

## Presentation

This book, entitled *Torregarcía: purpura and water. Historical application of non-invasive methodology in an officina purpuraria on the coast of Almería (Spain)*, presents part of the results of the project *Study of riverbank sites from prehistoric to medieval times in the province of Almería using non-invasive survey techniques* (EXPTTE: 2018\_PT\_01) authorised by the Ministry of Culture of the Regional Government of Andalusia. This project was integrated in a major framework with the support of the R&D project: RIPARIA 2: *Historical society-environment interaction: wetlands and lake areas of Roman Baetica* (HAR2016-77724-P) of the Spanish Government Programme for the Promotion of Scientific and Technical Research of Excellence, Spanish Government Sub-programme for the Generation of Knowledge, and AQVA: *Water use and exploitation in riverside contexts in the south-east of the Iberian Peninsula from prehistoric times to the Middle Ages* (UAL18-HUM-C010-A) under the FEDER-Andalucía funding 2014-2020 operational programme, call 2018, University of Almería-Regional Government of Andalusia, which has also funded the present publication. In addition, it is part of the project *AQVIVERGIA: Society-environment interaction in river basins of southern Hispania: conceptualization and praxis*<sup>1</sup> (PID2021-125967NB-I00) from the call for R&D 2021 projects of the Ministry of Science and Innovation.

The members who have participated in the publication are María Juana López Medina (University of Almería) who coordinated the work, Enrique Aragón Núñez (University of Almería), Javier Catalán González (University of Cádiz), Lázaro G. Lagóstena Barrios (University of Cádiz), Manuela García Pardo (University of Almería), Diego Moreno Lampreave (Spanish Society of Malacology), María de la Paz Román Díaz (University of Almería), Lluís Pons Pujol (UB), Manuel Ruiz Barroso (University of Cádiz), José Antonio Ruiz Gil (University of Cádiz), Isabel Rondán Sevilla (University of Cádiz) and Pedro Trapero Fernández (University of Cádiz)<sup>1</sup>. Most of us are members of the Campus of International Excellence

of the Sea (CEI·MAR) and the Campus of International Excellence in Heritage (CEIPATRIMONIO).

Torregarcía was chosen as a case study for two reasons: it is a symbolic site in the Cabo de Gata-Níjar Maritime-Terrestrial Natural Park (Almería, Spain), and, as can be seen throughout the work, its Roman purpura installations make it a suitable site for analysis using non-invasive techniques.

The site had already been known for decades because of the visibility of its emerged structures, but the only archaeological excavation carried out there was in 1990 under the direction of José Ramón Ramos Díaz, which revealed the extent and importance of this Roman site. Despite this, these impressive archaeological structures have passed almost unnoticed in the historiography of the last three decades, as they have never been the subject of a scientific publication. Consequently, the authors have encountered a series of difficulties, such as access to the excavation material and to detailed information from the intervention in the 90s. As a result, previous studies cannot be included in this work.

Two campaigns have been developed since the Torregarcía archaeological site was selected as a case of study for this project: The first was between 7 and 9 November 2019, in which the geo-referencing of the structures was achieved, of both those that had already been excavated and the location of others linked to this site. The second campaign, planned for 2020, had to be postponed due to the pandemic until 2021 and was carried out between 12 and 14 April. In this second campaign, aerial photogrammetry, terrestrial photogrammetry, ground penetrating radar and magnetometry exploration were carried out. In the process, the team has always taken into account the requirements derived from the needs of the environmental impact indicated to us by the environmental experts, as we must not forget that our work is located in a Natural Park, which is an area of special environmental protection.

The book is structured as follows. The introduction presents an update on the use of purple in the Roman world and its connection to the luxury market in Rome, coordinated by Lluís Pons Pujol and entitled *La purpura y el lujo en Roma (s III a. C.- III d. C.)* [Purpura and luxury in Rome (third century BC to third century AD)]. The concept of luxury in Roman times and the products associated with it are analysed; these include the use of purple, especially in clothing but also in construction, for

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example, by applying the pigment known as *purpurissum* to fresco paintings, choosing citrus wood, porphyry as a rock or selecting plants of this colour for the gardens. Its relationship with clothing is detailed, as purple was a sign of high social status, resulting in restrictions set out in Roman sumptuary legislation.

