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Diverse material cultures and simple categorisations: comment on the article 'Comb Ware cultures in the eastern Baltic' by Khrustaleva and Kriiska (2025)

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Introduction

Typical Comb Ware (TCW; see Europaeus-Äyräpää 1930) represents a distinct phase in the prehistory of northeastern Europe (the Baltic States, Finland, and northwest Russia) during the early 4th millennium BCE. A few centuries later, changes often characterised as fragmentation and revival of local traditions occur, reflected in the emergence of variously named and defined entities within traditional periodisations. Khrustaleva and Kriiska (2025) address this issue from the perspective of the eastern Baltic area. While they acknowledge the possibility of regional variation and local traditions, they amalgamate TCW and subsequent phenomena into a block called Comb Ware cultures (CWCs). The main reasons for abandoning the earlier classifications are the challenges encountered with traditional pottery typologies, and the ethnic attributes previously attached to archaeological cultures.

Khrustaleva and Kriiska's aim of initiating a discussion on Comb Ware is commendable. However, their concept of CWCs necessitates further examination. In my opinion, it is simplistic and leaves unclear both what the concept denotes and the rationale for its introduction. In their effort to move away from previously dominant pottery-bounded entities, the authors propose what I refer to here as a signature set of material culture. This set is intended to delineate

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the sphere of CWCs, temporally suggested to span nearly the entire 4th and 3rd millennia BCE. I argue that this set is not as coherent, temporally synchronous, long-lasting, or as uniformly distributed as suggested. Additionally, it comprises elements – often objects of long-distance exchange – that are not exclusive to Comb Ware contexts. In the following, I will elaborate on these points, which, in my mind, demonstrate that the concept of CWCs, as formulated by Khrustaleva and Kriiska, rests on unsound foundations and is rather ill-suited to the study of northeastern European prehistory.

What Comb Ware, what cultures?

The article by Khrustaleva and Kriiska presents a welcome approach to the archaeology of the eastern Baltic area by attempting to move beyond the traditional reliance on pottery-based categorisations. However, their introduction of the concept of CWCs raises questions regarding the definition and identification of these entities – what are their Comb Ware cultures? The plural form implies several distinct units in space and time, yet the distinguishing criteria are unspecified. If these cultures are, after all, traditional regional groups identified primarily through pottery, it would be essential to understand how they differ – if at all – from previously defined regional units. The absence of names or further characterisation for these entities (beyond, perhaps, TCW) leads the reader to assume that all eastern Baltic forager material from the 4th and 3rd millennia BCE falls under the CWCs.

The theoretical framework of the concepts of ‘cultures’ and ‘CWCs’ is ambiguous. This opens the door to speculation as to whether these are intended as polythetically derived socio-cultural knowledge transfer systems, even if they seem to be defined more by singular artefacts exhibiting a certain typological similarity. Ethnicity and aDNA are discussed, but it is not clear to what extent ‘cultures’ or ‘CWCs’ should be perceived as demographic or biological entities. At the same time, the emphasis on the signature set effectively blurs the distinction between ‘cultures’ and what might be termed ‘exchange networks’ elsewhere.

Despite the signature set used to justify the CWCs, pottery is still the most common diagnostic material present at most sites. Since ceramics are an integral part of material culture, a discussion without pottery and typology remains incomplete. Mökkönen (this issue) aptly comments on this from the perspective of Finnish materials, and it suffices to say that the automatic distinction between TCW and non- or post-TCW pottery based on the use of organic tempers is indeed insufficient. This seems to be the main reason why Khrustaleva and Kriiska reject the earlier TCW–Late Comb Ware division (see Jaanits et al. 1982, 77; Kriiska 2020, 106–107 concerning Estonian materials). Unfortunately, the article neither elaborates on this crucial issue nor illustrates it with concrete examples. On the

contrary, the generalised discussion of pottery and the broad characteristics attributed to it hardly exclude any forager wares present in the eastern Baltic area during the 4th and 3rd millennia BCE. The authors acknowledge that 'The regional and temporal variations observed after the Typical stage of Comb Ware represent the greatest challenge for its study' (p. 91). In my opinion, this raises legitimate doubts about the validity of subsuming all material cultures under a single CWC umbrella – a term derived from pottery itself.

While TCW is considered a clear unit (with regional variation; see Nordqvist & Mökkönen 2015), the units that emerge after it are less coherent and more difficult to grasp due to various factors, including national research traditions and individual researchers, insufficient studies, and even messy translations between languages. To some extent, however, this terminological multiplicity reflects the increasing material diversity and regionality during the 4th millennium BCE. Technologies and crafts are socially embedded and transmitted practices (e.g. Roux 2016; Furholt 2018; Pollard & Gosden 2023), and recognising continuity and discontinuity, convergence and divergence in material culture and practices requires targeted techno-typological studies. As the authors rightly note, material-based studies are few – but these would be crucial to verify the claim that 'local variants represent a continuation of the development of the Comb Ware cultures' (p. 93). The presence of some shared artefacts – or, in the case of pottery, ornamental motifs (here particularly a toothed stamp) – is not sufficient alone to demonstrate technological, typological, or cultural continuity.

