

# Settlement and agrarian economy in the *Conventus Tarraconensis*, the Balearic Islands and the Pityusic Islands

Marta Prevosti\*

Institut Català d'Arqueologia Clàssica

Received 19 January 2018 · Accepted 15 April 2018

## ABSTRACT

This article describes the major evolution in the settlement of the *Conventus Tarraconensis*, the Balearic Islands and the Pityusic Islands with the Roman conquest. It analyses the introduction of the Roman economic system, which was heavily based on the production and commercialisation of wine at the end of the Republic and during the High Roman Empire. The key to the added value brought by the villa system lies in the fabric of market relations that the Romans dominated. Linen production was also important, and the technique used to bleach the fabric can be deduced from Pliny. This article concludes with the evolution of the population, settlement and the economy during the Late Empire.

**Keywords:** Settlement, villa system, wine, linen, bleaching

## INTRODUCTION<sup>1</sup>

With Marxism, the main players in history became the forces of production, and individuals gained relevance over their leaders; however historians of the ancient world still bemoan the opposite, top-down perspective that the treatises from this period tend to follow.<sup>2</sup> It is difficult to overcome this vision due to the partiality and scarcity of ancient sources, which tend to reference the story of the leaders and ignore that of the common folk. Not only is it difficult to get empirical economic data with figures on production or trade, but the lack of figures on settlement is an even tougher or more basic problem. However, we do have the possibility of using archaeology to approach some of these everyday material aspects that the sources do not report by means of data that are often indirect and difficult to interpret, albeit positive. Even though the classical sources provide very little information on the Roman settlement in the area of the *Conventus Tarraconensis*,<sup>3</sup> archaeology has made a great deal of headway in this field.

Methodologically speaking, beyond the traditional excavations and archaeological maps, knowledge of the rural Roman settlement in the *Conventus Tarraconensis* has benefitted from surveys and landscape studies since the 1980s. Studies of the territory within the framework of the Roman city were the first step in an approach within

the tendencies of processual, neo-functionalist and science-based archaeology. Since that decade, an avenue of study of the territory in the Roman era has developed within the scientific Marxism school, in close connection with the Besançon School in France. Soon, through the instruction of French archaeologists, Catalan archaeology was also drawing from the sources of the historical school of Ferdinand Braudel's *Annals*, including its theories on landscape archaeology. These theoretical approaches have particularly focused on the evolution of the space within which human settlements are located, and, as a result, the study of the environment, the forms of occupation and exploitation, as well as the settlement dynamics and hierarchisation have become fundamental targets of knowledge. Instead of descriptive studies of the sites, we now value territory-wide studies because of the explanatory power they offer on how the system operated as a whole.

The incorporation of information technologies, as well as scientific techniques from biology and geology applied to archaeology, have increased our knowledge of the ecological system in which humans developed. And in recent years, the increasing use of digital technology, the potential of Geographic Information Systems and access to big data have helped digital cartography expand in connection with gazetteers and databases on different archaeological topics. Within this avenue, the *Tabula Imperii Romani – Forma Orbis Romani* (TIR-FOR) programme,<sup>4</sup> the vast map of the Roman Empire, is shaping up to be a crucial step forward in settlement studies.

\* **Contact address:** Marta Prevosti. Institut Català d'Arqueologia Clàssica, Plaça d'en Rovellat, s/n 43003 Tarragona. Tel. +34 977 249 133 (ext. 203). E-mail: [mprevosti@icac.cat](mailto:mprevosti@icac.cat)

## THE MAJOR SETTLEMENT SHIFT

The Roman conquest signalled a radical change in the settlement structure in the region of the *Conventus Tarraconensis* and the islands, with the exception of Ibiza.<sup>5</sup> In the Iberian era, in the northern region as far as the Millars River, the population was grouped into hundreds of small *oppida*, most of them hillforts, the largest of which are the towns of Ullastret (15 hectares) and Burriac (10 hectares), accompanied by a dispersed rural settlement. It is believed that the major centres may have exercised control over the others.<sup>6</sup> South of the Millars River, the Iberian population was more clearly hierarchised, with dispersed rural settlements and small subsidiary villages of four large *oppida* or cities, which served as the political-administrative core of large territories<sup>7</sup> within a structure more similar to those documented in Upper Andalusia.<sup>8</sup> They occupied around 10 hectares: *Arse-Saguntum*, *Leiria-Edeta*, Carència de Torís and *Kelin*. This was the situation during the Iberian period, on which the system of the Roman city, the *civitas*, was superimposed, which included the urban nucleus and territory under the same legal, social and economic system. However, the 2nd century BC was a transitional period, since the first Roman cities were not founded until the end of the 2nd or beginning of the 1st century BC.

Once the Second Punic War was over, a series of *oppida* were closed. There are signs of a change in settlement patterns in the 2nd century BC, with dispersed, dense settlement on the plains around the medium-sized and small *oppida*, which entered a gradual process of abandonment, fluctuating between sudden depopulation and survival in some form which could last as late as the 1st century BC. The presence of the Romans is clear in some of these nuclei, which they promoted as a kind of proto-*civitas* to keep watch over the country, such as Sant Julià de Ramis or Burriac, within a network of domination, the epicentre of which was *Tarraco*.

The end of the 2nd and start of the 1st century BC signalled another period of abandonment. The third and last period of Iberian settlements dovetails with the Sertorian Wars. There was a steady increase in farmstead-type settlements or small clusters of houses located on the plain or at the foot of the mountains, in river valleys or along the coastline. Throughout the 2nd century BC, a fortified landscape gradually gave way to an open landscape in the shift towards the Roman settlement model, which prioritised peasants settling on their crop lands on the plains. We can assume that the inhabitants of these new settlements were the same displaced residents from the Iberian settlements.<sup>9</sup>

However, at the time when the first Roman republican cities were being founded, the changes around the region gained momentum and the dispersed, rural population occupying the plains multiplied. In the Catalan area, this happened in the turn from the 2nd to the 1st century BC,<sup>10</sup> with an explosion of small, rural settlements located on the plains.

In Valencia, the rural population also expanded<sup>11</sup> with the proliferation of new settlements, and with a huge increase in imports and an economic upswing after the second half of the 2nd century BC. In the 1st century BC, too, there was a gradual increase in small settlements located at medium altitudes or on the plains. Járrega<sup>12</sup> describes an even higher density in Alt Palància which dates from the end of the 2nd or start of the 1st century BC. In the region of Edeta, Bonet<sup>13</sup> detected that even though the number of settlements did not vary significantly, there is proof of the development of a new settlement pattern between the second half of the 2nd century and the 1st century BC which was organised around habitats on plains, most of which lasted until the imperial period. In *Kelin*,<sup>14</sup> however, there was a decrease in rural settlements. For the area of *Valentia*, the founding of the colony in 138 BC leads us to believe that it could not have been very different to the Catalan area.<sup>15</sup> We concur with Járrega<sup>16</sup> that there is no empirical data to uphold a later Romanisation of this region.

Territory studies in the Catalan region and several regions within Valencia prove a fact that Millett<sup>17</sup> has also observed in other Mediterranean regions: there were more small rural settlements and more potsherds in the period after the conquest, with the founding of the first Roman settlements,<sup>18</sup> whereas later there is proof of a gradual wane, a sign that the wealth began to be concentrated. Millet believes that this could be interpreted as the economic effect of inclusion within the empire, which would lead to large numbers of merchants and provincials with opportunities to prosper. In the *Conventus Tarraconensis*, evidence seems to indicate a situation of considerable prosperity among the indigenous peoples, who were freed from Iberian organisational structures and could now easily sell their agricultural surpluses with the opening of new markets. Furthermore, they had little competition in trade thanks to the new situation of power replacement, which was now in Roman hands, at the time the country's agrarian colonisation was just beginning. Over time, the first cities, the arrival of colonists and the acquisition of properties by the wealthy Roman classes must have centralised land ownership, farming and trade.

Between the Pyrenees and the Millars River,<sup>19</sup> the majority of Roman cities were newly-founded nuclei located in virgin areas, which created a new population structure. The cities were located on the plains (17 in the current area of Catalonia and 1 in the area of Castelló), the smallest of which occupied around 10 hectares, while the capital of the *conventus*, *Tarraco*, covered 80-90 hectares. It is true that some of these cities cropped up next to indigenous settlements, like *Iluro* near Burriac and *Gerunda* near Sant Julià de Ramis, or even touching the pre-existing settlement, such as *Tarraco* and *Emporiae*. *Lesera* is the only case of total continuity. However, generally speaking, the Romans did not seem to respect the possible Iberian capitals.

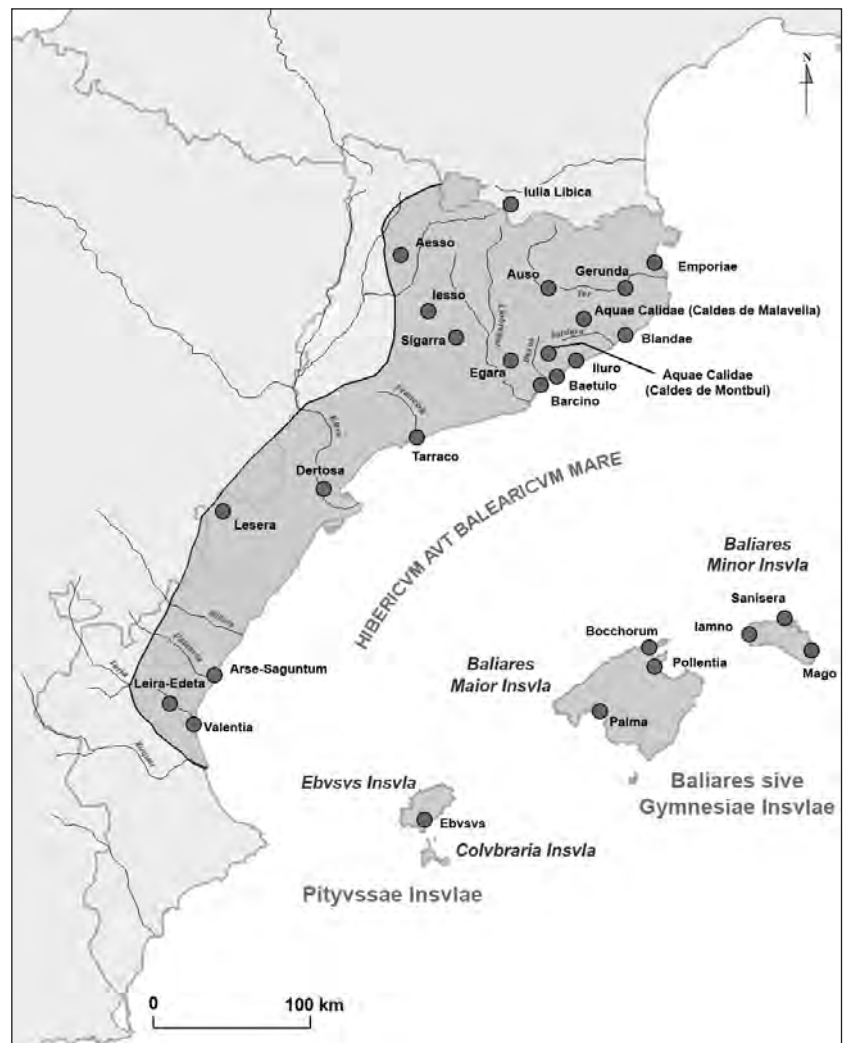
South of the Millars River, the proportion of continuity of cities is greater than in the northern regions, perhaps because the urban structure was more mature.<sup>20</sup> Of the four Iberian cities, *Arse-Saguntum* and *Leiria-Edeta* survived as Roman cities. In this area, only one new settlement was founded *ex novo*: *Valentia*.

On the Balearic Islands, the change was not as dramatic. The population was concentrated into numerous Talayotic settlements. However, even though the Roman conquest led to the founding of new cities, many of these older settlements remained inhabited throughout the entire Roman period.<sup>21</sup> Pliny mentions three of them –*Guium*, *Tucis* and *Bocchorvm*–, the latter of which became a federated city. On Menorca *Mago* and *Iamno* seemed to survive in the subsequent stage in the guise of *castella*, although under Vespasian they became municipalities, while *Sanisera* was newly founded. *Palma* and *Pollentia* were colonies founded with 3,000 colonists from among the Romans of Iberia, according to Strabo (Str. III, 5, 1.),<sup>22</sup> perhaps some of them originally from Picenum. They left a profound mark on the land in the form of agrarian colonisation with centuriations and an important network of villas. However, many Talayotic settlements remained in-

habited as rural farming centres within the system –some even had new settlers, perhaps contingents from Gaul–<sup>23</sup> while other settlements were abandoned.

