THE BALEARIC ISLANDS IN 'ISLAND ENCYCLOPAEDIAS', 700 BCE – 1700 CE

An historical and archaeological assessment of island knowledge production with suggestions for future research[1]

[Received August 22nd 2021; accepted December 14th 2021 – DOI: 10.21463/shima.149]

Laura Dierksmeier

Universität Tübingen, Germany <laura.dierksmeier@uni-tuebingen.de>

Stefano Cespa

Universität Tübingen, Germany/D.A.I. Rome <cespa.stefano@gmail.com>

ABSTRACT: Historical 'island encyclopaedias' (*isolarii, islarios, 'de insulis'*) and their predecessors (*Nesiotikà*, *peripli*) were predominately written by authors of the Mediterranean region from the 7th century BCE to the 17th century CE.[2] In this article, we first present an overview of these sources geared towards an Island Studies readership and next consider two main questions: First, how was knowledge about islands produced in the past? And second, can these historical sources motivate new questions for future research? The Balearic Islands have been selected to investigate these questions due to their long history of settlements and trade networks, which prompted their inclusion in many encyclopaedias. In addition, local archaeological and historical sources permit a comparison of emic and etic perspectives. Topics of analysis include descriptions of geography, cultural customs and resource use (including oil, wine, animals, salt, and freshwater), each selected with a view to future comparative studies.

KEYWORDS: Island knowledge production, historical island encyclopaedias, island resources, interdisciplinary research

Introduction

Historical 'island encyclopaedias' (*isolarii, isolarios, de insulis*) and their predecessors (*Nesiotikà*, *peripli*) were predominately written by authors from the Mediterranean region

[1] Laura Dierksmeier (early modern history) worked with the medieval and early modern sources discussed in this article and Stefano Cespa (classical archaeology) worked with the classical sources. Please note that sources from antiquity include numbers after the sources that refer to the book, chapter, and section cited.

[2] We have standardised the spelling of island names (Mallorca, Menorca, Ibiza, Formentera) to accord with current-day English standards, except in the case of direct quotations from primary sources. We have used the term *isolarii* throughout to refer to island compendiums, as the term is often used in Island Studies scholarship. The Italian term *isolarii* is synonymous with the Spanish term *islarios*.

between approximately the 7th and 17th centuries CE. This article investigates the history of island knowledge production and considers to what extent historical island encyclopaedias can generate new questions for interdisciplinary research. The case study of the Balearic Islands (Figure 1) is employed to investigate these questions for three reasons: first, the islands' connections to extensive trade networks throughout history led to their inclusion in many island encyclopaedias; second, the long and continuous timeframe of settlements can be compared over the centuries, and third, local archaeological remains and historical sources are available for comparison, giving us the chance to compare etic and emic sources.[3] This article's unique angle of analysis in comparison with previous publications is the wide chronological span, from the earliest Greek literary sources to those of the modern age.[4] Publications have studied descriptions of the Balearic Islands, but after an extensive search, we have not found a publication that attempted to make a long-term comparison of island encyclopaedias and contextualise the relevance of those findings for future research. We also provide, in some cases, the first English translations of descriptions of the Balearic Islands from sources in Latin, Italian, and Spanish.

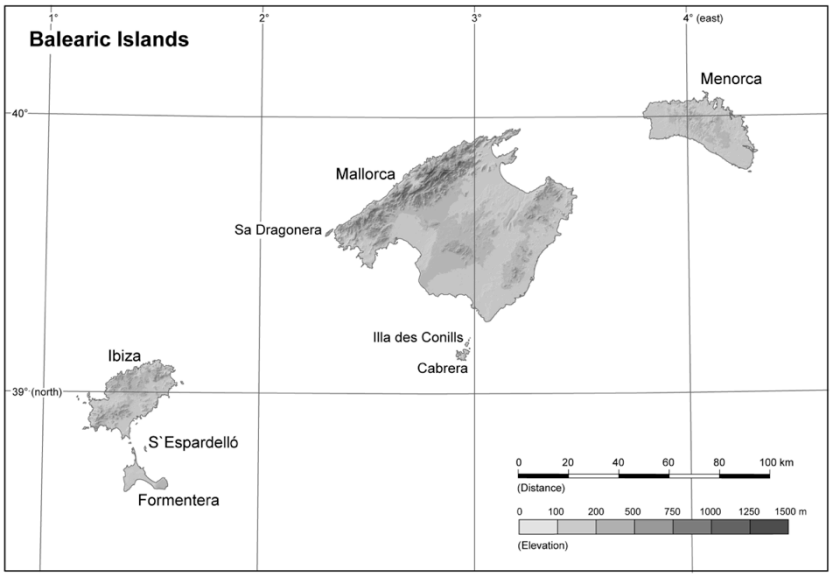


Figure 1 - Map of the Balearic Islands. (Courtesy of Richard Szydlak.)

