

Evidence for Ice Age Occupation of the Middle Atlantic Outer Continental Shelf



300-400 miles from the Virginia shores on the outer edge of the Continental shelf mastodon remains dated to 22,700±90 years ago were dredged up along with a rhyolite knife from a depth of 240 feet below sea level.



The knife is made out of rhyolite obtained at South Mountain, Pennsylvania. This is confirmed by X-ray fluorescence or XRF comparison of the elements found in the Cinmar biface and the South Mountain sample.



"The mastodon remains and the stone tool were discovered at the same time" - Thomas Swan, captain of the vessel "Cinmar" out of Hampton, Virginia.



Red staining on tooth root and tusk were caused by oxidation in the salt water marsh. The size of the tooth and tusk indicate that the animal was a female. Wear on the upper third molar indicates that she died when she was 20 years old.

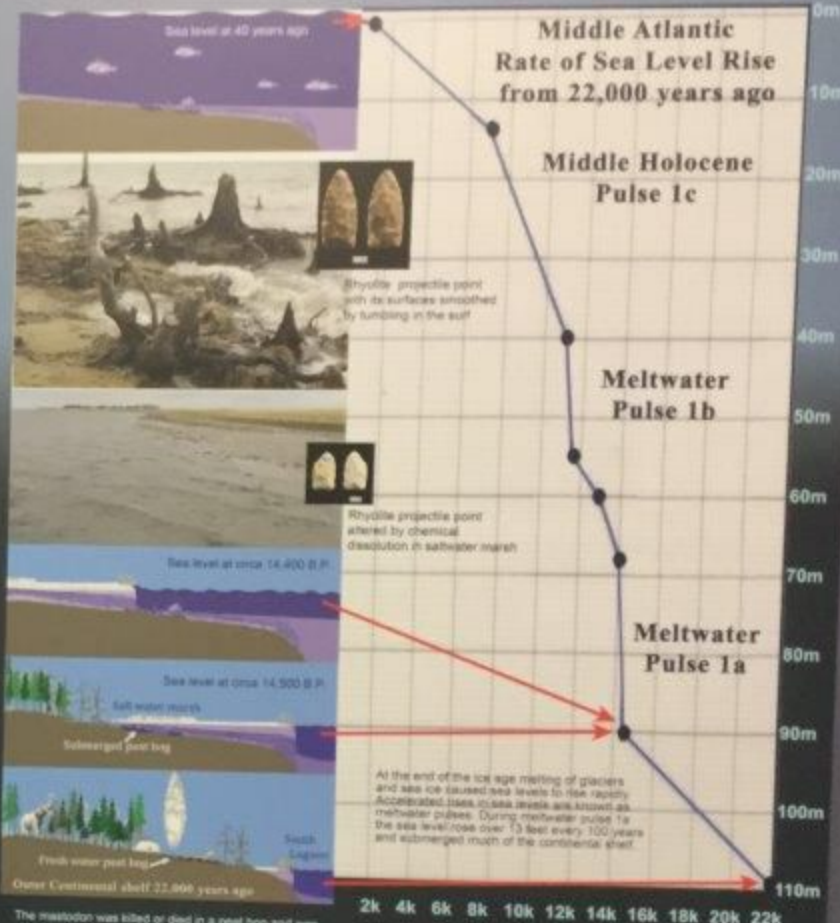
Upper third molar



The Cinmar knife was found with the mastodon remains, and it was likely used to butcher the animal over 22,000 years ago. If it were not associated with the mastodon the slight oxidation of the knife indicates that it had to have been deposited before 14,400 years ago in the saltwater marsh. In either case, the knife is the oldest formal artifact found in the Americas and is evidence that ice age people utilized the outer continental shelf.



Linear micro-abrasions and polish on the distal end of the biface are typical of knife use. The proximal end exhibits microscopic linear abrasions typical of haft wear. The high ridges between flake scars are crisp and the edges of the knife are sharp. This indicates that the specimen did not experience water transport, nor was it tumbled in the surf.



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