a creature related to dinosaurs). We learn more about them from the University of California's Museum of Paleontology:

Pteranodon is a large crested pterosaur (flying reptile) from the Cretaceous Period of Kansas, Nebraska, and other midwestern states. Pterosaurs were not birds and not dinosaurs, but were closely related to dinosaurs...

Pteranodon was a fish-eater that soared over the shallow Cretaceous seas and coastlines, much like pelicans do today. We don't know if it had a pouch under its beak like pelicans, but some skeletons have been found with fish remains inside.

Although bones of Pteranodon were first discovered in the 1860s, it was not until after the turn of the century that we had a reasonably complete picture of the animal. Its bones are hollow and thin-walled; therefore, they were usually crushed flat. Also skeletons were generally incomplete. Like our model, it was necessary to incorporate bones from several specimens in order to reconstruct Pteranodon.

It takes a great deal of painstaking work to clean fossilized remains so they can be seen in museums (and other such places).

Mike Everhart tells us where he and his wife, Pam, found the skull of a young male *Pteranodon* - in an area of Smoky Hill Chalk (in the U.S. state of Kansas) - and what he had to do to prepare it immediately thereafter:

... Eventually most of the skull was found to be in place, and still articulated with the lower jaw. The skull was laying on it's left side, with the lower jaw closed. Working around the skull, we found several other wing bones, including one that went directly under the crest.

... I think that the complete skull would have been about a meter (39 inches) long in life. The crest, however, extended only about 6 inches (15 cm) above the orbit of the eye ...

...The Pteranodon skull was cleaned further in preparation for the application of more preservative and jacketing. At this point, the last of the overburden to the east and south of the skull had to be removed in order to allow for jacketing of the skull and turning of the jacket. Several of the wing bones around the skull were removed individually in order to cut down on the size (and weight) of the final jacket. In the process, a group of small bone pieces was isolated at the back of the skull.

At this point, the block containing the skull was isolated by digging a four inch cut completely around it. Once this was done, the block was undercut slightly to allow the jacket material to fill in and support as much of the chalk as possible, and to find a seam in the chalk that could be used to separate the block from the matrix. Once the undercut was completed, the exposed bones of the skull were soaked with the Bond 527 Cement / acetone mixture and allowed to dry.

Once the preservative had dried, aluminum foil was placed over the block to prevent the jacketing foam from contacting the specimen. A 4" wide piece of 1/4" plywood was added along the length of the skull to reinforce the jacket. Then a temporary form for the jacket was made of cardboard, placed around the block containing the skull, and supported with pieces of broken chalk. A two part mixture of isocyanate foam was prepared and poured into the form. The foam expands and cures in about half an hour, producing a hard, yet light jacket for the specimen.

... When the jacket had cured and the form removed, thin chisels and metal blades were driven under the block to break it free of the matrix. Once it was loosened, the block was turned over so that it was now upside down and resting on the 'top' of the foam jacket. I removed the excess chalk from the lower side ...

After getting the specimen home, I slowly and carefully removed the chalk covering the lower side of the skull and began the delicate work of cleaning up the bones.

... Almost two years later.....May, 1998. A long delayed preparation of the skull indicated that our Pteranodon was a young male of the species,Pteranodon sternbergi. This was confirmed after examination by Dr. Chris Bennett, then at KU.

Everhart tells us more about the *Pteranodo*n skull, depicted in this image, near the end of the cleaning process:

The photo ... shows the nearly complete cleaning of the skull and associated wing bones. Interestingly, the only bones from below the shoulders that have been found so far are several tarsals and the ungual for a foot claw that were lying under the beak of the animal.

The Everharts donated their *Pteranodon* specimen to the Cincinnati Museum of Natural History and Science where it is identified as CMC VP 7203.
Click on the image for a better view.

Credits:

Image by Mike Everhart, described above. Copyright, Mike Everhart, all rights reserved. Image provided here as fair use for educational purposes and to acquaint new readers with the Everharts' work. Online via Oceans of Kansas.

The following images are included in the text of the story:

Pteranodon image, created in 1912 by Heinrich Harder ((1858-1935); depicted in “Die Wunder der Urwelt.” Copyright expired.

Image depicting a mounted composite cast of Pteranodon longiceps (=P. ingens), displayed at the American Museum of Natural History in New York City. Photo by Matt Martyniuk; license: CC BY 3.0.

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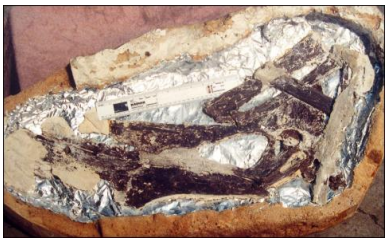

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