[3] *Isolarii* are not always thorough in their mention of the Balearic Islands and some descriptions are more detailed than others. Normally more information is given about Mallorca than Menorca or Ibiza. Formentera is sometimes, but not always included. Small islands, such as Sa Dragonera and islets often appear on the maps but are seldom included in the descriptions. The level of detail provided in the sources frequently determines our degree of possible analysis, and it does not reflect a preference for one island over another as a topic of research.

[4] Despite a long-term focus, due to the sources employed, prehistory and the contemporary period have not been included and the medieval period is discussed only briefly. For information on the Balearic Islands in prehistory, see e.g., Guerrero Ayuso et al. (2007); on Mallorca in particular, see Alcover (2008, pp. 19-84). On Mallorca during the medieval period, see Abulafia (2002, pp. 103-128) and Fernández-Armesto (1987, Chapter 1). On Mallorca and insularity in contemporary literature, see Sureda and Pons (2004). For a general historical overview in English, see Buswell (2013).

We proceed by first reviewing the relevant academic literature within Island Studies journals and discussing the methods we employed (1). We next provide a brief overview of the history of island encyclopaedias from antiquity until the early modern period geared towards an Island Studies readership (2), followed by an in-depth analysis of specific sources describing the Balearic Islands (3), where we focus on places, people, culture (3.1) and resources (3.2). The overarching topics have been selected for their potential interdisciplinary relevance. We end with our suggestions for future research, followed by conclusions.

1. Literature Review and Methods

The work of José Manuel Montesdeoca Medina (2001, 2017), Chet Van Duzer (2006) and George Tolias (2007) provided us with a foundation from which we continued to compile a list of as many island encyclopaedias as possible in languages we could read (Ancient Greek, Latin, Italian, Spanish, Portuguese, Catalan,[5] French, English and German), supplemented by sources with translations (for example from Arabic or Ottoman Turkish). Our initial list included 102 sources: 57 from antiquity (c. 8th century BCE to the 6th century CE), 22 from the medieval period (c. 8th century CE to the 14th century CE), and 23 sources from the early modern period (c. 15th century CE to the 18th century CE). We were able to access 84 out of the 102 sources on our list.

Most of the sources from the medieval period were unlike those from antiquity or the early modern period. With a few exceptions, medieval sources proved to be more general geographical treatises without in-depth and specific descriptions of particular islands. This unique feature of island encyclopaedias, due especially to the Renaissance re-reading of authors from antiquity, allowed this article to be written by authors of two disciplines (classical archaeology and early modern history), which seldom work together.[6] We next identified which sources mentioned the Balearic Islands and transcribed and translated relevant sections for analysis and comparison. Direct quotations from Benedetto Bordone's 1528 *Isolarii* and Jean Matal's 1601 *Insularium* have been translated by Stefano Cespa from Italian (Bordone) and Latin (Matal) into English. Laura Dierksmeier translated quotations from Santa Cruz's 16th century *Islario* from Spanish to English. We have included many direct quotations from primary sources to let the vivid formulations of the authors (albeit in translation) be read without the filter of our paraphrasing. We have also included these quotations to encourage the use of this article in the classroom. Source material has been clustered into two overarching categories: Places, People, and Culture (3.1), with subsections on Island Names and Locations (3.1.1), Population (3.1.2), Defence Training (3.1.3), Land and Architecture (3.1.4) and Harbours and Navigation (3.1.5), and a section on Resources (3.2), with subsections on Agriculture, Oil and Wine (3.2.1), Animals (3.2.2), Salt and Slavery (3.2.3) and Freshwater (3.2.4).

