

---

---

# The Metalworker as Social Agent: A *longue durée* Approach from Northwestern Iberia Atlantic Façade (Ninth–First Centuries BCE)

Samuel Nión-Álvarez 

*The aim of this paper is to analyse the role of the metalworker in the northwest Iberian Iron Age. By adopting a holistic and diachronic perspective, a broad review of the influence of metalworking and its agents on the social structuring of the communities of the Atlantic seaboard is presented. With the aim of exploring the implications of metallurgy and the blacksmith's activity, a new perspective of metalworking is suggested. Thus, an exploration of perspectives beyond the technical aspects will be addressed, considering the 'technological dimension' as part of all the elements that define this activity. The objective of the work is to present a narrative that allows analysis of the role of the metalworker throughout different historical periods, focusing on the social, technical and symbolic dynamics that have shaped its development.*

## Introduction: a different approach to metalworking

Archaeological approaches to metallurgy and the results of its production usually tend to focus on the technical characteristics of the process. Despite the validity of different methodologies of 'archaeo-metallurgical' analysis, this paper does not focus on technical development or the characteristics of production, but on the role of the blacksmith and the social role of metallurgy. Thus, the goal is not to analyse only the 'technological dimension' of this activity, but rather how metallurgy and its interactions with other forms of expressions helped shape the social ethos of a community. As Ingold argues (2000, 312–14), these 'technological activities' cannot be understood without other social expressions. Indeed, the very concept of technology, in a contemporary sense, is not applicable to pre-industrial societies. Therefore, a contemporary perspective on metallurgy could raise significant issues, since neither a continuous state of development from the perspective of 'scientific discovery' should be taken for granted, nor should different cultural assumptions

be accepted from a contemporary perspective (Budd & Taylor 1995, 133–4).

Following a necessary review of the application of contemporary concepts into prehistory, as has already been proposed, for instance, in economic terms (e.g. Clastres 1989; Polanyi 2001; Sahlin 1972), this work intends to move away from an exclusively technical approach to metallurgy rationalized from a contemporary criterion (Welbourn 1985, 129). Reinterpreting Maurice Godelier's (2014) ideas about cultural perception of human conception, a blacksmith and a forge are not enough to produce a metallic object: its creation, especially in terms of ironworking, requires the intervention of other actors, be they material, immaterial, technological, or spiritual. From the perspective of the communities of the past, all these concepts were necessary and equally important. In the same way that the 'spiritual' requires a technical application, the relevance of the 'technological' field also requires a 'symbolic' justification (Ingold 2000, 316). The activities that could be labelled 'technical', in the same way as any other activity, are social phenomena, linked to

**Table 1.** *Archaeological sites studied and metalworking evidence identified.*

Site	Metal-working workshop	Slags	Casting moulds	Crucibles	Mining activities	Goldsmith craftwork	Raw materials
Torroso		X	X	X			
Castrovite							X
São Julião	X	X					
Penalba		X					
Neixón Pequeno	X	X	X	X			
Punta de Muros	X	X	X				
Borneiro	X	X	X	X			
O Peto	X	X			X		
Coto do Mosteiro	X	X					
Baroña	X						
Castrelo		X					
Santa Comba	X	X					
Meirás		X		X			
Elviña	X	X	X	X		X	X
Troña		X	X			X	X
Santa Trega		X	X	X		X	X
Vence		X	X	X			
Recouso						X	X
A Forca	?	X	X	X			
Curbín		X		X			

technical but also social and symbolic aspects (Pffaffenberger 1988, 236). Their study indeed demands a perspective that comprehends the ways of the societies that produce and use them. Esoteric and symbolic values, albeit elusive from an archaeological perspective, must be considered, as they were indispensable to any artisanal metallurgical production process (Budd & Taylor 1995; Childs 1999). This approach, commonly used in different anthropological studies (especially in Africa: e.g. Barndon 2004; Childs 1998; Herbert 1993; Schmidt & Mapunda 1997), has not been particularly exploited in archaeological studies of European protohistory, with some exceptions in regions such as the British Isles (Dolan 2016; Giles 2007; Hingley 1997; 2009) or Scandinavia (Barndon 2006; Gansum 2004; Haaland 2004; 2007–8).

Nevertheless, it is true that the difficulties in drawing lines between materiality, symbolism and the imaginary (*sensu* Godelier 2014, 40–44) make this kind of approach demanding. In this regard, this paper will focus on identifying the social role of the blacksmith, analysing the evidence that allows

us to identify both the characteristics of this activity and its possible symbolic role. However, all those interpretations of this symbolism—that is, the ‘imaginary’ behind the symbols—will be considered from a ‘hypothetical’ point of view in the absence of further studies.

From this perspective, a holistic and diachronic perspective of metallurgical work is addressed. The objective is to assess the importance of these activities in communities and the role of those who preserve their knowledge as part of their own community. This perspective observes the structuring of societies through changes in their relationships, as proposed by Actor-Network-Theory (Callon 1999; Latour 2005). However, it should be noted that these changes have their own sociocultural limits, defined by Bourdieu as *habitus* (1990). While changes in the forms of relationship shape transformations in the social *ethos*, their scope is limited by the boundaries of their own cultural, social and cognitive frameworks (see further Nión-Álvarez 2021, 46–51).

Focusing on those studies that have explored the relationship between political identity and

metallurgy, the development of different metalworking techniques and skills has commonly been understood as representative of the emergence of social inequalities (Budd & Taylor 1995, 137; Helms 1993; Rowlands 1971), although there are also critical voices (Hingley 1997; Welbourn 1985). Some of these interpretations have probably been influenced by the traditional model of 'Celtic societies' (Arnold & Gibson 1995; Brun 1995), whose 'triangular' models emphasize prestige goods and metal production. I consider this idea, however, to be heavily influenced by remarkable economic perspectives, mainly based on the divisions of society established by Emile Durkheim (1984). Durkheim established a distinction between societies based on kinship and those based on productive specialization. The main difference was the switch from domestic production to production and services relationships. These approaches raise two significant issues.

Firstly, this kind of wide-ranging division can obscure the nuances that allow the categorization and understanding of non-industrialized societies. Labour or productive specialization does not represent inequalities, but reflects a deep level of productive specialization that is only possible in much more complex societies or even early states. If the historical narratives set a discourse duality only between 'state societies' and 'the others', the lack of significant inequalities in the absence of labour specialization is implicitly assumed. As has been asserted on different occasions (Clastres 1989; Giddens 1984, 250), social inequality in non-industrial societies cannot be traced from an exclusively economic point of view; it should be recognized in other elements and expressed through other 'kinds of capital' (not only economic, but also cultural, social, political and symbolic: Bourdieu 1990). Approaching prehistoric societies exclusively from the perspective of economic change, especially from such a large-scale one, may imply an oversimplification of social reality.

Secondly, the 'specialization' of blacksmiths, as will be discussed below, does not necessarily imply their exclusive dedication. An increase in the specialization of production does not necessarily imply a greater degree of social complexity, but rather refers to the ability to obtain and preserve knowledge—technical and esoteric—that is not widely disseminated among the rest of the community. The emergence of complex metallurgical techniques (especially with the spread of iron) must have implied significant changes at multiple scales of daily life. Depending on the context, it is also possible, eventually, to relate them to the emergence of inequalities, although there is not always a causal relationship. Nevertheless, the fact

that the activity requires the existence of a 'specialist' does not reflect the emergence of internal hierarchies or an economic system based on the provision of services. This sort of interpretation, from an industrial and contemporary perception of metallurgy, does not correspond to prehistoric societies (Budd & Taylor 1995, 143). The specialization of blacksmiths, according to these approaches, should not define their exclusive dedication or their working status, but their role in preserving and applying a technical and esoteric knowledge of great value that few individuals knew about. Even in the Middle Ages, blacksmiths do not have an exclusive dedication: in most cases, they are still involved in agricultural and other subsistence activities (Fossier 2002, 159). As Childs argues (1998; 1999), metallurgy in non-state societies is a seasonal activity carried out by a specialist (and eventual collaborators) in the more technical production stages, but which includes collective activities in certain processes. One way or another, the social position of the metalworker will vary depending on their cultural framework: in some cases, such as the Tanzanian Fipa (Haaland 2004, 10) or the Kuba of the southwest of the current Democratic Republic of Congo (Vansina 1978, 67), the metalworker holds a predominant and privileged position, akin to Helms's definition of 'elite crafts' (1993, 13); in other African communities, such as the Toumala of northern Chad (Baumann & Westermann 1970) or the Kenyan Maasai (Childs & Herbert 2005, 288), their status is marginal and implies social contempt. Their role in the community is eminently cultural, and it would be wrong to assume a dominant position or to establish an unbreakable bond between ironwork specialization in these terms and a higher degree of hierarchization.

This approach overcomes an exclusively technical and productive view of metallurgy, focusing on other issues such as symbolism and ritualism, which are more difficult to measure, but equally relevant to the craft process (Childs & Killick 1993, 319). Apart from considering these variables, an analytical framework that encompasses the technical, the symbolic and the functional as an active and representative part of social dynamics at varying degrees must be drawn up. Thus, this paper considers all kinds of metallurgical creation as a key element for understanding the development of Iron Age communities, analysing changes and continuities diachronically as part of a common process.

