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emerging hierarchies, especially in societies where these are rather weak, or which undergo fundamental social change (BENZ/GRAMSCH 2006, 425 f.). We think that this also applies to late LBK society, as it is both in transition and low in hierarchy; however, enchainment here is described not only as free of conflict, but as a very technical, sober, matter-of-fact, processual procedure – without regard to the probably involved emotions such as grief or irritation, or to ambitions such as wanting to outplay other feasting participants.

We appreciate the attempt of Chapman et al. to revive the discussion about Herxheim and to merge at least some of the evidence into a new narrative. We agree with them that it “is difficult to summarise the Herxheim findings without oversimplifying what is clearly an enormously complex sequence of operations” (*Chapman/Gaydarska/Jakob*, p. 12). One certainly positive implication of the new narrative is the demonstration that peri- or post-mortal treatment of human bodies and their disintegration does not necessarily need to be considered negative, derogatory, or punitive (cf. GRAMSCH/GROSSKOPF 2023, 107) – one might even go further and state that the killing of individuals can be positively connoted, such as in the instance of self-sacrifice. We support their relational approach which considers persons as “both individuals with specific identities restricted to themselves ... but also individuals, whose relations with all the other persons, places and objects to whom they were linked contributed to their identities” (*Chapman/Gaydarska/Jakob*, p. 14). However, more attention needs to be paid to the question of whether and how body-transformative practices are related to personal identities (GRAMSCH/GROSSKOPF 2023). We suggest that the active disintegration of bodies as well as of lavishly produced pottery visible in Herxheim is part of a physical, as well as social, process of dissolution of individuals and of social transformation in a society in transition. We also welcome the strong focus on practices, as Herxheim provides a lot of evidence for these. However, the new model integrates the evidence only where it blends well into the narrative. In their plot, every action at the site is meaningful and fits together with the other actions – but there are many more practices involved here than are taken into account and many elements such as the sheer amount of material involved, as well as the unusual age distribution of the dead, which contradict the narrative of John Chapman, Bisserka Gaydarska, and Tina Jakob.

An archaeometrical perspective on “New perspectives on deliberate fragmentation and bodily mobility” by John Chapman, Bisserka Gaydarska and Tina Jakob

By Rouven Turck

In their discussion paper, John Chapman, Bisserka Gaydarska and Tina Jakob present a new perspective on the treatment of human remains at Herxheim at the end of the *Linearbandkeramik* (LBK). How these human remains came to the late LBK settlement and what happened to them prior to their deposition in the double ring ditch is still a matter of debate. Based on their own numerous studies on fragmentation and enchainment as a means of establishing social interregional ties, the authors look for evidence that allows the fragmented dead from Herxheim to appear in a secondary burial context as already discussed by Jörg ORSCHIEDT and Miriam Noël HAIDLE (2006).

A central argument of the authors is the regional origin of the dead. By means of strontium and oxygen isotope analyses, very high proportions of the individuals were identified as of nonlocal origin (TURCK 2019). These individuals mostly originate from geological formations that clearly deviate from the settlement landscapes on loess postulated so far for the LBK. The assumption that

nonlocal individuals lived at sites not located in loess regions, died, and then were posthumously transported to Herxheim after a primary burial is at first compelling.

From an archaeometric perspective, the following remarks should be made:

1. In principle, quite a few studies have been done for the LBK in which a high number of individuals from other sites can be detected to originate from areas other than loess regions (e.g. the contributions in BICKLE/WHITTLE 2013). These same studies have also demonstrated that individuals from non-loess geological regions were buried in regular LBK cemeteries (BICKLE/WHITTLE 2013) or even in settlement contexts (NEHLICH et al. 2009).
2. The data obtained essentially from the first molars of the individuals from Herxheim clearly demonstrate that most individuals did not grow up on loess (TURCK 2019, figs 39–40). However, these data do not reflect the last months, or even years, of life of the juvenile, adult, or older individuals. Thus, it is left completely open where these older individuals had lived during the period before their deaths. That they appear “foreign” refers to their origin, i.e. the place of their birth and childhood, and not to the residence prior to death. For a detailed description of tooth mineralization and supplementary methodology, see TURCK 2019, 439–445.
3. The statement by Chapman et al. concerning the carbon and nitrogen isotopes of the individuals from Herxheim is not correct; the analyses reflect a terrestrial Neolithic diet that does not differ from other LBK sites. On the contrary, the range of the data is small (*Fig. 13*). With respect to nutrition strategies, I concluded that, compared to other studies, “there is no indication that the Herxheim individuals or their diet were in any way remarkable” (TURCK 2019, 388). Moreover, the study by HÜJİÇ (2009) should be considered in which the morphological tooth examination resulted in the detection of unusual wear traces.