In lieu of mentioning the many high-quality publications about the Balearic Islands from the fields of history and archaeology, we briefly review publications contextualising the Balearic Islands within the field of Island Studies. Past publications within the field have concentrated on typologies (Ordinas & Binimelis, 2017) as well as tourism (Benítez-Aurioles, 2020; Pons et al., 2014; Royle, 2009) and pilgrimage destinations (Farinelli & Hayward, 2019), or on the subversion of tourist connotations (Picornell, 2020) or identity

[5] For assistance with questions about Catalan sources, we are indebted to Arnau Kuska.

[6] See also Schön and Dierksmeier (2021).

formation on Menorca in contradistinction to Mallorca through Talayotic culture (Amundson, 2021; Smith & Coll Sabater, 2021). We aim to supplement these publications through the collaboration of a classical archaeologist and an early modern historian.

2. Island Encyclopaedias

Islands are an integral part of the history of the ancient Mediterranean, and the Balearic Islands are no exception (Figure 2). Several classical writers, Greek and Latin, have considered the role islands played throughout history. For example, Herodotus and Thucydides considered the islands a symbol of freedom, appreciating their political and strategic situation. Conquering Islands was one of the fundamental aspects of the foreign policy of any expansionist power of the time. Pseudo-Xenophon, in the Constitution of the Athenians (II, 14-16, Loeb Version), proposes the idea that if Attica were an island, it would be invincible,[7] with an interesting concept of the island as a political-philosophical *topos*. In the Latin world, Livy (*passim*) describes how Rome tended to "ingratiate" certain key islands with the policy of external expansion. Pliny the Elder often considered the concept of the singularity of the islands, usually enunciating them in the final part of the territories described in the books about geography of his work (Pliny the Elder, III-VI, Loeb Version).

Figure 2 - Ptolemian Map of the Balearic Islands. © British Library Board - MS 111, f. 21r.)

[7] In Xenophon (1925, pp. 464-465). See also Thucydides (I, 143, 5) describing Pericles' strategy to use the fleet as if it were an island, to secure the population.

The very nature of islands led some authors to consider their 'isolated' and 'separate' nature, making them 'mythical', 'utopian', sometimes 'wild' or 'fantastic' places. The particular genre of *Nesiotika*/*Isolarii*, that is, the works that deal specifically with the discussion and description of the (Mediterranean) islands, has been examined in some recent works, where meticulous overviews of this genre are provided.[8] Here we present a brief outline intended for an interdisciplinary Island Studies audience.

During the Classical Age, the information provided by authors often concerned an island's settlement history, mythological and/or paradoxical/paradoxographic elements and particular natural or anthropic features. Other sources, instead focused on geographical and physical elements, such as island size, distance from the mainland, places and population, which would serve as a prototype for the *isolarii* of the early modern period. The first 'canonised' attestation of such a genre seems to be in the 4th century BCE, the *περὶ νήσων* ('About the islands') by Heraclides, transmitted by later authors and works. This testimony followed a much earlier tradition, such as the references to Hecataeus of Miletus ('Journey around the Earth', end of 6th to beginning of 5th century BCE) by later authors, even before considering, for example, the prelude to the *Iliad* and the *Odyssey*. Later on, this genre was carried on by Callimachus and Philostephanus of Cyrene (3rd century BCE), up to Diodorus Siculus (1st century BCE), whose fifth book of the *Bibliotheca Historica*, dedicated to islands, is the only complete one on this topic that has survived to this day.[9] Besides these, chapters or sections about islands in larger geographical works have survived, as is the case with the fundamental works of Strabo, Pomponius Mela, Pliny the Elder, Claudius Ptolemy, and the subsequent Solinus, Julius Honorius and Orosius, which largely summarise the earlier authors. These sources include a variety of types of geographical information, but they also include details about, for example, norms of dress, marriage customs or funeral customs.[10]

The *periplus* (from *periplein* 'to sail around') was a record of ports and coasts from antiquity used by Phoenician, Carthaginian, Greek and Roman navigators to circumnavigate islands or coastlines. *Peripli* are a genre of sources that often mention the islands of the Mediterranean. The *periplus* tradition and associated knowledge seem to have been established in the 6th century BCE: two archaic *peripli* would in fact be the basis of the information used later for the Periplus of Pseudo-Scylax in the 4th century BCE, up to the *Ora Maritima* of Festus Avienius, of the 4th century CE (Zucca, 1998, p. 14). Apart

[8] Highly recommended works for a more detailed overview include Paola Ceccarelli (1989) on the Classical Age, José Manuel Montesdeoca Medinas' (2001) work on Greco-Latin encyclopaedias up to and including *islarios* and, for the early modern period, George Tolias' chapter in the History of Cartography (2007) (Tolias' figure 8.5 on p. 274 displays a map of Mallorca from Antonio Millo's *isolario*, held in the Biblioteca Nazionale Marciana, Venice [MS. It. IV 2, 5540, fol. 54r0]), Stouraiti's article about early modern island sources produced in Venice (2013), and Wilson's chapter, where she argues "isolarii were exemplary public-making spaces" (2013, p. 102).