The monograph continues with an analysis of current understanding of the production of this dye and its links with other economic aspects, entitled *La producción de purpura en la Antigüedad: estado de la cuestión* [The production of purpura in Antiquity: current understanding] (Chapter 1) coordinated by Lázaro G. Lagóstena Barrios and María Juana López Medina. A brief overview of the main lines of research into *purpura* is given. It refers to the fishing systems or techniques related to the capture of seashells: fish traps (for *Hexaplex trunculus* and *Bolinus brandaris*) and shell fishing linked to *Stramonita haemastoma*. Subsequently, dye extraction is analysed using literary sources, especially Pliny, and experimental works, including those of Koren, Ruscillo, Cooksey and Karapanagiotis. This is followed by an analysis of the place of production, i.e., on the one hand, its association with fish-salting factories and, on the other, the existence of specialised workshops known as *officinae purpurariae* or *baphia*, such as the one presented here; a brief comparison will be made with the major remains found in the western Mediterranean. The loss of the quality and qualities of the dye is highlighted, as it precipitates very quickly, which raises the possibility that the dyeing of the fabric had to be carried out in the same places where the dye was produced or very close by. For this reason, the process of dyeing these fabrics, especially wool, is featured in detail. Finally, an attempt is made to consider the labour force and the owners of the *officinae purpurariae*; the investigation has paid special attention to identifying the working conditions, as is mandatory in a historical study, but which at the same time is the least developed line of research to date.

Chapter 2, *Geografía y paleoambiente en el sector oriental de la Bahía de Almería* [Geography and palaeoenvironment in the eastern sector of the Bay of Almería], coordinated by María de la Paz Román Díaz and María Juana López Medina, describes the geography in which the Torregarcía site is located: the eastern sector of the Bay of Almería and the Cabo de Gata-Níjar Terrestrial-Maritime Natural Park. The site is located in the most arid corner of the Iberian Peninsula, with xerophytic vegetation and geology with two major formations: the volcanic Sierra de Gata and the sedimentary alluvial and coastal plain to the south of the Betic mountain ranges. Subsequently, from a historical and ecological perspective, palaeoenvironmental studies and written sources will be taken into account, indicating that the changes over the last 4000 years have transformed the environment but not the climate, except for a warmer and more humid episode known as the Roman Humid Period. It is considered that humans are the cause of the disappearance of a considerable area of Mediterranean forest, especially in the last 200 years with the industrial

boom. The analysis of written documentation from the 16th century onwards and before the great deforestations will allow us to see a landscape that is totally different from the one we currently know as Almería. It seems that before industrialisation the landscape had a greater richness and diversity of plant and animal species; these constituted different biotopes with attractive resources, biotic and abiotic, and the potential for occupation from the earliest times. Finally, consideration will be given to the current configuration of the coast, which is the result of the conjunction of continental sedimentary contributions to the sea, the extraction of sand for greenhouse cultivation and the activity of marine dynamics.

From this point onwards, a diachronic study of settlement in the area directly related to the archaeological site is carried out, including the state of research on the occupation of the eastern sector of the Bay of Almería from prehistoric times to the medieval period, including the ancient period, especially during Roman presence in the territory. Thus, Chapter 3 is entitled *Una visión diacrónica del poblamiento* [A diachronic vision of the settlement] and has been coordinated by María de la Paz Román Díaz, María Juana López Medina and Manuela García Pardo. This diachronic vision allows us to advance our knowledge of settlement and resource use over this long period. Until now, the earliest evidence was the megalithic settlements and burial sites in the Campo de Níjar, habitat sites, volcanic rock quarrying, and copper mining activity in the Sierra de Gata. This territory traditionally has been described as a marginal area due to the lack of suitable land for agriculture; it was thought that its occupation did not begin until the 3rd millennium BC due to the exploitation of complementary resources. On the other hand, evidence from the ancient and medieval periods is also scarce. However, in the surrounding area, we must highlight the presence of the Iberian *oppidum* of *Urci*, which later became the Roman settlement comprising the *civitas urcitana*; later, during medieval times, it was known by the name of *Baḡyāna*. This urban centre was to transfer the central role to the area known as *Al-Mariya*, the Roman *Portus Magnus*, in the medieval period. We propose, however, that we are faced with a research gap, especially in the alluvial plain and its coastal strip around Torregarcía, a gap that affects the entire period. According to the analysis of its ancient landscape, this area seems to have enjoyed a great diversity of potential resources that would have made it very attractive. For this reason, it is proposed to carry out systematic archaeological activities to complement the studies accomplished to date, as well as to establish other lines of action, given the need to apply geo-archaeological and palaeoenvironmental studies to define the evolution of the ancient coastline, wetlands, marshes and salt marshes.

