World's Oldest Engraving Upends Theory of Homo sapiens Uniqueness

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Kate Wong December 3, 2014

MUSSEL SHELL was engraved by Homo erectus between 540,000 and 430,000 years ago. Image: Wim Lustenhouwer, VU University Amsterdam

It is getting harder and harder to figure out what distinguished *Homo sapiens* from other members of the human family and fueled our extraordinary success as a species. One popular notion holds that our propensity for symbolic thought, which underlies language, was key. For a long time, experts thought this capacity first emerged around 40,000 years ago in early Europeans, based on the seemingly sudden appearance of things like cave art and jewelry in the archaeological record there. But over the past two decades older evidence of art and body decoration, as well as other sophisticated practices, such as complex tool manufacture, have turned up at *H. sapiens* sites in the Near East and in Africa, where our species got its start. Furthermore, scientists have found evidence that our cousins the Neandertals were similarly capable in many respects.

Now comes news that an even older, more primitive human ancestor —*Homo erectus* from Asia—showed signs of symbolic thought, too. Researchers have discovered a shell engraved with a geometric pattern at a *H. erectus* site known as Trinil, on the Indonesian island of Java, that dates to between 540,000 and 430,000 years ago. The find is at least 300,000 years older than the oldest previously known engravings, which come from South Africa.

Analysis of the engraving, made on a freshwater mussel shell, suggests that its maker used a shark tooth or other hard, pointed object to create the zigzag design. "The engraving was probably made on a fresh shell specimen still retaining its brown [skin], which would have produced a striking pattern of white lines on a dark 'canvas,'" Josephine C. A. Joordens of Leiden University in the Netherlands and her colleagues surmise in their report, published online December 3 by *Nature*.

GEOMETRIC DESIGN engraved on this mussel shell is 300,000 years older than engravings from South Africa that were previously thought to be the oldest. Image: Wim Lustenhouwer, VU University Amsterdam

(*Scientific American* is part of Nature Publishing Group.)

Other shells from the site reveal that *H. erectus* opened them to eat their contents. And one specimen exhibits clear signs of having been modified to create a tool for cutting or scraping. It is the earliest known example of shell used as a raw material for tool manufacture, the authors say, and it may explain the lack of stone artifacts from this time period in Java: perhaps in the absence of good sources of stone suitable for making implements, *H. erectus* turned to shell instead.

It's wild to think of *H. erectus* foraging for mollusks along an ancient riverbank, making shell knives and painstakingly decorating shells with designs half a million years ago. But perhaps the most thrilling aspects of this find are that it suggests that many more such items—300,000 years' worth, in fact--are out there awaiting discovery, and it raises the question of just how much farther back in the human lineage such behaviors might have originated.

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