[9] A detailed overview can be found in Ceccarelli (1989).

[10] Examples about the Balearic Islands include: (on norms of dress): "And the Phoenicians are also spoken of as the first to clothe the people there in tunics with a broad border" (Strabo, III, 5, 1, Loeb Version); (on marriage customs): "[t]he Baleares have also an amazing custom which they observe in connection with their marriages; for during their wedding festivities the relatives and friends lie with the bride in turn, the oldest first and then the next oldest and the rest in order, and the last one to enjoy this privilege is the bridegroom" (Diodorus V, 18, Loeb Version); (on funeral customs): "[p]eculiar also and altogether strange is their practice regarding the burial of the dead; for they dismember the body with wooden knives, and then they place the pieces in a jar and pile upon it a heap of stones" (Diodorus V, 18, Loeb Version).

from these texts, we find several works on the same subject, describing the Mediterranean but also other geographical areas, such as the Black Sea and Red Sea, up to the Indian Ocean.[11]

During the medieval period, geographical treatises discussing islands in general (*de insulis*) abounded, but island-specific encyclopaedias are infrequent. One possible factor for fewer island compendiums at this time is the reduced expansionism when compared with the former periods (such as the Roman Empire) or later times (for example, the Spanish Empire). Isidore of Seville (c. 560-636 CE) is an exception, as the Spanish scholar and later Archbishop of Seville based his work on those of antiquity and described in some detail a number of islands in the 14th book of his Etymologies entitled: *The Earth and its parts*. With a subsection '*de insuli*', before continuing on to describe promontories (vii) and mountains (viii), Isidore explained his choice of islands, stating, "the best known and the biggest, which many of the ancients investigated with expert effort, should be noted" (7th century CE, 2010, XIV, vi, pp. 293-294). The three main Balearic Islands are included, with a history of their names and some detail about their warfare with slings and stones (Isidore of Seville [7th century CE] 2010, XIV, vi, p. 297).

During the Renaissance, prompted by a rereading of Greco-Roman works, ancient encyclopaedias were of direct influence on the production of island books that bore the name *isolario* in Italian, *islario* in Spanish or *insularum/insularium* in Latin (Tolias, 2007, p. 264) (Figure 3). *Isolarii* were produced predominately during the 15th and 17th centuries in Florence, Venice, and Genoa, although Spanish, Portuguese, French, and Ottoman authors complemented the Italian works.[12] *Isolarii* were produced by a broad range of authors with varying levels of competence, ranging from professional cartographers[13] (tasked with drawing precise maps) and cosmographers (teachers of geography) to mariners and travellers to booksellers and compilers who may have never set foot on an island. *Isolarii* written by pilots or mariners, like the *Insulario de tuto el Mare Mediteraneo* of Antonio Millo, may have been used "as didactic handbooks in some naval school" (Tselikas, 2006, p. xxvii).[14] One major limitation to *isolarii* is that these sources often contain only outsider perspectives. Some authors lived on islands and/or wrote based on their first-hand experience, but the extensive nature of these compendiums often resulted in considerable reliance on former publications.

[11] Eudoxus of Cyzicus, Periplus of the Indian Ocean (2nd century BCE), Agatharchides of Cnidus, On the Red Sea (2nd century BCE), Artemidorus of Ephesus, Periplus of the Inland Sea (2nd-1st century BCE), Unknown Greek merchant, Periplus of the Erythraean Sea (1st century CE), Arrian of Nicomedia, Periplus of the Euxine Sea (1st-2nd century CE), Marcian of Heraclea, Periplus of the Outer Sea (4th-5th century CE). See also Belfiore (2011).

[12] A contemporary *islario* of Pacific islands once under Spanish rule was compiled in the late 20th century by Landin Carrasco (1984).

[13] On the cartography of the Balearic Islands see: Garau (2000); Bauzà, Pons and Ginard (1986); Bär, Werner-Francisco and Runge (2004).

