

of south-eastern Europe and beyond. The need to investigate the settlement as whole as well as its periphery and the wider settlement landscape is obvious but as standard of archaeological research it is rather a trend of the last two decades.

S. Kurz concludes his 2010 study with the discussion of the social organisation, finally juxtaposing Big Man society and chiefdom. It is obvious that the discussion of population size should not be seen as a separate topic but as one proxy in the context of social organisation. Based on empirical data from ethnological research Robert L. Carneiro concluded that the complexity of social structure correlates with population size. However, the differentiation is not linear but progresses in leaps of c. factor 10. The consequence for our discussion here is that in fact we may neglect whether the community at and around the Heuneburg numbers 2000 or 4000 or 5000, since the complexity of its social structure remains the same. An effect on the quality of social differentiation would be achieved only with a rise to a magnitude of 10 000 inhabitants or more. We therefore need to ask if we consider the factual community to be restricted to the area of the Heuneburg and its nearer surroundings *sensu stricto* or if we assume that the Heuneburg area represents an agglomeration which is the centre of a wider political territory and thus the factual community is larger than the 2000–5000 inhabitants. In the latter case we would have to widen our research framework. This in turn highlights problems arising from archaeological research that all too long focuses on prominent sites and their nearer surroundings.

So we may conclude that at this stage Kurz' conclusions on the social organisation might be not right, but they are a consistent step. However, these aspects still need to be discussed further and in more detail. A look on the implications of the different demographic scenarios would be essential to sharpen the understanding of the scale and effect of uncertainties in estimation of population.

Reply: Debating demography

By Robert Schumann

The discussion section initiated after the submission of the original paper comprises three comments, two rather brief ones by Knut Rassmann and John Bintliff and one extensive comment, which is rather a paper on the demography of the Heuneburg in itself, by Krausse et al. Whereas Krausse et al. focus narrowly on the demography and offer new insights from the insider perspective of the excavating team, Rassmann focuses mostly on the concepts connected to the Heuneburg demography and Bintliff gives a broader perspective. With this corpus of ideas, critiques, and estimates the initial paper has already fulfilled its main purpose: to trigger a more intensive debate on the published numbers (and some of their implications).

All participants in the debate, including myself, probably agree that the Heuneburg is outstanding in many different ways, has already triggered crucial research and debate into the societies of the early Iron Age in southern Central Europe, and will do so for many more years to come. And it stands out no matter if we are talking about 2000 or 5000 or even more inhabitants. As such one might ask, as Bintliff and Rassmann do, why it matters so much. Whereas for the questions of social mechanisms, I would agree that it does not matter so much, these numbers clearly evoke pictures and associations, especially when communicated to a wider public, and I would suggest that we do not take this lightly. Furthermore it matters for questions of how the Heuneburg is evolving and where this constant stream of settlers was coming from. And at the end of this

phase it also matters for the question of where all these people disappeared to. Be that as it may, this whole discussion might – after being a “curious animal” (Bintliff) – end up as a footnote in research on the Early Iron Age because what probably matters more than the actual number of inhabitants is the sheer size by which the Heuneburg settlement complex outnumbers more regular (rural) settlements of that time and anything seen prior to Ha D1 in this region. To estimate the Heuneburg’s population percentually in relation to other and older settlements in the region rather than in absolute numbers would probably also lead to a discussion that does not have to deal with such unreliable variables as the absolute number of inhabitants of households, farmsteads, “lower towns”, etc., and underline the importance of the site just as well as the estimates discussed here.

Probably more important than the number of people in itself are the concepts of social and political coexistence at the Heuneburg during this and all other phases. While this was not the scope of my paper, it is interesting to see how the models by Kurz are already outdated and neglected as they are debated not only in the literature but also in the discussion by Rassmann and Krausse et al. At this point we can only scratch the surface of this discussion and therefore this comment as well as the initial paper focus on the demographic estimates. Nevertheless, the ongoing research at the Heuneburg and in the wider region will surely stimulate research into these questions as well and I am looking forward to further debate into this aspect of this and other *Fürstensitze*.

The core point of the discussion naturally are the estimates and Krausse et al. comment intensively on this aspect. There seems to be more or less consensus regarding the plateau, which is only marginally discussed. The *Vorburg* is also barely part of the discussion, but due to its size it probably only plays a minor role. Therefore, in the comment by Krausse et al. as well as in my paper, the outer settlement is the bone of contention. Krausse et al. criticise the suggested low density of the outer settlement as one of the main aspects leading to a lower number of inhabitants of the overall complex. Nevertheless, beside Kurz’s ideas, this also takes into account the 3D-reconstructions the authors use in their very own papers, up to the point of this discussion (KRAUSSE / HANSEN 2019, 222 fig. 4). In these reconstructions, the outer settlement appears as a loosely settled area of scattered farmsteads. I suggest that this reconstruction is based on scientific reasoning and therefore reflects an interpretation of the outer settlement made by the excavators and researchers at the time they created and first published the model. These reconstructions show exactly the kind of loosely settled enclosures with a number of buildings that we normally associate with single farmsteads or two farmsteads in regular rural early Iron Age settlements, and these are normally interpreted as sheltering one household. As such, the reconstructions Krausse et al. used to illustrate the peopling of the Heuneburg are completely coherent with my calculations, but at the same time Krausse et al. consider my approach as part of a ‘primitivistic’ “tradition that tends to underestimate the size, level of development, and potential of Iron Age societies north of the Alps”, characterising my estimates as unfounded and misleading, which is a quite interesting situation in itself. So if Kurz’s published conceptions, the reconstructions as well as the impressions given in the preliminary excavation reports are outdated as well as the reconstructions, then naturally my estimates are as well. That would still mean that there are contradicting aspects in the current presentation of the (mostly unpublished) data that call for new evaluation and further discussions of the kind we are seeing now, with – as I would put it – reasonable arguments on all sides.

