

Bone working in the Vinča culture: Specialised or not?¹

Le travail de l'os dans la culture Vinča : une activité spécialisée ou non ?

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Abstract: The period bridging the late Neolithic and early Chalcolithic has been marked in the Vinča culture of Southeast Europe by its finely produced objects made from various materials and a number of technological innovations, prompting a discussion about the possible presence of early craft specialisation. Certain elements of specialised production have been proposed for different industries, yet bone working has rarely been considered in this regard. Accordingly, the goal of this research was to investigate whether such elements exist in the osseous industry and to determine the characteristics of the production in general. To this end, material Vinča-Belo Brdo along with some other samples, was analysed. Typological and raw material composition were considered, as were the technological characteristics and contextual data. The information gathered reflects a fairly typical prehistoric assemblage. Most of the material points to somewhat simple, albeit well thought-out and coherent, household production. Although the existence of certain elements of simple specialisation could nevertheless be suggested, no unequivocal evidence or undisputable arguments supporting this hypothesis have yet been provided, so it can be concluded that the bone working was primarily, if not completely, non-specialised at this time and place.

Keywords: Craft, specialisation, prehistoric technology, bone industry, household production, standardisation, labour input, skill.

Résumé : La production spécialisée dans la Préhistoire est un sujet encore peu étudié, en particulier ses premières manifestations. Pour cette raison, le but de cette recherche était d'explorer les caractéristiques de la production dans la culture de Vinča, principalement le travail de l'os, et de déterminer si elle peut être qualifiée de spécialisée.

La spécialisation est un phénomène assez complexe et multiforme, quelle que soit l'époque à laquelle elle se manifeste. Elle est définie comme la production de biens destinés à des personnes extérieures à son propre foyer, impliquant des compétences, une régularité et une dynamique sociale. Elle peut être identifiée sur la base de preuves directes (vestiges matériels d'un contexte de travail) ou indirectes (les caractéristiques des produits, telles que leur standardisation, l'investissement en compétence ou en main-d'œuvre dont ils témoignent), et classifiée en fonction des paramètres de production et des types de spécialisation.

La culture de Vinča est une culture de la fin du Néolithique et du début du Chalcolithique dans le sud-est de l'Europe, vers 5300-4500 avant notre ère. Cette culture est connue pour son artisanat avancé, notamment ses poteries fines, ses figurines et sa métallurgie précoce du cuivre. Plusieurs études ont montré des éléments de spécialisation dans diverses activités. Les arguments en faveur de la spécialisation seraient les suivants : pour la poterie, la standardisation de certains types de récipients, la qualité de la production et des produits finaux ; pour le silex, la standardisation et les différences entre les sites ou les régions ; pour la pierre polie et la métallurgie, la complexité de la production et les différences entre les sites ou les régions. Cependant, il n'est pas encore certain que la société était assez complexe pour permettre le développement d'une production spécialisée.

L'industrie osseuse de la culture Vinča présente des caractéristiques, pour la plupart typiques de cette période, mais elle a aussi parfois été qualifiée de « spécialisée ». Cette interprétation est basée sur le fait que cette industrie témoigne d'une bonne connaissance des matières premières et d'une production bien planifiée, ainsi que sur la présence d'objets élaborés ou remarquables. Les artefacts ont aussi été qualifiés de « standardisés » en raison de l'utilisation cohérente des matières premières et de l'application uniforme des techniques de production. Les différences entre certains sites suggèrent aussi une spécialisation de la communauté.

L'échantillon étudié se compose de 977 artefacts en os, en bois de cervidés et en dents provenant du site de Vinča-Belo Brdo. Cet ensemble, avec d'autres, est supposé représentatif de cette culture. Le matériel osseux est typique de la culture de Vinča, et les artefacts

les plus courants sont des alènes faites sur métapodes ou sur côtes, divers outils en bois de cerf et des brunissoirs sur côtes. En outre, la majorité des artefacts sont des objets finis, et les déchets et les ébauches sont rares.