[14] Of the *isolarii* discussed in this article, Millo's offers the most detailed information about navigation. Descriptions such as the following about the harbour of Menorca include: "when you enter you must approach the coast from the north and go between the two stones and bring the anchors to stern" (Millo & Tselikas, [1582] 2006, p. 25). Navigation guides would develop to eventually make *isolarii* obsolete, as instruction manuals in the form of *Artes de Navigar* assumed a more prominent role in seafaring education. In addition to Antonio Millo, Bartolomeo Dalli Sonetti is also said to have had significant maritime experience (Donattini, 2000, p. 196).

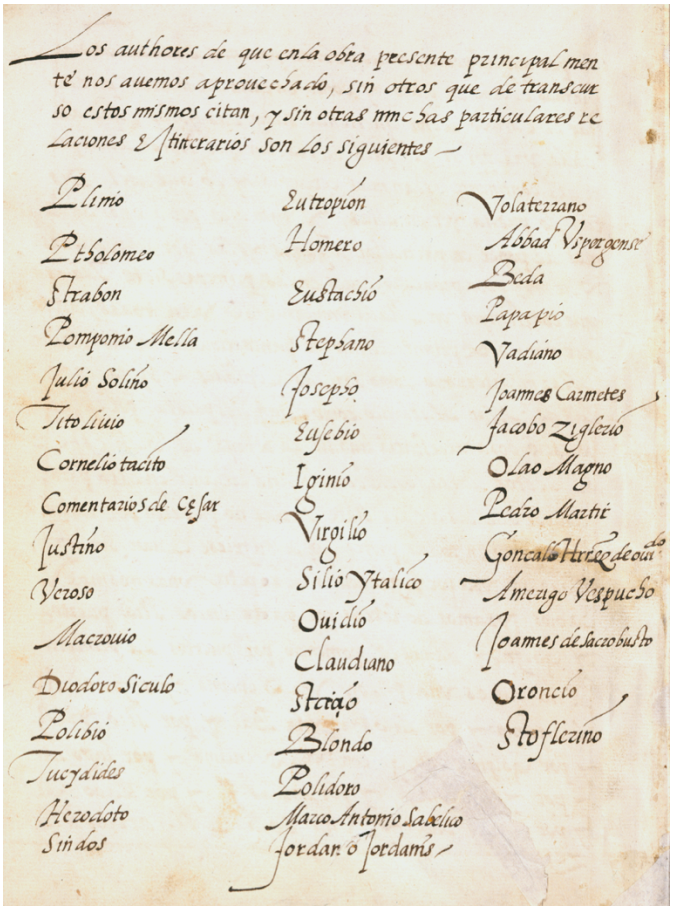
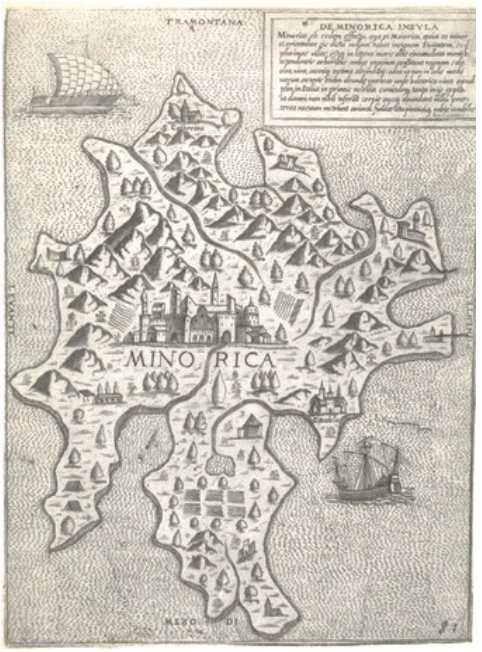


Figure 3 - Authors from antiquity listed as sources in Alonso de Santa Cruz's *Islario general de todas las islas del mundo*, 16th century. (Courtesy of the Biblioteca Nacional de España.)

Authors who were trained first and foremost as mariners provide mostly nautical information, including also historical accounts of their recent history.[15] Some island compendiums can be described better as island atlases. One example is Giovanni Francesco Camocio's *Isole famose, porti fortezze e terre maritime sottoposto alla ser. Ma. Sigria. Di Venecia, ad altri principi Christiani, et al sigor. Turco novamente poste de luz*, Venecia (ca. 1571 – 1572), with 87 maps, including Mallorca and Menorca (Figures 4 and 5).