Conversely, on the Pityusic Islands, the settlement situation showed a great deal of continuity with the Punic settlements. Because of its high development under Carthaginian culture, Ibiza is the island that showed the most continuity both in the urban nucleus, *Ebusus*, and in the distribution of rural settlements, which clearly followed the Punic tradition. Nonetheless, new rural settlements were also created, even though they all followed pre-Roman patterns and most of them cultivated grapes.

Therefore, we can see how the urban nuclei of the Roman cities became veritable political and cultural centres, with the life of *urbanitas*, while their territories were occupied by rural farming settlements, the true economic foundation of their sustenance and the hallmark of their existence. In fact, the cities in the area under study were essentially communities of farmers, where citizens (*cives*) had land that was the basis of their wealth, along with norms (legal statutes) for coexisting. They exploited the space over which they held jurisdiction, essentially through crop and livestock farming, although they also



MAP 1. *Conventus Tarraconensis*, the Balearic Islands and the Pityusic Islands, showing the Roman cities

harvested resources from forests, rivers and the coast, and eventually metals and stones as well. Furthermore, it is worth noting that they were small cities within the empire as a whole, albeit profoundly acculturated ones.

The Romans founded the cities in a well-distributed fashion, choosing key points where they could dominate and exploit the land on the best agricultural plains and at the hubs of roadways and seaways, with a considerably higher density along the coast. Most Iberian *oppida* were abandoned, and the Roman cities concentrated the administration of the people through nuclei that reflected a different organisational pattern. The region went from a settlement system which was governed under quite diverse models –if we compare the Iberians in the Ullastret area with those in the Ebro River, those of *Kelin* or the Talayotic settlements, for example– to a fairly uniform system under Roman power, even though it was quite decentralised and every city had its own legal statutes. Therefore, we should understand that the Roman conquest led to the implementation of a social, legal, economic and technological organisational system in the country that was radically new and unified, which entailed a huge step forward for the Iberian and Talayotic world. Thus, it established the basic network of cities that still exists today.

The newly-founded cities meant that not only were the urban nuclei structured in the Roman fashion, but so were their territories. The centuriations quite clearly reveal this structural unity, as well as the scope of the cities' planning and infrastructure. The new system led to the introduction of the Roman concepts of agriculture, which are encapsulated in the system of the Roman villa. The structure of the rural habitat was made up of a large number of small farms and residential agglomerations, in addition to the villas, which were the engines behind the system, within the dynamic of habitat dispersion that characterised the Roman countryside. The agglomerations were small villages or *vicus* which may have sprung up around a villa, a market at a crossroads or a concentration of small rural property owners.<sup>24</sup> Despite the difficulties posed by insufficient archaeology, several agglomerations have also been identified in the area we are studying.

This was a region where the wealthy Roman and Italic families invested in lands to produce wine, which also made it the destination of immigrants. Indeed, the clearest sign of the introduction of the villa system was the cultivation of grapes.

## WINE AND THE VILLAS

Wine was the main engine of change in Roman agriculture in the area of future Catalan-speaking lands, which arrived with the first foundations of Roman cities. Even though the Iberian world was aware of the cultivation of grapes,<sup>25</sup> the Romans introduced more developed production techniques and, more importantly, they inserted

the region into their trade circuits. Of the three elements in the Mediterranean triad, wine was and remains the one with the highest yields, although it is also the most delicate one and the one which requires the most technical knowledge and time in order for a vineyard to produce a fine wine. Wine was the prime product of the large Mediterranean villas which were owned by the Roman, Italic and even provincial aristocrats. It was the best investment to earn profits from agriculture. Therefore, when archaeology detects this business on a large scale, it means that it was paving the way for the economic system of the Roman villa, with Roman production techniques and within Roman trade circuits.

On Ibiza, wine had been fully introduced and commercialised by the Carthaginians,<sup>26</sup> although after a recession in the Roman era, it increased even further and was inserted within a highly developed commercial structure.<sup>27</sup> Ibizan wine is paradigmatic because of the significant development of its production and trade. The numerous archaeological traces left by amphorae, production centres and wine troughs in the fields make it easier to study. There is no doubt that since the Punic era it had been produced for commercialisation and found an important market on the coastal areas of Catalonia and Valencia in both the Iberian period<sup>28</sup> and the Roman era. In the latter period, it was also exported to southern France and the Tyrrhenian Sea region, until the crisis in the 3rd century halted the massive production and trade of Ibizan wine.

The coastal areas of what are today Catalonia and Valencia also came to specialise in this product.<sup>29</sup> The region became a coveted place to invest in land, and the Roman and Italic colonists reproduced the practices from their homelands there. In the earliest production of wine amphorae at the end of the 2nd century and in the 1st century BC, the Dressel 1 Citerior amphorae produced in Valls and the Maresme and Vallès regions bear not only seals in Iberian but also some with Italic names which point to landowners from the elites of Rome or Italy.<sup>30</sup> The export of this wine can be detected on the Balearic Islands and surely in southern France, albeit in miniscule amounts.

Between the second quarter of the 1st century and 30 BC, they are followed by the more abundant Tarraconense 1 amphorae produced on the Costa Brava and the Vallès, Maresme and Baix Penedès regions, along with the coastal areas of Baix Maestrat and La Plana. Their commercialisation has been documented along the route of the Rhône River as far as *Bibracte* and Brittany, along the route of the Garonne River from Narbonne to Bordeaux, in *Hispania Citerior* along the Ebro River route as far as Zaragoza and *Termantia*, in the northern part of Valencia and on the Balearic Islands.<sup>31</sup> The seals bear Latin names, probably foreign ones,<sup>32</sup> most of which are from the central-Italic area, especially the Oscan and Umbrian regions, possibly resulting from the considerable lands acquired by the powerful individuals from Italy in the turbulent and unstable years of the civil wars, who must have then put freedmen or slaves at the helm of their businesses.<sup>33</sup>

M. José Pena repeatedly advocates pinpointing the origin of the wine business in the region of Catalonia, as well as the Roman immigration to the republican cities in the Catalan area, as part of Caesar's colonisation policies.

However, the huge upswing in wine production and commercialisation in the coastal area of the *Conventus Tarraconensis* truly took place in the second half of the 1st century BC. A study of the *nomina* that appear on the seals of the Pascual 1 and Oberaden 74 amphorae also point to foreigners from Italy, *Gallia Narbonensis*, *Gallia Cisalpina*, some equestrians and even some imperial freedmen, who attest to the fact that the agrarian properties in the region were owned by prominent personages and even Augustus.<sup>34</sup> They reflect the acquisition of lands as investments meant to produce profits that were often cultivated by underlings.

With the new era, a new kind of vessel, the Dressel 2-4 amphora, became dominant. It dovetails with a reorientation in trade, which became much more focused on Italy and Rome, and changes in landowners, at the same time that the production seemed to shift into the hands of the local elites, as detected on the epigraphy of the amphorae.<sup>35</sup> The founding of *Barcino* around the years 15-10 BC sheds light on this process.<sup>36</sup> The colonists who settled the colony were the new and more direct agents of farming,<sup>37</sup> and trade was centralised via the port of *Barcino*. The advent of epigraphy on amphorae consisting in names (*Fulvius*, *Cornelius*, *Licinius*, *Loreius*, *Porcius*, *Venuleius*, *Voltilius*), which reappeared on the imperial epigraphy of *Narbo*, *Emporiae*, *Barcino*, *Valentia* and *Carthago Nova*, indicates that colonists settled in these cities during the time of the colonisations of Caesar or Augustus.<sup>38</sup> Indeed, the mass incorporation of the wine business in the region of *Tarraco*<sup>39</sup> also dates from this period, followed shortly thereafter by the wine from Sagunt<sup>40</sup> and Valentia,<sup>41</sup> and, to a lesser extent, from inland cities like *Ilerda*<sup>42</sup> and *Edeta*.<sup>43</sup>

Therefore, we can see that since the latter years of the republic and during the principality of Augustus, the coastal regions of the future Catalan-speaking lands were devoted to the wine business that participated in the overseas trade circuits. This business was in the hands of families with Italic or Roman roots or the local elites, and we can even witness the presence of properties owned by the emperors but run by imperial freedmen. However, very soon people with servile roots associated with the preeminent families can also be detected in relation to wine production, after they became landowners themselves.<sup>44</sup> They are evidence of the efficiency of the social promotion mechanisms in place during the Roman era.

The amphorae indicate that after Tiberius, the massive production of wine for commercialisation began to decline in the Maresme region, which had been a pioneer in exports,<sup>45</sup> while in many production centres it started to wane after the mid-1st century AD. Nonetheless, we know that the wines in the area of Sagunt, *Tarraco* and Ibiza remained strong until the early 3rd century. The an-

cient sources contain a series of references to these wines<sup>46</sup> and highlight the quality attributed to the wines of *Tarraco*, *Lauro* and the Balearic Islands, along with the poor quality of those from Laietania and Sagunt.<sup>47</sup> Precisely these same literary citations dovetail with the second half of the 1st century and the start of the 2nd century, which is when the local elites of *Tarraco* were present in Rome and attained higher ranks within the administration.<sup>48</sup> The closure of numerous production centres in the second half of the 1st century may point to an economic reorganisation within more competitive markets, and perhaps even to vessels other than amphorae, such as *dolia*, *cullei* or *cupae*.

On Ibiza, there are no seals on the amphorae, which hinders us from learning details about the families associated with wine production. We should note that the text by Pliny the Elder (*Nat.* 14.8.71) which mentions Balearic wine seems to refer to Ibizan wine, since no traces of wine production and trade, or the manufacture of amphorae, have been found on either Mallorca or Menorca.<sup>49</sup> While a decline in the wine production in Laietania and other Catalan areas can be detected, Ibizan wine continued to be exported in the 2nd century. These exports lasted the entire century, and it was not until the crisis in the 3rd century that there are any signs of decline, accompanied by a dramatic reduction in the number of farm units. Nonetheless, Ibizan wine seems to have rallied again in the 4th century.<sup>50</sup>

With the spread of this productive and commercial system, it is clear that between the 1st century BC and the 3rd century AD the country was fully immersed in the Roman agrarian economy, which we can call the villa system. In the 1st century BC, the settlements detected by archaeology that may have been called villas are quite scarce, although there were some. In Valencia, villas did not appear until the era of Augustus, although the Roman agrarian system seems to have been in operation since the mid-1st century BC.<sup>51</sup> However, the villas sprang up everywhere and definitively after Augustus: they were scattered around the territories of the different Roman cities, some of which had fairly luxurious residential areas. The large estates fall perfectly within Roman schemes, as reported by Cicero,<sup>52</sup> with owners who had multiple *fundi* in quite different locations<sup>53</sup> to diversify their investments. The manufacture of *tegulae* stamped with the owner's names also seems to reflect single individuals owning multiple *fundi*, such as the famous *Lucius Herennius Optatus*<sup>54</sup> from *Barcino*. The lineage of *Minicij Natalis*<sup>55</sup> from *Barcino* is another famous, paradigmatic case of *fundi* estates in different provinces of the empire.<sup>56</sup>

## WINE TRADE

These owners of different *fundi*, wine producers and owners of the pottery workshops where the amphorae were manufactured may have also been involved in com-

mercialisation, as seems to be the case of *Lucius* and *Marcus Clodius Martialis*.<sup>57</sup> This wealthy equestrian family from *Tarraco* owned several *fundi* and three pottery workshops in the region of what is today Riudoms and Tarragona, in a strip of centuriated land. An irrigation channel documented in medieval times wound its way through them, linking them to each other, which leads us to suspect their Roman origin.<sup>58</sup> They manufactured wine amphorae and must have lived in the urban nucleus of *Tarraco* and the wealthy villa of the *Mas d'en Toda* estate.<sup>59</sup> *Marcus Clodius Martialis* appears in a lapidary inscription found in *Tarraco* with the titles of *II vir* of *Tarraco* and *Praefecto insularum Balarum*.