Following Chapman et al.’s assumption that the individuals may never have lived on loess in Herxheim but were brought there as the result of secondary burials from upland LBK settlements, which the authors refer to as ‘Home Communities’, the consideration of the analyses of children, especially *infans I* and neonates, is helpful: their life span was short, and their isotopic values indeed reflect their place of living during the first and last months of life, during which they took in isotopes from the geological bedrock.

It is clear from *Figure 14* that all four analysed children (*infans I*) belong to ‘local individuals’ which lived on loess, i.e. they clearly spent their short lives in classic LBK settlements. It is informative that the three neonates have slightly elevated strontium values of about 0.71–0.715. These data represent the stay of their mothers who had actually not spent their entire lives on loess but had lived at sites on more crystalline bedrock. However, since these values do not prove to be particularly high compared to the other non-local individuals at Herxheim, it could be possible that the values around 0.71 represent a “mixed value” of crystalline and loess flatland, which could thus indicate migration of the mothers to lowlands during their lifetime. This hypothesis cannot be carried out further by the available data, but we can conclude that at least some of the individuals’ remains which were deposited in the Herxheim ditches – the children with their mothers and perhaps even further relatives – had lived there for several months or years prior to their death, dismemberment, and deposition.

These analyses based on only seven young individuals (three *neonates* and four *infans I*) are certainly not statistically significant. However, the fact that all individuals of the age group *infans I* lived on loess and that the neonates did not belong to the group of highly crystalline individuals is striking: these individuals were clearly part of the ritual and were definitely not brought from upland sites; they did not live off-site or at least not in regions unusual for the LBK; and they