[15] Piri Reis, for example, notes regarding a cove on Mallorca: "some ten miles from Kavu Firnientara… It was here that eleven of our comrades were killed in a fight, having been caught unawares by the infidels in a raid" ([1521] 1988, p. 1139). Only recent history is recounted by Piri Reis, such as when the Ottomans had captured the well-fortified castle of Santa Meíye harbour ("[o]nce with the late Kemal Reis we took that castle but now they have recovered it" ([1521] 1988, p. 1137).



Figures 4 and 5 - Maps of Mallorca and Menorca in Giovanni Francesco Camocio's *Isole famose*. (Images from the Renaissance Exploration Collection, courtesy of Stanford University Libraries – public domain.)

Isolarii were more often designed to fulfil the growing curiosity about places, historical sites and political events that captured the interest of armchair travellers. Authors tried to include whatever salacious information they could find, such as this description about Mallorca: "[t]hey were so fond of women that if one of the corsairs stole one of their women, they would take three or four men in ransom" (Santa Cruz, 16th century CE, 93r.).[16] Thanks to the numerous maps and images of the *isolarii*, the imagination of less educated or even illiterate people could be stimulated (Tolias, 2007, p. 283). Some sources were written in verse (Sonetti, Piri Reis) for entertainment or for ease of memorisation. The fact that many sources dwelled on sensational information might well be accounted for by the fact that some authors wrote predominately to make money, as some *isolarii* authors also published encyclopaedias of Venetian clothing or geological compilations of stones (Tolias, 2007, p. 281). Thus, authors of this genre of island encyclopaedias ranged from highly skilled maritime specialists to the "first learned tourists" (Pinet, 2011, p. 53). The readership was just as varied. Exclusive copies of *isolarii* with illuminated miniatures were dedicated to rulers (such as to Süleyman the Magnificent by Piri Reis) or religious men (like Cardinal Orsini by Buondelmonti).[17] Less expensive and smaller productions were intended for a general audience.

The 16th century Ottoman Admiral Piri Reis made his intentions for writing his encyclopaedia of islands, shorelines, and harbours explicit:

> *As for the reason why this book was written: learned persons during the reign of the Sultan of the World* [Süleyman II] *brought forth works on various branches of the sciences for his exalted state and felicitous court so that they might come into possession of the infinite favour of that fortunate sovereign as well as of repute and honour. In that hope, I, Piri Reis, the weakest and most powerless of God's servants, the son of Haci Muhammaed, the brother of the late Kemal Reis, have written a book to place before the divine door of his majesty the sultan, which, though done to the best of my powers, will be but a poor keepsake of the science of navigation and of the mariner's art; for to date, no one has left behind so valuable a work.* (Reis [1521] 1988, p. 39)

In the self-depreciatory tone with which one addressed rulers of the period, Piri Reis explained his intention to gain a good reputation with the Sultan and reported that no book of compiled maritime knowledge yet existed. Reis certainly produced a work that would go on to make him a "pioneer of naval and maritime history" (Ministry of Cultures of the Turkish Republic, Ankara, Introduction to Reis, 1988). Nonetheless, the good reputation created by his onerous work was not enough to save him from execution by decapitation in 1554 for allegedly abandoning a military campaign followed by defections of oarsmen and a sinking ship.

[16] This tradition came surely from Pseudo-Aristotle (De Mir. Auscentury, 837a, 88, 30-36), who writes that: "They also say that the Iberians who live there [in the islands of Gymnesiae] are so much given to women, that they will give the merchants four or five male persons in exchange for one female. On service with the Carthaginians, when they receive their pay, they apparently buy nothing but women." And then from Diodorus: "[t]he Baliares are of all men the fondest of women and value them so highly above everything else that, when any of their women are seized by visiting pirates and carried off, they will give as ransom for a single woman three and even four men." The account is narrated also by Matal (1601).

[17] Buondelmonti wrote to the Cardinal: "I am sending this to you, so that you can have the pleasure of letting your thoughts wander when you are tired" (Tolias, 2007, p. 266).