Comme aucun espace de travail n'a été identifié, les preuves indirectes de la production ont dû être examinées afin de déterminer si le travail de l'os était spécialisé ou non. Tout d'abord, la grande variation des attributs métriques montre qu'il n'y a pas de standardisation morphologique. Certaines préférences ont été confirmées dans la sélection des matières premières, avec une forte corrélation entre certains types d'artefacts et des os spécifiques, mais il n'est pas certain qu'il s'agisse d'une standardisation intentionnelle, car cette uniformité peut également s'expliquer par d'autres facteurs pratiques, et les normes ne semblent pas avoir été strictes. La standardisation dans l'application des techniques de production est également discutable, en raison de la chaîne opératoire relativement simple et du nombre limité de techniques. Les niveaux de compétence ont été jugés assez uniformes parmi les producteurs, car la technologie est peu exigeante et relativement facile à apprendre, et il semble que le travail de l'os était une activité couramment maîtrisée. De même, l'investissement dans la fabrication est limité au strict nécessaire, car les artefacts n'étaient pas façonnés de manière excessive et leur production ne nécessitait généralement pas beaucoup de temps, même si certains objets plus complexes exigeaient plus d'efforts. Enfin, les objets extraordinairement raffinés ou complexes sont très rares, de sorte qu'il n'était probablement pas nécessaire qu'un producteur attiré les fabrique.

En conclusion, aucun argument indiscutable n'existe actuellement en faveur d'une production spécialisée au sein des assemblages analysés. Bien qu'il soit possible qu'il y ait eu une certaine forme de spécialisation dans d'autres registres d'activités, le travail de l'os dans la culture de Vinča est resté très probablement non spécialisé, puisqu'il n'y avait pas de réel besoin de spécialistes. Au contraire, il était effectué comme une activité domestique parmi d'autres. S'il y avait eu une forme de spécialisation, il s'agirait d'une exception et non d'une règle. L'absence de production spécialisée ne diminue en rien l'importance de l'industrie osseuse, mais reflète plutôt les capacités des gens « ordinaires » de la culture Vinča.

Mots-clés : artisanat, spécialisation, technologie préhistorique, industrie de l'os, production domestique, standardisation, investissement dans la fabrication, compétence.

INTRODUCTION

Early craft specialisation is still a somewhat under-researched topic, since most of the theoretical framework for studies of this kind of production was developed for goods produced in complex, state societies with market economies (Clark and Perry, 1990; Costin, 1991). This phenomenon must have manifested differently in prehistory, but can still be recognised on the basis of the agreed upon parameters, albeit only along more general lines, and the last two decades have seen a rise in the number of papers dealing with individual examples of specialised production (e.g. Sofaer, 2010; Sofaer et al., 2012; Miloglav and Vuković, 2018). To complement these studies, the goal of this research was to determine the characteristics of production in the Vinča culture, with a primary focus on bone, antler and tusk working (hereafter referred to as bone working), and to establish whether and to what extent the “specialised” label can also be applied in this case.

Specialisation is a fairly complex, multifaceted phenomenon that can be approached and defined in various ways. Following primarily the works of C. L. Costin (Costin, 1991 and 2001; Costin and Hagsturm, 1995) and J. E. Clark (Clark, 1995; Clark and Parry, 1990), as well as J. A. Hendon (Hendon, 2006) and R. K. Flad and Z. X. Hruby (Flad and Hruby, 2007), however, it is possible to establish several points on which the majority of researchers agree. These are as follows: “1. Specialization is production for someone outside of [one's] own household. 2. Specialists get something in return for their craft. 3. Artisans display a considerable amount of the relevant skill. 4. A certain regularity in produc-

tion is expected. 5. Specialization is a catalyst [for] as well as a product of social dynamics” (Koldžić, 2023, p. 53). Based on these points, I would define specialised production as “relatively regular and skilful production undertaken for people outside one's household for a certain compensation and [...] being both affected by and affecting wider social relations” (Koldžić, 2023, p. 333). As such, it should be distinguished from other kinds of division of labour and from differential participation in certain activities. However, it has to be said that even the aforementioned authors suggested in their later works that, due to the complexity of the topic, the focus should be on the nuances of the production in individual case studies, rather than the rigid definitions (Clark 2007; Costin 2007). Nevertheless, many such aspects are impossible to assess in the prehistoric assemblages, and for this reason I believe that their earlier approach is much more applicable to earlier material.