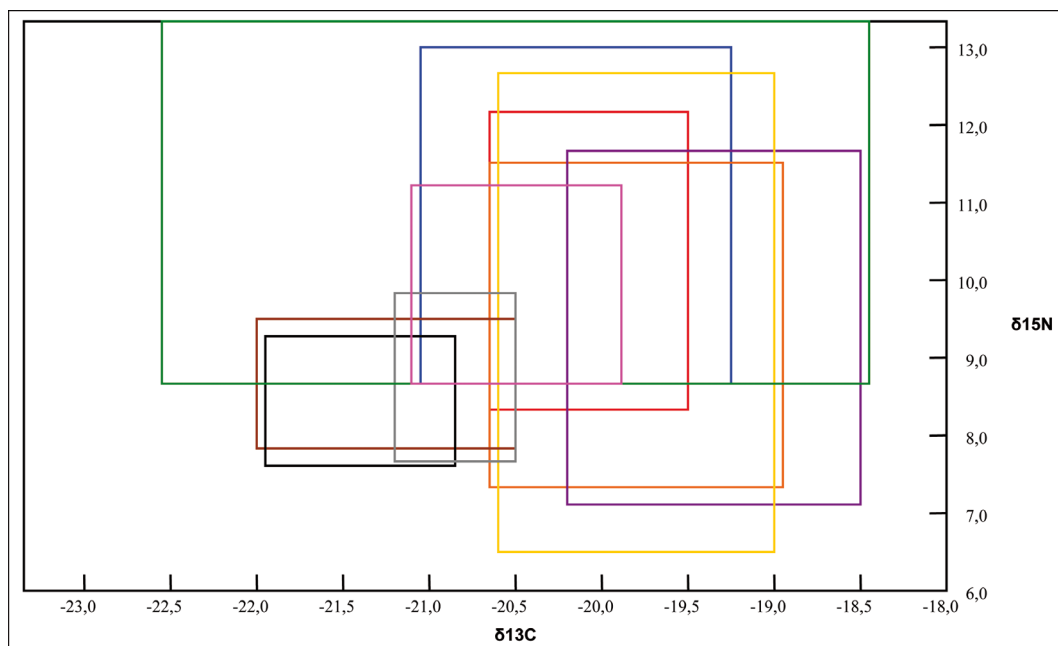


Fig. 13. LBK nutrition: Carbon and nitrogen isotope values from *Linearbandkeramik* sites. Red = Herxheim; blue = Nieder-Mörlen; orange = Derenburg; purple = Halberstadt; yellow = Karsdorf; brown = Essenbach; black = Sengkofen; grey = Dillingen; pink = Aiterhofen; green = Vedrovice.

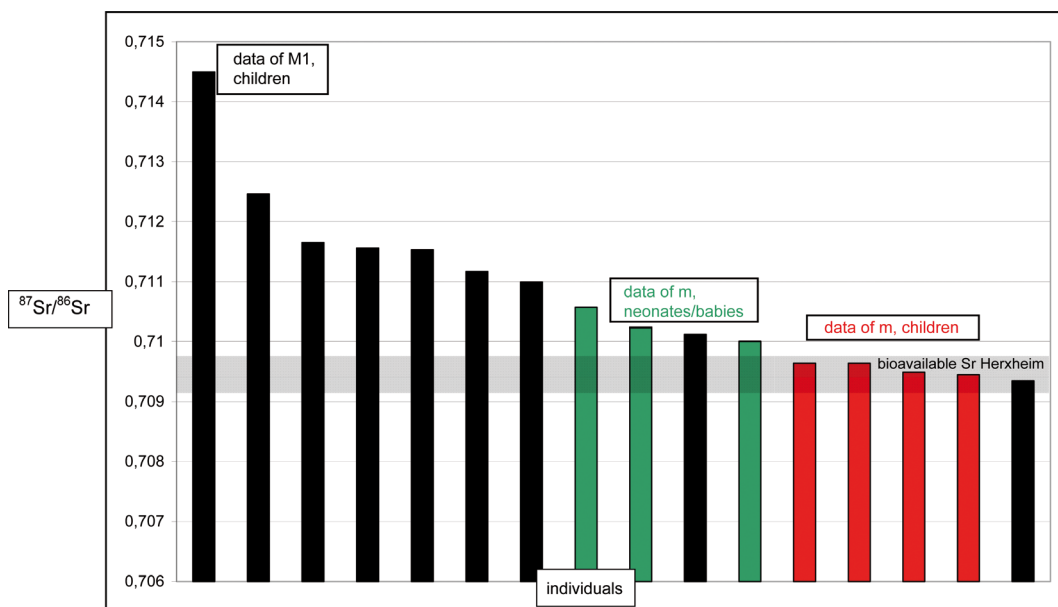


Fig. 14. Differentiation of sampled children by age groups. Green = deciduous teeth (m) of *neonatus*; red = deciduous teeth (m) of *infans* I; black = permanent molars (M1) of *infans* II.

could not have been members of upland ‘Home Communities’. Since it can be assumed that these children grew up in social associations with relatives, it cannot be excluded that migrated adult individuals, who appear to be non-locals in the analysis of first molars, had lived for several months or even years in Herxheim and had founded families there.

In summary, the hypothesis that the non-local individuals identified by isotopes are indicative of secondary burials cannot be sustained. Rather, several children were part of the ritual, and were of loess origin, i. e. raised at Herxheim or other classic LBK sites. They and their parents would certainly have lived for longer periods on loess and probably even in Herxheim. It is quite possible that members of former upland ‘Home Communities’ came to Herxheim during their lifetime. They probably died there or were an active part of the ritual along with their children who were born there. Furthermore, it has been proven several times that potential members of ‘Home Communities’ could also be part of regular burials in settlements and cemeteries (cf. 1.). Lastly, the diet of all individuals is a classical terrestrial-Neolithic one within the last years of life (cf. 3.) and does not represent a community with a nutrition different from LBK lifeways.