In this paper, the Atlantic façade of the north-west Iberian peninsula has been chosen to develop these considerations (Fig. 1). In this area, the outstanding role of the exchange and production of

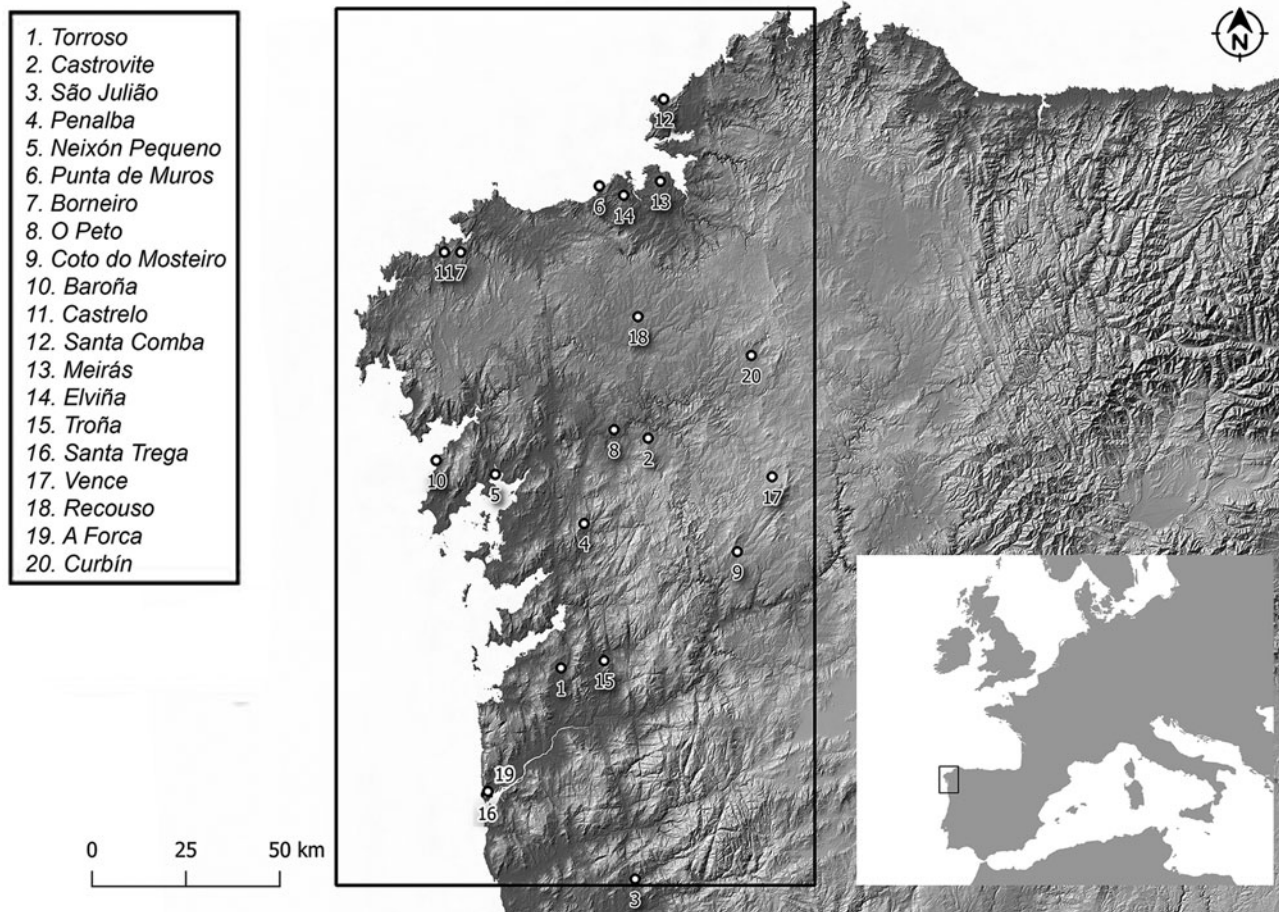


Figure 1. Study area.

metal throughout prehistory has been stressed in several studies (Armada Pita *et al.* 2008; Comendador Rey 1999; Sánchez-Palencia *et al.* 1999). Nonetheless, despite remarkable archaeometallurgical studies (such as Armada Pita & García-Vuelta 2015; Fanjul Peraza & Marín Suárez 2006), hardly anything has been written about the influence of changes in the metallurgical scale on social organization (exceptionally Nión-Álvarez & González García forthcoming; see also González-Ruibal 2006–7, 490–96) or to assess the role of the blacksmith in these transformations over time. Therefore, this region presents an undeniable potential for exploring the links between metallurgy and society.

Finally, it should be noted that the goal of this research is not to analyse the social use of metal objects, a usual discussion in the context of the north-western Iron Age (mainly focused on gold objects: Armada & García-Vuelta 2018; Armbruster & Perea 2000), but rather the role of the agents involved in their production.

### The end of the Atlantic Bronze Age and the dawn of a new fortified world: the First Iron Age (ninth–sixth centuries BCE)

Throughout the ninth and eighth centuries BCE, the communities of the northwest of the Iberian peninsula underwent a deep process of social and habitational reconfiguration. This process reached its apex by setting up a new way of life that brought along the fortification and monumentalization of the physical boundaries of settlements. It seems that these communities, maybe as a response to the social inequalities of the Final Bronze Age (González García *et al.* 2011), were societies with undivided social values (in terms of Clastres 1989, 203–9) and reluctant to develop internal inequalities. The development of this process of fortification and political fragmentation of the landscape implied (or perhaps was a consequence of) a complete disruption of previous cultural symbols. The decline or disappearance of characteristic Bronze Age expressions, such as

some rock-art designs or the hoarding of certain bronze objects, can be highlighted. In fact, this progressive decrease of the structured deposition of bronze objects in liminal spaces (Parcero-Oubiña *et al.* 2020) seems to be related to the virtual disappearance of the Atlantic interaction networks and to the substantial decrease in the exchange and production of metal objects in this period (Comendador Rey 1999).

The disappearance of these cultural forms and the reduction in metal exchange and production might have caused a change in the role of the blacksmith, although, due to the lack of documentation from previous production areas it is not possible to verify this. In any case, most of the metal objects are still made of bronze, mainly in ternary alloys, showing a slight continuity of production from the Late Bronze Age (Armada Pita *et al.* 2008). Iron, despite being documented in some sites as Torroso (Peña Santos 1992) or Castrovite (Carballo Arceo 1987), was not widespread in the northwest until the fifth century BCE (González-Ruibal 2006–7, 490–91). Indeed, iron metalworking has been acknowledged around similar dates in most of the northern area of the Iberian peninsula (Camino Mayor & Villa Valdés 2014, 65; Fanjul Peraza & Marín Suárez 2006, 115).

The metalworking workshops identified throughout this period are characterized by their limited extent. Workshops probably stood inside the settlement, separated from any kind of construction, as has been shown in settlements such as São Julião (Bettencourt 2000) or Torroso (Peña Santos 1992), but close to the dwelling area. Similar production areas have been found in Neixón Pequeno (Ayán-Vila 2008, 269–93), although one of them is clearly linked to a household (Ayán-Vila 2012, 472). Another example has been documented in Punta de Muros (see Figure 2). In this settlement, the complete technical-operational chain of metallurgical production could be reconstructed (Cano Pan 2012, 132). However, as we shall see, metallurgical production areas underwent significant changes throughout their occupation. While the characteristics of metal production are very akin to those already mentioned, in this case, certain production structures (Structures I–III or XXXII) have been exhumed within different domestic areas (Cano Pan 2012, 446–61). Initially understood as specialized metalworking areas (Cano Pan 2012, 735), recent research suggests their functionality as different small household spaces in which multiple activities were carried out, especially the production of bronze (Ayán-Vila 2012, 397). This assertion is supported by the presence of cooking

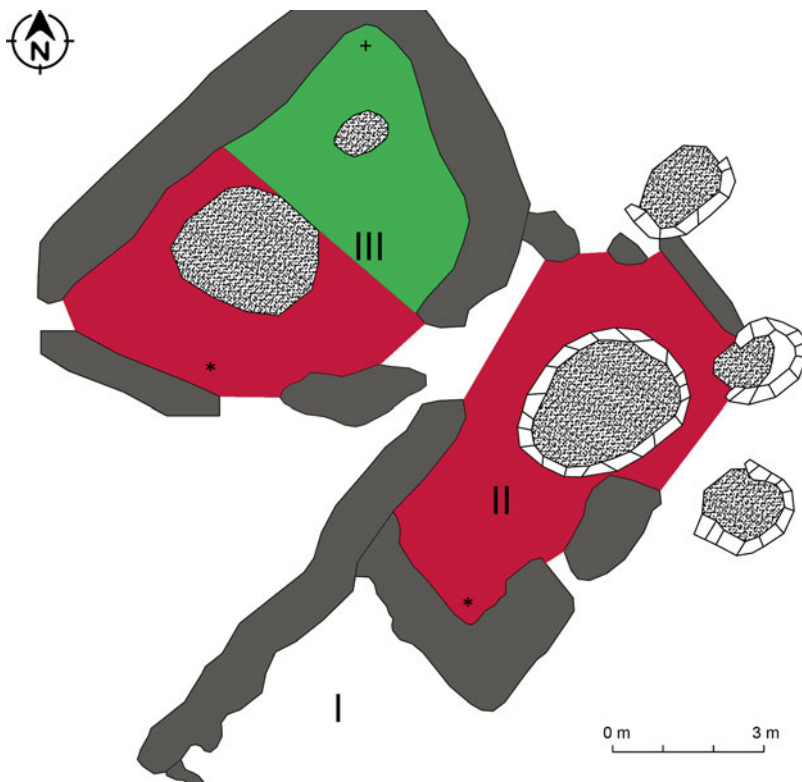
and dining pottery in all the rooms, as well as other tools such as quernstones, related to the domestic sphere (Nión-Álvarez 2021, 181–2). These features match the dynamics of the settlement, characterized by small multifunctional households that suggest an egalitarian and autarchic ethos in Punta de Muros in this period (Nión-Álvarez 2021, 170).

Thus, metallurgy seems to have been part of household activities, or, at least, completely integrated into the daily life of the community. The blacksmith seems to have played neither a predominant role, nor a marginal one. Despite apparently widespread metallurgical activities in the domestic sphere, not all dwellings might have been familiar with these techniques. Still, as discussed below, this knowledge seems to have been more widespread than in later periods.

### **Metallurgy as an agent of social change? (Sixth–fourth centuries BCE)**

Throughout the sixth century BCE, notable changes took place in the northern sector of the Atlantic façade, suggesting a far-reaching change in the social ethos of its communities towards a higher degree of internal inequality. This change also seems to have happened in other areas of the northwest of the Iberian peninsula in the fifth and fourth centuries BCE (González-Ruibal 2006–7, 269; 2012) without excluding the possibility that these processes began earlier. In any case, changes in the social paradigm would be generalized between the fifth and fourth centuries BCE, reproducing a significant social transformation that would bring about new settlement patterns and new ways of understanding social relations. Metallurgy and the role of the blacksmith, as we will see, will be important for the emergence of these transformations. It should be noted that these changes seem to appear mainly on the coast. Inland communities, on the other hand, seem to have preserved a social model similar to those previously defined for the First Iron Age.

