

Damage, Breaking and Reshaping: Recycling and Secondary Use of Ceramic Objects

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Ceramics, as a class of most numerous finds on archaeological sites of almost all periods – from the early prehistory until the present day - is a kind of archaeological material with wide varieties of use: pottery, every day and cult objects, ornaments, and even building material (bricks, tiles, and pipes). Each object may be damaged or broken during use, but that does not mean that it will inevitably be discarded: the artefact enters into new, different modes of use. Through re-use, secondary use, and recycling, the artefact's use-life becomes extended, so the ceramic objects cycle through different use-contexts and become part of a series of activities before they get deposited and finally unearthed during the archaeological excavations.

Ceramic vessels, when damaged or broken, may alter their primary function, and be used in a completely new way. For instance, it is well-known that Roman amphorae initially used for storage and transport of liquids (oil, wine, garum) could have changed their function and be used for storage of solid foodstuff (flour, olives or honey), or as containers for different tools or food for the crew on trade ships. Vessel fragments can also be used in a variety of ways: in pottery-making contexts for storage of raw materials or as molds; as containers for animal food, nests for poultry, for collecting rainwater, and so on. Damaged vessels can be modified or reshaped in order to become suitable for new functions. In Late Neolithic Vinča pottery assemblage, one interesting example was found: a bowl with two opposite circular holes made after it lost its primary function, possibly to be used as a lid. The fine reshaping of vessels' rims in Vinča assemblage is also common, and it can be explained as a mode of curation for their extended use.

The use of vessel fragments in a variety of ways has been confirmed throughout the world: as lids, scoops, and palettes. During the Neolithic period, the use of fragments as tools has been confirmed: as tools with a working edge, possibly used during the process of surface modification in pottery-making, but also possibly during processing of vegetable fibers, or fragments of handles as weights for fishing nets. An interesting example of the secondary use of a figurine leg has been confirmed in the Late Neolithic assemblage from the site of Pavlovac-Čukar in southern Serbia. The appearance of grooves and mechanical damage on the figurine leg suggest its usage for the shaping of bone tools. It is not yet clear whether this kind of recycling was done by the Neolithic people of Pavlovac, or by later, Iron Age inhabitants of the site. Similar practice – recycling of objects of the earlier periods – has been confirmed on medieval sites in the Danube Gorges: the usage of Roman bricks for the shaping of awls or as weights during the Middle Ages. The usage of ceramic discs is also known from different periods: perforated disc as loom-weights during the Neolithic, or *obturationa* – for sealing of the amphorae in Roman times. Especially interesting is the usage of *pessoi*, for wiping in the *latrinae*. It has also been suggested that the so-called *ostraka* in Greek times have been used in the same way, in order to literally defile the name of the enemy.

In the past, ceramic objects have been literally recycled in order to obtain raw materials. One of the most common is the usage of powdered pottery as grog – temper for pottery production, or in the production of plaster (*opus signinum*) in Roman times. Fragments of ceramic objects have also been used as a building material from prehistory onwards: for paving, or as architectural elements, such as pipes for libation, or for drainage.

Recycling is also present during different cult and ritual practices, for example as amulets or as censers during the healing ceremonies, or as urns for burying the deceased, especially the newborns. So-called kill-holes pierced in the vessels of the Mimbres culture of the American Southwest had important symbolic meaning – they represented the way through which the soul of the deceased had to reach the other world.

Ceramic objects can be secondarily used and recycled in different ways and in different situations – in utilitarian, everyday activities as well as in cult and ritual practices. In contrast to today's perception of recycling as a waste treatment and responsible attitude towards the environment, in the past, it was conditioned by different causes and motives. Sometimes it was caused by the isolation of the distributive centers, sometimes it was a consequence of poverty, but usually, it is seen as an adaptive economic strategy that reduces household provisioning needs. These practices reveal a very practical and pragmatic attitude towards the environment: everything can be used for some other purpose, especially in the cases when large quantities of „waste“ are available. This is the case with ceramics: it is abundant, and its usage for different purposes reduced time and energy investment needed for the acquisition of raw materials or manufacture of completely new products. On the other hand, the awareness of the properties of ceramics (in its usage as raw material or building material) reveals the existence of technological and technical knowledge, and in such cases, the cost-effectiveness of ceramic usage is the main criterion for its recycling.

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