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the world – viz., enchainment” (*Chapman/Gaydarska/Jakob, p. 2*). It is true that a relational approach shines through here. But this remains, first and foremost, limited to the relations of people to objects. These can be located and linked as ‘metadata’, so to speak. However, they are not granted any logic of their own. Thus, the addition of places ultimately remains trapped in a transportation logic, as criticised by Tim INGOLD (2011, 149–150).

With these three aspects of the triangle, the authors offer an alternative interpretation following the presentation of previous research results on Herxheim. Despite my criticisms above, this can be considered a very successful interpretation. I found myself smiling again and again while reading it and putting positive exclamation marks on the text. Even if I do not share the preconditions myself, the interpretations are comprehensible and plausible. It shows what clout the fragmentation theory, or perhaps better enchainment theory, has for interpreting archaeological contexts. Only the tendency towards the ‘obsession with wholeness’, which can often be observed among archaeologists, seems to me to be a little too predominant. Why do places, objects, and people in the past have to be fragmented only to be re-unified? The *synecdoche* as a type of interpretation suggests a *pars pro toto* wholeness, but what if the fragments do not refer to a whole, but rather enact precisely that incompleteness, imperfection, and distributedness that already exists in a non-representational way?

Finally, I would like to put forward a thesis: Fragmentation theory is too connectable. At the outset, I stated that fragmentation theory is a middle-range theory. This is true both because of the theory’s design and its scale. It remains easy to understand without getting lost in too abstract explanations and assumptions. Unfortunately, at no point does it become clear between which practices and grand theories it actually wants to mediate. Here, I have tried to read it from the perspective of New Materialism and posthumanism. This was only partially successful, as it is too strongly rooted in Cartesian concepts. At the same time, however, it uses relational practices and can therefore be understood as a further archaeological advancement of practice theories. Moreover it is not based on an explicit theory of practice. It is preceded by ‘fragmentation as a practice’ of the ‘fragmentedness’ of the world. Further developments such as the distributed nature of practice and agency are not integrated (cf. SCHREIBER 2022; VELING 2022). It also operates with a strong premise reminiscent of the hypotheses or so-called Mickey Mouse Laws of Processual Archaeology. This is quite positive, both for the alternative perspectives to Herxheim and for integration into quantitative as well as qualitative research. Ultimately, fragmentation theory is welcome everywhere, but at home nowhere. It is itself fragmentary and enchainment. But it does not work as a middle-range theory. Rather, it serves as a bridge between paradigms. In this way, however, it primarily fulfils communicative rather than analytical tasks. However, this cannot be valued highly enough. In the end, it is not only separating theories that are needed, but also connecting ones. Even ‘after the break’.

### Fragmenting and moving the parts: a reply

By John Chapman, Bisserka Gaydarska and Tina Jakob

At the outset, we should like to thank the *Germania* editorial team for agreeing to a feature on the Herxheim site and also thank the six colleagues who took the time to read and comment on our article. Since we wrote the article for *Germania*, two of us (B. Gaydarska, J. Chapman) have had the opportunity to visit Herxheim – both site and museum – in the company of Andrea Zeeb-Lanz, who continued to voice the established views of the Herxheim Team. It is these views, together with other external perspectives, that have been summarised here in the form of short critiques of our article.

It is hard to believe that nine archaeologists in the same room can agree on most things about a complex and controversial site but it seems to us that we can all agree on the following six points about Herxheim:

1. Herxheim is a unique site. There may be other ‘killing fields’ (Talheim, Halberstadt or Asparn / Schletz) but the numbers of dead amount to fewer than 70, **not** hundreds or thousands of persons.
2. Although there are many thousands of sherds, human bone fragments, etc., there were very few **complete** entities, whether human bodies, whole pots or even individual human bones. The Herxheim Team’s heroic re-fitting exercises demonstrated the significance of deliberate fragmentation of human bones as well as objects. Despite the large areas which remain unexcavated, there is a strong presumption that much of this material is missing – viz., not deposited at Herxheim.
3. While a high proportion of the individuals analysed for strontium isotopes were born in the uplands, it is still unclear where these persons lived in the years, months and weeks before their deaths. Depending on the tooth type that has been used, the strontium analysis covers the ages of 3.5–14.5 ± 6 months for permanent teeth, based on complete tooth crowns and under a year if using deciduous teeth (BEAUMONT / MONTGOMERY 2015, tab. 1). Isotopic studies are currently methodologically unable to place a single person as residing at Herxheim *pre-mortem*, even the children with “loess-signals” who could come from other loessic areas and not necessarily from Herxheim.
4. Owing to extensive site erosion, there were very few preserved houses or pits at Herxheim in LBK Phase V, so it is difficult to estimate the size of the local resident community. But it is highly improbable that this local community could have accounted for the density of human remains at the site. Equally, very few Phase V sites are known from the lowlands close to Herxheim.
5. The presence of a significant quantity and diversity of non-local objects (viz., not locally made at Herxheim) – whether pottery, ground stone, polished stone, chipped stone or shell – supports the inference from the isotopic studies that there was considerable mobility across the landscape at the local, regional and inter-regional scales. The Herxheim Team have successfully demonstrated that a mobility model can account for the exotic pottery and stone tools which were brought by some means to Herxheim.
6. So there is a conundrum with Herxheim – and none of the published ‘explanations’ can account for **all** of the points raised above.

Unsurprisingly, at this point the unanimity dissolves rather rapidly. The five commentaries in this special issue, as well as the *Germania* editors’ comments, cover the theoretical approach, isotopic studies, site studies and more general considerations on the LBK<sup>3</sup>. It is important to underline that, although some of the points made by A. Zeeb-Lanz / Alexander Gramsch and Daniela Hofmann do indeed challenge our approach directly, none of the comments from Alasdair Whittle, Stefan Schreiber and Rouven Turck put our overall approach in any jeopardy. On this occasion, we had hoped to detour around the well-trodden route of responders to critiques with the claim that our views have been misunderstood or misrepresented. Sadly, this road cannot be avoided. Two fre-

<sup>3</sup> The surprising absence of a commentary from a bioarchaeologist has been explained to us by the editorial team: the only bioarchaeologist who read

the text stated that, since the original bioarchaeological data were used without commentary or criticism, there was nothing on which to comment.

quent characteristics of the replies to our model are the accusation of omissions which we have, in point of fact, actually discussed; and the inclusion as criticisms of points which actually do not contradict our model.

We begin with our response to Alasdair Whittle. We accept his summary of the detailed perimortem questions about natural deaths or deliberate killings, the processes of dismemberment and dissolution, the possibility of cannibalism, and the significance of the transformed skulls ('calottes'). We have never argued that the people who died at other sites but part of whose remains were deposited at Herxheim did not die natural deaths. Likewise, the evidence for cannibalism has been reviewed in our paper and rejected (see *Chapman/Gaydarska/Jakob, p. 10*). The nests of calottes are also strong evidence for the deliberate practices which typified Herxheim. While Whittle complains that the relations between upland communities and Herxheim were overly orderly and sanitised, we make it abundantly clear that this was a very messy, probably smelly and unpleasant task to move bodies or body parts from site to site. If by 'orderly', it is meant that we are dealing with a repeated practice, which may have become so repetitive that it became more formalised – then we concur. But 'formalised' voyages do not make them any less unpleasant. While Whittle fails to identify our vision of the fate of missing bones – a criticism echoed by *Zeeb-Lanz/Gramsch (p. 26)* –, we submit that our model discusses in detail how persons in upland sites died, how their bodies were (sometimes) curated, how some parts were left in their 'Home Communities' and how parts of the bodies were taken on a trip to Herxheim, which included overnight stop-overs and possibly also depositing parts of bodies on these sites *en route*. What more detail can we provide? We submit that no other explanation of Herxheim comes anywhere close to matching our vision of the fate of the missing bones.

Turning to D. Hofmann, she observes that the longer use we posit for Herxheim means that above-ground deposition of parts of the material (at least for a time) can explain the different post-depositional histories of re-fitting fragments, while the incorporation of material into the ditches could have been periodic, and not necessarily marked with great formality, explaining the appearance of the spreads or "concentrations". However, there is a difference between post-fragmentation and post-depositional lives of sherds from the same vessel; post-fragmentation differences could have occurred before deposition, with some curated in one way, others in different ways, and others not at all. Periodic deposition in ditches does not contradict our model but the greater the sense of an overall mortuary congregation centre, the more probable it was to have formal 'events', involving the local Guardians and also the visitors. In response to Hofmann questioning whether all Herxheim remains were 'ancestral', we readily concede that not all of those who died at sites linked to Herxheim (upland or lowland) were selected for special transport to Herxheim. Not all of the deceased on any site became ancestors – they had to be deliberately selected and it seems probable to us that only those selected for the Herxheim deposition were in the same way selected as ancestors.