The aforementioned work conducted by C. L. Costin (Costin, 1991 and 2001; Costin and Hagsturm, 1995) is still most commonly referenced and used as a basis for specialisation studies, providing a fairly universal framework and relatively comparable results. She defines eight specialisation types, from individual specialization to retainer workshops, as well as the concept of production parameters: context (independent versus attached); (dispersed versus nucleated); (small, kin based versus factory); (part-time versus full-time). Her concepts of direct and indirect evidence of specialisation are especially relevant to this research. Direct evidence comprises the physical remains of a production site, complete with tools, raw material, unfinished products and debris, whereas indirect evidence comes in the form of the characteristics of the products themselves. The latter include standardisation,

labour investment and skill, standardisation being the most commonly considered (Vuković, 2011).

The Vinča culture, a prominent entity in European prehistory, primarily occupied the Central Balkans and southeast Pannonian Basin (fig. 1), roughly in the period 5300–4500 BC. Through four phases, A–D, it belonged mainly to the late Neolithic and early Chalcolithic cultural contexts and has been the subject of many studies connected to chronology, material culture and social organisation (e.g. Garašanin, 1979; Chapman, 1981; Tripković, 2013; Whittle et al., 2016). These studies show that in many aspects the culture exhibits typical late Neolithic characteristics as a part of a wider network, with exchange of resources, goods and ideas on intra- and interregional levels. However, the assemblages from this culture are also characterized by considerably earlier dates for the appearance of certain phenomena, as well as significant technological levels, some finely made objects and innovations in production, most notably copper metallurgy. Nevertheless, it is generally accepted that the Vinča communities were “relatively egalitarian

kinship-based agricultural societies living in villages” (Porčić, 2012, p. 167).

One of the things that make Vinča stand out among other contemporary cultures are certainly its crafts, which are especially relevant to the issue of specialisation. Some finely manufactured artefacts, above all the fine pottery and figurines which made the culture famous, give an impression that there may have been some kind of specialised production, though specific studies on this issue are still rare. More recently, possible elements of specialization have been noted in the pottery making (Vuković, 2010 and 2011, p. 96, 201; see also Nikolić and Vuković 2008), chipped stone (Bogosavljević Petrović, 2015 and 2018) and the ground stone (Antonović, 2003 and 2008; Vitezović and Antonović, 2020) industries, as well as a metallurgy, to an extent (Antonović, 2006; Radivojević et al., 2010 and 2021; Radivojević and Kuzmanović-Cvetković, 2014; Radivojević and Rehren, 2021a and 2021b). The most common arguments, depending on the industry, would be morphological standardization, different treatment of certain artefact groups, complexity and