The *islario* by Spaniard Alonso de Santa Cruz (1505-1567) reminds us of the risk authors took even when recording seemingly objective geographical information, as his manuscript has evidence of heavy censorship by the Spanish Inquisition.[18] Passages that could cast a negative image on the King of Spain were crossed out. For example, even after lauding the King for his "magnanimous" implementation of Catholicism in all of the reigns of his kingdom, the prologue to Santa Cruz's *islario* has many sentences heavily crossed out by a censoring authority. Additional references to God and the King (with the abbreviation S.M for *Su Majestad* = his majesty) were also inserted. It can hardly be overstated that authors writing during the early modern period were not free to incorporate any type of source they deemed interesting about islands for the benefit of the reader. Access to the public sphere could be obtained only after passing the hurdles of censorship. Due to limitations on early modern authors, ancient writers were so heavily cited because they had an authority that was not quickly questioned. Citing new sources of information involved substantial risk, and one could be condemned, for example by the Spanish Inquisition, for mentioning the name of a person who would later be revealed as a Lutheran.[19] When evaluating the information in *isolarii*, it is thus important to consider the challenges authors faced when writing and to try to read between the lines to access subtle or implicit information.

The introduction to Antonio Millo's *isolario* is similar to that of Piri Reis, although he pairs his humble aims with a less modest account of his competence, buttressed by the veracity of his informants:

> *I now therefore dare offer the present humble and weak work with the certainty, I hope, that it will be acceptable and will enjoy such dignity as that of the vast sun among the smallest of stars.... I thus decided to draw the present Isolario, as well as a Portolano, that includes all the islands, ports and bays found in the Mediterranean Sea that are so far known to navigators, and to me in particular, who have personally been to many of them or have been informed of them by a number of other well versed and experience me ... From Venice, 20 May, 1582.* (Millo & Tselikas, [1582] 2006, p. 5)

Grasping the number of islands and generating a definition of an island were admitted as hardships by 16th century authors like Piri Reis (Reis, [1521] 1988, p. 41), and descriptions tended to focus on islands large enough to be drawn on scaled maps, giving preference to inhabited islands and especially those with significant roles in maritime history. An early modern *isolario* covered either exclusively Greek Islands, islands in the Mediterranean, islands in the Atlantic Ocean (such as the Portuguese Valentim Fernandes' *De insulis et peregrinatione Lusitanorum*) (1997; see also Hendrich 2007), or even attempted to be a general atlas with geographical descriptions of "all of the islands of the world" (as did Alonso de Santa Cruz's *Islario general de todas las islas del mundo*, 16th century, 717 pages), which contains 111 island maps (Figure 6). Thus, *Isolarii* contained a wide range of information, such as the topics detailed in Table 1.

[18] We have accessed this source through the Biblioteca Digital Hispánica of the Biblioteca Nacional de España. Sources with brief references to the Balearic Islands include: De Beauvais ([1624], 1964, Book 6, Ch. 19); De Beauvais ([1624] 1965, Book 1, Ch. 83, p. 30); Münster ([1628], 2007, pp. 129-131); De Saint-Víctor ([12th century] (1988), III, 136, l. 110111 and YYVIII, p. 160, l. 788ff.); Von Tilbury ([12th century] 2009, p. 195); Wanochius (1682, p. 7) and Angelicus ([1601] 1964, Cap. LXXIX, p. 665).

[19] Also, the norms of scholarship during the early modern period often privileged established written accounts over oral accounts as reputable sources of information.

Figure 6 - Alonso de Santa Cruz's *Islario general de todas las islas del mundo*, 16th century. (Courtesy of the Biblioteca Nacional de España.)

People, Places and Culture	**Resources**
Famous People	Soil Fertility and Agriculture
Population	Climate
Conquest Battles	Minerals
Piracy	Freshwater Sources
Major Cities	Livestock
Harbours and Ports	Threats (Rodents, Snakes)
Monasteries and Churches	Labour / Slavery
Marriage and Funeral Customs	Maritime Trade
Norms of Dress	Evaluations of Resource Value

Table 1: Topics Often Included in Historical Island Encyclopaedias

A major limitation of the genre of *isolarii* is that these sources often contain only the perspectives of outsiders. If one compares island encyclopaedias with, for example, the *Descripció Particular de l'illa de Mallorca e viles*, a Catalan atlas of Mallorca compiled by J. Binimelis in 1593 (transcribed edition from 2014), it immediately becomes clear that the local sources are much more informative. Even though Mallorca was a centre of cartography and geography in the late Middle Ages and early modern period, island encyclopaedias that explicitly deal with the Balearic Islands did not recognise the impact and influence of this highly specialised knowledge. The value of island encyclopaedias is thus not in the absolute truth of their information, but in their ability to show us what knowledge about islands was circulated over hundreds of years.