Zeeb-Lanz/Gramsch conclude that the striking over-representation of juveniles and young adults is one of the elements missing in, or even contradicting, our narrative, while interpreting this as an indication of intentional killing of members from communities of the living. One explanation could be based on methodological issues: age estimation of children and young adults is comparatively easy since it relies on dental development and eruption and fusion of epiphyses. Unerupted or partially erupted teeth can still be observed in fragmentary remains and provide fairly narrow age ranges especially for children and older individuals up to their early 20s (VODANOVIĆ et al. 2011, 15). There is also an inherent preservational bias favouring bones of young adults which are more mineralised compared to bones from very young and very old individuals (WALKER et al. 1988). But why would juveniles and young adults not have been selected as 'ancestors' at other sites, especially

if they came from significant families and/or achieved something important in their lives? Zeeb-Lanz/ Gramsch's interpretation that this was a sign of intentional killing of people merely confirms our argument that there was a selective process going on in the 'Home Communities'. Their puzzlement at the inclusion of 'ancestral' material in the Herxheim ditches (Zeeb-Lanz/ Gramsch, p. 26) is readily explained by the myriad cases where older material was often highly valued and therefore often curated for later deposition. There are clear parallels from the mortuary domain at Varna in the Copper Age of the East Balkans (e. g., the 'antique' *Spondylus* bracelet curated for generations before deposition in Grave 43 at Varna: CHAPMAN 2023, 296 fig. 18,3).

Zeeb-Lanz/ Gramsch's discussion of special and elaborately treated animal bones, which added to the complexity of the practices, is a classic example of interesting details which not only do not contradict our model but actually reinforce it. The special animal remains in the ditches included the wing bones from a large wading bird, a number of *bucrania* and *aigicrania* as well as around 40 mandibles (mostly cut in half and sprinkled with ochre) from small carnivores like marten, polecat or wild cat. We cannot comprehend why Zeeb-Lanz/ Gramsch think that symbolic deposition of animal parts is somehow contrary to our model, which is centred on enchainment and symbolic practices. The first enchainment link is between the hunter and the wild animal or bird; the second links the hunter, the prey and the person(s) preparing the deposit; and the third links any aspects of the depositional practice (e. g., red ochre, division into halves) with other deposits where similar aspects appeared. The most obvious relationship to our approach is that all of the 'wild' deposits represent the **parts** of birds or animals – especially prominent in the case of precise halves! Where were the missing parts? Has anyone tried to re-fit two separate halves to make an 'entire' mandible? We thank the commentators for adding to the complexity of our fragmentation story.

Zeeb-Lanz/ Gramsch make several points about the complexities of the depositional processes at Herxheim. There is a straightforward rebuttal of two of their observations: that many pottery re-fits between freshly broken sherds lying in neighbouring concentrations speak for longer parts of the ditches standing open simultaneously and that it was not possible to have specific areas, namely distinct long pits, into which each group of uplanders deposited the enchainment bones and sherds of their specific bonds with selected lowland communities. These observations do not vitiate our depositional model, since they ignore the practice of sherd curation, which, in any case, the commentators confirm in the case of the Flomborn decorated Early LBK and Middle-Late LBK sherds. We have never denied that there may have been two or more long pits open at the same time. Our suggestion that there were distinct long pits for deposition by specific social groups may work in certain parts of the site – after all, why did Fabian Haack define long pits as the primary architectural units in the first place? – but all that you need to do is to substitute for the phrase 'specific long pits' the phrase 'specific sectors of long pits' and a similar effect is created. The final criticism levelled at our approach concerns the material deposited both below and above finds 'concentrations'. It remains unclear why Zeeb-Lanz/ Gramsch assume that this huge amount of material (a) eludes any kind of enchainment and therefore (b) is ignored in our narrative. In point of fact, we do not ignore the material in the layers stratified above and below the 'concentrations'. Such a large quantity of material clearly must be incorporated into our model and indeed the human remains explicitly form part of the modelling calculations while the objects are implicitly part of the story of the enchainment processes at the heart of the Herxheim phenomenon.