Punta de Muros provides the most remarkable example of these processes. Between the sixth and fourth centuries BCE, the settlement underwent a complete internal transformation (Nión-Álvarez 2021, 190). Among other aspects, this determined the complete restructuring of different buildings, emphasizing the appearance of potential inequalities between different family units. Large households with compartmentalized spaces could be noted (sometimes exceeding 150 sq. m), either through new construction or through the aggregation of previously separate dwellings. At the same time, smaller



**Figure 2.** Structures I–III of Punta de Muros. (\* = metalworking area; + = domestic area).

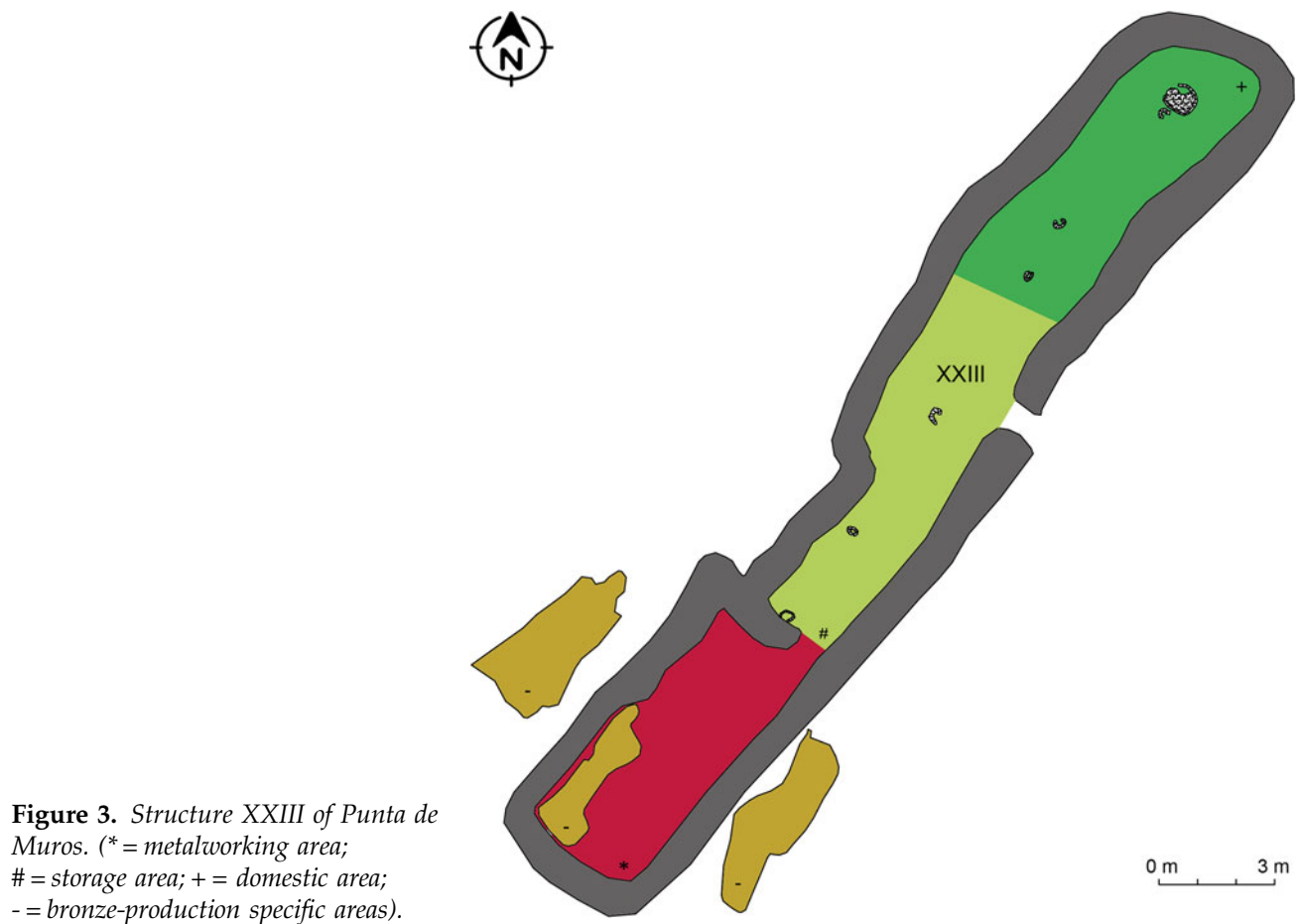
dwellings (between 30 and 40 sq. m) with similar characteristics to those previously described were still inhabited. To a certain extent, the rise of social inequalities in Punta de Muros could be similar to other processes, such as those suggested by Ian Hodder (2014) at Çatalhöyük. In both cases, changes towards an aggregation of domestic spaces, the emergence of religious spaces and the centralization and specialization of productive activities begin to be documented with the arising of significant social transformations.

While it is difficult to identify the factors that led to the emergence of social inequality in Punta de Muros, the value of control and knowledge of certain activities such as metallurgy can be inferred. Parallel to the social transformation of the settlement, there seems to be a clear trend towards specialization and individualization of metal production. Thus, there are several buildings exclusively devoted to metal production, like Structures XXIX and XXX. In contrast to previous metal workshops, these spaces are specialized areas, without any evidence of habitation. In some cases, production does remain under domestic control. The most characteristic example is Structure XXIII, one of the most prominent households in the settlement (around 150 sq. m) with a specialized workshop in its Sector W (Cano Pan 2012, 299; Fig. 3). However, differences are clear

from earlier production stages. These workshops were not part of domestic life, even when located in a household, and display a significant degree of specialization. Metalworking workshops were located in areas of specialized production, with no evidence of domestic activities, and reproducing completely dedicated areas from previous multi-functional domestic units.

Thus, metalworkers could be acquiring a specific position, expressed through a higher degree of specialization that allows them to be defined accordingly. Although there is no significant transformation in terms of technical production (ternary alloys are still used, while iron remains scarce or inexistent), there do indeed seem to be changes in their social position. There are individualized metalworking spaces in two of the six large households located in the settlement (Structures XXV–XVII and XXIII: see Figure 4). This could show that the blacksmith and their activities held a privileged position in the settlement. Being a metalworker could give greater prestige and a higher status, but it was not necessary to achieve a privileged position.

Although it depends on their sociocultural context, metalworking can provide prestige and power in many different ways (Reid & MacLean 1995, 145), by providing symbols (Sassoon 1983), as esoteric and exclusive knowledge (Barndon 2004, 41;



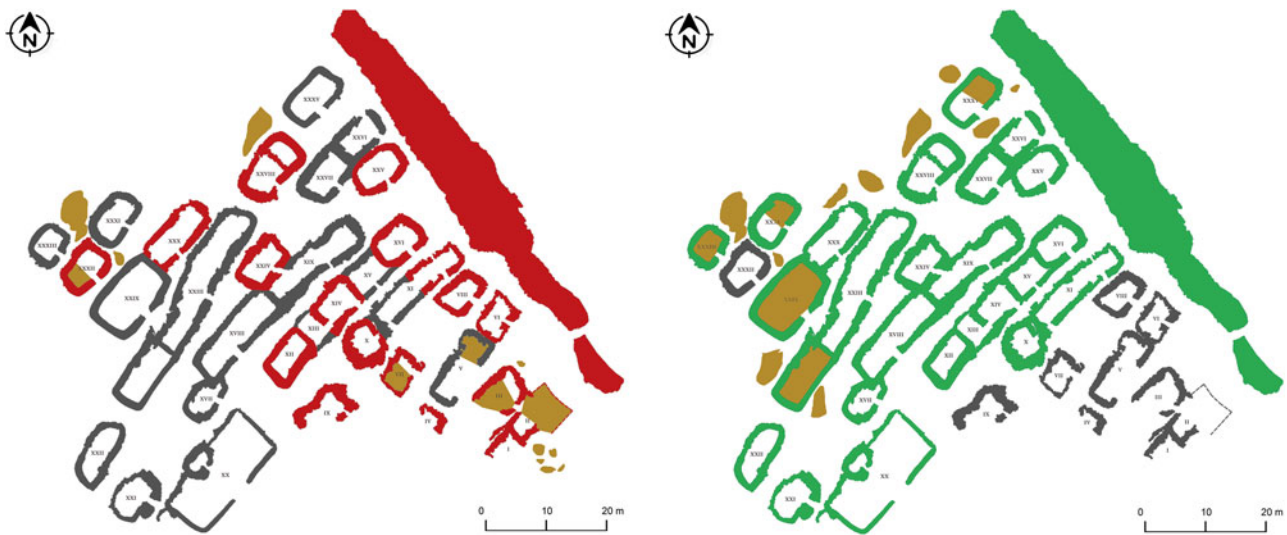
**Figure 3.** Structure XXIII of Punta de Muros. (\* = metalworking area; # = storage area; + = domestic area; - = bronze-production specific areas).

Childs 1998, 112), or through the value retained by certain objects (Hingley 2009). However, this relationship between metallurgy and power is usually only explored through the symbolism of iron production (Green 2002, 8; Haaland 2007–8, 203), leaving aside the production of other objects. It is true that, as we will see below, iron production has a symbolic relevance that, in certain conditions, favours a particular cosmogony. However, this symbolic value is also characteristic of other activities that do not require such a specialized process. In regions such as India, the symbolic and cultural predominance of unalloyed copper metallurgy, as well as that of its craftsmen, has been highlighted in comparison to other tasks (Lahiri 1995). Undoubtedly, the particulars of their production would lead to very different symbols, but their influence should not be underestimated or ignored.

It has recently been suggested that the symbolic and technical knowledge of certain activities related to metallurgical production may have been related to the deep transformation in Punta de Muros (Ni3n-3lvarez 2021, 209). Although it is not possible

to confirm this cause-effect relationship, the shift in the social position of the blacksmith is nonetheless significant. As we have seen, metallurgy acquired a greater degree of specialization through the creation of certain specialized areas in parallel to the emergence of social inequalities. This, however, is not necessarily understood as a labour specialization of the metalworker. As happens in societies such as the Ugandan Toro, the existence of one or more metalworkers in a hierarchical society does not imply their exclusive dedication, nor does it reduce the collective dimension of certain stages of their activity (Childs 1998). However, there might be hints of a change in their social position. In contrast to the previous domestic role, metallurgy acquires its own spaces outside the domestic sphere, and, more interestingly, it also belongs to some of the most prominent household settings. The presence of specific production spaces in individualized spaces or associated with domestic units raises two main questions.