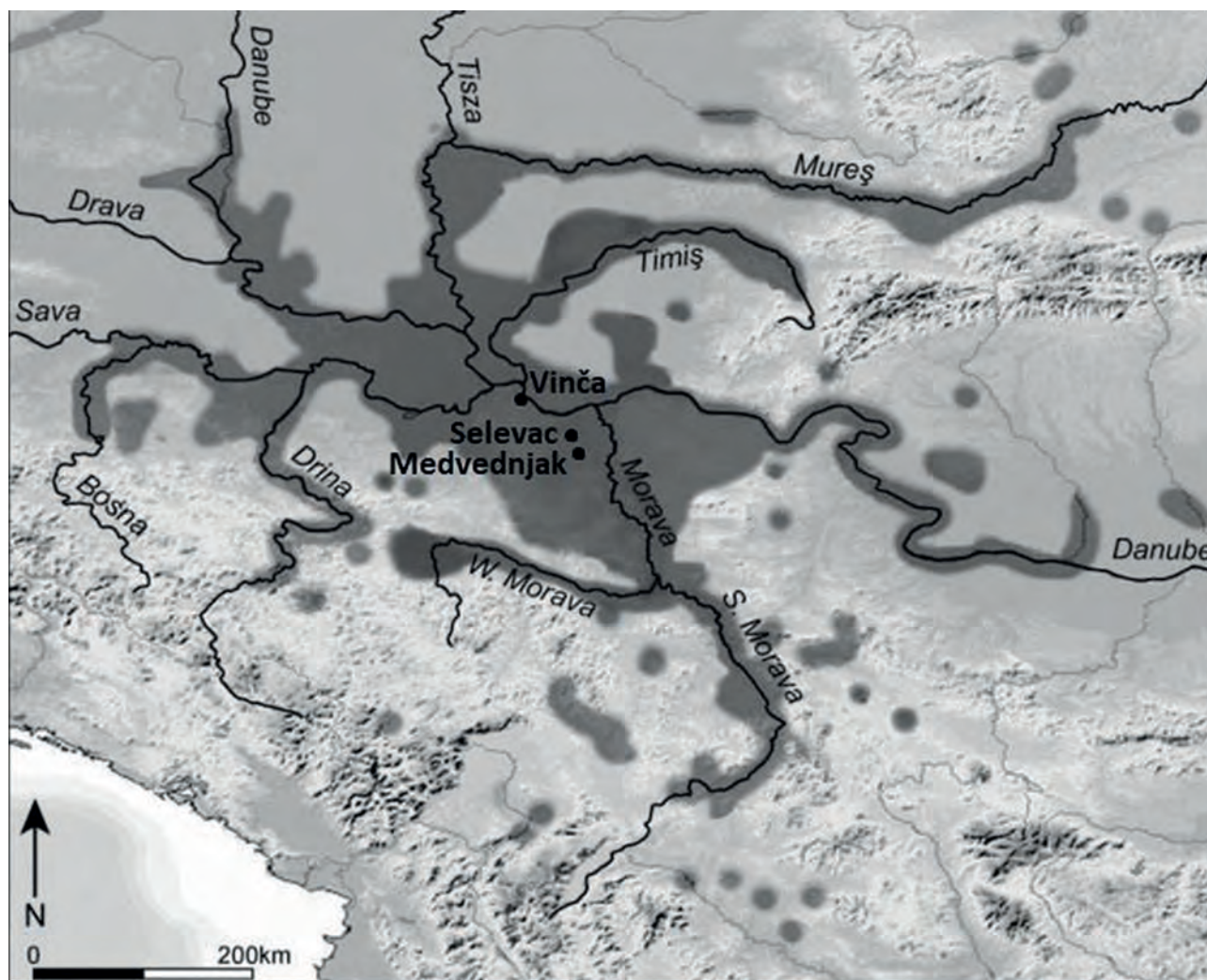


Fig. 1 – Locations of the analyzed assemblages within the Vinča culture (after Whittle et al., 2016; figure 1, sites drawn in by the author).

Fig. 1 – Localisation des assemblages analysés au sein de la culture de Vinča
(d'après Whittle et al., 2016 ; figure 1, sites dessinés par l'auteur).

changes in production, possible presence of workshops, and site differentiation. However, despite all these arguments, there is no universal acceptance that specialisation is present, with authors like M. Porčić (Porčić, 2012) stating that there is no clear evidence of the kind of institutionalised inequality and stratification which would be conducive to the emergence of specialists.

The osseous industry of the Vinča culture is fairly typical of the European Neolithic and early Chalcolithic, with many analogies in other contemporary cultures in terms of composition, typology and manufacture, consisting primarily of everyday tools, these most commonly being various points, followed by scrapers, hammers or hammer-axes and used astragali, as well as polishers (including spatulas), strikers (or punches), picks, hafts or handles, chisels and wedges, or various special objects (see Bačkalov, 1979; Perišić, 1984; Vitezović, 2013 and 2017). On the other hand, non-utilitarian objects and ad-hoc tools are rare. As regards the production process itself, production debris and unfinished objects have been identified at only a handful of sites, and the existence of a designated production area or workshop has been suggested only at Jakovo – Kormadin and Vitkovo sites (Vitezović, 2010; Vitezović and Bulatović, 2013; Krištofić, 2016 and 2018). In recent years, the possibility of specialised bone working has been raised almost exclusively by S. Vitezović (Vitezović 2018 and 2022, Vitezović and Antonović, 2020), primarily on the basis of indirect evidence. One of the arguments for specialisation would be the striking degree of familiarity with the raw material and its skilful treatment. Furthermore, the low numbers of ad hoc tools indicate that the production of the majority of the artefacts was planned and well thought out, while the presence of certain outstanding and elaborate objects suggests higher levels of skill and labour input in their production. A significant standardisation of artefacts has also been suggested in these studies, albeit not in their morphology or metric data, but rather in their consistent use of raw materials and production techniques, with typical artefacts almost always being made from the same bone elements. Additionally, a degree of differentiation among individual sites or wider regions has also been observed, perhaps suggesting a certain degree of settlement specialisation.

