

Round #1

by Clare Burke, 10 Feb 2023 15:32
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Revision

Dear Solène, Louise, Laurence and Pierre,

thank you for the submission of your pre print which offers a very interesting case study of cross craft examination. Whilst the case studies discussed offer significant insights into the topic of spheres of shared techniques and identity, I agree with the reviewers that the text needs additions and edits to help clarify and strengthen your arguments and some of the terms used before it can be recommended.

Please consider the reviewers comments and submit an revised version of the pre-print.

Best

Clare Burke

We thank Clare Burke, Bogdana Milić and the second anonymous reviewer for their thorough review of our manuscript and their valuable comments and suggestions that helped improve the paper. We have addressed all suggestions in the text (amended in green) and have tried to answer the various comments along the reviewer's file as precisely as possible. We remain of course available for any additional clarification and/or necessary change.

Reviews

Reviewed by Bogdana Milić, 24 Dec 2022 23:11

Overview&general opinion

This preprint by S. Denis et al. is a valuable and significant contribution to the ongoing debate about the relation between the LBK and post-LBK entities, which, by looking at two different find categories, uses the evidence from the Early Neolithic in Belgium to investigate in detail the nature of cultural transition in the central-western Europe, and thus address a bigger picture and a number of issues that relate to socio-economic systems. The manuscript introduces many, and often underlooked important aspects, which can shape our understanding of the intercultural interactions, connections and exchange, and focuses on data deriving from technological analyses of lithics and ceramics aiming to interpret the transmission of technical know-how, levels of production skills and shared knowledge. This is a particularly successful example of how two different subjects (lithics and ceramics) can be brought together despite different methodological approaches employed, and follow the same line of research about a particular topic. Although the method is not entirely novel, it definitely demonstrates a "revival" of the synergy between detailed studies on technique and the strong knowledge of theoretical background and wide regional material culture by the specialists in the subject.

The following text gives the comments on strengths and weaknesses of the manuscript, of which strengths are undoubtedly prevailing. In addition, the PDF with reviewer's remarks on the clarity and language issues is provided to avoid listing of particular, rather minor points.

Preprint's strengths

The title and the abstract perfectly explain the content of the study, by being straightforward in bringing in the topic.

The introduction section is concisely presenting the theoretical framework and proposing a research question that will be explored through a number of details regarding the production techniques and technical traditions and systems. It clearly outlines the current issues in understanding the Neolithic transition in the area of interest, by introducing first the general paradigms and turning then the focus on the regional character. The authors provide a good overview on the literature, adequately citing both the classic and the most recent references.

The materials and method & results sections represent a bulk of data regarding not only the evidence from two case studies, but also general observations made by most welcome first-hand analyses of a suitable number of artefacts (especially in terms of lithics, with the relation between technology and raw materials), which are further supported with a number of figures and plates. The supplementary material also contributes to transparency of analyses and recording system details.

The discussion is the strongest part of the manuscript. It summarizes important aspects and key topics which were given in the introduction, such as technical traditions or learning networks to investigate the nature of cultural mechanisms on a bigger scale. This is done in a very successful way through nicely separated topics concerning the overall significant levels of comprehending the social background. The contextualisation of the main evidence from Belgium is provided by introducing previously published conclusions from different parts of central-western Europe, building up the stage to explain primary objectives of the paper, given earlier in the text. There are few arguments that push forward certain agenda regarding transition and local/exogenous origin of production techniques and technical tradition and behaviours, which could have been represented in a more careful or delicate way. However, this attempt should not be evaluated with a negative note, taken that the authors possess a great knowledge of the broader region, which is clearly visible from cited bibliography and their own studies of other assemblages in a larger area, in and around the case studies.

The conclusion appropriately brings back the first aim of the study, concerning the evaluation of current models for the Neolithic transition in this particular part of Europe, and summarizes the results of the study by implying the significance of looking at detailed technological features of lithics and ceramics. It presents some open questions for further research and proposes carefully a few potential motives behind social dynamics to support the current argumentation.

