Taxonomic identification of prehistoric ornaments: shells and other biominerals

Taxonomic identification of prehistoric ornaments: shells and other biominerals

B Demarchi*, J Wilson, K Penkman, M Collins

Often traded, shells were important prestige items in prehistory: perforated marine shells were used in the Palaeolithic, and are found in sites hundreds of kilometres away from the coast. More refined “shell-smithing” techniques appeared in the Neolithic, when Europe was criss-crossed by a network of long-distance trade of jewellery (beads, bracelets, pendants). Reconstructing the shells’ origins and subsequent transport routes when the shells are worked and the morphological features lost is very difficult. As theories of prehistoric exchange networks are founded on the “prestige shells” trade, taxonomic identification of the raw material is key. Worked shell (and eggshell) “jewellery” can be identified using a multi-disciplinary approach based on non-destructive imaging and mineralogical analyses, micro-destructive proteomics (ZooMS) and amino acid analyses (AAR), which exploit the fossil proteins trapped in shells as a taxonomic barcode. When this approach is applied routinely to the rich archaeological record of personal ornaments in Europe and elsewhere, it can lead to re-thinking some of the accepted paradigms and current theories on cross-cultural exchanges.