1. MATERIAL STUDIED

The assemblage presented here consists of 977 artefacts made from bone, antler and tusk found at the Vinča-Belo Brdo site. The study also included one smaller sample from Vinča as well as the material from Selevac and Medvednjak (fig. 1), which confirm the observations made in the following text, despite certain site peculiarities. All these sites represent permanent settlements of the classical variant of the Vinča culture (*sensu* Garašanin, 1979) and can thus be expected to represent the culture as a whole. Furthermore, the Vinča

and Selevac samples complement or overlap with the previously published material (Srejšević and Jovanović, 1959; Bačkalov, 1979; Babović, 1984; Russel, 1990; Cristiani et al., 2016). The material from Vinča comes from the final horizons of the settlements, dated into the D2 phase of the culture (Schier, 1996; Tasić et al., 2015); The finds were collected during the campaigns 1998-2009, characterized by the modern methodology, precise documentation, absence of sampling bias and the cooperation between archaeozoologists and the worked bone specialists. The excavated area is roughly 1100 m². The material is quite typical of the Vinča culture in terms of both typology and raw material selection (fig. 2 to fig. 4). Finished artefacts dominate the assemblage, with production waste and semi-products accounting for 7.1% of the sample. The largest and the most variable typological group are pointed artefacts, consisting primarily of various awls (35% of the whole assemblage), followed by larger points from antler (“dibbers”) or bone, as well as less common strikers or punches, needles, and a borer. Bevelled artefacts are represented by axes or hoes and chisels; blunt primarily with pestles, followed by hammers and retouchers. Flat artefacts are relatively large group due to the numerous burnishers but including scrapers as well. Special artefacts consist of numerous hooks, as well as the single harpoon, handle or haft, and a small vessel; despite their name, they do not seem finely made. Decorative artefacts, like panels, pendants, or buttons are also rather simple. Finally, the multifunctional artefacts, with the exception of one hammer-axe, are mostly simple tools with more than one active part. Raw materials are primarily red deer antler, small ruminant metapodials, large ribs, as well as boar tusks and mostly cattle astragali, while other skeletal elements or species are largely incidental; certain elements were used rather consistently—long bones for points, antler for points or heavy-duty tools, ribs for points and burnishers, tusks for scrapers. Production techniques are only represented by abrasion, as the most common, splitting and cutting. The *chaîne opératoire* does not seem much complex, usually with only a couple of steps, and the artefacts, although well made, are not too elaborate, with the raw material usually modified only as necessary. However, ad hoc tools are almost entirely absent.

2. ASSEMBLAGE CHARACTERISTICS IN REGARD TO THE ISSUE OF SPECIALISATION

Contextual analyses of the finds and the small numbers of unfinished artefacts or debris did not provide any direct evidence of production *sensu* C. L. Costin (Costin 1991). The material is fairly well dispersed throughout the settlement, with the vast majority of the artefacts coming from nondescript layers or various pits; their composition is mostly characteristic of waste dumps. Only a small number of finds could be attributed



Fig. 2 – Selected artefacts from Vinča-Belo Brdo: Round awls (1-3), flat awls (4-5), pestle (6), scraper (7), burnisher (8), perforated point (9), lure hook (10), regular hook (11), conical harpoon (12), “dibber” (13), hoe (14), decorative objects (15-16).
Fig. 2 – Artefacts sélectionnés de Vinča-Belo Brdo : alènes rondes (1-3), alènes plates (4-5), pilon (6), grattoir (7), brunissoir (8), pointe perforée (9), crochet à leurre (10), crochet ordinaire (11), harpon conique (12), “plantoir” ou “pieu agricole” (13), houe (14), objets décoratifs (15-16).