I believe that this paper can be a strong reference for the future studies of interregional interactions and exchange which goes beyond traditional approaches, and opens up debates on different levels of production, from an individual, domestic to a general, broader and regional ones.

Preprint's weaknesses

There are several issues in the presentation of data, which occasionally brought difficulties in understanding the primary evidence, mainly coming from a detailed description of features coming through technological study. This is particularly affecting the clarity of the section *Materials and Method*:

-I presume that for the reader who is not particularly familiar with the region and chronology, despite the given map, would be crucial to recognise from the start that the two sites are not occupied at the same time, which will therefore bring the data in a certain way. The same is valid for the representation of details on lithics and ceramics, which, in my opinion, eventually ended up being presented in a slightly imbalanced way. This imbalance is overcome in the discussion, however I would suggest a little reworking of the materials and method section in relation to results. In the representation of data one can often get lost in the bulks of text especially due to switching from one to another site. This can be possibly resolved by either proposing a single line of data presenting (first one site, then the other, also for different questions and material categories), or by making sub-sections so the reader can easily follow the record.

Thank you very much for this comment. In order to solve this problem, after presenting the sites (2.1) and our research method (2.2), we have a separate section for the presentation of the material in a 2.3. Both sites are occupied during the LBK and only Vaux-et-Borset was occupied during the BQY/VSG. We have therefore added a sentence at the beginning of the presentation of the sites making this point, and we have changed the presentation of the sites with first Verlaine and then Vaux-et-Borset. This is now in line with the chronological presentation of the results (LBK and then BQY/VSG).

-I don't necessarily see that the lack of latest pottery results from the Vaux-et-Borset made any harm for the study, however it would be much clearer for the reader if this was mentioned at the end of the introduction together with a line that the two sites provide different evidence in terms of chronology (see lines 134-137, a note on this issue can be introduced here for instance).

We have added here a specification of the chronology of the sites in brackets "*Early Neolithic villages of Verlaine (LBK) and Vaux-et-Borset (both LBK and BQY/VSG)*"

On the other hand, sections on ceramics are shorter and are slightly easier to follow when it comes to presentation of the material, while both results on lithics and ceramics (section 3) were followed without any difficulties. In particular, lines 311-316 were slightly confusing, as the given figure and table only concerned the record from Verlaine, leaving the reader without sufficient understanding of the second assemblage, for which a reference is provided instead. Even if the material has been published, it would be good to see that explicitly written, with a brief demonstration of the main results on the material from that cite.

To clarify this, as mentioned before, we have grouped the presentation of the material in one section (2.3). We added a table describing the material of Vaux-et-Borset (tab. 2) on the same level as that of Verlaine. To homogenize the presentation with the ceramic production, we have also provided a table for the studied ceramic of Verlaine site (tab. 3).

Comments on figures and tables

This manuscript gives a good number of figures and tables, which support the text in most parts on an adequate way. Figure 5 related to lithics, and figures 6 and 7 concerning pottery are greatly designed to simply explain and visually present the technical traditions/ways of doing, which are given in the text by rich and sometimes long explanations and descriptions.

Further remarks on several unclear points are given in the PDF. They concern the moving of figure one below the paragraph which is currently ahead in the submitted version and mark typos in the text and issues with the clarity of basic statistics in the tables.

Answers to the comments regarding the PDF:

- We took into account all comments regarding typography, orthography and suggested precisions.

- We moved the map (fig. 1) after the paragraph introducing the evidence from Belgium. We added a new symbol (half white/half black) on the map for sites with both LBK and post-LBK occupation.