R. Turck's isotopic data provide important but also limiting information about the Herxheim dead. Although Turck can claim that at least some of the individuals the remains of 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 deposi-

tion, we have never claimed that all of the persons whose bodies or bodily parts were deposited at Herxheim were all from exotic places – whether in the uplands or the lowlands. But 80% of the isotopic sourcing shows an upland component in childhood and there is as yet no evidence that they did not spend much of their lives in the uplands. Equally for neonates and *infans I* children, Turck remarks that all individuals of the age group *infans I* lived on loess and that the neonates did not belong to the group of ‘individuals growing up on highly crystalline bedrock’. He draws three conclusions: these individuals were clearly part of the ritual and definitely were not brought from upland sites; they did not live off-site or at least not in regions unusual for the LBK; and they could not have been members of upland ‘Home Communities’. However, Turck cannot demonstrate that the large sample of **three** neonates and **four** *infans I* babies were born at Herxheim – only that they were born on an area of loessic substrate. This could be a loessic area at Herxheim, any one of the many loessic areas near Herxheim or even at some distance from Herxheim. There is **no** evidence that the neonates did not live off-site – only not in areas of geology different from that of the loessic substrate. By contrast, Turck confirms that their mothers lived part of their lives on or near crystalline rocks – another confirmation of the Neolithic mobility which Hofmann so correctly supports. Moreover, Turck’s statement that those individuals with upland signatures gained them in their childhood implies that there *were* indeed upland settlements where these young people ate the food that gave them such signatures – indeed for up to 15 years of their lives. Turck’s data do not remove the problem of upland settlement – they actually confirm it.

All of these detailed claims and counter-claims share a pattern of inference that their core observations somehow falsify our narrative. We find it ironic that we can utilise so many of these points in **support** of our narrative.

It is now time to turn to more general issues of criticism rather than to wade through the mass of site detail only to discover that these data reveal a wide range of complex practices which led to such an extraordinary deposition of human bone fragments. Zeeb-Lanz/Gramsch pinpoint three alleged failings in our research: (a) the downplaying of the sheer scale of the operations – a criticism also made by Hofmann; (b) the over-simplification of such practices and (c) the exclusion of much material because it does not fit our favoured general practice of enchainment. However, none of the strictures of Zeeb-Lanz/Gramsch provides a conclusive argument against the movement of bodies or body parts to Herxheim from other sites. What we sought to demonstrate for Herxheim was a pattern found at many other European Neolithic and Chalcolithic sites – the movement of parts of human bodies across the landscape to special places.

In response to point (a), in our bodily mobility model, we have discussed the movement of up to 1,000 bodies to Herxheim – twice the number of persons which Zeeb-Lanz/Gramsch infer from the total number of skulls (*viz.*, 500). There is an underlying tension in the project team publications between the significance of random behaviour at the site in contrast to the systematic, regular, rule-bound practices which may be expected to govern such a complex operation. This tension underlies Hofmann’s critique of our implied micro-management of depositional processes through small-scale management and tracking of every piece of human bone and sherd (*Chapman/Gaydarska/Jakob*, p. 21–22). But Hofmann overlooks the actually modest number of human body part sets brought to Herxheim each year – varying from a minimal four body part sets to a much larger 73 (*Tab. 1*). There is thus no need for a Teutonic bureaucracy, or masses of Guardians’ resources, to distribute the bone fragments to different parts of the long pits or different long pits. The addition of stone objects and pottery would admittedly have increased the organisational load but the increase in body part sets comes with a concurrent growth in the number of ‘Home Communities’, each of whom would have contributed to the organisation of the enchainment process.

Zeeb-Lanz / Gramsch show a sad lack of imagination when they note “the impossibility of imagining how many ‘Home Communities’ should have been involved to create” the Herxheim remains. If they had studied our model more closely (see *Tab. 1*), they would have learnt that, **at any one visit**, representatives from between one and 14 ‘Home Communities’ would have come to Herxheim. These critiques stem from a lack of understanding of the temporality of the Herxheim deposition.