The following chapter, Chapter 4, *Torregarcía, el agua y la purpura: la investigación de un yacimiento de ribera en el Parque Natural Marítimo-Terrestre de Cabo de Gata-Níjar* [Torregarcía, water and *purpura*: the investigation of a coastal site in the Maritime-Terrestrial Natural Park

of Cabo de Gata-Níjar], was coordinated by María Juana López Medina and Lázaro Lagóstena Barrios. It focuses on the analysis of the site and begins with a review of relevant research from the 1970s to the present day, highlighting the analyses conducted by José Ramón Ramos Díaz and the historiographical gap that has existed around it. From this point onwards, we highlight the analyses obtained during the two fieldwork campaigns, which have made it possible to document four sectors (A, B, C and D) and to extend the scope of the site, which is why we propose a new approach based on the site's interpretation as a settlement or *vicus*. The study focuses mainly on Zone A, where most of our research has been carried out. Three areas have been delimited here: 1) the central courtyard and the structural lines of the vat or *lacus*; 2) the water well and the access to fresh water, and 3) the shell midden. The characteristics of the *lacus* and the shell midden suggest the presence of an *officina purpuraria* from the Roman Imperial period, where the dyeing of fibres, such as wool, could have been carried out. These installations also form part of an *officina infectoria*, a hypothesis that will have to be confirmed or rejected in future interventions. Finally, its relationship with the surrounding water resources has also been highlighted, an imperative both in the production of purple and in the process of dyeing the fabrics.

On the other hand, as has already been stated, the Torregarcía *purpura* installations constitute a suitable case study for analysis using techniques linked to non-invasive surveys. Chapter 5, *Metodología para la investigación no Invasiva aplicada a Torregarcía*, [Methodology for non-invasive investigation applied to Torregarcía], coordinated by Lázaro G. Lagóstena Barrios, explains the methodology used for the application of these techniques.

In subsequent chapters, the work and results are developed by applying these techniques. Thus, Chapter 6, entitled *El tratamiento LiDAR y el paleopaisaje en el yacimiento* [The application of LiDAR and the palaeolandscape at the site] and coordinated by Pedro Trapero Fernández and Enrique Aragón Núñez, presents the investigation of the palaeo-landscape applied to the site through the use of new LiDAR techniques. This study has allowed us to deepen our knowledge and understanding of the natural and anthropic conditioning factors to be considered when dealing with such a dynamic area as the SE of the Iberian Peninsula. In the vicinity of the Torregarcía site, well-preserved landscape elements have been and continue to be identified on the surface, in the subsoil, and in its maritime and underwater context. The original location of the settlement along the coast has allowed the rising waters and marine sediments to modify the current perception of the site. Despite the effect of different elements that denote a radical change in the palaeo-landscape context of Torregarcía, this site offers favourable conditions for identifying climatic episodes that will mark future research and details about the relationship between its inhabitants and their immediate territory. Thus, it has become clear that to study this environment on a broad and detailed scale, it is necessary to use a multidisciplinary approach

with a set of methodological applications centred on non-invasive precision techniques. These well-preserved sites can contribute, through high-resolution geophysical and geotechnical data, to providing rare insights into the extent and correlations between the landscapes of the SE Iberian Peninsula.

The structures located at the Torregarcía site can be considered the clearest evidence of *purpura* production in this area, as analysed in Chapter 7, coordinated by Manuel Ruiz Barroso and entitled *La aplicación de la metodología no invasiva: el levantamiento digital* [The application of non-invasive methodology: digital mapping]. Here we have analysed how a three-dimensional survey of these structures, framed within a non-invasive historical-archaeological methodology, and the subsequent obtaining of an accurate digital model is able to yield a more significant amount of information that will help us better understand the functionality and productive capacity of this area in the past.