- Regarding the following comments "It would help if the language style is modified, so it is clear that you refer to the reconstruction of a specific assemblage knapping method. If possible, try to use "To shape the block, the knappers needed to create one or two crests. Shaping begun with hard percussion..." or the passive voice. In the current version the paragraph could be misinterpreted for representing a general knapping of any assemblage (given the use of the present simple)." We are indeed giving a very general description of the production sequence of the blades for the whole of LBK and post-LBK Western Europe. Therefore, we propose to leave the presentation as it is.

- We have replaced the 'searched' blanks in the caption of Fig. 4 with 'intended' blanks. They refer to the first intention of the knappers;

- We have amended the tables (initially 2 and 3, now 4 and 5) in accordance with the reviewer's comments. To make a few clarifications: Yes, there is a difference between the two tables in terms of the number of pieces scored for regularity. The reason for this difference is that the fragments of the blades are sometimes so small that we do not risk assessing the regularity of the whole piece. Moreover, regularity is assessed according to 4 levels: 0. very regular; 1. regular; 2. not very regular; 3. irregular. The table summarizes this description in pairs (1 and 2 *versus* 3 and 4). We have tried to show this problem more clearly in the table and in the caption.

Comments on the bibliography

As previously said, a rich set of references, among which there is a coordinated citation between the older and more recent bibliography, represents a strong point of the manuscript. Moreover, the authors provide useful references for the reader who wishes to explore theoretical concepts apart from the references that relate to the particular geo-chronological framework of the study.

[Download the review](#)

Reviewed by anonymous reviewer, 27 Jan 2023 15:00

Title: The title clearly reflects the content of the article.

Abstract: The abstract is concise and presents the main findings of the study. I suggest the Authors to write in the Abstract what BQY/VSG stands for, as they did for LBK.

We have corrected this, many thanks.

Introduction: The introduction in my opinion should be improved by connecting the single case study to broader research questions pertaining the LBK- post-LBK debate. I would also improve the theoretical basis of your argument. This in my opinion is the weakest part of the introduction and of all the paper, the difficulties in connecting the single case study and its (very good) results to the wider picture.

line 81: Personally, I find Coudart's use of the terms "civilisation" and "European identity" quite controversial and I would not use it in a paper.

We understand this concern: the sentence has been removed from the manuscript.

89: I am wondering if "change of paradigm" is the best expression to describe this phenomenon.

Thank you, we modified this sentence in line with the comments below, regarding the rewriting of the introduction.

92: Transition means all and nothing, I would suggest to explicitly define here in the introduction what transition is, so you can connect in a meaningful way what are these social mechanisms you are referring to (102).

We have used this and the following comment to revise the introduction. See comments below. We use the term 'transition' in the sense of "historical transition", a concept defined to understand the modern articulation of time (see the work of François Hartog, 2012). The epistemology and relevance of the concept have been for instance illustrated by Christel Müller (2016).

Hartog Fr. ([2003] 2012), Régimes d'historicité. Présentisme et expérience du temps, Paris, Seuil.¹

105: why is your case study relevant within the framework of the general problem you are addressing? I find the passage between the macro scale (LBK- post-LBK in Europe) and the micro scale (Middle Belgium) not addressed properly. Why the material evidence is unrivalled (104)? You mention a "debate" (108), what is this debate about? Only chrono-cultural connections? How this debate is connected to the general one concerning the LBK? From line 114 you are only referring to the region object of your case study, but it would be interesting to understand how the problems you address at regional level are connected to the research question of neighbouring regions and the entire phenomenon. Of course I am not suggesting to write extensively on this, but as it is your introduction looks detached from the bigger LBK issue that you are mentioning at the beginning.

Thank you very much for these comments and questions which led us to revise the introduction. Our aim was to better explain the passage between the macro and micro scales. If the dissolution and fragmentation of the LBK at the end of the sixth millennium BC seems to be a European

¹ We only indicate in this document the references not mentioned in our text

phenomenon, a variety of mechanisms seem to be at play. Therefore, we focus on the micro level in order to take a first step towards the bigger picture.