Khrustaleva and Kriiska argue that ethnic associations linked to pottery types have biased interpretations, resulting in an overemphasis on Narva influences (continuity) in post-TCW developments, especially in Latvia and Lithuania. These ethnic epithets (Finnic/Finno-Ugric, Baltic) originated during the era when culture-historical archaeology was the prevailing paradigm, and when ethnic underpinnings were mandatory in Soviet archaeology, under which eastern Baltic research was conducted for much of the 20th century. Moreover, it is unsurprising that the identification of Narva influences occurred decades after Comb Ware was recognised, given that Narva Ware was only described in the late 1950s and the 1960s (Jaanits 1959; Zagorskis 1973). In my view, the assertion that ambiguities in cultural sequences can be simply attributed to false ethnic connotations is an overinterpretation, even though there may be some truth to this claim. I agree that the ethnic labels previously employed are anachronistic and inappropriate; however, their removal does not directly invalidate the typological observations made in the archaeological materials.

There are significant gaps in the current radiocarbon chronology when attempting to connect Narva, TCW, and the subsequent developments. At the same time, many eastern-Baltic Stone Age phenomena are insufficiently dated (see Nordqvist 2025), and the lack of chronological contact so far must be viewed with caution. Nevertheless, archaeological evidence suggests that certain local traditions persisted beyond the emergence of TCW. Although Khrustaleva and Kriiska

do not rule out the potential influence of these traditions, they completely overlook them by emphasising the signature set.

If, as the authors state (p. 93), all scenarios are kept open, it appears contradictory to dismiss earlier ideas as errors resulting from the use of ethnic labels while simultaneously assuming a Comb Ware ethos across the entire material. This similarly implies continuity and affinity, even though neither is theoretically formulated nor archaeologically substantiated. A more rigorous approach would involve technological considerations and an evaluation of previously presented scenarios to determine the degree of mixing and hybridisation of traditions. Earlier research has demonstrated, for example, large differences between the coast and the inland throughout the eastern Baltic area. This is also evident in Latvia, where the material sequences differ considerably in the eastern lake region (Zagorskis 1965; Loze 1979, 1988) and on the western seaboard, where the influence of Comb Ware has generally been conceptualised differently (Vankina 1970; Bērziņš 2008). If all this material is incorporated into the framework of CWCs without further discussion, the concept becomes an umbrella that tolerates a high degree of variation while accommodating only a low level of similarity and cohesion. This, again, highlights the fundamental question of what the CWCs are supposed to represent.

The signature set, cultural associations, and exchange networks

The signature set of material culture is at the heart of the suggested CWCs. However, I find it challenging to support a notion of a homogeneous layer of material culture that 'remain[ed] fully preserved at least until the end of the 3rd millennium BC' (p. 93). Rather, I perceive the proposed similarity to be a consequence of generalised typologies, simplified distribution data, and find contexts, as well as undeveloped absolute chronology.

To begin with, the cultural attribution of many of the discussed artefacts or raw materials is not straightforward, and they cannot be exclusively associated with CWCs. Metatuff, in general, has circulated in northeastern Europe since the Early Mesolithic. Russian Karelian tools, in particular, were previously often associated with TCW, but currently, the main production sites are linked with the so-called asbestos- and organic-tempered wares (AOWs; admittedly another umbrella term) of the mid-late 4th and the early 3rd millennium BCE (Tarasov & Nordqvist 2022, 38). In addition, these artefacts are known in the contemporary central Russian Volosovo contexts. Similarly, even if the large-scale use of amber began in the early 4th millennium BCE and is present in TCW settings, its adoption and use were not confined to TCW (Rimantienė 2001; Loze 2004). Additionally, later in the 4th millennium BCE, amber objects spread far to the north and east in the contexts of AOWs and Volosovo, while in the

3rd millennium BCE, the circulation of amber in the boreal zone decreased and shifted to the south (Macāne & Nordqvist 2025, 842).

The distribution of clay figurines is also more complex than presented. New types of clay objects, and ways of using clay (Herva & Nordqvist 2012), are certainly associated with the TCW and the 4th millennium BCE. However, in figure 1 (map), the take on Comb Ware clay figurines is overly broad and includes, for example, material found in Pitted Ware contexts in southern Scandinavia. Although the interactions between the Typical/Late Comb Ware and Pitted Ware traditions, as well as the AOWs and Volosovo, have been – and should continue to be – discussed, this calls into question the boundaries the authors draw for the CWCs and how they conceptualise 'Comb Ware' in relation to these neighbouring archaeological phenomena. Likewise, the relationship with foragers in the southern part of the eastern Baltic (Lithuania), largely beyond the distribution of TCW, is unspecified, unless implicitly subsumed under the CWCs (p. 91).