Moreover, there is a second answer to the criticism of ‘micro-management’ and the sheer scale of material deposited. The response relates to the scale of fragmentation – a point which we emphasised in the first Fragmentation book (CHAPMAN 2000, 7; fig. 1,4). While the whole may become two or more fragments, many complete objects but, critically, also **many fragments** can form a set. At Herxheim, instead of hundreds of sherds and human bones being treated as individual items, their identities were subsumed under the identity of a set. The set was then treated in a new way, in parallel to that of another set. These different sets were deposited in different parts of the enclosure ditches; a new ‘ensemble’ of many sets was created. The selection of material to include in any specific set was far less of a bureaucratic burden than would have been the selection of every sherd and each human bone fragment but, crucially, would have still permitted the creation of enchainment relationships both within and between the sets.

In response to point (b), the novel idea we propose as a ‘solution’ to the Herxheim conundrum is the movement of corpses or parts of corpses to Herxheim from other sites in the uplands and / or the lowlands. What happened to the bodies/body parts at Herxheim was a vital but secondary concern to us<sup>4</sup> and became fundamental as part of our approach based upon deliberate fragmentation and the creation and maintenance of kinship and ancestral relationships through enchainment. While Hofmann questions whether all of the Herxheim body parts were ‘ancestral’, it is a term which we used as a generalising term to include all persons related by kin of whatever generation, whether they were newly-dead or ancestors for a generation or more. Much recent anthropological research on ancestors (HELMS 1998; MCANANY 2014) highlights the deliberate selection of only small numbers of the deceased in any given community as the ‘ancestors’ of that group. Movement of a small number of deceased from other settlements to Herxheim implies that these persons were chosen as ‘ancestors’ – as representatives of their Home Community.

In response to point (c), it is worth reminding readers that, far from simplifying the treatment of dead bodies at Herxheim, we quoted with approval Zeeb-Lanz’s *chaîne opératoire* of bodily treatment at Herxheim: (1) intentional killing; (2) dismemberment of their bodies; (3) removal of muscle tissue; (4) smashing of all bones except for the cranial material; (5) burning of some of the bones; and (6) final deposition in the ditches and, more rarely, in the settlement features (ZEEB-LANZ 2019b, 431–432). The artefacts were also ‘processed’ through various operational chains, all of which concluded in deposition as the final stage of the ritual process. As we stated in our article, we do not see an objection to these six stages forming parts of enchainment relations between the living and the dead. Part of these practices would have included curation. The likelihood of human and animal bone and sherd curation is an important factor at Herxheim and helps to explain the freshly broken sherds in different long pits that re-fitted, rather than necessitating the simultaneous opening of different long pits. Sherd curation is also a good explanation for the incorporation of so-called ‘ancestral’ material in later deposits.

Several reviewers seem to have a problem with ‘enchainment’. For example, Zeeb-Lanz / Gramsch envisage enchainment as described in our account as not only free of conflict, but as a very techni-

<sup>4</sup> An analogy can be found in Tom Lehrer’s song about Werner von Braun: “Once the rockets are

up, who cares where they come down? That’s not my department!” says W. von Braun.

cal, sober, matter-of-fact, processual procedure – without regard to probably involved emotions such as grief or irritation or to ambitions such as wanting to outplay other feasting participants. As we have stressed from our earliest publications on enchainment, there are specific ways in which enchainment relations between persons, objects and places developed in a variety of contexts and it is our job, as fragmenterists, to define more closely the kind of enchainment that was most likely to have occurred in any particular context. I doubt that many archaeologists would accept that the death of a relative or friend, their bodily fragmentation and the movement of their bodily parts across the landscape to a central mortuary congregation site would have been devoid of strong and often negative emotions. But part of the journey, involving overnight stop-overs, moderated the pain through communal feasting and recollections of the dead persons. Although the approach to the mortuary congregation place of final deposition of these lovingly carried bodily parts must have been emotionally challenging, the act of further dismemberment and deposition with other material culture would have brought some measure of closure – again, enveloped in a communal atmosphere of shared grief and emotion.

It is worth re-iterating Andy JONES's (2012, 19–20) point that enchainment is the basis for the creation and maintenance of **all** social relations. We have always stressed that enchainment is an 'umbrella' term which requires more precise definition in individual contexts (CHAPMAN/GAYDARSKA 2007, 196–201; *contra Whittle, here p. 36*). The Herxheim case is a classic version of a very specific kind of enchainment of smashed human bones and broken human bodies. The deeply emotional aspects of bodily transport and ultimate dismemberment would certainly have been a key aspect of the Herxheim experience but there is nothing in the nature of enchainment or enchainment relations that excludes that possibility. Part of the inestimable value of the Herxheim database concerns the extensive re-fitting studies, which show a richly interconnected set of contexts underlining the materialisation of enchainment relations through fragment deposition.