The coastal areas of *Tarraco*, Valencia and Ibiza kept up the wine business until the 3rd century, with a high level of overseas trade. As discussed above, it was run by large landowners from the wealthy classes. However, it is clear that they carried along a series of smaller producers, small landowners, colonists or tenants who at the time also worked quite actively in the vineyards. There are also reports of people with servile or freeborn roots who were able to become wealthy, actually own *fundi* and promote themselves socially.<sup>60</sup> In contrast, even though archaeology attests to wine production after the turbulent years of the 3rd century, there is no longer any testimony of the manufacture of amphorae or of trade in the Mediterranean market. Its production must have been limited to local consumption. Only Ibiza revived its overseas business in the 4th century, albeit to a lesser extent than in the late empire.

It is symptomatic to observe that in the coastal area of what is Catalonia today, wine production did not re-emerge as a major international business until the 18th century, a period when vineyards gradually spread around the land once again to produce wines and spirits which were sold in the Atlantic international market, primarily in northern Europe but also in the Americas after 1780. The earnings from the wine and spirit trade allowed some farming families to amass enough capital that they could spearhead the first calico factories in the 18th century, the movement that truly triggered industrialisation in Catalonia.<sup>61</sup>

There were two essential factors that converged in the economic processes of both the Roman era and the 18th century. First, there was a peasantry with enough capital to invest and the desire to invest in agriculture with the goal of producing surpluses to sell; and secondly, there was an overseas market with a heavy demand. Under these circumstances, the responses were quite similar: the cultivation of grapes overtook the land, and there was wine speculation. The region once again had a deficit of grains, which were purchased elsewhere, as it was more profitable to use the land for vineyards. Even though the economic engines were the large landowners, who were not prominent latifundists, behind them they carried along a series of smaller landowners and tenants who took advantage of the opportunity to work in vineyards as

well, and who channelled their yields for sale via the former. Indeed, the principle of selling a lot and buying little must have been broken, although, as Gummerus<sup>62</sup> has noted, this maxim is not exclusive to the ancient world but has always been at the fore in the farming mindset. Farmers' tendency towards self-sufficiency is only broken when the business is very clear, as we know happened in Catalonia in the Modern Age with wheat, which was bought in North Africa or the Black Sea region. Perhaps something similar happened in the 1st century AD. Finally, in the 18th century, we know that the population almost doubled, especially in the coastal and pre-coastal regions.<sup>63</sup> Even Pierre Vilar remarked on the role of wine in the agricultural modernisation of Catalonia. While grains are virtually always a subsistence crop, grapes allow for an annual harvest, do not require much fertiliser – for which even the wine shoots can be used – and therefore can maintain a higher population than other crops. For this reason, grapes have always been a good crop for trade, one that is capable of generating significant profit as long as it can be placed on the market at a good price. Therefore, vineyards only spread when farmers can insert their crops into a stable or expanding trade network where they can sell their products and purchase the ones they are lacking. This was the case of Catalonia in the 18th century, which created a complex trade network that was increasingly favourable to the Catalan balance of trade.

It was also the case of the coastal area of *Tarraco* at the end of the Republic and the Late Empire. The producers in the region, as discussed above, inserted themselves into the emerging trade network in the western Mediterranean, which was dominated by the Romans, through the new Italic or Roman owners, where wine had a heavy demand among the armies of the *limes*, the expanding nuclei in Gaul, Rome, North Africa, the islands and the inland regions of the Iberian Peninsula. This trade network was clearly expanding and becoming more active and larger, and the wines were increasingly prized because of their quality. Therefore, the true driving force of the wine business were the wealthy villa owners, such as the *Clodii Martialis* from *Tarraco*, whose operation must not have been limited to producing wine; instead they must have also packaged it and at least overseen the first stage in its commercialisation. Perhaps they did not do this directly but via their agents, as was common in businesses stemming from the villa system, which was mercantile. They engaged in a rational, progressive form of agriculture which made them modern for their time. While in the 18th century, with expanding wine production, the region was in a pre-industrial stage, in the High Roman Empire a series of parallel circumstances converged, so perhaps the essential differences are the financial and political distance, although the similarity seems to be the fabric of market relations. Pierre Vilar<sup>64</sup> stresses that there was “a change in the principle of the mode of production. Catalonia had gotten used to producing not to consume the products itself but to sell them”, and indeed, this analysis could also be ap-

plied during the Roman period. In Fontana's opinion,<sup>65</sup> in contrast to Spain, "Catalan economic growth was the outcome of a different economic evolution, because industrialisation does not depend solely on factories and machines but arises from a fabric of market relations". In the Roman era, those who brought a different economic evolution and the habit of producing to sell were the new Italic and Roman farm owners, that is, the villa system, which was not grounded solely on investment to earn profits but also on a fabric of market relations.

In the different areas of the *Conventus Tarraconensis* towards the end of the Republic and during the High Empire, not only did the integration into the villa system and the purchase of lands by members of the wealthy Roman and Italic families bring new production structures to these lands, but these new owners also included them in their trade networks. This new and more dynamic situation pushed the local people to either join or disappear. New local aristocracies and even minor landowners emerged in the provincial cities, whose economy was also grounded on the villa system and the new market relations.

Recall that above we saw how immediately after the Roman conquest, an economic expansion could be detected in the area of the *Conventus Tarraconensis*, along with an explosion of rural farms scattered around the plains and the presence of imported pottery in all the settlements. However, the largest number of rural settlements is detected after the founding of the first cities between the late 2nd and early 1st centuries BC. We have also seen that this expansion ended up crystallising in the villa system, which brought economic dynamism to all the farms that survived, both small and large, until the 2nd or 3rd centuries. In this period, we can detect both creative destruction and technological advancement, social promotion and widespread prosperity, from the lower classes to the aristocrats. However, it is also true that over time, the number of rural settlements diminished in favour of the larger ones, while the smaller ones were closing, although those that did survive became increasingly wealthy. That is, property tended to become more heavily concentrated in the hands of a few, and as this happened, business got weaker. It ended up succumbing at the start of the 3rd century and the crisis that was dawning at that time.

Unfortunately, we have no population figures from the Roman era and even less information on its fluctuations. However, we can glean the trends from archaeology. The concentration of cities and rural settlements along the coastal and pre-coastal areas and the strong commercial dynamic are beyond a doubt. As discussed above, settlement studies reveal the maximum number of rural settlements in the era of the first Republican cities in the 1st century BC, although they were still small settlements. With the major expansion in the villa system in the 1st century AD, the number of settlements dropped somewhat. This phenomenon is particularly clear in what is today Catalonia<sup>66</sup> and Ibiza.<sup>67</sup> Alongside the increasing wealth in the rural settlements, technical improvements

and a larger scale in both construction and agricultural transformation and storage facilities, one can perceive a nuclearization of the settlements, which could be related to the concentration of land ownership. The larger and more complex villas also had smaller rural satellite settlements which depended upon them. In fact, there must have been a considerable population increase because of both the introduction of the villa system revolving around vineyards and immigration, although we are unable to quantitatively evaluate them either.<sup>68</sup> Throughout the 1st, 2nd and 3rd centuries, there was an increasing settlement concentration at the same time that the villas were becoming more prominent and luxurious, a sign of their land monopoly.

## OIL AND WHEAT

Even though wine was the star product for commercialisation, the three basic crops were the Mediterranean triad, of which wheat was the basic foodstuff. The cultivation of grains, especially glume wheat or naked wheat and hulled barley,<sup>69</sup> is studied through brief references in the sources, mills, silos and granaries, as well as through palaeobotanical analyses.<sup>70</sup> They indicate that grains were produced in all periods, at least for local consumption. Before the conquest, production was quite high. In the first century after the Roman conquest, both the sources and archaeology, via the extensive silo fields,<sup>71</sup> continue to reflect considerable grain production, which was used for taxes and trade.<sup>72</sup>

However, as of the 1st century BC, grapes began to gain ground over grains, and during the reign of Augustus the cultivation of grain seems to have been reduced to local consumption.<sup>73</sup> From then on, the tendency studied in the *horrea* is the same as what Métraux<sup>74</sup> observed for the villas in Italy, and the same conveyed by the Latin agronomists, namely that the storage facilities increased in size as time went on, especially after the 2nd century and in the Late Empire, which is interpreted as a tendency towards a concentration of property and population.<sup>75</sup> The Late Empire and Late Antiquity reveal a return to grain production at the expense of grapes, and even the recovery of the ancient storage technique of silos dug into the earth.

The olive groves, on the other hand, most likely just supplied the local market. It is harder to trace the cultivation of olives, although we do know that they were grown back in the Iberian period.<sup>76</sup> Buxó<sup>77</sup> believes that the cultivation of olive trees must not have spread until the 1st century BC.

Indications of oil production have been found throughout the entire area under study, though not on a large scale. Pollen studies confirm this crop, which precisely spread during the Roman era.<sup>78</sup> A few Roman toponyms also mention it, such as *Oleastrum*, which is mentioned in the *Itinerarium Antonini*.<sup>79</sup> However, several oil mills have also been excavated, which indicate yields that were most

likely meant for the producers' own local consumption.<sup>80</sup> On Ibiza, several fairly important oil mills are known, although no amphorae seem to have been produced to commercialise their output. Nor is there proof of the production of amphorae for oil in the *Conventus Tarraconensis*, even though there is in southern Valencia, such as in the Oliva workshop. Likewise, imports of oil amphorae from the *Baetica* are very scarce in the area we are examining.<sup>81</sup> All of these facts seem to indicate that olive trees were solely cultivated to produce oil to be consumed locally, but not to be commercialised overseas, thus reflecting the habit of farmers – both ancient and since then – to avoid having to purchase what they can supply themselves.<sup>82</sup>

## TEXTILES

The production of flax, hemp and wool was quite important in the region of the *Conventus Tarraconensis*. We are aware of this through the ancient sources, which indicate that production was extensive during the High Empire, although it is very difficult to attest to this via archaeology.<sup>83</sup> The high quality of the linen carried on the tradition of the Iberians, who had stood out for their manufacture of fine fabrics.<sup>84</sup> Within the Roman Empire, even though Egypt excelled for its quality and Italy was rich in linen, the most reputable, wealthy and active regions in its production were Gaul and the territories of *Hispaniae*. With regard to the region at hand, Strabo (3.4.9) reports that the Emporitans were skilled in linen production. In the 1st century, Pliny the Elder (*Nat.* 19.10) highlighted the linen production in *Hispania Citerior*, praised the fineness and extraordinary whiteness of the linen from *Tarraco* and classified the linen produced in *Saetabis* (today Xàtiva) as the highest quality he knew of (Pliny, *Nat.* 19.9). The linen of *Saetabis* was also highlighted by Silius Italicus (*Punica*, 3. 374-375), who mentioned the waters of the *Sucro* (Xúquer) River and its high-quality fabrics.

The process of bleaching linen fabric was performed in bleaching meadows near water courses.<sup>85</sup> The fabrics were spread on the grass and kept moist by sprinkling them with water. The sun bleached them itself, but if it was done on the grass with water, the process was sped up and intensified, since a chamber was created between the grass and the fabric where hydrogen peroxide was formed, which acted as a bleaching agent. This is the technique used to bleach cotton for calicoes which was common until the introduction of chemical products in the 19th century. It was known since the ancient world and is precisely what Pliny describes: “thanks especially to the waters that bathe Tarraco, in which they bleach it”,<sup>86</sup> and perhaps Silius Italicus also makes a reference to the waters of the *Sucro* (Xúquer) River.

Other classical authors such as Grattius (*Cynegetica* 41) and Catullus (*Carmina* XII, 11-15; XXV, 5-7) also refer to the linen in this region, from which we can glean that luxurious fabrics like *oraria* and *sudaria* were produced

there. Alfaro believes that the testimonies from the sources indicate production meant for export.

In *Tarraco*, the *RIT* 9 inscription from the Late Republican period, which is bilingual in Iberian and Latin, refers to *FVLVIA.LINTEARIA*, most likely a Romanised indigenous woman who was a weaver or linen merchant, an attribute which must be the source of her name. However, few archaeological indications of flax production, fibre preparation<sup>87</sup> or the weaving process<sup>88</sup> have been found.

The wool produced in the Iberian zone must have also been renowned during the Roman period, as revealed by the famous *sagum hispanum*.<sup>89</sup> There are also indications from the ancient sources, although archaeology has not provided much proof of this either. Archaeozoology has found that the presence of ovicaprids was common in rural settlements, with higher percentages during the Republican and Late Roman periods. Instruments have also been retrieved, such as shears. However, the lack of production figures makes it quite difficult to calibrate to what extent wool production was meant for local consumption or overseas trade.

