Abstract

In our efforts to distance ourselves from our closest hominid relatives, Neanderthals, many paleoanthropologists have constructed a suite of behaviors purportedly only possessed by modern humans: the production of complex clothing is one of these. Arguments against Neanderthals use of complex, or tailored, clothing range from Neanderthal biological cold adaptation to a lack of archeological evidence of tools purportedly associated with Homo sapiens clothing production. However, based on energy use estimates and the variety of environments in which Neanderthals lived, it seems unlikely that they could have survived without the protection afforded by complex clothing. In an attempt to refute the assertion that bone needles, awls and lithic blades are the technological prerequisites for clothing manufacture (Gilligan, 2007), I looked to the ethnographic record for historical peoples who have used needles made of wood, thorns and other non-durable materials to construct clothing. I produced seams in leather and sinew using needles produced via these methods to satisfactory effect. Though this does not by demonstration that Neanderthals did produce complex clothing via these methods, it reinforces the fact that we cannot make arguments based solely on the absence of evidence.

Introduction

The question of whether or not Neanderthals needed clothing for survival is a question of climate and thermal regulation. Many studies (Steegman et al. 2002) have been carried out to properly estimate Neanderthals’ Basal Metabolic Rates (BMR) which due to morphological differences would differ slightly from anatomically modern humans. Sørensen (2009) calculated that with no additional insulation neanderthals would have needed to consume a surplus of 5000 calories a day just to survive, let alone attend to other energetic tasks like reproduction or growth and development. These calorics returns for hunter gatherers are nearly unattainable especially when many paleoanthropologists hypothesize that Neanderthals were incapable of doing simple tasks like throwing spears (Rhodes and Churchill 2009). Gilligan and others maintain that Neanderthals were incapable of producing any clothing beyond a simple hide draped over the body, citing the lack of bone needles, awls and lithic blades at sites preceding Upper Paleolithic habitation by modern humans. Aiello and Wheeler (2003) calculated high and low temperatures for a large amount of energy would need to be expended just to maintain critical body temperatures. We hypothesized that complex clothing would have been essential to Neanderthal survival but that direct evidence is missing. Partially based on evidence of advanced wooden material culture amongst Neanderthals (Thieme 1997, Carbonell and Castro-Curel 1992) and ethnographic examples of historical peoples using wooden and thorn-based needles (Elmore 1944, Dobrizhoffer 1822), I demonstrate that complex clothing could have been produced using needles made from these perishable materials.

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Methods

- Species of hardwoods indigenous to Eurasia were identified and wood blanks were procured
- Thorns of deciduous thorny trees were procured from the environs surrounding Kenyon. Honey Locust (Gleditsia triacanthos) serves as a reasonable analog for Eurasian Creteagus species and Osage Orange (Maclura pomifera) for other temperate citrus trees.
- Thorns were fashioned into needles by the cutting of eyes and needles were carved with stone flakes from hardwood blanks (Figures 2 and 3)
- All stone tools were knapped by the author in flint and several large cow bones were shattered to create the unmodified bone splinters occasionally used as punches (Fig. 7)
- Leather sheets were procured and cut to size using a stone flake
- Lengths of sinew or leather thongs were cut to the appropriate length for each seam and threaded through the needle
- Leather pieces were lined up and holes for the needles were punched through with either a bone or stone punch and the antler hammer (Center Fig. 1)
- The needle and sinew was passed through these holes and the seam was completed using a simple blanket stitch
- A testing rig was built with a fan of known speed on one side of the seams and an anemometer behind

Fig. 5: Cutting leather into sample-sized pieces using a simple flake, no blade necessary. Fig. 6: One of the test seams in finished form, this one made by punching holes and feeding a thin piece of waxed leather through the holes, no needles necessary.

Discussion

All of the seams tested were able to block wind during our tests. More precise data collection is necessary to tell how effective the sewing methods are vis a vis one another. All of the wood needles proved effective with the aid of a stone punch as well as the thorn-based needles. Tailored clothing can be manufactured using the methods outlined in this study.

References