On the theoretical basis of the fragmentation premise, Stefan Schreiber is supportive of the use of what he terms fragmentation/enchainment theory at Herxheim but he remains critical of the Cartesian basis of the theory. By this, he means that 'after the break' does not include the rupture of the object-subject dichotomy. Instead, it is exclusively the object that is broken, fragmented and subjugated. In an instrumental relationship, the human determines both when the object breaks and how continued 'use' cements the continuity of the object 'as object'. At the same time, the concept of objects determines what parts and wholes are.

We dispute what Schreiber terms the proposed Cartesian basis of fragmentation theory on two levels. First, there is always a recursive relationship between persons, places and things, such that they are mutually constitutive and this is an essential (but not essentialising) part of fragmentation theory. Enchainment relations are carried forward as much by the object as by the person – it is the fragment in another context which does the work of sustaining the human-to-human relationship. Secondly, we never posit a fixed, essentialist relationship between wholes and parts – indeed, in our most recent publications, we are finding it increasingly difficult to separate the two. What seem to be parts on one level have soon, in another time-frame, become wholes.

Schreiber also argues that most of the concepts used (objects, human bodies, bones, places, identity, fragmentation, operational chains) suggest a common sense that could come from any excavation report or archaeological evaluation (only 'enchainment' and 'itineraries' need more preconditions). In fact, however, he insists that they are not concepts, but merely deductive *ad hoc*-theories. And he warns that it is precisely these concepts that are operated with that should be questioned as preconditions, because it is here that the origin and benefit of the approach become visible. However, we dispute the interpretation of notions of 'fragmentation', 'operational chains' and 'identity'

as in any way co-terminous with objects, human bodies, bones and places. The former group include theoretical assumptions and methodological considerations in quite different ways from those used to consider the second group. Moreover, our discussion of personhood includes a far wider range of concepts than the commentator assumes.

Schreiber also poses the question: “Why do places, objects and people in the past have to be fragmented only to be re-unified?” We suggest that the objects that we discuss are generally manufactured as whole objects *qua* whole objects (e.g., vessels rather than fired clay images of feet or heads = a complete representation of a part of the body). The importance of operational chains of making (additive (e.g., clay) vs. reductive (e.g., stone) vs. transformational (e.g., metals)) shows the manufacturing relationships between materials and objects. The materials have a strong influence not only on how they are transformed into objects, but also on how they were broken. Our *Figure 2* gives an example of these operational chains. There is never a sense that re-unification is a central aspect of our research; re-fitting studies are conducted to demonstrate the means by which enchainment relations are materialised. When Schreiber suggests that the *synecdoche* as a type of interpretation implies a *pars pro toto* wholeness, he seems to assume that we do not accept a relational aspect to parts and wholes. The priority of wholes can be seen in the natural world (landscapes fragmented into quarries) or in the world of objects or human bodies. There is nothing inevitable about fragmentation but, wherever and whenever it occurs, it offers people the opportunity to use the resultant fragments in interesting social ways. We take the robust position that fragments can be used positively ‘after the break’ to sustain enchainment relations – so what was preserved was the relationship rather than the complete object. In the same vein, Hofmann emphasises only one aspect of fragmentation – that which dissolves relationships and identities – but overlooks the other, more creative aspect of fragments which leads to enchainment and the persistence of relationships and even, as in the case of the Hamangia figurine fragmentation, to changing sexual identities. In some cases, then, as at Herxheim, fragmentation and enchainment go hand in hand as relational strategies. Nonetheless, despite some contested ground which we explore here, we welcome Schreiber’s several suggestions as to the future development of fragmentation theory.