Studies of livestock routes, transhumance and mountainous areas have been more positive. They have provided evidence that the mountain landscapes in the Pyrenees and inland Catalonia were also anthropised in the Roman era, especially via lumbering and shepherding.<sup>90</sup> In the late Roman era, shepherding even increased, and with it the human occupation of the mountains, which would again become the site of a renewed expansion in the early Middle Ages. Pollen analyses of the coastal areas indicate that coastal grasslands were regenerated during the late Roman era, which fostered their use by livestock. In this regard, studies have been performed of some livestock routes which were believed to be quite important during the Roman period.

On Ibiza and Formentera, significant purple dye production has been studied, with the location of numerous coastal spots with murex shell deposits which date from between the 2nd and 5th centuries. The *Notitia Dignitatum* (Dig. Oc. I, 64-73) from the late 4th century cites a *procurator bafi insularum Balearum*, which indicates a state *oficina* dependent on the *comes sacrarum largitorum*, where purple dye was produced.<sup>91</sup> It is reasonable to posit that this organisation proves the importance of this product. It is also believed that this prized dye must have been exported as dyed wool and that it must therefore be associated with wool production.<sup>92</sup> Indeed, Diodorus (5, 16) refers to the wool from Ibiza, which was known for its softness and beauty, as well as to the quality and ornateness of the fabrics of the Ibizan people.

## INFRASTRUCTURES

Infrastructures were the most important definitive advance brought by the Romans compared to the Iberian and Talayotic cultures.<sup>93</sup> One must merely consider the



implementation of the Roman land registries, with the complex infrastructure entailed in centuriation, of which we have examples that have been quite thoroughly studied in Camp de Tarragona,<sup>94</sup> Horta de València,<sup>95</sup> the Barcelona plain,<sup>96</sup> the Mallorcan plain<sup>97</sup> and numerous points in the *Conventus Tarraconensis* and the islands. The centuriation of Ibiza,<sup>98</sup> however, which has been thoroughly studied on the Sant Jordi plain, seems to come from parcellation dating from the Punic era, which makes it the most advanced area in the region.

Engineering improvements like drainage or irrigation have left noticeable traces. The aqueducts in Can Roig (Pineda de Mar, Maresme), Els Arcs (Sant Jaume dels Domenys, Baix Penedès), El Collet (Sant Antoni de Calonge, Baix Empordà), Can Ring (Besalú, Garrotxa), Can Terrés (Garriga, Vallès Oriental) and Centelles (Constantí, Tarragonès)<sup>99</sup> are examples of aqueducts which not only carried water to large villas but also irrigated the crops.

Lastly, we should mention the network of roads and ports that the Romans built, which proved essential in commercialising the agrarian yields. The Via Augusta was essential, as were the ports of *Barcino*, *Tarraco*, *Saguntum* and *Valentia*, as well as those of *Palma*, *Pollentia*, *Mago*, *Iamno*, *Sanisera* and *Ebusus*.

### THE CRISIS OF THE 3RD CENTURY AND THE LATE EMPIRE

Even though many authors believe this crisis had been building up in the 2nd century, the system did not destabilise and a new dynamic was not launched until the 3rd century. In all the areas examined, the number of rural settlements gradually decreased considerably. The end of the crisis and the rally in the 4th century signal the onset of a new period, with far fewer rural settlements than in previous periods, albeit with some much more luxurious villas.<sup>100</sup> This century again provided longstanding stability which allowed crop and livestock production to recover, yet under quite a different social order. Apparently, nuclearization became important once again, most likely around the villas. All of this is related to the gradual concentration of landownership, a common phenomenon throughout the entire western Mediterranean.

Indeed, in the 4th century, major construction and reforms are documented in the wealthiest villas to equip them with residential areas that were often lavish.<sup>101</sup> The most powerful villas set aside large spaces for reception rooms for the owner's public representation. The large landowners had increasing power over their workers, and in view of the cities' loss of administrative autonomy, they empowered themselves with increasing attributions. An entire liturgy around the *dominus* took shape, a clear sign of the increasing distance separating them from their subjects. The reception hall or basilical hall, with a semicircular apse where the owner sat to receive his clientele, tended to be a large space which stood out for its height within

the architectural whole,<sup>102</sup> symbolising the owner's power. The main dining room was often in the shape of a *trichora*, with three apses to house the semicircular tables with their corresponding beds, the *stibadia*, to hold banquets with friends and other ranking figures.<sup>103</sup> The baths were still an important part of the residential area, but they would become smaller and simpler in the 5th century.<sup>104</sup> These large country homes were ornamented with elaborate, costly decorations within the Roman cultivated tradition, with mythological references to the prosperity of the *fundus* and the virtues of the owner and his wife. The rustic parts were also developed with large storage areas, cellars and presses, as well as rooms for the staff.

Alongside the large villas, there were also smaller ones without many luxuries, with associated *balnea* and necropolises. There are also small farm establishments corresponding to settlers who worked for the large landowners, as well as small landowners who always continued to exist, albeit in smaller numbers.

In parallel, since the 4th century, just as in the remaining western provinces, we can witness a process of ruralisation of some villas that had been equipped with residential areas, which became rusticated.<sup>105</sup> This reveals the process of the concentration of landownership in the region, because when a villa with its *fundus* came to be owned by someone who already had a residential villa nearby, the new residential part became superfluous. This ruralisation process did not mean that productivity increased, as some have tried to deduce,<sup>106</sup> but rather that the amount of space used decreased and was instead concentrated in the more solid constructions, which were the old residential parts. Hyginus<sup>107</sup> and Pliny the Younger<sup>108</sup> described this process in the 2nd century within the progressive land-grabbing by the wealthiest, a process that was accentuated in the 5th century. This is why holes were bored into the mosaics in the wealthy rooms to install *dolia* to hold wine,<sup>109</sup> and why baths were turned into pressing rooms and pools into oil or wine presses.

Another quite common phenomenon, which also points to a reduction in the space used in the large declining villas, is the appearance of burials from the late era in unused rooms or spaces. This is interpreted as the concentration of life in a small nucleus surrounded by necropolises, which were increasingly close.<sup>110</sup>

Later on, often in the Visigothic period, came the advent of the phenomenon of "squatters".<sup>111</sup> That is, in some formerly luxurious residences there is proof of a new occupation of the structures by humble peasants, with the compartmentalisation of the spaces via walls that were poorly built<sup>112</sup> or without foundations, the installation of metal ovens or other kinds of industries in what used to be noble spaces, and the superimposition of shanties. This is the re-occupancy of buildings which were still worth using because of their structural solidity.

The larger villas became veritable power centres in the countryside, where the *dominus* administered not only the economy but also justice and religion. This is where

the first rural Christian churches emerged, which led to the functional reorientation of some places and became the forerunner of the early mediaeval parishes. Christianity soon penetrated this rural world as well after the 4th century,<sup>113</sup> as proven by the epigraphy<sup>114</sup> and iconography.<sup>115</sup>

While the 4th century witnessed a recovery in crop and livestock production and some degree of stability, the 5th century was notably more turbulent. This poses fundamental questions about the status of landownership and who the inhabitants of the villas were after the land concessions or appropriations of the newly-arrived barbarian peoples.<sup>116</sup> Many Visigoths must have received lands in the Tarraconense. It is quite possible that despite the changes in ownership, the new owners did not live in the rural settlements either and instead merely earned income from them. After the 4th century, the increasing importance of the Church was not only political but also economic. The frequent donations and legacies of land turned the Church into one of the largest landowners. In consequence, it contributed notably to the concentration of wealth and the decline of the residential parts of the villas. After the 6th century, the bishops ended up becoming a key political force within city management. Therefore, the transformations in the structure of land ownership shaped a changing and totally new scene.<sup>117</sup>

The decrease in the number of rural archaeology sites in the late empire and late antiquity may also reflect a population decline. In some places, this explanation seems to be in line with the data from palynological studies, which reveal major deforestation and the transformation of the predominantly crop-based economy to extensive livestock farming in the 5th to 7th centuries. Perhaps this shift had begun back in the 4th century, with an economy that combined crop farming with widespread livestock husbandry. The new moist coastal meadows resulting from drying and filling marshes and lagoons must have been exploited by alternating them with inland grazing in the pre-coastal mountains and plains, which were reached via the livestock routes used in long-distance transhumance.<sup>118</sup>

In the area being studied, the mid-6th century signalled a turning point in the development of the villas, in that very few of them survived beyond this date with extensive occupation and sustained wealth. However, the 5th century witnessed a decrease in the construction of luxurious spaces. This scene, which is true of all the Hispanic provinces, contrasts with the situation in the neighbouring provinces of Gaul, where the construction of luxury residences can be detected throughout the entire 5th century, and even into the 6th.<sup>119</sup> In fact, there are questions as to where the Hispanic rural elites went to live between the 5th and 8th centuries.<sup>120</sup> Very few villas survived as rural centres where prominent figures lived during late antiquity and into the Islamic period<sup>121</sup> and even the Middle Ages,<sup>122</sup> although they seem to be adaptations by new settlements.<sup>123</sup> Generally speaking, the villas were replaced

by simple rural settlements which cultivated multiple crops, including grains, vegetables, grapes, olives and fruit trees.<sup>124</sup> The Iberian technique of storing grain in silos dug into the earth was revived, and in some cases they reached considerable proportions.<sup>125</sup> Installations of presses and cellars were also common in the larger farming settlements. In some cases, there was a return to the occupation of elevated spots. This was also the time when residential clusters proliferated in the site of the old villas,<sup>126</sup> often related to the beginning of parish churches in the western part of the empire,<sup>127</sup> although it is too early to consider it a planned network of parishes.<sup>128</sup>

On the Balearic Islands, as the villa system came to an end between the second half of the 5th century and the 6th century, many small farms started to be created, along with reoccupations of prehistoric sites, and even caves, while ruralised villas continued.<sup>129</sup> After the late 5th and 6th centuries, archaeology has uncovered a notable series of rural churches related to residential clusters and communication nodes, which must have provided religious services to the entire population of a large territory. We do not know whether they were built on civil or religious initiative, although they may have been related to a reorganisation of the rural space under the Vandals or Byzantines.

The economy moved towards a gradual decline in the massive overseas trade networks, often limited to products for supplying the army and Rome, parallel to the slow disintegration – or perhaps more accurately, the transformation – of the Roman city system and the villa system. The onset of the Late Empire was also characterised by autocracy, a reduction in the cities' autonomy, an increasingly burdensome and centralised bureaucracy, trade networks with ever-smaller radii, militarisation and the concentration of wealth or landownership in fewer hands. While villas had activated an economic system capable of spurring the entire population during the High Empire, in the Late Empire the new economic systems would increasingly distance the large landowners from the rest of the population, with a notable impoverishment of the lower classes.

Nonetheless, we should not consider it a scene of isolation, since the archaeology attests to the fluidity of architectural and artistic contacts around the Mediterranean, especially with Italy, the eastern Mediterranean and North Africa, despite the decreased intensity of overseas trade. Archaeology has detected major imports from North Africa consisting in oil, salted products and wine and to a lesser extent also from the eastern Mediterranean, meant for the dominant classes, which last until the 7th century.<sup>130</sup>

## CONCLUSIONS

We should highlight two areas of production in which the region under study excelled: wine and textiles. Both are farm products which required subsequent high-level technical processing. The artisanal facilities capable of

completing this processing seem to have been located in the countryside, often in the same site as the rural settlements where the crop fields were located. Wine production, which was characteristic of Roman technology and a symbol of its culture, was implemented parallel to the villa system, and it became a major business in the region until the early 3rd century. It is symptomatic that this timeframe fits within the period when maximum amount of goods circulated in the Mediterranean –resulting from the statistics from the archaeologically documented shipwrecks in the Mediterranean<sup>131</sup> which is from the 2nd century BC to the 2nd century AD. As we have seen, Italic families and even the Roman aristocracy participated by introducing farming and crafting techniques and then placing the product within their rich and well-established fabric of market relations.

Even though we are aware of the markets where the wine was sold, we do not know the volume of exports. At some sites which have been more extensively studied, we can even ascertain the proportion of wine amphorae from *Tarraco*. Calculations can also be made of the proportions of shipwrecks with products from there. Studies of this kind only shed light on trends; however, it is clear that wine production was of major importance, and the ancient sources report on the fame garnered by the wines from *Tarraco*.