On the one hand, this ‘specialization’ might be related to the necessity of separating this activity to



**Figure 4.** *Punta de Muros. Settlement changes between first (ninth–sixth centuries BCE, above) and second (sixth–fourth centuries BCE, below) phases of occupation. Metalworking specific areas are also coloured.*

preserve some technical and symbolic aspects of manufacture metal secret. This has been proposed in diverse societies, such as the Bamana of West Africa (Herbert 1993, 110) or, recently, in protohistoric Ireland (Dolan 2016, 43–4). Thus, metallurgy is kept away from anyone that should not access such information. As a hypothesis, this type of activity can be related to the emergence of new forms of religious expression. In this process of social transformation, culturally oriented buildings (Structure XX), with access and visual restrictions, are constructed (Cano Pan 2012, 769–72).

On the other hand, as mentioned earlier, the presence of certain spaces under the control of some of the most important domestic households could suggest the high social position of the blacksmith. Those who know and practise metallurgy were not segregated or marginalized, but formed part of the most prominent households. However, it should be noted that not all the prominent households crafted metal. This could suggest that metallurgy was not the only means for social promotion.

#### **Fourth–first centuries BCE: the spread of iron and the establishment of inequalities**

After a brief period of instability during the fifth century BCE, a process of consolidation of social inequality had begun in several spots along the Atlantic coast throughout the fourth century (González García 2017, 297). This process encompassed a significant shift in the forms of settlements, with a

greater proximity to the valley, a demographic increase (in each hillfort as well as in the overall settlement numbers) and a development of defensive and domestic architecture (Parcero-Oubiña 2003). Between the fifth and fourth centuries BCE, it can be observed that iron metallurgy became widespread in the northwest (González-Ruibal 2006–7, 490–91), albeit late in relation to other Atlantic territories (Hingley 1997, 14). Within the same period, there was also an exponential increase in gold production (Armada Pita & García-Vuelta 2015). Nevertheless, a significant reduction in bronze production is not documented.

Regarding the link between the increase in social inequality and the emergence of new production techniques, there is no evidence of a causal relation. While these new techniques were similarly widespread in northwestern Iberia during this period, significant divergences in the social ethos of coastal and inland communities (Parcero-Oubiña & Ni3n-3lvarez 2021), as well as between south and north (González-Ruibal 2012), can be highlighted. As has been already pointed out, metallurgical activity by itself does not allow us to define or understand any kind of society, but its relation to other social and cultural expressions must be considered to understand its influence.

Despite this remarkable stabilization of social inequality, the position of the blacksmith seems to symbolize a significant change from earlier periods. Three distinct categories to understand the changes in the role of metallurgy and the blacksmith during these periods can be established.

*Liminalization*

As Turner stated (1969), the concept of 'liminalization' defines the condition of 'in-betweenness' amid two well-defined stages of existence, usually overcome through various rites of passage. The social condition of metalworkers in this period would respond to this depiction. Far from holding a prestigious place in society, they could be defined as individuals between 'the spiritual and the marginal', a position that, to a certain extent, can be labelled as 'liminal'.

The first hint of this 'liminal' position is the location of the working area. At this time, metalworking started to be individualized and segregated from other common activities, in contrast with previous periods. Workshops were usually located far from the main living areas, either outside the settlement, as in O Peto (Aboal Fernández *et al.* 2003) or Vence (Naveiro López 1991, 79), or by the walls, as in Borneiro (Nión-Álvarez 2021, 316), Coto do Mosteiro (Orero Grandal 1986, 39–40) and perhaps A Forca (Carballo Arceo 1987, 16). This trend of separating metal workshops from the dwelling environment seems to be common throughout the northwest (González-Ruibal 2006–7, 496; Sánchez-Palencia *et al.* 1999) and, perhaps, other regions of Europe (Giles 2007, 399; Hingley 1997, 12), a process that responded to both symbolic and productive factors. It is possible to bridge this segregation between daily activities and the emergence of iron, which completely changed the way of understanding metal production. Ironworking required a complex production process, a deep insight and a thorough control of different techniques, (Hingley 2009), many of which were hazardous for human health (Álvarez-Sanchís *et al.* 2016). These technical changes and the consequences of their production might have influenced the significant change in their location in the settlement. At the same time, they would also have led to the creation of a new set of symbols and meanings related to their craft, and, perhaps, also to the movement of the blacksmith towards a 'liminal position'. A particularly significant example of this liminality could be the workshop of Structure IX at Baroña (Porto do Son, A Coruña), along a strong partition wall that divides the settlement into two neighbourhoods (Calo Lourido & Soeiro 1986, 13). There is not any kind of structure in its immediate surroundings, apart from an open space to produce metal. Its individualization and its location in a space of 'transit' may have influenced its liminality, both spatial and social.

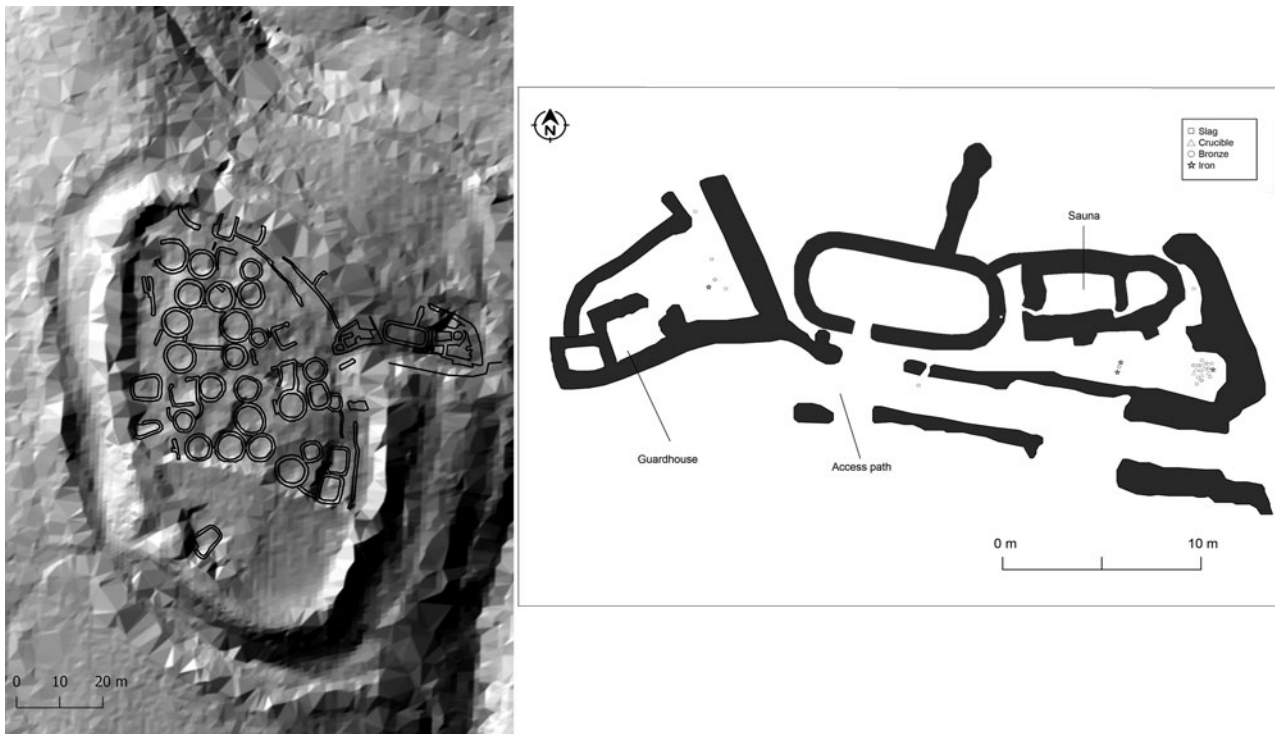
*Ritualization*

The knowledge required to produce metal is not limited to procedures that, from a contemporary perspective, could be described as technical. Metallurgy, far from our industrialized vision, would be codified through different symbolic and esoteric elements, a fundamental and inseparable aspect of metalworking (Budd & Taylor 1995; Childs 1999; Hingley 2009). This kind of knowledge implies that individuals who preserve that knowledge not only know how to craft metal, but also mediate in conflicts and sanction activities that affect the production process.

This bond between the technical and the spiritual, especially in terms of iron production, has been stressed in almost every broad study of non-industrial metallurgy (Barndon 2004; Haaland 2004; Helms 1993; Herbert 1993). Among several examples previously mentioned, A Cidá de Borneiro could provide some particularly representative evidence to determine the symbolism of the blacksmith (Fig. 5).

The first example emphasizes the relationship between cultural and metallurgical activities. Around the entrance to the settlement, known as 'Barrio de Extramuros', a bath structure has been documented (Álvarez-Sanchís & Almagro Gorbea 1993, 187; González-Ruibal 2006–7, 557). Some authors have refused to accept this function (Ríos González 2017; Romero Masiá 1987), arguing, mainly, the existence of evidence of metalworking in the immediate surroundings. Though its construction characteristics emphasize its thermal use (Prociuk 2019; Villa Valdés 2011), remnants of metalworking (crucibles, traces of iron slag, amorphous objects in bronze and iron, mostly found in a river sand level) are also noteworthy (Romero Masiá 1987). Considering the extensive usage of silica sand in these periods—as reported in hillforts such as that of Santa Comba (Gómez Filgueiras de Brage 2003)—metal smelting was probably carried out in this area.

Recently, a joint understanding of both aspects has been proposed (Nión-Álvarez 2021, 351). From this point of view, the location of certain specific activities related to iron smelting in culturally important space could not be incidental. Looking at other contexts, and without drawing a straight comparison, the relationship between ritual activities and smelting is widespread in non-industrial metallurgy. The Ugandan Toro, among other rituals that will be discussed later, perform a plethora of activities related to metallurgy to contact spiritual entities (Childs 1998, 114). This relationship between the ancestors and smelting is, in fact, constant throughout sub-Saharan Africa (Herbert 1993, 27). Such



**Figure 5.** Metalworking evidence in the surroundings of the Borneiro sauna.

processes of ritualization of smelting have also been reported in Iron Age Europe: in Norway, the deliberate amortization of certain parts of smelting furnaces has been interpreted as a symbolic expression (Haaland 2004, 14); in Ireland, a close bond between smelting furnaces and spiritual spaces has been pointed out (Dolan 2016, 44). Looking back to the northwest Iberian peninsula, the existence of different ritual activities related to the founding of smithies, even in modern times, is well known (Rodríguez Migu3s 1995–6). These examples, without intending to apply homogeneous determinisms between cultures, could help express the symbolic value of certain production processes and their codification in different cultures.