To answer more precisely the different questions addressed by the reviewer:

(104) We have deleted the term “unrivaled”, but we wanted to point out the richness of the sites in Middle Belgium, which allows for a close examination of the production sequences;

(108) We have added a sentence to clarify this debate which was about the chronological articulation between the LBK and the BQY/VSG. Different models were put forward, ranging from the anteriority of BQY/VSG over LBK, to the contemporaneity of both groups, to the succession of LBK to BQY/VSG. The latter model is now accepted among most researchers, but the exact articulation/connection at the turn of the sixth to the fifth millennium has yet to be studied in detail.

118 to 130: I suggest to be more explicit in explaining what these scenarios are about. What does the authors you quote mean with "reconstruction of regional identities"? Is this e.g. a social or cultural identity? Which type of identity are they referring to? Group identity? How is the Mediterranean influx recognisable in the material culture?

We have tried to make these scenarios clearer by specifying that this reconstruction of regional identities is cultural in nature and we have added some examples about possible Mediterranean influx/influence in the material culture.

131-132. I would suggest to write down more explicitly what endogenous and exogenous mean. I mean in terms of actual explicit formal models of cultural/societal change.

We have changed the text to clarify these terms.

139-: This sentence reminds too much the structure of a project. I would suggest to rephrase it.

We have rephrased it.

I would pay attention to consistency: 6th or sixth millennium? Use one way of writing it throughout the manuscript.

We have amended the text accordingly.

Materials and methods: 211-213: I would explain better the connection between these two crafts here. Why can lithic and pottery be addressed together? Which is the benefit of this cross-craft study based on chaînes-operatoires? You do this in the discussion (539-ff) but I strongly suggest to succinctly explain it also in the methods section.

Thank you for this comment. We have added in the text precisions on the significance of a cross-analysis of different subsystems, as follow: “*Such cross-cutting analyses are often difficult to carry out because the available documentation is incomplete and the study of the various artefacts tend to be methodologically separated from each other (Beugnier and Maigrot, 2005). However, the analysis of the different technological subsystems that make up a technical system provides a more nuanced picture of the first farmers’ techno-economic*

dynamics and is ultimately the only way to understand the phenomena of social reproduction and change in all their complexity.”

238-239: again, I think that identity should be better defined here, which type(s) of identity are you talking about? I suggest to refer to this by starting e.g. from the work of one of the Authors you quote, for pottery V. Roux.

We have clarified what we mean by identity by adding the following sentence: *“By identity, we are referring to the affiliation of producers to a given social group, the nature of which may vary. In actualist contexts, social groups may for instance correspond to gender groups, families, castes, sub-castes, factions, classes, lineages, clans, ethnic groups, tribes, ethno-linguistic groups... (Roux, 2011).”*

244-246: how would you extend the conclusions of your study to other parts of Europe? In which way are you going to do this?

The study we implemented as part of this article relies on the exhaustive (and thus time-consuming) acquisition of diachronic technological data on large lithic and ceramic assemblages, which indeed limits its immediate extension on other parts of Europe. This approach to transition mechanisms through exhaustive technological approaches is currently being applied for the end of the early Neolithic as part of different projects in Moravia (Denis et al. forthcoming) and in Hungary (Marton et al. 2020). We have added these references to the article's conclusion.

321: in my opinion far better results on ceramics could have been reached by combining manufacturing to petrographic analyses. I am of course not suggesting to undertake such study, rather to take into consideration that the data from ceramics are not that indicative if you take into account only the manufacturing process that you observe on the pots' surface.