A major disagreement within the Herxheim team concerns the treatment of the human remains, with Bruno BOULESTIN et al. (2009) arguing for mass cannibalism and Zeeb-Lanz rehearsing lengthy and compelling arguments against this interpretation (ZEEB-LANZ 2019a, 449–454). The alternative that Zeeb-Lanz proposes is the mass sacrifice of human captives at Herxheim following raids on other villages (ZEEB-LANZ 2019a, 457–463). For Zeeb-Lanz, Herxheim possessed the widest range of ritual practices in the latest LBK, with other regions connected to Herxheim through an inter-regional alliance based on traditional lineage ties. The primary aim of the Herxheim ceremonial feasting and rituals was to strengthen and deepen such enchainment ties. This much, we can agree with wholeheartedly. However, we part company with the claim that the Herxheim rituals were less about “violence against humans and objects” than “ritually charged transformations of humans and objects using physical force.” (ZEEB-LANZ 2019a, 463). We are not sure whether those captured and killed would have agreed. What this meant was that “the destruction of precious artefacts (to which we may add ‘precious persons’) represented a leading theme throughout the Herxheim scenario as a whole” (ZEEB-LANZ 2019a, 454). Zeeb-Lanz admits that the identity of the victims of this violence is still a mystery but insists that they came from a different ethnic group from the Herxheim residents and were either unfree serfs (slaves) or captives, brought to Herxheim by farming groups from the inter-regional alliance. But this is a claim hardly supported by the aDNA analysis of a small number of Herxheim physical remains (BLÖCHER et al. 2019). In addition, and in contrast to the other LBK mass graves of mainly complete individuals, there were relatively few signs of trauma as a cause of death, even on the skulls. Moreover, the large number of ‘victims’ in the short timescale



proposed by Zeeb-Lanz makes impossible demands on the regional settlement network, which is thin to the point of disappearance in the Southern and Northern Palatinate in LBK Phase V and consists of one house outside the enclosure at the site itself. The disjunction between the scale of raiding and capture in the Palatinate and its minimal settlement evidence mean that the Zeeb-Lanz 'model' of inter-communal violence is fatally flawed. Moreover, this model has no explanation of the fragment re-fits of many objects deposited at Herxheim, often in different long pits. It is imperative to reach a new understanding of such an important site as Herxheim.

In their views of Herxheim, both Hofmann and Zeeb-Lanz / Gramsch emphasise the dissolution of human individuals and social transformation – the way that bodies change from differentiated to undifferentiated in “an active disintegration of persons”. The ontological basis of these views is the Western assumption of the primacy of the complete, undivided, separate body – an assumption now widely questioned and also implicitly by Schreiber in his reply. To put the Herxheim model in the context of dividuality, we offer a commentary in the *chaîne opératoire* of dividuals in LBK Phase V who died somewhere other than Herxheim. The death of a member of their community is, first, traumatic and, secondly, opening up the possibility of change. But the kinship and exchange relationships between community members and dividuals in other settlements meant that one death affected the whole region; this was, after all, what was meant by a social network. Once a regional mortuary centre had been established at Herxheim, the Home Community made a decision whether the newly-dead were to be moved to the centre or buried locally. If death occurred in the snowy, winter season, there would have been body curation, which already created a spatial and emotional distance between the living community and the deceased. Bodies/body parts could also have been curated submerged in water (rivers/streams or ponds) or other types of anorexic environments (e.g., bogs), which, in addition, would have reduced the unpleasant odour of the dead (BRÜCK/BOOTH 2022). Partial body dismemberment may also have started at that time. Each further step towards Herxheim would have increased that physical and emotional distance between the living and the dead, as well as the likelihood of body fragmentation. Observations that the temporal bone was still articulating with the parietal bones in some of the skull caps should not be used to argue against a dismemberment/production of skull caps prior to the journey to Herxheim from other communities. Although the squamous suture is less strong compared to other cranial sutures, examples from albeit much more recent (19<sup>th</sup> century) craniotomies have shown that these bones can still remain attached to each other. Nevertheless, simply wrapping the newly produced skulls caps in fabric or leather would prevent the cranial bones from becoming detached from each other. The exchange of body parts with other settlements *en route* for Herxheim further emphasised the dividuality of the corpse, while strengthening the links with the other communities. We could hypothesise that many of the body parts started out as partial limbs that were broken down into small component parts further along the journey to Herxheim. This, and the presence of soft tissue, could explain the abundance of cut marks. The few still articulated body parts might have come from a place closer to Herxheim with fewer opportunities of leaving parts of the body with other communities. Alternatively, these articulated remains might have had better soft tissue preservation, including ligaments and tendons, that allowed the bones to remain articulated. By the time the mourners had reached Herxheim, their social relations had been maintained but the bodily remains of their dead kin may well have shrunk. Above all, Herxheim was a liminal place – a place of transformation from the physical remains of the newly-dead – already probably incomplete – to an even more dispersed, dissolved dividual. But the purpose of smashing the bones still further was not only the dissolution of the physical body – a process that had been going on for some time prior – but the sustaining of enchainned links between the ancestors who had already been buried at Herxheim, the Guardian community and any other Home Community represented at the time. Anyone who