The second star product which characterised the region was textiles, particularly linen. While wine was a business within the villa system, linen fabrics originated from the local Iberian tradition. As we have seen, the entire process was performed: the growing, the processing of flax, the spinning, the weaving and the bleaching. The output was far-reaching and well-known, although we cannot cite figures or even trends. Archaeology stumbles upon major difficulties finding traces of textiles.

There was yet a third star product related to textiles which was characteristic of a small region: the purple dye from the Pityusic Islands. The extraordinarily high price of this dye leads us to believe that it must have been a major source of wealth for these islands.

The serious difficulties detecting products that were not commercialised in containers that archaeology is capable of tracing, such as amphorae, should be borne in mind. In consequence, it seems obvious that oil was not commercialised over long distances, as indicated by the absence of oil amphorae. Even though we are unaware of how such an essential product as wheat was obtained, we suspect that it was purchased from the inland regions of the *conventus*.

Despite the early and profound Romanisation, there were always marginal areas, such as the *compagani rivi Lavarensis*, which were mentioned in a 2nd-century inscription.<sup>132</sup> This is an example of a semi-nomadic, indigenous farming community with collective land ownership which entered into conflict with the stable private property ownership that the Romans introduced in the region. Indeed, in the 4th century, Saint Pacian of Barce-

lona reported on mountain people who spoke a strange jargon, which is interpreted as Iberian.

Despite this, it seems fairly clear that the coastal area of the *Conventus Tarraconensis* soon had a high level of *romanitas*. We have two indicators to uphold this. The first is that the first Roman cities were founded between the late 2nd and the early 1st centuries BC. The second, in line with the first, is the dedication to vineyards, which was characteristic of the villa system and of aristocratic agrarian settlements from the Hellenistic period on.

Following Mattingly's reflection on Roman Africa,<sup>133</sup> a series of parameters associated with preindustrial societies can also be found in the region, such as an increase in agrarian production, a rise in the rural population, more exports of primary products, high levels of replacement imports, larger-scale production units,<sup>134</sup> and the emergence of a society involved in risk-taking, economic calculation, technological innovation<sup>135</sup> and other "rational" economic behaviours. And surely, as happened in Catalonia in the 18th century,<sup>136</sup> other factors were the increasing mercantile orientation, complementary lines of specialisation,<sup>137</sup> the increase in disposable income, and a relatively extensive income distribution which allowed a broader swath of the population to participate in business, which in turn fostered the spread of economic advancement to a large sector of the population. All of this leads us to conclude that the Roman conquest introduced structures with a considerable capacity for inclusion, as demonstrated by the proven social mobility and remarkable opportunity patterns for many peasants and merchants starting in the 1st century BC.

After the Roman conquest, the political rights which the provincial populations gradually achieved were quite broad compared to those of other contemporary and preceding societies. This opened up significant possibilities of growth. Yet somehow, the history of Rome is the history of the triumph of the Empire over the Republic, the triumph of a society with nascent inclusive institutions which ended up being superseded by extractive institutions. Ultimately, the technological advance was slow, occasional and very underappreciated. Society kept showing signs of contradictions by the late 2nd century. In the 3rd century, it became enmeshed in a dire crisis, from which it managed to emerge only via a profound transformation, a far cry from the early Republic. In the Late Empire the areas of what are today Catalonia and Valencia did not recover their large-scale overseas exports. Perhaps the end of wine exports is related to the inclusion of this product in the *annona* in the 3rd century. All the evidence points to a heavy concentration of land ownership, major stagnation in social mobility, a decline in exports, a drastic reduction in mercantile contacts, which were limited to imports for the elites, and quite possibly a reduction in the population density.

In contrast, despite parallel political conditions, the Pityusic Islands were capable of rallying and resuming the wine business and long-distance trade. Their intense wine production for export came from a longstanding Punic

tradition. Symptomatically, within the area studied, it was also the region that dealt with the crisis in the 3rd century the most successfully. Its recovery in the 4th century allowed it to continue exporting wine when the areas of modern-day Catalonia and Valencia were no longer capable of doing so, as attested to by the amphorae. The important business of purple dye production, which had been underway there since the High Empire, continued in the late Roman period, perhaps under imperial intervention, for which a state office was established with a *procurator bafi insularum Balearum*. It would be interesting to analyse what differences led to such divergent evolution under the same political conditions. Perhaps more attention should be paid to the Punic substrate on these islands, just as in Roman Africa.

## NOTES AND REFERENCES

- [1] My thanks to Ferran Arasa for his comments on this article. This article is part of the research project HAR2015-69655-P of the MINECO (Government of Spain).
- [2] Genaro CHIC. "La historia como propaganda ideológica de un régimen". In: Alberto CARRILLO-LINARES (Coord.). *La Historia aprendida y enseñada*. Editorial Universidad de Sevilla, Seville 2015, pp. 65-80.
- [3] The limitation of this study to the geographic region of the *Conventus Tarraconensis* was the editor's proposal. It examines the area of the Catalan-speaking lands, although the region of Lleida belonged to the *Conventus Caesaraugustanus*, Northern Catalonia belonged to the province of Narbonne and the southern part of Valencia, south of the Xúquer, belonged to the *Conventus Carthaginensis*, as did the Balearic and Pityusic Islands. However, with Diocletian's reform in 298, Valencia joined the *Carthaginensis* province and thus continued under the Visigothic kingdom. The Balearic Islands, however, remained within the *Tarraconensis* province until the mid-4th century, when the *Balearica* province was created.
- [4] The TIR-FOR programme is a project of the Union Académique Internationale. In Catalonia, it is overseen by the IEC and the ICAC, led by Josep Guitart.
- [5] Marta PREVOSTI. "L'època romana". In: Emili GIRALT (Dir.), Josep M. SALRACH, Josep GUITART (Cord.) *Història agrària dels Països Catalans*, vol 1. Fundació Catalana per a la Recerca and Universitats del Països Catalans, Barcelona 2005, pp. 293-480.
- [6] Joan SANMARTÍ. "From the archaic states to Romanization: A historical and evolutionary perspective on the Iberians". *Catalan Historical Review*, 2, 2009, pp. 9-32.
- [7] FerránARASA. "La romanización de los *oppida* en el País Valenciano. Evolución del poblamiento en los siglos II-I aC". *Alebus*, 13, 2003, pp. 199-219.
- [8] Arturo RUIZ, Manuel MOLINOS. *Los iberos: análisis arqueológico de un proceso histórico*. Ed. Crítica, Barcelona 1993; Arturo RUIZ, Joan SANMARTÍ. "Models comparats de poblament entre els ibers del nord i del sud". In: Josep GUITART, Josep M. PALET, Marta PREVOSTI (Ed.). *Territoris antics a la Mediterrània i a la Cossetània oriental*. Generalitat de Catalunya, Barcelona 2003, pp. 39-57; Arturo RUIZ. "El poblamiento íbero en el alto Guadalquivir: la construcción del paisaje urbano". *PH Boletín del Instituto Andaluz del Patrimonio Histórico*, 78 (2011), pp. 14-67.
- [9] Olesti and Arrayás suggest that the Iberians were resettled upon orders from the Roman authority. Oriol OLESTI. "Integració i transformació de les comunitats ibèriques del Maresme durant el s. II-I aC: un model de romanització per a la Catalunya litoral i prelitoral". *Empúries*, 52, 2000, p. 55-86; Isaías ARRAYÁS. *Morfología histórica del territorio de Tarraco* (ss. III-I a.C.), Instrumenta, 19, Barcelona 2005.
- [10] Josep GUITART. "Iluro, Baetulo, Iesso, and the establishment of the Roman town model in Catalunya". In: Lorenzo ABAD, Simon KEAY, Sebastián RAMALLO (Ed.). *Early Roman Towns in Hispania Tarraconensis*. *Journal of Roman Archaeology*, SS 62, Portsmouth, Rhode Island 2006, pp. 51-61.
- [11] Ferrán ARASA. *La romanització a les comarques septentrionals del litoral valencià. Poblament ibèric i importacions itàliques en els segles II-I aC*. Servicio de Investigación Prehistórica, Serie de Trabajos Varios, 100, Diputació de València, Valencia 2001; Ferrán ARASA. *La romanización de los oppida...*, op. cit. p. 209 and forward; Arturo OLIVER. "El periodo iberorromano, la continuidad del mundo ibérico en un nuevo estado". *Millars*, XXXVI, 2013, pp. 119-148.
- [12] Ramon JÁRREGA. *El Alto Palancia en la época romana*. Castellón 2000; Ramon JÁRREGA. *El poblamiento de La Plana en época romana*. Diputació de Castelló, Castellón 2011.
- [13] Helena BONET. *El Tossal de Sant Miquel de Lliria. La Antigua Edeta y su territorio*. Diputació Provincial, Servei d'Investigació Prehistòrica, Valencia 1995; Consuelo MATA, Andrea MORENO, David QUIXAL. "Hábitat rural y paisaje agrario durante la segunda Edad del Hierro en el este de la Península Ibérica". *Bollettino di Archeologia online* 2010, Volume Speciale A/A1/5, pp. 32-46. [www.archeologia.beniculturali.it](http://www.archeologia.beniculturali.it)
- [14] Consuelo MATA et al. "Hábitat rural y paisaje agrario...", op. cit.
- [15] For Valencia, Gisbert also describes a settlement change in the late 2nd and early 1st centuries BC, with the proliferation of rural settlements on the plains. Josep A. GISBERT. "La organización romana del mundo rural". In: Francesc A. MARTÍNEZ, Antonio LAGUNA (Eds.). *La Gran Historia de la Comunitat Valenciana*, vol. 2. Editorial Prensa Valenciana, Valencia 2007.
- [16] Ramon JÁRREGA. *El poblamiento de La Plana...*, op. cit. pp. 499-500.
- [17] Martin MILLETT. "Rural Integration in the Roman West: An introductory essay". In: *Current Research on the Romanisation of the Western Provinces*. BAR, International Series, S 575, Oxford 1992, pp. 1-8.