In this instance, we are not in agreement with the reviewer, as manufacturing processes represent extremely stable know-how, much less subject to change than raw materials within one given learning network, as several ethnohistorical studies (e.g. Mayor, 2011; Roux, 2019) or archaeological research (e.g., Vandiver, 1987; Roux and Thalmann, 2016) show. Once sequences of technical gestures have been embodied during the learning process, most producers tend not to question or change them, passing them down through generations (e.g., Gosselain, 2002). In contrast, raw materials tend to change much more depending on various factors: (i) consumer demand/preferences (e.g., Gosselain, 2002), (ii) local standards to which producers have to adapt when they change their residence, for example (e.g., Gelbert, 2003), changes in the producers' environment in the context of migration (e.g., Gabriele et al., 2022). While the study of raw pottery materials at the site level and between sites provides extremely valuable information to understand the organisation of pottery production or to assess exchanges of goods (e.g., Gabriele et al., 2019), they are generally less informative when it comes to reporting on the development of know-how on a large scale.

We have added these precisions in the text: *“While the raw materials used for flint tools have been taken into account in the present article, the study on pottery has been focused on forming gestures, which represent extremely stable know-how within a given apprenticeship network as several ethnohistorical studies (e.g., Mayor, 2011; Roux, 2019) and archaeological research (e.g., Vandiver, 1987; Roux & Thalmann, 2016) show. Once sequences of technical gestures have been embodied during the learning process, producers tend not to question or change them, passing them down through generations (e.g., Gosselain, 2002). In contrast, raw materials, which provide extremely valuable information for understanding the organisation of pottery production or to assess circulation networks*

of goods, tend to change much more within a given community of practice depending on various factors, such as consumer demand, local standards (e.g., Gelbert, 2003), or changes in the producers' environment in the context of migrations (e.g. Gabriele et al., 2022). “

NB: manufacturing processes are not only reconstructed on the basis of pots' surface. Just like the raw materials, they are in fact evaluated on the basis of a thorough analysis of the pots' internal structure at both the macroscopic and microscopic scales.

Gabriele, M., Convertini, F., Verati, C., Gratuze, B., Jacomet, S., Boschian, G., Durrenmath, G., Guilaine, J., Lardeaux, J.-M., Gomart, L., Manen, C., Binder, D., 2019. Long-distance mobility in the North-Western Mediterranean during the Neolithic transition using high resolution pottery sourcing. *J. Archaeol. Sci. Rep.* 28, 102050. <https://doi.org/10.1016/j.jasrep.2019.102050>

Discussion: 566-567: explain what these mechanism are, it is not enough to name them.

We have added definitions of the mechanisms mentioned, not in the introduction of point 4.2, but within each paragraph.

For the filiation mechanism, we have increased the last paragraph of Section 4.2.1 : *Because the “ [...] temporal stability of the forming traditions makes them a privileged variable for assessing producers' social affiliation” (Roux, 2020, p. 20), the diachronic permanence of local lithic and ceramic technical traditions between LBK and BQY/VSG testifies of the intergenerational transmission of know-hows among the same social group. The existence of this intergenerational transmission allows to identify a “social filiation” between LBK and BQY/VSG, here understood as a shared “education, [an] inclusion in the lineage” (Martial, 2012). This social filiation permanence in local technical practices between the LBK and BQY/VSG in the Hesbays region attests to the indubitable continuity of population in this settlement area. This is especially important in view of the fact that the transition process appeared to be part of a form of rupture.*

In Section 4.2.3, we presented the definition of hybridisation and syncretism relying on the work of F. Le Brun-Ricalens : *“Finally, forms of syncretism could also be detected within the two technical systems. We are here referring to the definition proposed by F. Le Brun-Ricalens: “ hybridisation (syncretisation): from the Greek hybris (illegitimate union), an action resulting from two different elements, and from the Greek sugkrêtismós (union of two Cretan), a coherent mixture within a system of at least two exogenous ones (a variant of addition, in the sense that each element coexists while retaining its keeping its particularities)” (Le Brun-Ricalens, 2012, p. 684).”*

Finally, and in conjunction with the reviewer's comment on the conclusion, we have decided to add a part 4.3 dealing with the issue of migration: *“4.3. Social mechanisms deeply embedded in migration patterns”*

587-588: permanence of techniques equal to continuity of population...what does "continuity of population" actually means? These general definitions are not enough to explain such complex phenomena as the ones you are addressing in your paper. Change in techniques is for you equal to change in demography? Is it really a 1:1 equation?

