This deposit consisting of ten classical Únetice cups was recovered inside the vast Early Bronze Age settlement at Pömmelte. Three contained dairy products, one ruminant fats—that means at least these four drinking vessels were in use before deposited. Credit: Matthias Zirm, State Office for Heritage Management and Archaeology Saxony-Anhalt
Pottery types and decoration have been used extensively by archaeologists to differentiate and describe cultures. The (past) contents and the actual function of the vessels have less often been the focus of research.

Now, in a study published in *PLOS ONE*, an international team of scientists from the State Office for Heritage Management and Archaeology (LDA) Saxony-Anhalt and the Autonomous University of Barcelona has explored the culinary traditions in central Germany between the Early Neolithic and the Late Bronze Age (6th–1st millennium BCE).

In all, 124 pottery vessels were analyzed for ancient dietary lipid residues, and the functional specialization of several pottery types was determined.

The first agricultural and pottery-producing societies settled in Central Europe about 7,500 years ago with the dispersion of the Early Neolithic Linear Pottery Culture. Over the following millennia, an exceptional cultural diversity unfolded, which resulted in a wide range of pottery styles and decorations.

Within Central Europe, Central Germany is one of the regions with the most pronounced cultural diversity. This is due to the rich agricultural soils of the loess zone and other natural resources such as salt, which attracted people early on. For their study, scientists analyzed the pottery-based food storing and culinary practices of Central Germany by examining lipid residues trapped in a set of 124 period-characteristic pottery vessels of different shapes, sizes, and contexts held in the LDA's storage.

This is the largest data series for the region so far, with samples coming from graves and settlements. Lipid analyses can distinguish between
residual fats derived from milk, ruminant and non-ruminant animals, as well as of marine or plant origin.

The obtained results confirmed a marked increase in the consumption of dairy products linked to innovations in pottery types (e.g., small cups) during the Middle Neolithic period (Baalberge Culture, 4th millennium BCE). The sets of handled cups and small amphorae of this period nearly always contained dairy lipids, indicating a highly specialized use related to milk-derived food sources. One hypothesis is that the cups served to scoop milk products from larger vessels frequently found in the settlements.

Typical Late Bell Beaker individual burial from the surroundings of the circular enclosure at Pömmelte. The juvenile deceased received one single vessel as grave good, in this case a non-decorated carinated cup containing a heated milk
Corded Ware Culture decorated beakers of the 3rd millennium BCE found in funerary contexts instead showed a variety of animal and even plant derived fats suggesting an increase in the importance of non-ruminant products. So far, results do not support the interpretation of these cups as special vessels used for drinking beer, as has been claimed in the past.

In addition, the arrival of the Corded Ware Culture from the eastern steppe regions seems not to coincide with an increase in the use of ruminant-derived meats or fats, as has also been hypothesized. Pigs played a very important role in subsistence habits of these populations. Amphorae (double-handled vessels) of the Corded Ware Culture frequently contain pig-derived fats.

The intensive use of dairy products may also have continued into the 3rd millennium BCE, especially among Bell Beaker populations. The use of the carinated beakers, particularly from burials near the circular enclosure of Pömmelte, seems to have been highly specialized in dairy products, potentially as a serving vessel. This may reflect specific funerary practices at the site, where the typical grave good, a single drinking vessel, consistently presented a signal of dairy products across multiple burials.

The Early Bronze Age Únětice Culture (ca. 2200–1550 BCE) saw the emergence of a highly hierarchical society. This is the time of the richly furnished monumental princely burial mounds of Leubingen and Helmsdorf as well as the Bornhöck, which has been intensively studied in recent years.
The Nebra Sky Disk, which encoded astronomical knowledge that could be used to create calendars, marks the elites of the Únětice Culture as powerful masters of time. Their power was secured by armies, whose weapons can be found in the large axe hoards from the Early Bronze Age.

The pottery of the Únětice Culture is highly standardized. Characteristic are undecorated cups with a carinated spindle-shaped body as well as coarse domestic pots with rough plastic decoration. A greater variety of animal and plant derived products was detected in this much more standardized but, surprisingly, more multifunctional pottery with signals for several different lipids.

Overall, the study of the lipid residues in different vessel types from the Early Neolithic to the Bronze Age in Central Germany reveals new data on the broad changes in pottery use and food preparation over time and the complex relationships that prehistoric populations established between food resources and the main means to prepare, store, and consume them.

Despite very constant animal husbandry practices revealed by faunal studies, the consumption of animal derived products changed substantially between the Early Neolithic and the Bronze Age. Hence, animal bones alone are not always a good indicator of subsistence.

More information: Adrià Breu et al, Pottery spilled the beans: Patterns in the processing and consumption of dietary lipids in Central Germany from the Early Neolithic to the Bronze Age, PLOS ONE (2024). DOI: 10.1371/journal.pone.0301278
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