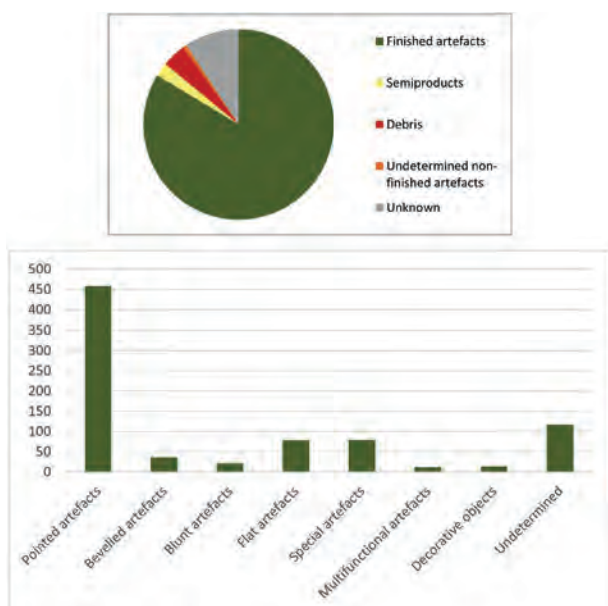


Fig. 3 – Main typological categories (above) and morphological groups of the finished artefacts (below).

Fig. 3 – Principales catégories typologiques (en haut) et groupes morphologiques des objets finis (en bas).

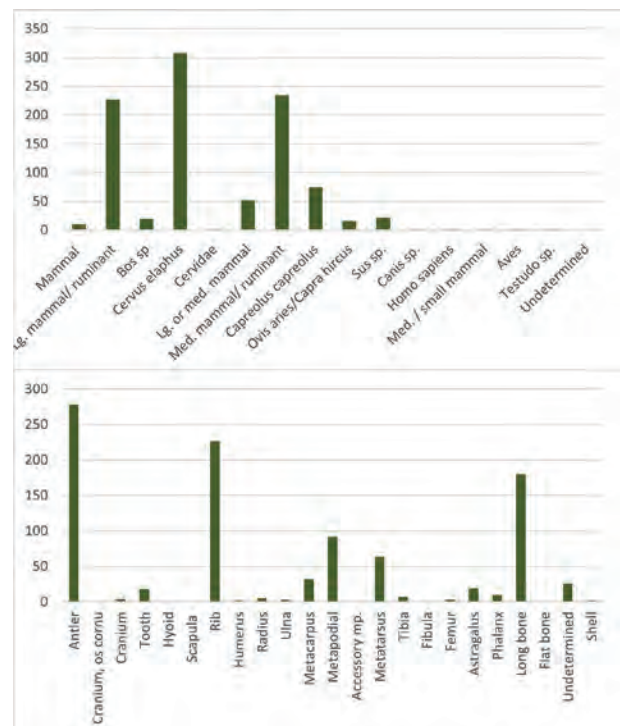


Fig. 4 – Raw material selection: Species (above) and skeletal elements (below).

Fig. 4 – Sélection des matières premières : espèces (en haut) et éléments du squelette (en bas).

to house contexts, with no more than around 10% of the assemblage having any relation to houses and usually only individual artefacts being found directly on a floor. More noticeable concentration of 11 artefacts has only been found in one house, labelled 01/06, for which a production character has already been suggested, for various activities including a possible bone working (Borojević et al., 2020). However, it is not certain whether the bone tools were actually made or only used here.

The first indirect evidence to be addressed is standardisation. Morphological variability is very prominent across all artefact groups, which is a result of the raw material characteristics and range, much more than technological choices made by producers. On the other hand, the consistency in terms of raw material selection, with certain tool types being made of the same skeletal elements, indicates a clear preference or standard. In almost every case, however, there was also evidence of deviations from the norm, suggesting rules for manufacture were not that strict. One also has to bear in mind that the most commonly used bone elements were metapodials, ribs and shed antler, which, aside from their obviously favourable mechanical properties, are relatively easily obtainable alongside other butchering or, in the case of antler, gathering activities (lower limbs are among the first body parts removed, ribs are numerous and need intensive defleshing only on one side, antler is collected outside the settlement), suggesting that this preference might be purely practical rather than a sign of intended standardisation. Similarly, the production techniques were applied uniformly, yet their range is rather limited and the operational chain was relatively simple, so no significant variety can be expected in any case.

Despite the fact that skill is one of the more commonly used arguments in the specialization studies, this parameter remains rather elusive and unlikely to be determined objectively. Compared to other Vinča culture crafts, the number of production techniques to learn seems much lower and thus, more manageable. Additionally, it seems that the majority of awls were frequently resharpened, suggesting that those who used the tools were familiar with bone working in general. Furthermore, the producer's evident familiarity with the raw material and the techniques does point to considerable experience, which could be the result of an individual's skill or of collective knowledge. In the case of the rare, more elaborate objects, their production would, however, demand more labour input but not necessarily more skill, since the most of them only exhibit more extensive grinding, or cutting of larger pieces. For these reasons, it seems that knowledge of the production, or the skill, was present rather uniformly among the everyday producers, with no need to stand out significantly.