Besides that, Krausse et al. offer new insights into several topics concerning the Heuneburg and a more well-documented and comprehensible basis for their estimates of the demography. These naturally also alter the basis of my calculations and justify higher estimates to a certain extent, leading to more converging numbers. Nevertheless there are still some aspects that need more debate – and probably most importantly more (published) quality data of the outer settlement are

needed. Therefore the upcoming excavations mentioned by Krausse et al. will be crucial to the evaluation of the outer settlement. With the estimates by Kurz, Krausse et al., and me we see a vast range of possible inhabitant numbers at the Heuneburg, with different justifications. While the minimum numbers as indicated by Krausse et al. would scratch at my maximum numbers, their maximum is more or less open as they indicate that the 5000 inhabitants mentioned in the last years might also need to be reconsidered and corrected with even higher estimates. But the wide range offered by Krausse et al., which is even wider if one includes my minimum numbers, probably leads to the conclusion that we actually, as Bintliff points out, have not reached a sufficient basis for reliable numbers at all and have so far been calculating on a speculative basis. It seems that the published (and unpublished?) archaeological evidence as it stands permits several readings.

In addition, there is another reason why I argued for less densely settled areas in the Heuneburg, and this is an aspect underrepresented in the current discussion: the idea that there are more diverse uses of occupied space than just the housing of people. At this point we should take into account that such large agglomerations as the Heuneburg are a new challenge to Hallstatt societies. All discussants agree that we see hierarchy and social division, division of labour, the centrality of the Heuneburg, large-scale connections testified through imports and therefore probably market places, ritual zones for a large number of inhabitants and so on. Furthermore, we might assume space for cattle and the storage of seeds and all other sorts of goods that normally are located within rural farmsteads of the early Iron Age. These aspects of coexistence surely need space and as such we should not rule out the possibility that several parts of the outer settlement were populated less densely and used for these activities. For ritual activities we could argue that these were “outsourced” on the Alte Burg, which is reconstructed as a large ritual space and gathering place. Other mentioned aspects might also be relocated to the wider region, but thus far we lack evidence of, for example, satellite-settlements that specialised in certain essential activities. Therefore it is vital to include, as Bintliff suggests, areas for communal use, auxiliary buildings, storage spaces, market places, etc. in our estimates. Apart from the workshops, craftsmen’s quarters and elite residences attested and presumed for the plateau itself, our reconstructions of the more urban settlement of the plateau thus far do not incorporate such areas. Given the densely spaced buildings and the assumption that most structures were actually residential, accepted in both mine and Krausse et al.’s reconstructions, it seems plausible that some other activities were simply (re)located into the outer settlement as the Heuneburg grew and grew. Therefore we should factor in areas for storing seed corn, winter provisions for thousands and thousands of people and cattle, as well as space for the livestock itself, whose presence may be indicated by the multiple phases of fencing. These could be located in the outer settlement, beside further activities needed in such a central place, such as market areas, temporary shelters for migrating craftsmen, seasonal workers, or merchants and so on. All this impacts estimates of the number of inhabitants. Naturally, to stick with the example of the excavation at Großer Brand (Ertingen-Binzwangen), the absence of evidence is not the evidence of absence. Yet, with Bintliff, I remain sceptical when it comes to reconstructing a dense settlement merely on the basis of the potential destruction of most buildings and solely in analogy with the Gießübel-Tahlau evidence and the Heuneburg plateau itself. In the case of this excavation, this is of course is an educated guess, just the same as a dense settlement is, and this could be solved with further research. If all reasonably well preserved parts of the outer settlement will turn out to show a quite dense use, then of course ideas on its overall settlement density will need to be revised, as do our estimates and our presented reconstructions. However, Krausse et al. themselves actually do not seem averse to consider varied uses for different areas. Reconsidering land use at the Heuneburg with all these varied needs of the inhabitants in mind might lead to a model of “low density urbanism” in the outer settlement, or indeed to the identification of some more rural parts supporting the crowded, fortified parts of the complex. But here again, we come

to the point that we so far simply lack enough data of the outer settlement to decide on this question. Apart from more data, our reconstructions of the Heuneburg also need to reckon with a host of other activities besides housing, and these not only need to be explicitly looked for in the field but also incorporated into our estimates on demography and the use of the available space. In this way, we would come to more realistic pictures of (proto-urban) settlement in the early Iron Age, independent of the concrete population number discussed.

This debate is not about whether 5000 Heuneburgians “would be too many for a 6th century BC settlement north of the Alps”, “appealing to a certain readership” or “keeping Hallstatt communities primitivistic”, as stated by Krausse et al. It is about the archaeological evidence, the reasoning, and the probability based on available (published) sources. Criticising a calculation is not directly linked to the question as to whether Hallstatt societies were capable of larger numbers or not; the research team at the Heuneburg and further sites clearly showed that Hallstatt societies are capable of many things unknown in Central Europe before the early Iron Age, and we are probably only scratching the surface so far – also at the Heuneburg. The question of how many people possibly inhabited the Heuneburg during Ha D1 is to a certain extent crucial for understanding the nature of sociality, and is from my point of view too important to be discussed in just one paragraph published almost ten years ago. As indicated by Krausse et al., ongoing and upcoming excavations, as well as in-depth analysis of the current and older excavations, surely will shed more light on the history and also the demography of the Heuneburg, and they are awaited eagerly. Our models will naturally need to be reconsidered in the light of these new data, and I remain open-minded. Until then, if this paper leads to a more nuanced re-evaluation of this aspect of the Heuneburg, and the discussion here indicates this, it has already fulfilled its purpose.

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