It is possible to go a step further and analyse what might have been the motivation behind this relationship between saunas and iron smelting. Although current data are insufficient to make a statement, also considering the difficulties of interpreting certain symbolic acts, some of these ideas may provide some guidance for understanding this connection. Iron Age saunas are usually related to different rites of passage, perhaps linked to the warrior world, and probably associated with the transition to a new ‘state of existence’ (3lvarez-Sanch3s & Almagro Gorbea 1993, 209–15; Garc3a Quintela

2016; Gonz3lez-Ruibal 2006–7, 568). A connection between both realities would not be surprising. Herbert (1993, 86–91) has pointed out how smelting areas are fertile spaces that must preserve their natural conditions to ensure fertility. The deployment of efforts to avoid any presence or activity that could disrupt it, such as limiting the access of women during their menstruation, should not be unusual indeed. This prohibition is relatively common in many ethnic groups, such as the Ugandan Toro (Childs 1998, 30), the communities of southwest Ethiopia (Haaland 2004, 3–5) or, on a broader scale, most communities of central and eastern Africa (Herbert 1993, 86). In other cases, such as the Pangwa or the Tanzanian Fipa, a connection is also set between the smelting furnace and the womb (Barndon 2004, 35). According to its own specific characteristics, smelting is highly prone to generate a symbolic leitmotif around different life-creating processes: agriculture, procreation, or fertility. This idea has already been confirmed in different Iron Age sites in the British Isles (Dolan 2016, 33; Giles 2007, 400; Hingley 1997, 14). Thus, it is not surprising that spatial and symbolic connections were forged between smelting activities and Iron Age saunas.

Considering the above, a second example can be suggested that also involves technical production.

Some archaeometallurgical and osteological studies would be appropriate to support these preliminary theories. Taking into account the archaeological evidence of the forging areas in Borneiro (constructions C10–C11), a remarkable presence of bone remains among slag, ashes and charcoal has been documented as part of a set of traces of metalworking (Romero Masiá 1987, 8). These bones are heavily crushed, mostly unidentifiable at a taxonomic level.

The finding of these crushed bone remains in forging areas may indicate their use as bonecoal used to refine iron through carbonization. This was a common technique in the Scandinavian Iron Age (Back Danielsson 2008; Gansum 2004), although it may have been used in several regions of the world (Khojiev *et al.* 2020). Through this procedure, partially burnt bones are reused and placed in a furnace at temperatures above 1328° F. At this temperature, carbon is transferred from the furnace to the iron, penetrating its surface up to 3 mm deep. This process enables the hardening of the iron, facilitating the making of a solid edge that could be properly sharpened. The strengthening of iron is essential for many of the objects thus made (Back Danielsson 2008, 320), especially weapons (Gansum 2004, 43). This process is usually carried out in a clay oven (Gansum 2004, 42), which poses difficulties in its documentation due to post-depositional processes. It should be mentioned, however, that in room C10, where most bones were recovered, the remains of several clay ovens have been found, which fits the description (Nión-Álvarez 2021, 332). Another example of this technical process can be found in Meirás (Sada, A Coruña), with remarkable evidence of significant metalworking and crushed bones unearthed (Luengo Martínez 1950, 106), but current data prevent relating these findings with metal-processing works.

The use of such techniques has been explained to evoke a transition between life and death (Gansum 2004, 45). Considering the reuse of bones for a technical process that allows the giving and reinforcing of the life of an object, the need to justify its effectiveness in the symbolic field seems particularly evident. In this regard, while this technique may be widespread, its contextualization and cultural identification may differ, especially depending on the source of the bone remains. In the case of Borneiro, nearby burial sites are not known, nor has it been possible to identify the bone remains taxonomically. At this point, these facts prevent any further questions about the significance of this evidence.

In both cases, the presence of this technique and its clear symbolic value show, given its

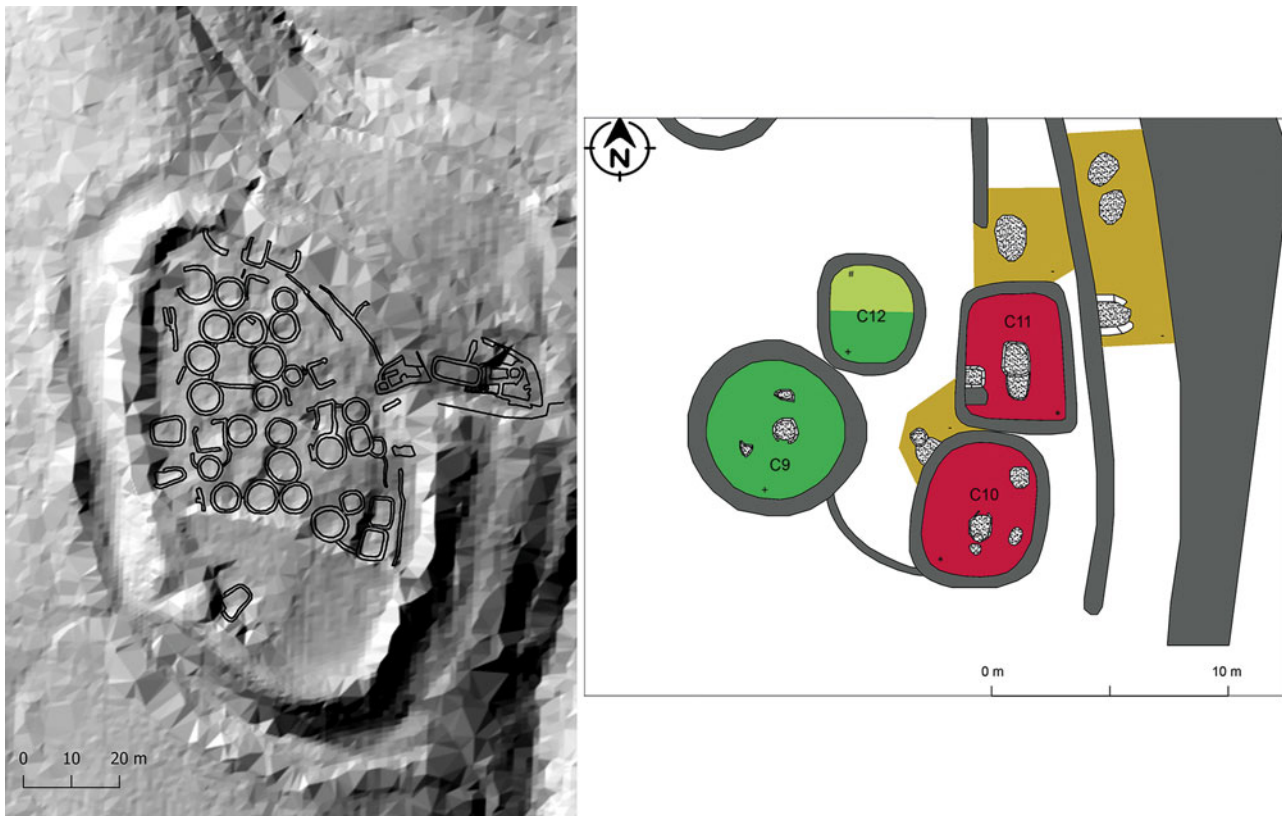
characteristics, a certain level of ritualization. Even though the use of bones can be understood as part of a ‘technical’ process from a contemporary point of view, the original explanation would differ. In this respect, and regardless of their origin, the use of remains of living beings to strengthen new metal objects has significant symbolic implications. The existence of this technique and its effectiveness would have required a ‘ritualized’ explanation to justify its relevance, highlighting, once again, the value of the spiritual and the natural in metal production.

#### *‘Specialization’*

An increase in specialization in metal production, as previously mentioned, may not necessarily have implied labour specialization. The expansion of iron metallurgy implies more complex procedures as well as the need to acquire, preserve and transmit knowledge (Childs 1999, 24–6). These skills would not necessarily be related to an increase of social inequalities or productive specialization, nor to its emergence. A holistic perspective of social processes is necessary to understand the extent of the emergence of social inequalities, and, subsequently, to explore whether metallurgy has played a significant role in this process. In the case of the northwest Iberian peninsula, iron metallurgy was widespread during this period; however, the gradual implementation of inequalities experienced on the Atlantic coast does not seem to have the same prevalence inland.

On the Atlantic façade, it is possible to highlight the development of a specialized knowledge that seems to distinguish blacksmiths from the rest of the inhabitants; this specialization refers exclusively to the knowledge that enables them to produce metal and the ability to apply it. Smiths must also know how to sanction those activities considered beneficial or detrimental to the metalworking process. Everything seems to indicate, as has been suggested, that their dedication is not exclusive, and that they still need to guarantee their own subsistence, as can be traced in the household in Borneiro (Nión-Álvarez 2021, 324).

At Borneiro, a domestic setting with specific traces of metalworking activities has been unearthed (Fig. 6). This domestic unit consists of four rooms, the first of which (C9) is the largest and most carefully constructed. It has a clear domestic use, perhaps together with another dwelling (C12). The other chambers, as well as the open spaces to the east and south of the household, were related to different stages of the metalworking process (Nión-Álvarez 2021, 318). The presence of a specialized space for metal production in one specific household suggests,



**Figure 6.** 'Courtyard' house C9-12 (Borneiro) (\* = metalworking; + = domestic area; # = storage area; - = metalworking activities outside the rooms).

on the one hand, that blacksmiths acquire a specific role and social position, which is expressed through the materialization of a space of their own; on the other hand, considering the social context of the settlement, it seems that their role is no longer linked to the main spaces of power. Differing from previous settlements, such as Punta de Muros, the production of metal is disengaged from the predominant domestic units. These households, placed in a privileged space, no longer show any evidence of metal production. Thus, the social role of blacksmiths seems to become secondary, parallel to their new domestic status. Nevertheless, no evidence suggests that they had a marginal role, or that they belonged to the lowest levels of the social scale. If we focus on the whole urban structure, this domestic unit is on a second level, lower than the largest domestic complexes, but above many smaller dwellings that do hold a peripheral and marginal role. It should be noted, however, that some activities may have taken place in outlying locations.