- [18] Marta PREVOSTI. L'època romana..., op. cit.
- [19] The Millars River may have been the boundary between the *territoria* of the cities of *Dertosa* and *Saguntum*, which may have been the same as the border between the Iberian *populi* of the *Ilercaones* and *Ilergavones* to the north and the *Edetans* to the south; under Diocletian, it was most likely the boundary between the *Tarraconensis* and *Carthaginensis* provinces.
- [20] Josep GUITART. "Ibers versus romans? Arqueologia de l'origen de les ciutats romanes a Catalunya i al País Valencià". In: *Homenatge als nostres pobles i a la seua gent*. Publicacions de la Presidència, 16, Institut d'Estudis Catalans, Barcelona 2004, pp. 77-96.
- [21] Jaume CARDELL, Miquel Àngel CAU, Margarida ORFILA. "La continuidad de ocupación en época romana de los asentamientos prerromanos de Mallorca". *L'Africa romana. Acti del VII Convegno di studio*. Sassari 1990, pp. 703-725.
- [22] Jordi AMENGUAL, Jaume CARDELL, Lluís MORANTA. "La conquesta romana i la planificació del territori a Mallorca". *Mayurqa*, 29, 2003, pp. 11-26.
- [23] Maria José PENA. "La tribu *Velina* en Mallorca. Los *Caecilii Meteli*, el Piceno y las gentes de Sa Carrotja". In: Maria Luisa Sánchez, Miquel Barceló (Eds.). *L'Antiguitat Clàssica i la seva pervivència a les illes Balears*. Palma de Mallorca 2005, pp. 261-276.
- [24] Philippe LEVEAU. "Introduction: les incertitudes du terme *villa* et la question du *vicus* en Gaule Narbonnaise". *Revue Archéologique the Narbonnaise*, 35, 2002, pp. 5-26; Philippe LEVEAU, Pierre GARMY. "Conclusion: la *villa* et le *vicus*. Formes de l'habitat et exploitation domaniale". *Revue Archéologique de Narbonnaise*, 35, 2002, pp. 313-317.
- [25] Guillem PÉREZ JORDÀ. "El cultivo de la vid y la producción de vino en la Península Ibérica durante el I milenio a.e.". In: Rafael FRANCIA VERDE (Cord.) *Historia y arqueología en la cultura del vino*. Instituto de Estudios Riojanos, Logroño 2015, pp. 47-55. Noteworthy is El Turó de la Font de la Canya (Avinyonet del Penedès), with winemaking structures dating from the 6th century BC: Daniel LÓPEZ, Rafel JORNET, Jordi MORER, David ASENSIO. "La viticultura prerromana al Penedès: indicadors arqueològics a Font de la Canya (Avinyonet del Penedès, Alt Penedès, Barcelona)". In: D. SANCHO (Ed.). *El món de la viticultura, els vins, caves i aiguardents al Penedès i al Camp de Tarragona*. Institut d'Estudis Penedesencs, Vilafranca del Penedès 2013, pp. 31-52.
- [26] Joan RAMON. *Las ánforas púnicas de Ibiza*. Govern Balear. Conselleria de Cultura, Educació i Esports, Eivissa, 1991; Id. *Las ánforas fenicio-púnicas del Mediterráneo central y occidental*. Universitat de Barcelona, Barcelona 1995; Id. "Les àmfores altimperials d'Ebusus". In: Alberto LÓPEZ MULLOR, Javier AQUILUÉ (Eds.). *La producció i el comerç de les àmfores de la "Provincia Hispania Tarraconensis": homenatge a Ricard Pascual i Guasch*. Monografies, 8, Museu d'Arqueologia de Catalunya, Barcelona 2008, pp. 241-270. Ibiza is the area where archaeology has documented the most trenches where ancient grapevines were cultivated within the area we are studying.
- Alejandra ECHEVARRÍA, Juan Carlos VERA. "Los inicios de la viticultura en la Península Ibérica a partir de las huellas de cultivo". In: Rafael FRANCIA VERDE (Cord.) *Historia y arqueología en la cultura del vino*. Instituto de Estudios Riojanos, Logroño 2015, pp. 57-68.
- [27] Juan José MARÍ, Glenda GRAZIANI. "La producción de vino en la zona central de Ibiza durante la antigüedad". In: Mateu RIERA, Jaume CARDELL (Eds.). *V Jornades d'Arqueologia de les Illes Balears*. Consell de Mallorca, Mallorca 2013, pp. 173-179.
- [28] David ASENSIO. "La presència de ceràmiques púniques ebusitanes al nord-est peninsular (segles V-III aC): Impacte econòmic i social de les relacions comercials entre l'Eivissa púnica i els ibers del nord". In: Benjamí COSTA, Jordi H. FERNÁNDEZ (Eds.). *Yöserim: La producció alfarera fenicio-púnica en occident*. Eivissa 2011, pp. 223-260; Ramon JÁRREGA. *El poblamiento de La Plana...*, op. cit., pp. 423-429.
- [29] Marta PREVOSTI. L'època romana..., op. cit., pp. 391-401.
- [30] Ramon JÁRREGA. "Ánforas vinarias en el este de la *Hispania Citerior* en época tardorrepública (siglo I a.C.): epigrafía anfórica y organización de la producción / Wine amphorae in Eastern *Hispania Citerior* in late Republican times (1st century BC): Amphorae epigraphy and organization of production". *Spal*, 24, pp. 77-98.
- [31] Albert LÓPEZ, Albert MARTÍN. "Tipologia i datació de les àmfores tarraconenses produïdes a Catalunya". In: *La producció i el comerç de les àmfores de la Provincia Hispania Tarraconensis. Homenatge a Ricard Pascual i Guasch*. Museu d'Arqueologia de Catalunya, Barcelona 2008, pp. 33-94.
- [32] In view of their scant relationship with the local epigraphy: María José PENA, Adela BARREDA. "Productores de vino del nordeste de la Tarraconense. Estudio de algunos *nomina* sobre ánforas Laietana 1 (= Tarraconense 1)". *Faventia*, 19/2, 1997, pp. 51-73.
- [33] María José PENA. "Productores y comerciantes de vino layetano". In: *El Vi a l'antiguitat: economia, producció i comerç al Mediterrani occidental: II Col·loqui Internacional d'Arqueologia Romana*. Museu de Badalona, Badalona 1999, pp. 305-318.
- [34] Ramon JÁRREGA. "Los *nomina* en las marcas de ánforas de las formas Pascual 1 y Oberaden 74. Contribución al estudio de la producción de ánforas vinarias en el noreste de la *Hispania Citerior* en época de Augusto". *Revista d'Arqueologia de Ponent*, 26, Lleida 2016, pp. 73-93; Ramon JÁRREGA. "Personajes foráneos en la epigrafía de las ánforas Pascual 1 y Oberaden 74. Aproximación a los cambios en la gestión de la producción vinaria en la *Hispania Citerior* en época de Augusto". *Dialogues d'histoire ancienne*, 42/2-2016, pp. 155-190.
- [35] Ramon JÁRREGA. "El comercio del vino y los cambios económicos y estructurales en la costa catalana en época de Augusto". In: Jordi LÓPEZ VILAR (Ed.) *Tarraco Bienal. Actes 2on Congrés Internacional d'Arqueologia i Món*

- Antic. August i les províncies occidentals*. Fundació Privada Mútua Catalana, Tarragona 2015, pp. 225-231.
- [36] Cèsar CARRERAS, Albert LÓPEZ, Josep GUITART. *Barcino I: marques i terrisseries d'àmfores al pla de Barcelona*. Corpus internacional des timbres amphoriques, 15. IEC, ICAC, Barcelona 2009; Cèsar CARRERAS, Albert LÓPEZ, Josep GUITART (Eds.). *Barcino II: marques i terrisseries d'àmfores al Baix Llobregat*. Corpus internacional des timbres amphoriques, 18. IEC, ICAC, Barcelona 2013.
- [37] Piero BERNI. "Novedades de epigrafía anfórica en el Baix Llobregat". In: Verónica MARTÍNEZ FARRERAS. *Difusión Comercial de las Ánforas Vinarias de Hispania Citerior-Tarraconensis (s. I a.C. - I. d.C.)*. Archaeopress Roman Archaeology, 4, Oxford 2015, pp. 55-66; Piero BERNI, Cèsar CARRERAS. "Corpus epigràfic de segells en àmfora, *dolia*, *tegulae* i gerres de ceràmica comuna oxidada del Baix Llobregat (Barcelona)". In: Cèsar CARRERAS, Albert LÓPEZ, Josep GUITART (Eds.). *Barcino II: marques i terrisseries d'àmfores al Baix Llobregat*. Corpus internacional des timbres amphoriques, 18. Institut d'Estudis Catalans, ICAC, Barcelona 2013, pp. 127-285.
- [38] Ramon JÁRREGA. "La tarraconense 1, un ánfora ovoide de época triunviral". Ramon JÁRREGA, Piero BERNI (Eds.). *Amphorae ex Hispania: paisajes de producción y consumo*. Monografías ex officina hispana III, ICAC, Tarragona 2016, pp. 55-65; Oriol OLESTI. "Propietat i riquesa a l'ager *Barcinonensis*". In: Cèsar CARRERAS, Josep GUITART (Eds.). *Barcino I. Marques i terrisseries d'àmfores al Pla de Barcelona*. IEC, ICAC, Barcelona - Tarragona 2009, pp. 141-158.
- [39] Ramon JÁRREGA, Marta PREVOSTI. "Figlinae tarraconenses. La producció ceràmica a l'ager *Tarraconensis*". In: Marta PREVOSTI, Josep GUITART (Eds.). *Ager Tarraconensis 2. El poblament / The Population*. Documenta 16, ICAC, Tarragona 2011, pp. 455-489; Marta PREVOSTI. "El sistema econòmic dels establiments de l'ager *Tarraconensis*". In: Marta PREVOSTI, Josep GUITART (Eds.). *Ager Tarraconensis 2. El poblament / The Population*. Documenta 16, ICAC, Tarragona 2011, pp. 405-454.
- [40] Carmen ARANEGUI. "La producción y el comercio de ánforas tarraconenses en el País Valenciano". In: Albert LÓPEZ, Xavier AQUILUÉ (Eds.). *La producció i el comerç de les àmfores de la Província Hispania Tarraconensis. Homenatge a Ricard Pascual i Guasch*, Barcelona 2008, pp. 227-240; Josep A. GISBERT. "Vi tarraconense al País Valencià. Una mirada des dels forns d'àmfores. Arqueologia de les villes i derelictes de la costa de Dianium (Dènia)". In: Albert LÓPEZ, Xavier AQUILUÉ (Eds.). *La producció i el comerç de les àmfores de la Província Hispania Tarraconensis. Homenatge a Ricard Pascual i Guasch*, Barcelona, 2008, pp.125-150.
- [41] Esperança HUGUET, Albert RIBERA, Enrique RUIZ, Juan V. SALAVERT. "Una zona alfarera del Alto Imperio al norte de Valentia". SFECAG Actes du Congrès de l'Escala-Empúries. Marseille 2008, pp. 159-168.
- [42] Víctor REVILLA. "Viticultura, territorio y hábitat en el litoral nororiental de Hispania Citerior durante el Alto Imperio". In: José Miguel NOGUERA, Juan Antonio ANTOLINOS (Eds.). *De vino et oleo Hispaniae. AnMurcia*, 27-28, 2011, pp. 67-83.
- [43] Carmen ARANEGUI. La producción..., op. cit.
- [44] Oriol OLESTI. Propietat i riquesa..., op.cit., pp. 157-158.
- [45] Verónica MARTÍNEZ FERRERAS. "El estudio arqueométrico en las ánforas vinícolas. Una nueva forma de aproximarnos al conocimiento de la producción y exportación del vino de la *Tarraconensis*". In: José Miguel NOGUERA, Juan Antonio ANTOLINOS (Eds.). *De vino et oleo Hispaniae. AnMurcia*, 27-28, 2011, pp. 513-525.
- [46] Marta PREVOSTI. "L'arqueologia del vi a l'àrea costanera de la Tarraconense. Una reflexió". Marta PREVOSTI, Antoni MARTÍN (Eds.). *El vi tarraconense i laietà: ahir i avui. Actes del simpòsium*. Documenta 7. ICAC, Tarragona 2009, pp. 249-259.
- [47] Carmen ARANEGUI. "La producción y el comercio...", op. cit. It is important to recall that Sagunt also produced quality wines, as shown by a *titulus* which refers to the very high-quality *amineum* wine in a Dressel 2-4 amphora from Sagunt with the brand M.P.M., which was found in *Narbo*.
- [48] Víctor REVILLA. "La producción anfórica en el sector meridional de Cataluña: prácticas artesanales, viticultura y representaciones culturales". In: Albert LÓPEZ, Xavier AQUILUÉ (Eds.). *La producció i el comerç de les àmfores de la Província Hispania Tarraconensis. Homenatge a Ricard Pascual i Guasch*, Barcelona 2008, pp. 189-226; Antoni MARTÍNI OLIVERAS, Daniel J. MARTÍN-ARROYO, Víctor REVILLA. "The wine economy in Roman Hispania. Archaeological data and modellization". In: José REMESAL (Ed.). *Economía romana. Nuevas perspectivas / The Roman Economy. New Perspectives*. Instrumenta, 55, Universitat de Barcelona, Barcelona 2017, pp. 189-238.
- [49] Joan RAMON. Les àmfores altimperials..., op. cit. p. 267.
- [50] Joan RAMON. "La ceràmica ebusitana en la Antigüedad Tardía". In: Dario BERNAL, Albert RIBERA (Eds.). *Cerámicas Hispanorromanas, Un estado de la cuestión*. Universidad de Cádiz, Cádiz 2008, pp. 563-583.
- [51] Josep A. GISBERT. "La organización romana...", op. cit.
- [52] John BINTLIFF. "Mobility and Proto-Capitalism in the Hellenistic and Early Roman Mediterranean". In: Eckart OLSHAUSEN, Vera SAUER (Eds.) *Mobilität in den Kulturen der antiken Mittelmeerwelt*. Franz Steiner Verlag, Stuttgart 2014, pp. 49-53.
- [53] JÁRREGA. Personajes foráneos..., op. cit.
- [54] Marta PREVOSTI, Joan F. CLARIANA. "El taller ceràmic de Torre Llauder (Mataró, El Maresme)". *Pottery workshops and agricultural productions. Studies of the rural world in the Roman period*, 2, 2007, pp. 47-68; Isabel RODÀ, Hernando ROYO. "*Lucius Herennius Optatus*, fabricante de *tegulae*". Antonio CABALLOS, Enrique MELCHOR (Eds.). *De Roma a las provincias: las elites como instrumento de proyección de Roma*. Universidad de Sevilla, Sevilla 2014, pp. 313-340; Diana GOROSTIDI, Joan F. CLARIANA. "Un grafito de *L. Herennius* procedente de Torre Llauder