has tried to dissect an animal carcass will know how hard it is to break animal bone – and the same would have been true with human bones. But the Herxheim Guardians looked after the process of the final incorporation of the much reduced bodily remains into as many places as was necessary. It was only then that the last voyage of the newly-dead could be considered concluded – and that *dividual* could become an ancestor in the full sense of a member of a much wider ancestral community, representing themselves, their own community and those other communities who benefited from the exchange of their bodily parts.

The possibility of a greater external contribution to Herxheim – from upland and/or lowland settlements – may be considered as our relational response to the central dilemma of the Herxheim site – the absence of settlement evidence in the Latest LBK when the strontium isotopic signals indicate a non-local origin for the early childhood of three-quarters of the persons whose bones were deposited at Herxheim. A natal age for the first molars sampled is improbable, unless the very tip of the tooth was sampled (BEAUMONT/MONTGOMERY 2015). It is surely instructive to note that none of the commentators has made any substantive objections to our model of bodily mobility, whether in the details of the varying numbers of body part sets brought to Herxheim or in the basic enchainment principle which underlies this proposed explanation.

We wish to offer three final comments on the debate which our article has engendered, thanks to the *Germania* editorial team and the six commentators: on future research at and around Herxheim; on the widespread evidence for the body mobility model in European prehistory; and on the significance of *dividuality*.

This debate has underlined the vital need for new research on strontium isotopic measurements and lowland and upland site prospection in the Palatinate. Turck's isotopic studies have unfortunately lacked the transverse micro-sampling of enamel across the tooth which would have allowed not only the signal at birth but also into adolescence (c. 15 years) depending on the type of tooth being sampled to identify potential changes in residency during childhood (BEAUMONT/MONTGOMERY 2015; BOETHIUS et al. 2022). Such new analyses would reduce the uncertainty of the regions in which the future 'occupants' of Herxheim had lived, which could also be clarified through oxygen and sulphur isotopic analysis.

The more difficult research goal is the extension and intensification of site prospection in both the uplands and the lowlands. In the lowland areas, standard methodology is available for intensive, systematic fieldwalking but, although vital for establishing the precise settlement context of Herxheim, it is time-consuming and expensive. Upland site prospection methods, including LIDAR and drone photography or thermography (CALASTRENC et al. 2020), may well miss flimsy site remains such as short-term Early Neolithic settlements, so any development potential, such as the excavation and construction of new roads, railway lines, service trenches or pipelines would be important targets for fieldwork.

Our recent research on Alsónyék as well as Herxheim has demonstrated the likelihood of body transport across the landscape at the local and maybe regional level. What we cannot understand is the almost instantaneous rejection of such models when they are absolutely standard for many areas of Europe in the Neolithic. The most obvious examples concern the dispersed settlement pattern associated with megalithic burials, with their own shifting territories within which movement of complete corpses or body parts was normal across the full area (WHITTLE 1996, 244). We suspect there may be a perception gap here that we shall seek to bridge in future research.

The other obvious perception gap is how archaeologists conceive of '*dividuals*' or partible persons. At one point (here, p. 42), a commentator seems to think that a '*dividual*' equates to an

incomplete body! Despite the inelegant term, there is strong ontological support for such entities, matched by increasing quantities of archaeological data, often but not necessarily involving deliberate fragmentation and enchainment relations. But there still seems to be an issue with thinking through what it meant to be a dividual in the Neolithic – how identity lived on through the person's fragmented body parts and how object fragments associated with that dividual can have the same transformative effect in the establishment and maintenance of relations. Many of the negative comments by our six commentators are related to this issue. We are apparently still in thrall to Western modernist assumptions about the 'individual'. Unless and until we free ourselves from these questionable ontological assumptions, we shall always struggle for a deeper comprehension of social relationships in the Neolithic and beyond.

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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).





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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).