It should be mentioned that no strong parallels have yet been found in other regions of the Atlantic façade. The identified metal workshops, such as

that of Baroña, do not seem to have a specific location in relation to a domestic unit. Though it could have been linked to a household called 'Structure VI', joined to the workshop by two walls that border the settlement wall (Luengo Martínez 1999), data are too scarce to support this assertion. Other metalworking workshops, such as at Santa Comba, do not allow extrapolation of their case to other domestic spaces due to the significant degradation of the surroundings (G3mez Filgueiras de Brage 2003). Far from the social dynamics of the Atlantic façade, metalworking activities inland, in sites such as Corona de Corporales or Castrel3n de San Juan de Paluezas, have been documented as part of the household (Fern3ndez-Posse & S3nchez-Palencia 1998). Although this significant homogeneity between domestic units does not allow analysis of the social role of the metalworker, it does suggest different ways of understanding social relations in different regions of the northwest, as has already been highlighted (Gonz3lez-Ruibal 2012). In fact, the social models proposed for the region of El Bierzo (Le3n) suggest the development of less complex social forms (Sastre 2002). On the



**Figure 7.** Gold production evidence found in settlements. (Above) Objects and melting mass from Recouso (Armada Pita & García Vuelta 2015, used with permission); (Below) 'Treasure of Elviña' (Museo de A Coruña, used with permission).

contrary, in neighbouring areas such as the northern plateau, the outstanding role of metalworker and the specialization of his production have already been highlighted to underline an apparently social inequality (Ruiz Zapatero & Álvarez-Sanchís 2015, 220).

In any case, as already outlined, the heterogeneous nature of the blacksmiths' role reflects exclusively how their social position depends on the cultural context. Even in a narrow geographical context such as the Atlantic façade, their rank may vary according to local dynamics. Only by identifying this heterogeneity in social ethos and political identity, which has only recently begun to be addressed (González Álvarez 2011; González-Ruibal 2012; Parcero-Oubiña & Nión-Álvarez 2021), will it be possible to identify the role and influence of different collectives such as metalworkers.

### Metalworking in the emergence of the *oppida*

During the last centuries before the change of era (second–first centuries BCE), a process of hierarchization and social aggregation spread throughout several European regions (Collis 1984; Fernández Götzt 2017), mainly characterized by the emergence of fortified central spaces, usually known as *oppida*. Nevertheless, it is possible to trace alternative modes of social structure (Moore 2017; Salač 2014). This is not a homogenous process at all: several communities have not experienced significant changes and have even reinforced egalitarian values (González Álvarez 2016; Thurston 2009). With some nuances, this depiction can be verified in the north-west territory (Álvarez González *et al.* 2018; González-Ruibal 2006). The emergence of complex

settlements on a social and political level seems to occur in very specific regions: the Rías Baixas, some parts of the *Bracarense* and, as has recently been suggested, certain areas in the region of the *Artabrii* (Nión-Álvarez 2021, 561). Considering the development of these notable transformations, it is necessary to assess whether the role of the blacksmith may also have experienced certain changes, as has been suggested in the northern plateau of the Iberian peninsula (Ruiz Zapatero & Álvarez-Sanchís 2015, 224).

The first question to analyse is the continuity of the detachment of bronze and iron production from the large domestic assemblages or 'courtyard houses'. A trend towards its definitive separation from the domestic sphere, especially in the case of *oppida*, can be identified. Evidence of iron, bronze or gold production is particularly significant, as settlements such as Troña, Santa Trega or Elviña show (Fig. 7). In the first two cases, notable examples of production have been found: crucibles with residues of bronze and iron, tongs, *sistula* moulds, etc. (Carballo Arceo 1989; Hidalgo Cuñarro 1985). However, metalworking areas have not been documented in either settlement. In Elviña, nevertheless, metalworking workshops have been found outside the acropolis, within a specialized area without signs of domestic spaces nearby (López González 2018). Another example, although outside the study area, could be Campa Torres. Like Elviña, it is a complex settlement far from the social aggregation dynamics of the southern Galician region (Fanjul Peraza & Marín Suárez 2006, 125). Its smithy is placed outside the walls, completely dissociated from any kind of dwelling (Maya González & Cuesta Toribio 2001, 238). This trend towards metallurgical specialization may have been accompanied by an increase in

goldsmith production. Although its production is relatively widespread throughout the northwestern territory, latest radiocarbon dating could suggest that most gold objects were produced from the fourth century BCE onwards (Armada Pita & García-Vuelta 2015). However, the available data concerning their production areas are particularly scarce.

Some researchers have suggested technique-production diversification and specialization between bronze-workers and goldsmiths (Armbruster & Perea 2000, 109), but the record of production areas currently available does not permit verification of these assertions. However, the evidence of goldsmith production seems to be mainly located in large and complex settlements. Most of the examples in the Atlantic façade (Troña, Elviña, Santa Trega, etc.; see Figure 1) correspond to *oppida*. It should be noted, however, that in areas where social inequality is not so accentuated, far from the coast, evidence of goldsmith production has also been found, such as in Foxados or Recadieira (Pérez Outeiriño 1992). This concentration of goldsmithing in the *oppida* might hint at the control of the production of certain prestige goods, but current data are too scarce to confirm this hypothesis.

Despite the contextual limitations, a step towards the specialization of the metalworker can be identified. Production adopts a place of its own separated from the household (at least in bronze and iron forges). Possibly, the level of specialization of metalworkers was higher, according to the social dynamics of the region, which does not imply that blacksmiths had an exclusive dedication, nor that they achieved a predominant position in society. It is necessary to stress again that the role of blacksmiths is eminently cultural, and their role in the cultural development of different communities can vary greatly.

## Conclusions

In this study, the changes and continuities in the role of the blacksmith throughout the northwest Iberian Iron Age have been presented. Metalworking has been approached from a holistic perspective, understood as a multidimensional activity in which the technical and the symbolic are parts of the same set of meanings. Instead of analysing the value of metal objects in society, this work has focused on analysing the social position of prehistoric metalworkers, examining their role in the community within the social dynamics of the area and avoiding a technical or economic perspective on metalworking, the most usual concerns in archaeological research.

Instead, the value of the technical and symbolic as inherent parts of metalworking has been addressed, focusing on their value in structuring and defining intra-community relations. At the same time, the need to avoid an excessively economic or presentist approach to these activities is emphasized, adopting conceptualizations more akin to non-industrial societies. Thus, metalworking is understood from a social perspective, considering its relevance in the framework of the internal development of Iron Age societies and its value in identifying certain transformations.

Thus, it has been possible to appreciate a remarkable transformation of their social position during the first millennium BCE. During the first centuries of the Iron Age, metallurgy was a common activity in different domestic spheres that became part of daily life in the village. In settlements with a remarkable development of social inequality, metallurgy achieved a higher level of specialization in new individualized spaces and, at the same time, linked to some outstanding domestic units.

From the fifth–fourth centuries BCE, ironworking was widespread throughout northwestern Iberia, which implies considerable changes in the ways of working and interpreting metal production. The blacksmith may have acquired a higher level of specialization (not in labour or economic terms, but in its technical aspect), which would have led to defining new relationships within the community. The symbolism and ritualism of iron and of the role of metalworkers were significantly transformed. The characteristics of their activity have been classified in liminalization, specialization and ritualization. At this time, metal production was detached from the most prestigious households, becoming part of secondary domestic units or independent workshops. This may reflect a secondary or even marginal status of blacksmiths, although their position might have changed considerably depending on regional dynamics. The spread of ironworking has also triggered the emergence of new symbolic and religious expressions. Thus, metalworking was embedded in new cultural spaces and ways of perceiving its craft, perhaps linked to different rites of passage. Therefore, the blacksmith may have acquired a new role, holding greater control of both the technical and the spiritual, embodying the need to encompass both aspects of the craft as part of a whole.

With the emergence of the *oppida*, metalworking could have gone a step further towards specialization. In fortified central spaces, metal workshops seem to be completely dissociated from any domestic space, which could suggest a greater degree of

individualization related to a greater control over the production of symbolic objects (especially gold objects), more common in the *oppida*. But evidence of their working areas is still elusive.

This brief review of the role of the blacksmith in recent prehistory is a starting-point for exploring new interpretations of metalworking beyond technical production. The crafting of iron, bronze or gold was a ritualized activity with a significant impact on the development of Iron Age communities that requires a holistic and multidisciplinary approach to analyse all its facets properly.

### Acknowledgements

I would like to thank Dr Tamara Barreiro Neira for reviewing and proofreading the text and also the anonymous reviewers for their insightful comments and suggestions.

Samuel Ni3n-3lvarez  
Universidade de Santiago de Compostela – CSIC Incipit  
Praza da Universidade  
1 Santiago de Compostela  
A Coru3a 15703  
Spain  
Email: [samuel.nion.alvarez@usc.es](mailto:samuel.nion.alvarez@usc.es)