- (Mataró, Barcelona)". *Ex Officina Hispania, Boletín*, 8, 2017, pp. 49-53.
- [55] Oriol OLESTI. Propietat i riquesa..., op.cit.
- [56] Marc MAYER. "La història de Barcelona segons els escriptors clàssics". In: Jaume SOBREQÜÉS (dir.). *Història de Barcelona*, I. Enciclopèdia Catalana, Barcelona 1991, pp. 239-270; Frederic Pau VERRIÉ. "Luci Minici Natal". In: *Roma a Catalunya*. Institut Català d'Estudis Mediterranis, Barcelona 1992, pp. 164-167; Oriol OLESTI. "Propietat de la terra i elits locals. L'exemple de l'ager *Barcinonensis*". *Laietania*, 16, 2006, pp. 163-75; Marc MAYER. "¿Propiedades de los *Minicii Natales* de *Barcino* en África?". *L'Africa romana*, 2015, pp. 1511-1520.
- [57] Marta PREVOSTI. "Instalaciones oleícolas y vinícolas estudiadas en el marco del proyecto *ager Tarraconensis* (PAT)". José Miguel NOGUERA, Juan Antonio ANTOLINOS (Eds.). *De vino et oleo Hispaniae. AnMurcia*, 27-28, 2011, pp. 97-111.
- [58] Marta PREVOSTI. "Els estudis de paisatge al territori de la ciutat romana de *Tarraco*". *Butlletí de la Societat Catalana d'Estudis Històrics*, XXV, 2014, pp. 191-223.
- [59] Iban CABRELLES, Pere GEBELLÍ. "La terrisseria romana del Mas d'en Corts (Reus)". In: Marta PREVOSTI, Josep GUITART (Eds.). *Ager Tarraconensis 2. El poblament / The Population*. Documenta 16, ICAC, Tarragona, 2011, pp. 496-546.
- [60] Oriol OLESTI. Propietat i riquesa..., op.cit., pp. 157-158.
- [61] As found by Pierre Vilar (Pierre VILAR. *Catalunya dins l'Espanya moderna. Recerques sobre els fonaments econòmics de les estructures nacionals*. 4 vols., Ed. 62, Barcelona 1964-68), or as studied by Francesc Valls (Francesc VALLS. *La Catalunya Atlàntica. Aiguardent i teixits a l'arrencada industrial catalana*. Universitat de Vic, Vic 2004.), Jordi Nadal (Jordi NADAL. "La indústria cotonera". In: Jordi NADAL, Jordi MALUQUER DE MOTES, Carles SUDRIÀ, Francesc CABANA. *Història Econòmica de la Catalunya Contemporània*, vol. 3, p. 13-85. Ed. Enciclopèdia Catalana, Barcelona 1991; Jordi NADAL. *Atlas de la industrialización de España 1780-2000*, Ed. Crítica, Barcelona 2003) and Jordi NADAL, Josep Maria BENAUL, Carles SUDRIÀ (Dirs.). *Atlas de la industrialització de Catalunya, 1750-2010*. Vicens-Vives, Barcelona 2012. Giralt cites the fundamental historiography on this topic based on the contributions of Colomé, Ferrer, Garrabou, Giralt, Iglésies, Moreno, Nieto, Riera, Segarra, Serra, Tossas, Tribó, Valls and Vilar (Emili GIRALT. "La vinya i el vi durant l'edat moderna". In: Emili GIRALT (Dir.). *Història agrària dels Països Catalans*. Vol. III, Ed. Universitats dels Països Catalans and Fundació Catalana per a la Recerca, Barcelona 2008, pp. 297-460.).
- [62] Herman Gregorius GUMMERUS. *Der römische Gutsbetrieb als wirtschaftlicher Organismus nach den Werken des Cato, Varro und Columella*. Leipzig 1906. Scientia-Verlag, Aalen, 1979, 2nd reissue.
- [63] Other factors converged to cause a population increase, although the cultivation of grapes also helped.
- [64] Pierre VILAR. "La Catalunya industrial: reflexions sobre una arrencada i sobre un destí". *Recerques*, 3, 1974, p. 21.
- [65] Josep FONTANA. *La formació d'una identitat. Una història de Catalunya*. Ed. Eumo, Vic 2014, p. 250.
- [66] Marta PREVOSTI. L'època romana..., op. cit., pp. 408-411.
- [67] Joan RAMON. Les àmfores altimperials..., op. cit. p. 266.
- [68] Marta PREVOSTI. "Els grans canvis del poblament a Catalunya, de la protohistòria a l'antiguitat". *Butlletí de la Societat Catalana d'Estudis Històrics*, XXI, 2010, pp. 45-76.
- [69] The analyses also attest to millet, rye, oats and emmer (*Triticum dicoccum*), albeit in smaller amounts.
- [70] Marta PREVOSTI. L'època romana..., op. cit., pp. 341-343.
- [71] Josep BURCH. "L'ús de sitges en època republicana al NE de Catalunya". *Revista d'Arqueologia de Ponent*, 6, 1996, pp. 207-216. Josep BURCH, Jordi SAGRERA. *Excavacions arqueològiques a la muntanya de Sant Julià de Ramis. 3 Els sitjars*. Ajuntament de Sant Julià de Ramis, Universitat de Girona, Girona 2009.
- [72] Marta PREVOSTI. L'època romana..., op. cit., pp. 349-350.
- [73] Josep BURCH, Josep CASAS, Pere CASTANYER, Ana COSTA, Josep Maria NOLLA, Lluís PALAHÍ, Jordi SAGRERA, Josefina SIMON, Joaquim TREMOLEDA, Alba VARENNA, David VIVÓ, Jordi VIVO. *L'alt imperi al nord-est del Conventus Tarraconensis. Una visió de conjunt*. Universitat de Girona, Girona 2013, pp. 84-86.
- [74] Guy P.R. MÉTRAUX. "Villa rustica alimentaria et annonaria". In: A. FRAZER (Ed.). *The Roman Villa. Villa Urbana*. University Museum Monograph 101, Symposium Series 9, University of Pennsylvania, Philadelphia 1998, pp. 2-19.
- [75] Marta PREVOSTI. El sistema econòmic... op. cit., pp. 405-454.
- [76] Consuelo MATA et al. "Hábitat rural y paisaje agrario...", op. cit.
- [77] Ramon Buxó. *Arqueología de las Plantas. La explotación económica de las semillas y los frutos en el marco mediterráneo de la Península Ibérica*. Crítica, Barcelona 1997.
- [78] Marta PREVOSTI. L'època romana..., op. cit., pp. 337-343. Santiago RIERA, Agustí ESTEBAN. "Vegetation history and human activity during the last 6000 years on the central Catalan coast (northeastern Iberian Peninsula)". *Vegetation History and Archeobotany*, 3, 1994, pp. 7-23; Santiago RIERA. "Canvis ambientals i modelació antròpica del territori entre l'època ibèrica i l'alt medieval a Catalunya: aportacions de la palinologia". *Cota Zero*, 20, 2005, pp. 99-107.
- [79] This has been identified as L'Hospitalet de l'Infant.
- [80] Marta PREVOSTI. "Instalaciones oleícolas y vinícolas...", op. cit.; Joan RAMON. "Les àmfores altimperials d'Ebusus". In: Alberto LÓPEZ MULLOR, Javier AQUILUÉ (Eds.). *La producció i el comerç de les àmfores de la "Provincia Hispania Tarraconensis": homenatge a Ricard Pascual i Guasch*. Monografies, 8, Museu d'Arqueologia de Catalunya, Barcelona 2008, pp. 241-270.
- [81] According to Járrega, the presence of Dressel 20 amphorae on the coasts of Castellón reflect the fact that it was on the route between Andalusia and the Germanic *limes*.

- Ramon JÁRREGA. *El poblamiento de La Plana...*, op. cit., p. 428-430.
- [82] Cato. *Agr.* 2,7: “patrem familias vendacem, non emacem esse oportet”.
- [83] The fundamental study on this topic is: Carmen ALFARO. “La cité de Saiti/Saetabis et son aire d’influence: économie du territoire et production de tissus à l’époque ibéro-romaine”. In: Carmen ALFARO, Jean-Pierre BRUN, Philippe BOGARD, Raffaella PIEROBON BENOIT (Eds.). *Purpureae Vestes III*, Universitat de València, Valencia 2011, pp. 55-68.
- [84] Polybius *Hist.* 3.14.4; Livy 22.46.6.
- [85] Marta PREVOSTI. *Els estudis de paisatge...*, op. cit., pp. 207-209.
- [86] The description by Pliny has commonly been interpreted erroneously as the need for water in the linen production process, which revolves around the maceration and purification of the flax plant. Conversely, we believe that the author is referring to the water needed in the bleaching process of already-manufactured linen fabric. See Marta PREVOSTI. *Els estudis de paisatge...*, op. cit., pp. 207-209.
- [87] Pere Pau RIPOLLÉS. “Las balsaes romanas de Beinifaraig (Alberic-Valencia)”. *Estudios de Arqueología ibérica y romana, Homenaje a E. Pla Ballester, Trabajos Varios del S.I.P.*, 89, 1992, pp. 397-410; Rosa ALBIACH, José L. de MADARIA (Eds.). *La Villa de Cornelius*. Ministerio de Fomento, Valencia 2006.
- [88] Marta PREVOSTI. “A textile workshop from Roman times: The villa dels Antigons”. *Data Textil*, 28, 2013, pp.10-18. [Website: <http://www.cdmt.es/wp-content/uploads/documents/dtt/DTT28.pdf>]; Marta PREVOSTI. “Els objectes d’os treballat i la identificació d’un taller tèxtil”. In: Ramon JÁRREGA, Marta PREVOSTI (Eds.). *Els Antigons, una villa senyorial del Camp de Tarragona / Els Antigons, a High Status Villa in the Camp de Tarragona*. Documenta 16, ICAC, Tarragona 2014.
- [89] Carmen ALFARO. *Tejido y cestería en la Península Ibérica. Historia de su técnica e industrias desde la Prehistoria hasta la Romanización*. BPH, XXI, CSIC, Madrid 1984; Carmen ALFARO. “Sagum Hispanum. Morfología de una prenda ibérica”. In: *Homenaje a Enrique Plà*. Valencia 1992, pp. 373-381; Carmen ALFARO. *La cité de Saiti...*, op. cit.
- [90] Josep M. PALET, Arnau GARCIA, Héctor A. ORENGO, Tania POLONIO. “Els espais altimontans pirenaics orientals a l’antiguitat: 10 anys d’estudis en arqueologia del paisatge del GIAP-ICAC”. *Treballs d’Arqueologia*, 2017, no. 21, pp. 77-97.
- [91] Since purple dye production has only been documented on the Pityusic Islands, it is believed that in this case the term “Balearic” was used to refer to Ibiza and Formentera.
- [92] Carmen ALFARO, John P. WILD, Benjamí COSTA. *Purpureae Vestes I*. Universitat de València, Valencia 2004; Carmen Alfaró, Michael Tellenbach, Jónatan Ortiz. *Purpureae Vestes IV*. Universitat de València, Valencia 2014.
- [93] Marta PREVOSTI. *L’època romana...*, op. cit., pp. 329-331.
- [94] Josep M. PALET, Héctor ORENGO. “The Roman centuriated landscape: Conception, genesis and development as inferred from the *Ager Tarraconensis* case”. *American Journal of Archaeology*, 115, 3, 2011, pp. 383-402.
- [95] Maria Jesús ORTEGA, Josep M. PALET and GIAP Landscape Archaeology Research Group. “Más allá de la herencia medieval. Una nueva arqueomorfología para el paisaje histórico de Valencia”. *LAC 2014 Proceedings*, 2016.
- [96] Josep M. PALET, Héctor A. ORENGO, Santiago RIERA. “Centuriación del territorio y modelación del paisaje en los llanos litorales de *Barcino* (Barcelona) y *Tarraco* (Tarragona): una investigación interdisciplinar a través de la integración de datos arqueomorfológicos y paleoambientales”. *Agri Centuriati*, 7, pp. 113-129.
- [97] Jaume CARDELL, Margarita ORFILA. “Posible catastro romano en la isla de Mallorca”. *Cuadernos de Prehistoria y Arqueología*, 16-17, 1991-1992, pp. 415-423.
- [98] Ricardo GONZÁLEZ VILLAESCUSA. *Las formas de los paisajes mediterráneos*. Universidad de Jaén, Jaén 2002; Ricardo GONZÁLEZ VILLAESCUSA et al. “*Ex libris magnonis...*”, op. cit.
- [99] <https://tir-for.iec.cat/>
- [100] Víctor REVILLA, Joan Ramon GÓNZÁLEZ, Marta PREVOSTI (Eds.). *Actes del Simposi Les villes romanes a la Tarraconense. Implantació, evolució i transformació*. Monografies, 10, Museu d’Arqueologia de Catalunya, Barcelona 2008.
- [101] Alejandra CHAVARRIA. “Villas en Hispania durante la Antigüedad Tardía”. *Anejos del Archivo Español de Arqueología*, XXXIX, 2006, pp. 17-35.
- [102] One example of this is in the villa of Darró (Vilanova i la Geltrú, Barcelona), which has a large room measuring 20 x 12 m, with a pentagonal apse elevated with a step. Albert LÓPEZ MULLOR; Xavier FIERRO. “Recent work on villas around Ampurias, Gerona, Iluro, and Barcelona: Villa romana de Darró (Vilanova i la Geltrú, Barcelona)”. *Journal of Roman Archaeology*, 8, 1995, pp. 301-307. Another example is found in the villa of Centcelles (Constantí, Tarragona) with its semicircular apse hall. Marta PREVOSTI. “Les villae de l’ager *Tarraconensis* II”. In: Víctor REVILLA, Joan Ramon GÓNZÁLEZ, Marta PREVOSTI (Eds.). *Actes del Simposi Les villes romanes a la Tarraconense. Implantació, evolució i transformació*. Monografies, 10, Museu d’Arqueologia de Catalunya, Barcelona 2008, pp. 161-182.
- [103] The best example is found in the villa of Centcelles. Marta PREVOSTI. “Les villae...”, op. cit., pp. 172-174. See too: Beate BRÜHLMANN. “Die Zentralräume in der Villa von Centcelles. Zur funktionalen Bedeutung im Kontext der zeitgenössischen Villenarchitektur Hispaniens und Galliens”. Achim Arbeiter, Dieter Korol (Eds.). *Der Kuppelbau von Centcelles. Neue Forschungen zu einem enigmatischen Denkmal von Weltrang*. Iberia Archaeologica 21, 2015, DAI, Berlin, pp. 49-64.
- [104] Marta PREVOSTI, Ramon COLL. “Un *balneum* du Ve siècle dans le bâtiment octogonal de Can Ferrerons (Barce-