The application of magnetometry in archaeology has produced a clear advance in historical research and a substantial improvement in interpreting specific archaeological contexts. Based on the geophysics campaign carried out at the site in 2021, the results obtained are highlighted in Chapter 8, *La aplicación de la magnetometría sobre el yacimiento y el procesamiento de sus datos* [The application of magnetometry on the site and the processing of the data collected] coordinated by José Antonio Ruiz Gil, Francisco Javier Catalán González and Lázaro G. Lagóstena Barrios. This chapter leads us to a better understanding of the theoretical and technical aspects of the equipment used in the data collection, the methodology applied, and the results obtained during the magnetic survey.

Chapter 9 presents ground-penetrating radar surveying, with the title of *La aplicación del georradar sobre el yacimiento* [The application of geo-radar on the site], coordinated by Lázaro G. Lagóstena Barrios. With this technique, supplementary information has been obtained on the potential archaeological elements existing underground of the site, both in terms of structural remains and archaeological elements of a negative nature. In this case, three areas within the archaeological complex were analysed: the inner courtyard of the productive building complex, the south-eastern sector of the archaeological enclosure, and the eastern sector within it. The results are presented here using a comparison with magnetometry, as both techniques were applied to the same area for comparative purposes.

As can be seen in Chapter 10, *La investigación no invasiva de la producción: la aplicación GPR al caso del conchero* [Non-invasive investigation of production: the application of GPR to the case of the shell midden] coordinated by Isabel Rondán Sevilla, the shell middens documented at the site represent an interesting source of historical information on the production of purple in this area where,

to date, this type of *officinae* has not been documented. Non-invasive historical research offers practical tools for extracting historical-archaeological data from a residual space resulting from this economic-productive activity. In this case, the geophysical survey of the mound identified as a shell midden has made it possible to interpret the stratigraphy of the malacological deposit, as well as documenting other elements of an archaeological nature. The use of the GPR results and their post-processing provide a record of the measurement and configuration of three-dimensional elements with specific topographical characteristics; this contributes to the historical knowledge of the purple workshop to which it relates.

This work would be incomplete without Chapter 11, *Análisis preliminar de la malacofauna del conchero* [Preliminary analysis of the malacofauna of the shell midden] by Diego Moreno Lampreave. It begins with a geological study, especially of the seabed off Torregarcía, a possible habitat for some of the species of *muricidae* used to manufacture purple shells, such as *Hexaplex trunculus* and *Bolinus brandaris*. The results of the surface sampling of the shells are then analysed, all the species of molluscs are recorded and the proportions of each are highlighted; this chapter thereby contributes to reinforcing the identification of Torregarcía as an *officina purpuraria*, as can be seen in the conclusions of the book.

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## La púrpura y el lujo en Roma (s. III a. C.-III d. C.)<sup>1</sup>

“He wrapped himself in quotations —as a beggar would enfold himself in the purple of emperors”.

Kipling R., ‘The Finest Story in the World’,  
*Many Inventions* (1893)

*Odit populus Romanus privatam luxuriam, publicam magnificentiam diligat.*

Cicerón (*Mur.* 76)<sup>2</sup>

La púrpura y el color purpúreo es indiscutiblemente un símbolo de estatus elevado en la Antigüedad (Reinhold 1970; Alfaro 2013). En Roma se asocia a la clase senatorial en época republicana y a los emperadores en época imperial. Esto es por la rareza del molusco marino y las enormes cantidades que se necesitan para fabricar su tinte, caro y exclusivo.

Analizaremos en este capítulo el concepto del lujo en Roma, aquellos elementos que se consideran propios de la *luxuria* y el simbolismo del color púrpura en el mobiliario y la flora. Desde época tardorrepublicana se promulgan diversas *leges sumptuariae* para limitar la expansión de conductas consideradas inmorales. El tinte de púrpura, naturalmente se ve afectado por ellas. Lentamente, el emperador acaparará el uso de prendas teñidas con púrpura marina. Y este color quedará indefectiblemente ligado a la semiótica del poder.