Continuity in population means that there is permanence of the identified social groups over time. In this sense, there is a direct 1:1 equation between the continuity of a technical tradition and the continuity of the social groups who carry and transmit that tradition. For this equation, we refer primarily to the work of Valentine Roux (e.g. 2019). This is indeed related to the social mechanisms underlying apprenticeship that involves a tutor and an apprentice which are always

socially connected. Therefore, if no rupture can be perceived in knowledge and know-how transmission (i.e. of complex sequences of gestures), it means that the social organization of producers allows the transmission. Traditions can persist over millennia (e.g. Vandiver, 1987 ; Roux, 2020, p. 19). In the present case study, this aspect is of crucial importance because we are in a situation of perceived “rupture” in the transition between the LBK and the post-LBK. Despite the significant demographic decline, learning networks clearly remain.

We would also like to point out that it is not the change in techniques that is synonymous with the change in demography: it is the replacement of one tradition by another that is synonymous with the replacement of one social group by another. We are talking about social groups here, not genetic populations. The emergence of a new "way of doing" also means a rupture between socio-cultural lineages through the integration of a new social group within the community. So this is more about the social composition of the population than demography in the quantitative sense.

Finally, we have observed some changes in the identified chaînes opératoires. If changes are identified only in some phases of production, this could be related to invention/innovation processes. By looking for technical variations in the surrounding Early Neolithic areas, we try to understand if these changes are related to borrowings. In this way, for example, we have demonstrated some syncretic processes between different social groups. We are dealing with technical gestures and tools that are often invisible (in contrast to pottery decoration, for example). The transfer of specific features between groups therefore indicates extremely intertwined contacts between producers.

To solve this issue and respond to the reviewer comments, we extended the last paragraph of the section 2.2.1 *General objectives of the methods*: “Changes within the technical system generally point to a redefinition of social identities within a given context, whether these changes take place within the confines of a single community, or result from interactions between different communities (Roux, 2019). As sequences of technical gestures reflect deeply anchored facets of producers’ identities, evidence for discontinuity or, on the contrary, continuity, is always very consequential with regard to socio-cultural dynamics. Indeed, diachronic continuity in technical traditions shows the local permanence of producers’ social group over time through an intergenerational transmission of knowledge (Roux, 2020). Discontinuity raises the question of the nature and origin of the new way of doing to determine whether the changes observed in technical practices are related to endogenous or exogenous factors. The analysis of discontinuity provides crucial information about mobility patterns and relationships between different social groups (Roux, 2011). Through the detailed reconstruction of the technical gestures and the tools associated with the manufacture of flint blades and pottery, our objective is thus to explore these dynamics and trace the spatial trajectories of the early farming communities in central-western Europe, extending the discussion beyond the geographical region of Hesbaye”

Conclusions: 698-701: I find the use of labels like "continuity of the peopling" , "migration", "syncretism" somehow problematic as these models are very generic and here they are even given for granted, without any reference to formal and explicit models. Taking for example "migration", in the last 15 years there have been so many publication targeting this topic, that referring only to literature published 20 years ago and not on the recent studies focusing on this period is not acceptable. Given the effort that the Authors put into the analysis of the material record, and their good and sound results, I suggest them to bring to the same level of scientific quality the discussion of their data against the existing state of the art .

We thank the reviewer who, through this commentary, has given us the opportunity to think more carefully about these concepts. We have decided to address this comment in the discussion (rather than in the conclusion), by adding a paragraph 4.3 to this section entitled “Social mechanisms deeply embedded in migration patterns”. Here we draw on recent models based in particular on the work of Daniela Hofmann (2016 and 2020). Using these models, we have tried to show how technological analyses can provide new insights into the question of mobility and migration in prehistoric sedentary societies.