### References

- Aboal Fern3andez, R., X. Ay3n-Vila & M.P. Prieto Mart3n, 2003. *Arqueol3gia en la ACEGA 2: el 3rea arqueol3gica de O Peto (Vedra, A Coru3a)* [Archaeology on the ACEGA 2: the archaeological area of O Peto (Vedra, A Coru3a)]. Santiago de Compostela: Universidade de Santiago de Compostela.
- 3lvarez Gonz3lez, Y., L.F. L3pez Gonz3lez, M. Fern3andez-G3tz & M.V. Garc3a Quintela, 2018. Reconsidering urbanisation in Late Iron Age northwestern Iberia: the oppidum of San Cibr3n de Las (Galicia, Spain). *Pr3historische Zeitschrift* 92(2), 354–69.
- 3lvarez-Sanch3s, J.R. & M. Almagro Gorbea, 1993. La ‘sauna’ de Ulaca: saunas y ba3os inici3ticos en el mundo c3ltico [The ritual sauna of Ulaca: sauna and initiatory rites in the Celtic world]. *Cuadernos de arqueol3gia de la Universidad de Navarra* 1, 177–54.
- 3lvarez-Sanch3s, J.R., A.J. Lorr3o Alvarado & G. Ruiz Zapatero, 2016. Los primeros elementos de hierro en Iberia [First iron elements in Iberia]. *Anejos a CuPAUAM* 2, 149–65.
- Armada Pita, X.L. & O. Garc3a-Vuelta, 2015. Dating Iron Age goldwork: first direct AMS 14 C results from northwestern Iberia. *Trabajos de Prehistoria* 72(2), 372–82.
- Armada Pita, X.L., N. Rafel Fontanals & I. Montero Ruiz, 2008. Contactos coloniales, actividad metal3rgica y biograf3as de objetos de bronce en la Pen3nsula Ib3rica [Colonial contacts, metalworking activities and object biography in the Iberian peninsula], in *Contacto cultural entre el Mediterr3neo y el Atl3ntico (siglos XII–VII a.n.e.)*. *La precolonizaci3n a debate* [Cultural contact between the Mediterranean and the Atlantic (12th–8th centuries BCE). Precolonization in debate], eds S. Celestino P3rez, N. Rafel Fontanals & X.L. Armada Pita. Madrid: CSIC - Escuela Espa3ola de Historia y Arqueol3gia, 465–508.
- Armbruster, B. & A. Perea, 2000. Macizo/hueco, soldado/fundido, morfolog3a/tecnol3gia. El 3mbito tecnol3gico castre3o a trav3s de los torques con remates en doble escocia [Solid/hollow, welded/fused, morphology/technology. The northwest Iberia Iron Age technological sphere through torques with double cleavage finials]. *Trabajos de Prehistoria* 57(1), 97–114.
- Arnold, B. & D.B. Gibson, 1995. *Celtic Chieftdom, Celtic State. The evolution of complex social systems in prehistoric Europe*. Cambridge: Cambridge University Press.
- Ay3n-Vila, X., 2008. *Os Castros de Neix3n II* [The hillforts of Neix3n II]. Noia: Toxosoutos.
- Ay3n-Vila, X., 2012. Casa, familia y comunidad en la edad del hierro del Noroeste [House, family and community in the northwestern Iron Age]. Unpublished PhD thesis, Universidade de Santiago de Compostela.
- Back Danielsson, I.M., 2008. Bodies and identities in the Scandinavian Late Iron Age, in *Prehistoric Europe. Theory and practice*, ed. A. Jones. Oxford: Blackwell, 312–30.
- Barndon, R., 2004. A discussion of magic and medicines in East African iron working: actors and artefacts in technology. *Norwegian Archaeological Review* 37(1), 21–40.
- Barndon, R., 2006. Myth and metallurgy. Some cross-cultural reflections on the social identity of smiths, in *Old Norse Religion in Long-term Perspectives*, eds A. Andr3n, K. Jennbert & C. Raudvere. Lund: Nordic Academic Press, 99–103.
- Baumann, H. & D. Westermann, 1970. *Les peuples et les civilisations d’Afrique* [Peoples and civilisations of Africa]. Paris: Payot.
- Bettencourt, A.M.S., 2000. O povoado de Sao Juli3o, Vilaverde, Norte de Portugal, nos finais da Idade do Bronze e na transi3o para a Idade do Ferro [The hillfort of Sao Juli3o, Vilaverde, Norte de Portugal, at the end of the Bronze Age and transition towards the Iron Age. Braga: Universidade do Minho.
- Bourdieu, P., 1990. *The Logic of Practice*. Stanford (CA): Stanford University Press.
- Brun, P., 1995. From chieftdom to state organization in Celtic Europe, in *Celtic Chieftdom, Celtic State. The evolution of complex social systems in prehistoric Europe*, eds B. Arnold & D.B. Gibson. Cambridge: Cambridge University Press, 13–25.
- Budd, P. & T. Taylor, 1995. The faerie smith meets the bronze industry: magic versus science in the

- interpretation of prehistoric metal-making. *World Archaeology* 27(1), 133–43.
- Calo Lourido, F. & T. Soeiro, 1986. *Castro de Baro3na. Campa3as 1980/1984* [Hillfort of Baro3na. Campaigns 1980/1984.] Pontevedra: Xunta de Galicia.
- Callon, M., 1999. Actor-network theory – the market test, in *Actor Network Theory and After*, eds J. Law & J. Hassard. Oxford: Blackwell, 180–95.
- Camino Mayor, J. & A. Villa Vald3s, 2014. El hierro en registro arqueol3gico de la Protohistoria cant3brica [Iron in the archaeological record of Cantabrian protohistory]. *Kobie Serie Anejo* 13, 59–74.
- Cano Pan, J.A., 2012. *Punta de Muros: un poblado fortificado de finales de la Edad de Bronce* [Punta de Muros: a fortified settlement from the Late Bronze Age]. A Coru3a: Arqueolox3a do Noroeste.
- Carballo Arceo, L.X., 1987. *Castro da Forca. Campa3a de 1984* [Hillfort of A Forca. Campaign of 1984]. A Coru3a: Xunta de Galicia.
- Carballo Arceo, L.X., 1989. *Cat3logo dos materiais arqueol3gicos do museo do Castro de Santa Trega* [Catalogue of archaeological materials of the Museum of the Hillfort of Santa Trega]. Pontevedra: Diputaci3n Provincial.
- Childs, S.T., 1998. Social identity and craft specialization among Toro iron workers in western Uganda. *Archaeological Papers of the American Anthropological Association* 8(1), 109–21.
- Childs, S.T., 1999. ‘After all, a Hoe bought a Wife’: the social dimensions of ironworking among the Toro of East Africa, in *The Social Dynamics of Technology. Practice, politics and world views*, eds M.A.H. Dobres & C.R. Hoffman. Washington/London: Smithsonian Institution Press, 23–45.
- Childs, S.T. & E. Herbert, 2005. Metallurgy and its consequences, in *African Archaeology. A critical introduction*, ed. A.B. Stahl. Malden/Oxford/Carlton: Blackwell, 276–301.
- Childs, S.T. & D. Killick, 1993. Indigenous African metallurgy: nature and culture. *Annual Review of Anthropology* 22, 317–37.
- Clastres, P., 1989. *Society Against the State: Essays in political anthropology*. Princeton (NJ): Zone Books.
- Collis, J., 1984. *Oppida. Earliest towns north of the Alps*. Sheffield: University of Sheffield.
- Comendador Rey, B., 1999. Cambios en la escala de la producci3n metal3rgica durante las fases finales de la Edad del Bronce en el noroeste peninsular [Changes in metallurgical production scale during the final phases of the northwest Iberian Bronze Age. *Revista de Guimar3es*, special volume II, 515–37.
- Dolan, B., 2016. Making iron in the Irish midlands: the social and symbolic role of Iron Age ironworkers. *Journal of Irish Archaeology* 25, 31–48.
- Durkheim, E., 1984. *The Division of Labour in Society*. London: Palgrave Macmillan.
- Fanjul Peraza, A. & C. Mar3n Su3rez, 2006. La metalurgia del hierro en la Asturias castre3a: nuevos datos y estado de la cuesti3n [Iron metalworking in the Asturian Iron Age: new data and state of play]. *Trabajos de Prehistoria* 63(1), 113–31.
- Fern3ndez-Posse, M.D. & F.J. S3nchez-Palencia, 1998. Las comunidades campesinas en la cultura castre3a [Peasant communities in the northwest Iron Age]. *Trabajos de Prehistoria* 55(2), 127–51.
- Fern3ndez G3tz, M., 2017. Urbanization in Iron Age Europe: trajectories, patterns and social dynamics. *Journal of Archaeological Research* 26(2), 117–62.
- Fossier, R., 2002. *El trabajo en la Edad Media* [Work in the Middle Ages]. Barcelona: Cr3tica.
- Gansum, T., 2004. Role the bones – from iron to steel. *Norwegian Archaeological Review* 37(1), 41–57.
- Garc3a Quintela, M.V., 2016. Sobre las saunas de la Edad del Hierro en la Pen3nsula ib3rica: novedades, tipolog3as e interpretaciones [About Iron Age saunas in the Iberian peninsula: new aspects, typologies and interpretations]. *Complutum* 27(1), 109–30.
- Giddens, A., 1984. *The Constitution of Society. Outline of the theory of structuration*. Cambridge: Polity.
- Giles, M., 2007. Making metals and forging relations. Ironworking in the British Iron Age. *Oxford Journal of Archaeology* 26(4), 395–413.
- Godelier, M., 2014. *En el fundamento de las sociedades humanas. Lo que nos ense3a la antropolog3a* [On the foundation of human societies. What anthropology teaches us]. Buenos Aires: Amorrurto.
- G3mez Filgueiras de Brage, F., 2003. Paleometalurgia del yacimiento de la isla de Sta. Comba, Cobas (Concello de Ferrol) [Paleometallurgy of the archaeological site of Santa Comba island, Cobas (Council of Ferrol)], in *Santa Comba: Un referente arqueol3gico de la costa ferrolana* [Santa Comba: An archaeological referent in the coast of Ferrol], ed. S.C. Columba. Ferrol: Sociedade Cultural Columba, 67–157.
- Gonz3lez 3lvarez, D., 2011. De la cultura castre3a al mosaico castre3o: Una aproximaci3n en t3rminos sociales a la variabilidad de las formas de poblamiento de las comunidades castre3as del Noroeste peninsular y orla cant3brica [From the ‘cultura castre3a’ to the ‘mosaico castre3o’. An approach in social terms to the variability of settlement forms of Iron Age Communities of Cantabria and the northwest of the Iberian peninsula]. *Estat Critic* 5(1), 213–26.
- Gonz3lez 3lvarez, D., 2016. Poblamiento y antropizaci3n de la montaa occidental cant3brica durante la Prehistoria reciente: una aproximaci3n desde la Arqueolog3a del Paisaje [Settlement and anthropization of western cantabrian mountains during late Prehistory: an approach from Landscape archaeology]. Unpublished PhD thesis, Universidad Complutense de Madrid.
- Gonz3lez Garc3a, F.J., 2017. Exploring alternative pathways to social complexity in the European Iron Age: the northwestern Iberian peninsula as a case study. *Cambridge Archaeological Journal* 27(2), 295–311.
- Gonz3lez Garc3a, F.J., C. Parcero-Oubi3a & X. Ay3n-Vila, 2011. Iron Age societies against the State. An account