The archaeometric results of the nonlocal adult individuals should not be used to interpret primary or secondary mortuary actions, as these results do not indicate their residence before their death, but the region of their birth and early childhood.

The puzzle of LBK endings: the curious (and special) case of Herxheim

By Alasdair Whittle

Those people who lived in longhouses – the *Linearbandkeramik* (LBK) of the second half of the sixth millennium cal BC – have left us an archaeology full of challenges. A lot of it is very well known, and persistently recurrent: longhouses themselves, settlements, cemeteries, preference for good soils, pot styles widespread at first and then increasingly regionalised, cereal cultivation and domesticated animals, especially cattle. Such familiarity may lull us into thinking that we understand most of the essentials of LBK history and lifeways. But get down to the detail, and plenty of puzzles remain. The nature of households and other social groupings including descent groups, clans and sodalities, the internal structure of individual settlements and of regional groupings or cells, gender relations, and the chronological detail of the timing and pace of the initial spread and subsequent development of the LBK, are all far from well understood. The study of all these aspects of the first farmers across wide swathes of central and western Europe has been further enhanced in recent years by isotopic and now aDNA studies, revealing complex and diverse patterns of lifetime mobility among an incoming population of ultimately Aegean and Near Eastern descent. Now things do not seem so easy. And then there is the business of the demise of the LBK, perhaps straddling the 51st and 50th centuries cal BC. There they were, on the best soils in regional landscape after regional landscape, with a robust and productive subsistence economy; there was plenty of space beyond their chosen valley-edge locales in which to expand if necessary, and there were abundant valley pastures and forests in which to move their herds about. What could possibly have gone wrong? Go wrong things certainly did, because against a background of increasingly regionalised patterns of material culture, perhaps projecting more emphasis on local identities in previously broad patterns of connectivity, we now have evidence from some regions of the whole LBK distribution, especially in the Rhineland and surrounds, first, for killings not only of what might have been male raiding parties – as at Halberstadt – but also of smaller and larger social groups or communities – represented respectively by Talheim and Schöneck-Kilianstädten, and by Asparn/Schletz – and secondly, for disruption if not hiatus in some regional sequences, not least up and down the Rhine valley as a whole (DENAIRE et al. 2017; cf. MARCINIAK et al. 2022). There is evidence at Schöneck-Kilianstädten for the mutilation of some of the victims (many individual references are cited in the useful overview by FIBIGER et al. 2023).

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References of figures

Fig. 1: J. Chapman/B. Gaydarska/T. Jakob. – *Fig. 2:* re-drawn by L. Woodard from authors' multiple sources. – *Fig. 3:* B. Gaydarska. – *Fig. 4:* ZEEB-LANZ/HAACK 2016, fig. 2. – *Fig. 5:* HAACK 2016a, pl. 66. – *Fig. 6:* DENAIRE 2019, fig. 10. – *Fig. 7a:* re-drawn by L. Woodard from ZEEB-LANZ 2019b, fig. 6. – *Fig. 7b:* re-drawn by L. Woodard from TURCK 2019, fig. 56, modified by L. Hies (RGK). – *Fig. 8:* re-drawn by L. Woodard from original by J. Chapman, B. Gaydarska and T. Jakob. – *Fig. 9:* A. Häußler, GDKE Außenstelle Speyer. – *Fig. 10:* HAACK 2016b, pl. 66,1; 67,2. – *Fig. 11:* HAACK 2016b, pl. 71,3. – *Fig. 12:* A. Zeeb-Lanz, GDKE Außenstelle Speyer. – *Fig. 13:* TURCK 2019, fig. 59. – *Fig. 14:* TURCK 2019, fig. 51. – *Tab. 1:* J. Chapman/B. Gaydarska/T. Jakob, layout: L. Hies (RGK).