Though labour input exhibits more variability than skill, this was dictated mostly by the form and function of the intended artefacts. Specifically, it can be observed that almost all the artefacts were primarily modified only to the extent necessary for them to serve their purpose, without additional effort. As an example for the time

invested, it has been roughly calculated how much time was spent to make all 342 awls, this being the most commonly produced type. Since the lowest estimate for the duration of the horizon from which the sample was collected is 25 years (Tasić et al., 2015), that would mean that 13.7 awls were produced per year on average for or within this part of the settlement. Even for less experienced producers, this would not take long to achieve (Choyke and Tóth, 2013). Despite these calculations being oversimplified and not considering many additional factors, this shows that not much time had to be devoted to bone working, and that this could have been done part-time or during free time. Even considering the more demanding artefacts, the labour input can be said to have been only as high as necessary, with apparently no need to go above and beyond, or to focus on the bone working at the expense of other activities.

Finally, there is a question as to whether the presence of very fine, outstanding or elaborate objects can be used as an argument for specialization per se. However, no artefact in the assemblage can really be labelled as outstanding due to rather undemanding forms, despite some unique and representative finds being recorded elsewhere. Even the decorative and other special artefacts here are fairly simple and could probably have been made by any experienced artisan. In terms of the bone manufacturing continuum (*sensu* Choyke, 1997), the vast majority of artefacts can be assigned to Class I, being well planned and decently made for their purpose, but never reaching the end of that continuum either.

CONCLUSION

Despite the fairly early dates, some elements of specialised production can be identified in the most prominent industries of the Vinča culture such as ceramic manufacturing. It is still not clear whether they indeed constitute institutionalised and established phenomena, but it is evident that a certain intensification and transformation of the organisation of production and the corresponding social relations had begun to develop so that it can be said that Vinča people probably had some idea of specialisation. Such specialisation, if present, would manifest in the simplest forms. In terms of production parameters (*sensu* Costin, 1991), it could be labelled as independent, part-time, small-scale, organised by kinship and probably dispersed. Additionally, the production could only reflect individual specialisation (*sensu* Costin, 1991, pp. 8–9), this being the simplest type.

On the other hand, no unequivocal evidence of specialised bone working has been identified in this research. Possible elements of specialisation can be observed in the assemblages, so this suggestion cannot be completely dismissed; however, all the arguments in its favour can be equally well explained by other factors. Furthermore, none of these arguments singles out specific artefact groups and it is unlikely that the entire industry would

have been specialised. It also has to be considered how capable the average person in the past was. Bearing this in mind, it is likely that the bone working in the Vinča culture was a primarily non-specialised, widespread household activity performed alongside other tasks. This is not to say that there were not certain go-to individuals when some more demanding production was needed, but apparently this kind of manufacturing did not happen with sufficient regularity, scale or intensity to label these individuals specialists. To put it simply, there was no need for specialisation, since most people could make the necessary tools in sufficient amounts, even if not everyone had to participate. If there had been any specialisation it could be seen as the exception rather than the rule. Its characteristics would be like those proposed for the other industries mentioned above or could perhaps be labelled as ad hoc (*sensu* Clark and Parry, 1990), intermittent or multi-craft specialisation (*sensu* Hirth, 2009). At some sites there may also have been community specialisation. Of course, all this depends on how specialisation is defined, but I believe that a stricter approach is necessary in order to be able to properly distinguish between different modes of production. The lack of specialised bone working in the Vinča culture does not diminish a significance of its bone industry, however. Rather, it represents a constant in changing times, a traditional household-oriented activity which reflects the capabilities and prowess of common people.

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Acknowledgements: The research was funded by a PhD grant from the German Academic Exchange Service (DAAD).

NOTE

1. This paper represents a summary of the results of the unpublished PhD thesis, titled “Bone artefacts as means of interpreting craft production in the Vinča culture” (Koldžić, 2023), defended at FU Berlin.

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