- on the emergence of the Iron Age in the NW Iberian Peninsula, in *Atlantic Europe in the First Millennium BC: Crossing the divide*, eds X.L. Armada Pita & T. Moore. Oxford: Oxford University Press, 285–301.
- González-Ruibal, A., 2006. House societies vs. kinship-based societies: an archaeological case from Iron Age Europe. *Journal of Anthropological Archaeology* 25(1), 144–73.
- González-Ruibal, A., 2006–7. *Galaicos: poder y comunidad en el Noroeste de la Península Ibérica: (1200 a.C.–50 d.C.)* [Galaics: power and community in the northwest of the Iberian peninsula (1200 BCE–50 AD)]. A Coruña: Museo Arqueológico e Histórico da Coruña.
- González-Ruibal, A., 2012. The politics of identity: ethnicity and the economy of power in Iron Age north-west Iberia, in *Landscape, Ethnicity, Identity in the Archaic Mediterranean Area*, eds S. Stoddart & G. Cifani. Oxford: Oxbow, 245–66.
- Green, M.A., 2002. Any old iron! Symbolism and ironworking in Iron Age Europe, in *Artefacts and Archaeology. Aspects of the Celtic and Roman World*, eds M. A. Green & P. Webster. Cardiff: University of Cardiff, 8–19.
- Haaland, R., 2004. Technology, transformation and symbolism: ethnographic perspectives on European iron working. *Norwegian Archaeological Review* 37(1), 1–19.
- Haaland, R., 2007–8. Say it in iron. Symbols of transformation and reproduction in the European Iron Age. *Current Swedish Archaeology* 15–16, 91–110.
- Helms, M.W., 1993. *Craft and the Kingly Ideal*. Austin (TX): University of Texas Press.
- Herbert, E., 1993. *Iron, Gender, and Power: Rituals of transformation in African societies*. Bloomington/Indianapolis: Indiana University Press.
- Hidalgo Cuñarro, J.M., 1985. *Castro de Troña. Ponteareas – Pontevedra. Campaña 1983* [The hillfort of Troña. Ponteareas – Pontevedra. Campaign of 1983]. Santiago de Compostela: Xunta de Galicia.
- Hingley, R., 1997. Iron, ironworking and regeneration: a study of the symbolic meaning of metalworking in Iron Age Britain, in *Reconstructing Iron Age Societies*, ed. A.H. Gwilt. Oxford: Oxbow, 9–15.
- Hingley, R., 2009. Esoteric knowledge? Ancient Bronze artefacts from Iron Age contexts. *Proceedings of the Prehistoric Society* 75, 143–65.
- Hodder, I., 2014. Çatalhöyük. The leopard changes its spots. A summary of recent work. *Anatolian Studies* 64, 1–22.
- Ingold, T., 2000. *The Perception of the Environment: Essays on livelihood, dwelling and skill*. London: Routledge.
- Khojiev, S.T., G.X. Alamova, M.M. Rakhmonaliev, O.O. Imomnazaroc & I.T. Sattorova, 2020. Metallurgy: areas, technologies and history of development, in *Modern Scientific Researches in Metallurgy: From theory to practice*, ed. S.T. Khojiev. Sunnyvale (CA): Lambert Academic Publishing, 5–22.
- Lahiri, N.L., 1995. Indian Metal and metal-related artefacts as cultural signifiers: an ethnographic perspective. *World Archaeology* 27(1), 116–32.
- Latour, B., 2005. *Reassembling the Social: An introduction to Actor-Network-Theory*. Oxford: Clarendon.
- López González, L.F., 2018. Castro de Elviña. Memoria de la excavación y consolidación arqueológica en el Castro de Elviña (A Coruña – 2017) [The hillfort of Elviña. A report of the archaeological excavation and consolidation on the hillfort of Elviña (A Coruña – 2017)]. Unpublished report.
- Luengo Martínez, J.M., 1950. *Excavaciones arqueológicas en el castro y su necrópolis, de Meirás (La Coruña)* [Archaeological excavations on the hillfort and the necropolis of Meirás (A Coruña)]. Madrid: Comisaría General de Excavaciones Arqueológicas.
- Luengo Martínez, J.M., 1999. *Excavaciones en el castro céltico de Baroña* [Archaeological excavations in the Celtic hillfort of Baroña]. A Coruña: Deputación de A Coruña.
- Maya González, J.L. & F. Cuesta Toribio (eds), 2001. *El castro de la Campa Torres. Periodo prerromano* [The hillfort of Campa Torres. Pre-Roman period]. Gijón: VTP Editorial.
- Moore, T., 2017. Beyond Iron Age ‘towns’: examining oppida as examples of low-density urbanism. *Oxford Journal of Archaeology* 36(3), 287–305.
- Naveiro López, J., 1991. *El comercio antiguo en el NW peninsular* [Ancient trade in NW Iberia]. A Coruña: Museo Arqueológico e Histórico.
- Nión-Álvarez, S., 2021. La protohistoria en el territorio ártabro. Organización social y estructura territorial, Unpublished PhD thesis, Universidade de Santiago de Compostela. <http://hdl.handle.net/10347/26326>
- Orero Grandal, L., 1986. *Castro Coto do Mosteiro. Campañas 1984/1985* [The hillfort of Coto do Mosteiro. Campaigns of 1984/1985]. A Coruña: Xunta de Galicia.
- Parcero-Oubiña, C., 2003. Looking forward in anger. Social and political transformations in the Iron Age of the north-western Iberian peninsula. *European Journal of Archaeology* 6(3), 267–99.
- Parcero-Oubiña, C., X.L. Armada Pita, S. Nión-Álvarez & F. González Insua, 2020. All together now (or not): change, resistance, resilience in the NW Iberian Peninsula between the Bronze Age–Iron Age, in *Alternative Iron Ages. Social theory from archaeological analysis*, eds B.X. Currás & I. Sastre. Abingdon/New York: Routledge, 151–75.
- Parcero-Oubiña, C. & S. Nión-Álvarez, 2021. Forms of settlement inequality over space. A GIS-based method for measuring differences among settlements. *Journal of Archaeological Science: Reports* 35 (376), 102739.
- Peña Santos, A., 1992. *Castro de Torroso (Mos, Pontevedra). Síntesis de las memorias de las campañas de excavaciones 1984–1990* [The hillfort of Torroso (Mos, Pontevedra). Synthesis of the reports of archaeological campaigns 1984–1990]. Santiago de Compostela: Xunta de Galicia.
- Pérez Outeiriño, B., 1992. Almacenamento da materia prima entre os ourives castrexos: os lingotes

- planoconvexos [Raw material storage among Iron Age goldsmiths: plano-convex ingots], in *Finis Terrae: estudos en lembranza do Prof. Dr. Alberto Balil* [Finis Terrae: studies remembering Prof. Dr. Alberto Balil], ed. F. Acuña Castroviejo. Santiago de Compostela: Universidade de Santiago, 103–23.
- Pfaffenberger, B., 1988. Fetishised objects and humanised nature: towards an anthropology of technology. *Man* n.s. 23(2), 236–52.
- Polanyi, K., 2001. *The Great Transformation: The political and economic origins of our time*. Boston (MA): Beacon Press.
- Prociuk, N.H., 2019. Protection and purity: symbolic functions of the Iron Age saunas of the Iberian northwest. *Cambridge Archaeological Journal* 29(1), 125–40.
- Reid, A. & R. MacLean, 1995. Symbolism and the social contexts of iron production in Karagwe. *World Archaeology* 27(1), 144–61.
- Ríos González, S., 2017. Un nuevo espejismo historiográfico: el termalismo castreño prerromano [A new historiographical mirage: pre-Roman termalism at the Iron Age hillforts. *Nailos* 4, 87–127.
- Rodríguez Migués, A., 1995–6. Em verbo do sorprendente ritual fundacional de unha ferraria quirogesa no século XVI. Um apontamento histórico-etnográfico [About a surprising foundation ritual of a blacksmith of Quiroga in the 16th century. An historical and ethnographical note]. *Brigantium* 9, 117–37.
- Romero Masiá, A.M., 1987. *Castro de Borneiro. Campañas 1983–84* [The hillfort of Borneiro. Campaigns of 1983–84]. A Coruña: Xunta de Galicia.
- Rowlands, M.J., 1971. The archaeological interpretation of prehistoric metalworking. *World Archaeology* 3(2), 210–24.
- Ruiz Zapatero, G. & J.R. Álvarez-Sanchís, 2015. ¿Centros de poder? Sociedad y poblamiento en la Meseta Norte española (ca. 800–400 a.C.) [Centres of power? Settlement and society on the Iberian North Plateau (800–400 BCE)]. *Veguetas* 15, 211–33.
- Sahlins, M., 1972. *Stone Age Economics*. New York (NY): De Gruyter.
- Salač, V., 2014. Oppida and urbanisation processes in central Europe, in *Paths to Complexity: Centralisation and urbanisation in Iron Age Europe*, eds M. Fernández-Götz, H. Wendling & K. Winger. Oxford: Oxbow, 64–76.
- Sánchez-Palencia, F.J., D. Plácido Suarez, A. Orejas Saco del Valle & M.D. Fernández-Posse, 1999. Minería y metalurgia: De la Protohistoria a la España romana [Mining and metallurgy. From protohistory to Roman Spain]. *Studia Historica, Historia Antigua* 17, 263–98.
- Sassoon, H., 1983. Kings, cattle and blacksmiths: royal insignia and religious symbolism in the interlacustrine states. *Azania: Archaeological Research in Africa* 18(1), 93–106.
- Sastre, I., 2002. Forms of social inequality in the Castro Culture of north-west Iberia. *European Journal of Archaeology* 5(2), 237–48.
- Schmidt, P.R. & B. Mapunda, 1997. Ideology and the archaeology record in Africa. Interpreting symbolism in iron smelting technology. *Journal of Anthropological Archaeology* 16, 73–102.
- Thurston, T.L., 2009. Unity and diversity in the European Iron Age: out of the mists, some clarity? *Journal of Archaeological Research* 17(4), 7–84.
- Turner, V., 1969. *The Ritual Process: Structure and anti-structure*. Chicago (IL): Chicago University Press.
- Vansina, J.M., 1978. *The Children of Woot: A history of the Kuba peoples*. Madison (WI): University of Wisconsin Press.
- Villa Valdés, A., 2011. Santuarios ‘urbanos’ en la protohistoria cantábrica: algunas consideraciones sobre el significado y función de las saunas castreñas [‘Urban’ sanctuaries in Cantabrian protohistory. Some considerations about meaning and function of Iron Age saunas]. *Boletín de Letras del Real Instituto de Estudios Asturianos* 65, 9–46.
- Welbourn, D.A., 1985. Craft specialisation and complex societies: a critique, in *Settlement and Society: Aspects of West European prehistory in the first millennium B.C.*, eds T.C. Champion & J.V.S. Megaw. Leicester: Leicester University Press, 123–32.

### Author biography

*Samuel Nión-Álvarez* holds a PhD from the University of Santiago de Compostela (2021). He is currently a postdoctoral research fellow at the University of Santiago de Compostela and the CSIC-Incipit. His work focuses primarily on European protohistory, exploring different approaches to theoretical and social studies. He is the author of several works, including publications in such journals as *Journal of Archaeological Science: Reports or SPAL*.