- lone)". *Heating Systems in Roman villas. Studies on the Rural World in the Roman Period*, 10, 2017, pp. 69-80.
- [105] Gisela RIPOLL, Javier ARCE. "Transformación y final de las villae en Occidente (siglos IV-VIII): problemas y perspectivas". *Arqueología y Territorio Medieval*, 8, Jaen 2001, pp. 21-55.
- [106] Alejandra CHAVARRIA. "Transformaciones arquitectónicas de los establecimientos rurales en el nordeste de la *Tarraconensis* durante la antigüedad tardía". *Butlletí de la Reial Acadèmia Catalana de Belles Arts de Sant Jordi*, 10, 1996, pp. 165-202
- [107] Hyginus, 93. *Corpus Agrimensorum Romanorum V. Hygin, L'Œuvre gromatique*. O. Behrends et alii (trad.). Luxemburg, 2000.
- [108] *Epistolae* 3, 19, 2.
- [109] One example is Torre Llauder: Joan F. CLARIANA; Marta PREVOSTI. "Un exemple de ruralització a l'antiguitat tardana: la villa de Torre Llauder". *IV Reunió d'Arqueologia Cristiana Hispànica*. IEC, Barcelona 1994, pp. 117-150.
- [110] Tamara LEWIT. "'Vanishing villas': What happened to élite rural habitation in the West in the 5th-6th c?". *Journal of Roman Archaeology*, 16, 2003, pp. 260-274; Annalisa Marzano. *Roman Villas in Central Italy. A Social and Economic History*. Columbia Studies in the Classical Tradition, 30, Leiden, Boston 2007, pp. 219-222. Alejandra CHAVARRIA. "Villas in Hispania...", op. cit.
- [111] Simon P. ELLIS. "The End of the Roman House". *American Journal of Archaeology* 92, 1988, pp. 565-579; Tamara LEWIT. "'Vanishing villas'...", op. cit.
- [112] M. Paz GARCÍA-GELABERT. "La villa rústica de Catarroja (Valencia). Planteamiento de su funcionalidad". *Quaderns d'Arqueologia i Prehistòria de Castelló*, 20, 1999, pp. 253-265.
- [113] Jorge LÓPEZ QUIROGA. "La transformación de las villae en Hispania (siglos IV-VII d.C.)". *L'Africa Romana*, XIV, 2002, pp. 2279-2290. This refers to the 5th canon of the 1st Council of Toledo.
- [114] Diana GOROSTIDI. *Ager Tarraconensis 3. Les inscripcions romanes / The Roman Inscriptions*. Documenta, 16, ICAC, Tarragona 2010; Marta PREVOSTI. "La ciutat de Tarraco, entre nucli urbà i territori / The city of Tarraco, between an urban centre and a territory". In: Marta PREVOSTI, Josep GUITART (Eds.). *Ager Tarraconensis 1. Aspectes històrics i marc natural / Historical Aspects and Natural Setting*. Documenta 16, ICAC, Tarragona 2010, pp. 25-112.
- [115] This can be seen in the decoration of the dome in Centelles.
- [116] Gisela RIPOLL, Javier ARCE. "Transformación...", op. cit.
- [117] Gisela RIPOLL, Javier ARCE. "Transformación...", op. cit; Gisella CANTINO WATAGHIN. "Le fondazioni ecclesiastiche nelle vicende delle aree rurali: spunti di riflessione per l'Occidente tardo antico (IV-V secolo)". *Antiquité Tardive*, 21, 2013, pp. 189-204.
- [118] Marta PREVOSTI. "Estudi del poblament rural de l'ager Tarraconensis. Una aplicació a la Cossetània oriental". In: Josep A. REMOLÀ (Ed.). *El territori de Tarraco: villes romanes del Camp de Tarragona*. Forum, 13, 2007, pp. 65-93; Josep M. PALET, Santiago RIERA. "Modelació antròpica del paisatge i activitats agropecuàries en el territori de la colònia de Barcino: aproximació des de l'arqueomorfologia i la palinologia". In: Josep GUITART, Cèsar CARRERAS (Eds.). *Barcino, I: Marques i terrisseries d'àmfores al pla de Barcelona*. IEC, ICAC, Tarragona 2009, pp. 131-140.
- [119] Catherine Balmelle. *Les demeures aristocratiques d'Aquitaine. Société et culture de l'Antiquité tardive dans le Sud-Ouest de la Gaule*. Ausonius, Aquitania, supplement 10, Bordeaux-Paris 2001.
- [120] Enrique ARIÑO. "El hábitat rural en la Península Ibérica entre finales del siglo IV y principios del VIII: un ensayo interpretativo". *Antiquité Tardive*, 21, 2013, pp. 93-123.
- [121] Such as L'Horta Vella (Bétera), El Sequer (Alzira) and the villa of Paterna (Rio sector).
- [122] Such as the villas of Can Sentromà (Tiana) and Vilauba (Camós).
- [123] Joan-Manuel Coll, Jordi Roig. "La fi de les villes romanes baiximperials a la Depressió Prelitoral (segles IV-V): contextos estratigràfics i registre material per datar-los". *Actes del IV Congrés d'Arqueologia Medieval i Moderna a Catalunya*, I. ACRAM, Tarragona 2010, pp. 161-172.
- [124] Cristian FOLCH, Jordi GIBERT, Ramon MARTÍ. "Les explotacions rurals tardoantigues i altmedievals a la Catalunya Vella: una síntesi arqueològica". *Estudis d'Història Agrària*, 27, 2015, pp. 91-113; Chris WICKHAM. *Farming the Early Middle Ages, Europe and the Mediterranean, 400-800*. Oxford University Press, Oxford 2005.
- [125] It is common to find burials of individuals thrown in the unused silos, wells or trenches, along with rubble and waste dating from the 6th, 7th and 8th centuries. The buried individuals have been interpreted as slaves. The profound division within the peasant population seems quite clear. Cristian FOLCH, Jordi GIBERT, Ramon MARTÍ. "Les explotacions rurals...", op. cit.
- [126] Joan-Manuel COLL, Jordi ROIG. La fi de les villes romanes..., op. cit.; Jordi ROIG. "Assentaments Rurals y poblados tardoantiguos y altomedievales en Cataluña (siglos VI al X)". In: Juan A. QUIRÓS (Ed.). *The Archaeology of Early Medieval Villages in Europe*. Documentos de arqueología e historia, 1, Universidad del País Vasco, Victoria-Gasteiz 2009, pp. 207-251.
- [127] Kim BOWES, Adam GUTTERIDGE. "Rethinking the later Roman landscape". *Journal of Roman Archaeology*, 18, 2005, pp. 405-413
- [128] Jordi GIBERT. "L'alta edat mitjana a la Catalunya Central (segles VI-XI). Estudi històric i arqueològic de la conca mitjana del riu Llobregat". *Butlletí de la Societat Catalana d'Estudis Històrics*, XXIII, 2012, pp. 353-385; Gisella CANTINO WATAGHIN. Le fondazioni..., op. cit.
- [129] Miquel Àngel CAU, Catalina MAS. "Tracing settlement patterns in Late Antique Mallorca (Balearic Islands): A field survey in the Eastern territories". *Hortus Artium Mediaevalium*, 19, 2013, pp. 247-265; Catalina MAS, Miquel Àngel CAU. "Christians, peasants and shepherds: The transformation of the countryside in late antique

- Mallorca (Balearic Islands, Spain)". *Antiquité Tardive*, 21, 2013, pp. 217-232.
- [130] Ramón JÁRREGA. *Poblamiento y economía en la costa este de la Tarraconense en época tardorromana: siglos IV-VI*. Doctoral thesis, UAB, 1992; Miguel Ángel GONZÁLEZ. "Vajillas de importación no africanas en el noreste peninsular (s. V-VII). Distribución y tipocronología". *Archivo Español de Arqueología*, 80, 2007, pp. 207-238.
- [131] Allan John PARKER. *Ancient Shipwrecks of the Mediterranean and the Roman Provinces*. British Archaeological Reports, International Series, 580, Oxford 1992.
- [132] Jordi PONS. "Conflictos i dualitat socio-econòmica a la Catalunya pirinenca durant l'Alt Imperi", *Fonaments*, 3. Barcelona, 1982, p. 11-44.
- [133] David John MATTINGLY. "Africa: A landscape of opportunity?", In: D.J. Mattingly (ed.), *Dialogues in Roman Imperialism*. *Journal of Roman Archaeology*, SS 23, 1997, pp. 117-39.
- [134] Not only have large-scale production units been detected in the *Conventus Tarraconensis* in both pottery work-
- shops and presses and winemaking facilities, but systematised working processes have also been detected within production structures boasting extraordinary organisational complexity. Antoni MARTÍN I OLIVERAS, Daniel J. MARTÍN-ARROYO, Víctor REVILLA. "The wine economy...", op. cit., pp. 202-203.
- [135] Antoni MARTÍN I OLIVERAS. "Anàlisi tecnofuncional d'estructures productives i vitivinícoles d'època romana. Identificació i localització a Catalunya de fosses de maniobra de premses de biga amb contrapès tipus *arca lapidum*". *Pyrenae*, 43, no. 2, 2012, pp. 59-98.
- [136] Francesc VALLS-JUNYENT. "Els debats entorn dels orígens setcentistes de la industrialització catalana". *Butlletí de la Societat Catalana d'Estudis Històrics*, XXVII, 2016, pp. 235-260.
- [137] The increasing division of labour and specialisation within the Roman economy has been thoroughly studied by Emanuel Mayer. *The Ancient Middle Classes. Urban Life and Aesthetics in the Roman Empire, 100 BCE-250 CE*. Harvard University Press, Cambridge, Mass. 2012.

---

## BIOGRAPHICAL NOTE

Marta Prevosti has served as a full professor in Archaeology at the Universitat de Barcelona and is currently a senior researcher at the Institut Català d'Arqueologia Clàssica. Her research has revolved around the Roman rural world –territory, topography, agriculture, Roman villas– within the framework of the Roman city. She is the author of the Roman part of the *Història agrària dels Països Catalans*. She has directed the *Ager Tarraconensis* project with Josep Guitart. She is currently working on the digital map *Tabula Imperii Romani – Forma Orbis Romani*.