### 1. El concepto de lujo en Roma. Productos

El término latino *luxus* y sus derivados como *luxuria*, describen el exceso y la desmesura en la cantidad, calidad y rareza de los bienes materiales poseídos. Por extensión, designan la desmesura en el modo de vivir.

El lujo ha existido siempre en la sociedad romana, pero se trataba de un lujo adaptado, ponderado, al nivel de vida de cada etapa. Sin duda, los reyes y la aristocracia etrusca vivían con más lujo que la mayoría de la población; sin duda la élite senatorial de los siglos V y IV a. C. vivía mejor gracias al acaparamiento de *ager publicus* de sus vecinos del Lacio, vetado a la masa de la población romana; sin duda los Escipiones disfrutaban de más lujos que los soldados que eran mandados por ellos en las guerras púnicas. Pero los intelectuales y escritores romanos del final de la República observan en el lujo de la clase senatorial un problema objetivo que puede afectar a las costumbres (el

*mos maiorum*) y, en consecuencia, favorecer un cambio de gobierno no deseado. Según estos escritores, todos los males de Roma empezaron cuando una sociedad agrícola y ganadera conservadora, tradicional y austera entró en contacto con el mundo griego, que consideraban inmoral y licencioso. Según Tito Livio (*praef.*11), *nec in quam civitatem tam serae avaritia luxuriaque immigraverint, nec ubi tantos ac tam diu paupertati ac parsimoniae honos fuerit*, indicando que en pueblo alguno fue tan tardía la penetración de la codicia y el lujo, ni el culto a la pobreza y a la austeridad fue tan intenso y duradero; y que sin ninguna duda (*Liv.* 39.6.7) *luxuriae enim peregrinae origo ab exercitu Asiatico invecta in urbem est*, el germen del lujo extranjero, en efecto, fue introducido en Roma por el ejército de Asia. Olvidaron las virtudes que les eran propias, *modestia, moderatio* y *modus*. Este razonamiento, tan mecánico y simplista, no puede ser aceptado como cierto. Estos escritores, que pueden formar parte de la élite senatorial o solamente ser eficientes transmisores de su ideología, quieren ver en el mundo griego el origen de la corrupción y decadencia del sistema republicano tradicional en el que los miembros del Senado gobernaban de modo indiviso. No desean reconocer —aunque las comprendan— las causas económicas reales de la crisis de la República en la acumulación colosal de riquezas de la clase senatorial y ahora también ecuestre, consecuencia del dominio de Roma sobre inmensos y extensos territorios (Dalby 2000). Y no podían, por falta de perspectiva histórica, analizar las causas políticas de la crisis de la República: la no adecuación de su ordenamiento legal, basado en el concepto de una pequeña ciudad estado, al dominio de todo el mundo circummediterráneo después de una expansión demasiado rápida por Italia, por el Mediterráneo Occidental durante las guerras púnicas y el Mediterráneo Oriental durante las guerras macedónicas (Lintott 1993; *id.* 1999).

¿Qué productos son considerados lujosos? Las primeras descripciones están relacionadas con la cronología de su incorporación a la sociedad romana. Para Tito Livio (39.6.7), después de la victoria de *C. Manlius Vulso* (COS 189 a. C.) sobre los galos asiáticos, se trajeron a Roma *lectos aeratos, vestem stragulam pretiosam, plagulas et alia textilia (...) monopodia et ábacos*, es decir, lechos de bronce, colchas preciosas, tapices y otros tejidos finos, mesas de un solo pie y aparadores. Para Salustio (*Cat.* 11.6) *ibi primum ensuevit exercitus populi Romani amare, potare; signa, tabulas pictas, vasa caelata mirari; ea privatim et publice rapere, delubra spoliare*<sup>3</sup>, los ejércitos de Sila (COS I 88 a. C.) se acostumbraron a admirar y

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<sup>2</sup> “El pueblo romano detesta el lujo privado, pero aprecia la esplendidez en la vida pública”. (Cic., *Mur.* 76)

<sup>3</sup> “Allí se acostumbró por primera vez el ejército del pueblo romano al burdel, a beber, a admirar estatuas, cuadros de pintura y vasos cincelados,