Flint is another raw material that was circulated since the early post-glacial times. During the TCW, there is a pronounced peak in the import and utilisation of flint in regions where it is not naturally available, followed by a subsequent decrease in circulation (Mökkönen & Nordqvist 2016, 46–48; Kriiska 2020, 136). Accordingly, I propose that the variations in flint ratios depicted in figure 4 are indeed temporal rather than attributable to differences in geographical proximity to flint sources.

The prevalence and co-occurrence of signature items at sites are poorly quantified, even though their existence is central to the argument. In my view, apart from perhaps imported flint (and pottery), they are quite rare in the eastern Baltic area. To illustrate: Russian Karelian tools have been identified at seven sites in Estonia and three in Latvia (in addition to about a dozen stray finds; Kriiska & Tarasov 2011, 61, table 1; Kriiska et al. 2013, 323, table 1), stone rings at four or five sites in Estonia and about ten sites in Latvia (author's data), and clay figurines at nine Estonian sites (Khrustaleva & Kriiska 2020, 13; I have no current data on Latvia). Simultaneously, several dozen forager settlement sites in both countries are associated with the 4th and 3rd millennia BCE. It is questionable whether the sporadic occurrence of signature artefacts at a few sites justifies treating all material from this period as part of the CWCs.

Furthermore, artefact typologies are not constant but change over the course of the two millennia. For instance, pressure-flaking and flint bifaces spread in northeastern Europe concurrently with TCW, and although bifaces later circulated in the boreal zone as well, modifications in forms, quantities, and production are observable (Manninen et al. 2003, 173; Berg-Hansen et al. 2019, 20–24). Changes are also evident in amber, exemplified by the buttons with v-shaped perforations, which the authors regard as among the most characteristic artefacts of the CWCs (p. 80). However, these are not closely associated with TCW and do not appear in TCW graves (Ahola et al. 2025, 167). V-buttons of various shapes become common slightly later around the mid-4th millennium BCE (Bērziņš

& Čakare 2022) and are very numerous also in AOWs and Volosovo contexts (Macāne & Nordqvist 2025, 844); in the 3rd millennium BCE they spread widely among the Bell Beaker groups of central Europe (Czebreszuk & Szmyt 2008).

Consequently, the long-term existence of a stable assemblage of key artefacts is not as clear as suggested: the signature set is partially diachronic and does not cover the entire period. Many of the items, when securely dated, are associated with the 4th millennium BCE but rarely extend deep into the 3rd millennium BCE. The temporal resolution is further obscured by the fact that many sites associated with the CWCs in the eastern Baltic area are settlements with several use phases, often excavated a long time ago using large recovery units. The co-presence of certain signature elements at multi-period sites does not directly mean that they are synchronous, but it may represent a palimpsest of multiple use phases. The associations can only be verified through unmixed contexts and careful dating.

Finally, a substantial portion of the signature set consists of artefacts or materials that were widely exchanged in the boreal zone. Accordingly, the distribution maps may reflect exchange networks rather than the extent of any specific culture. The broadly overlapping distributions do not necessarily indicate synchronicity, as these networks were also shaped by natural conditions, primarily aquatic networks that were used for millennia. To define social units and traditions, it would be essential to study more than the mere presence of easily movable objects: technological processes and other material culture, as well as settlement and ritual behaviour, could demonstrably measure the degree of continuity, contact, and knowledge transmission at both local and inter-regional levels.

The lack of reliable radiocarbon datings

The absolute chronology of the discussed period is inadequately developed, as rightly noted by Khrustaleva and Kriiska. In table 1, they list what they regard as ‘the most reliable dates’ (p. 72) for the CWCs, yet they do not elucidate the methodology or criteria employed to screen the data, nor do they specify the original pool of dates. This issue is further accentuated by the fact that table 1 still contains questionable dates of poor quality. Moreover, aside from a few datings directly obtained from an artefact, the connection between the dated samples and the material culture is unclear: what material culture is presumed to be dated? For example, the samples from Narva-Jõesuu IIB come from Corded Ware contexts and lack direct association with diagnostic Comb Ware finds (only a little pottery is known elsewhere at the site; see Vanhanen et al. 2023, 344; furthermore, the date 4500 ± 35 BP has an incorrect lab-ID and original reference, which should read Poz-58915 and Kriiska et al. 2016). Overall, more dates, but also a more critical and analytical approach to the data, is required to obtain a robust chronological framework.

The boundary that appears most firmly established in northeastern Europe is the onset of TCW around 3900–3800 BCE. Nonetheless, when examining the broader context beyond the eastern Baltic area, it would have been appropriate to consider systematic chronological studies based on hundreds of dates (Pesonen 2021) rather than relying on two solitary early dates from Finland (one even with an error of ±125 years) (p. 85). According to the same study, TCW in Finland ends around 3500 BCE, and a comparable duration – a few centuries – can tentatively be proposed for TCW in the Baltic States (see Kriiska 2020, 106; Nordqvist 2025).

In Finland, Comb Ware-related pottery traditions are currently understood to have terminated in the late 4th or, at the latest, the early 3rd millennium BCE (Pesonen 2021). In the eastern Baltic area, this question remains unresolved and, naturally, depends on how Comb Ware is defined. Khrustaleva and Kriiska initially suggest a duration extending to 1750 BCE (after Kriiska 2020, 107) but subsequently reject the youngest dates owing to unclear connection to the archaeological material (but see the connection issue above). It is also debatable whether the proposed termination in the late 3rd millennium BCE is supported by the data. If the dates in table 1 (also fig. 3) are tentatively regarded as representative and viewed superficially, they similarly suggest an early 3rd-millennium BCE termination. The dates from the later 3rd millennium BCE are affected by quality and calibration issues that make them inaccurate. Notably, all the youngest dates originate from western coastal Estonia and Saaremaa Island, a region characterised by a strong local identity throughout prehistory. It is therefore possible that Comb Ware tradition persisted longer on the Estonian islands than elsewhere in the eastern Baltic area. However, this is only a preliminary hypothesis, as regional chronologies have yet to be established.

Naming matters? The limits of a catch-all label

Names are conventions, and, in principle, it does not matter what a particular feature or phenomenon is called, provided it is understandable. In this sense, the name ‘CWCs’ is problematic, yet firmly grounded in the pottery-based categorisation of the past. ‘Comb Ware’, and its variants, is such an exploited term that, as the authors also recognise, it cannot be disentangled from its legacy. In practice, ‘Comb Ware’ can denote everything from a pottery type (e.g. TCW) to a broad Eurasian ceramic tradition starting some 8000 years ago (Piezonka 2015). Therefore, adding another meaning to ‘Comb Ware’ or ‘CWCs’ is more likely to cause confusion than to clarify the situation.

This is what occurs with the CWCs, as discussed here. Imprecise definitions and other deficiencies result in a catch-all label that encompasses virtually all hunter-fisher-gatherer material from the 4th–3rd millennia BCE in the eastern Baltic area. Consequently, I do not consider the CWCs – as defined by the authors – to be a concept that adequately captures the material or that can be justifiably

employed to categorise eastern Baltic prehistory. The concept remains inconclusive and even contradictory: on the one hand, it is presented as a vast block of time and material culture that does not recognise change; on the other, it is ascribed heterogeneity, regionality, and temporality that exceed description. The authors repeatedly highlight the problems in classifying material that postdates TCW, yet this diversity is ignored in favour of a top-level uniformity.

There is also a slight geographical bias. Although the paper aims to provide an overview of the eastern Baltic area and Belarus (p. 75), it frequently approaches the material from the perspective of Estonia. At the same time, the eastern Baltic area is treated in isolation from the broader context. The neighbouring areas and the research conducted there are scarcely considered, although they could make a significant contribution to understanding the processes visible in the eastern Baltic area.

The article by Khrustaleva and Kriiska is an ambitious attempt to articulate a version of the 4th–3rd millennium BCE prehistory in the areas east of the Baltic Sea. The scope is extensive – perhaps excessively so for a journal article – with discussions and literature reviews remaining partial, and key concepts and archaeological data presented superficially. Nevertheless, I fully agree that the topic warrants further debate, and that these questions cannot be resolved within the confines of one or two short papers.

Archaeological terminology serves as a classificatory tool intended to provide insights into space and time and to convey connections and boundaries, similarities and differences. Accordingly, I find it difficult to comprehend the rationale for merging the relatively well-established TCW concept with other, non-synchronous units, and for erasing many previously recognised regional and chronological distinctions. This approach does not enhance our understanding of prehistory; rather, it echoes a traditional culture-historical perspective, wherein a given region is assigned a single ‘culture’ (however defined) at a given time. In this respect, it also contradicts the authors’ call for a modern approach to the subject. Broad, homogenised blocks may lend themselves to a narrative operating on a wide timescale and presenting the past as a singular and linear story. To study the past from the perspective of human communities, and to identify continuities and gaps in everyday practices, a contrasting, bottom-up approach is required.

DATA AVAILABILITY STATEMENT
All data are included within the article.

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