3. The Balearic Islands in Island Encyclopaedias

The main sources employed in this article can be seen in Table 2 and Figure 7. The most detailed and comprehensive classical authors concerning the Balearics were Diodorus, Strabo and Pliny the Elder, who provide the most useful information regarding location, culture, customs and traditions, landscape and nature, natural and anthropic resources.[20] For the early modern period, the works of Santa Cruz (Figures 8 and 9), Piri Reis (Figures 10 and 11), Benedetto Bordone, Antonio Millo and Jean Matal (Figures 12 and 13) contain the most detail about the Balearics.

Author	**Short Title**	**Time Period**
Diodorus Siculus	*Bibliotheca historica*	1st century BCE
Strabo	*Geographica*	1st c. BCE-1st c. CE
Pliny the Elder	*Naturalis Historia*	1st c. CE
Santa Cruz	*Islario general*	16th c. CE
Piri Reis	*Kitab-i Bahriye*	1521 CE
Benedetto Bordone	*Isolario*	1528 CE
Antonio Millo	*Isulario et Portolano*	1582 CE
Jean Matal	*Insularium*	1601 CE

Table 2: Selection of Island Encyclopaedias describing the Balearic Islands in detail.

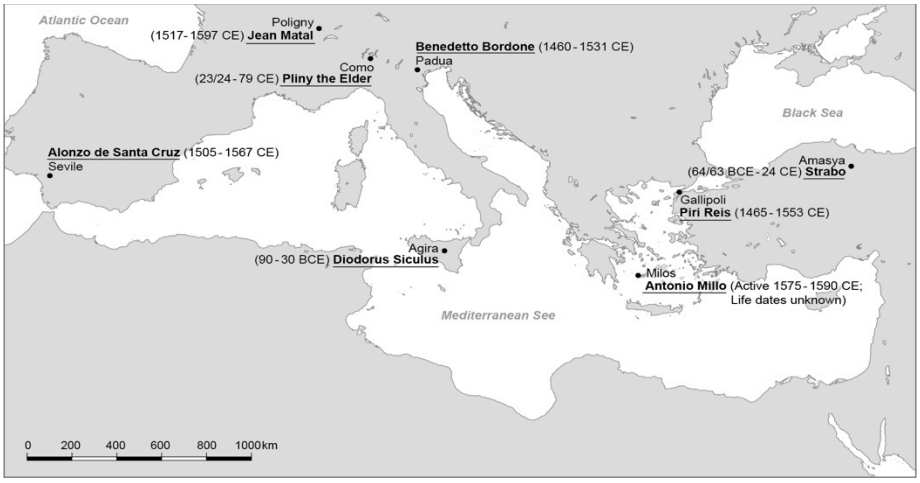
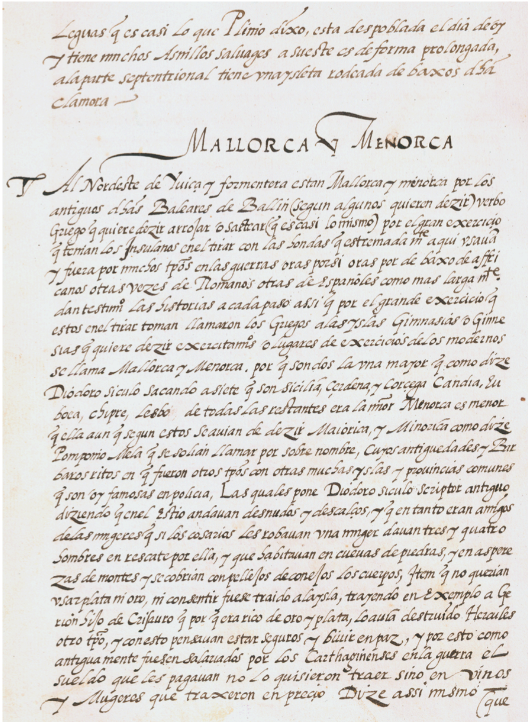


Figure 7 - Birth locations of authors with detailed descriptions of the Balearic Islands in Island Encyclopaedias. (Map by Richard Szydlak.)

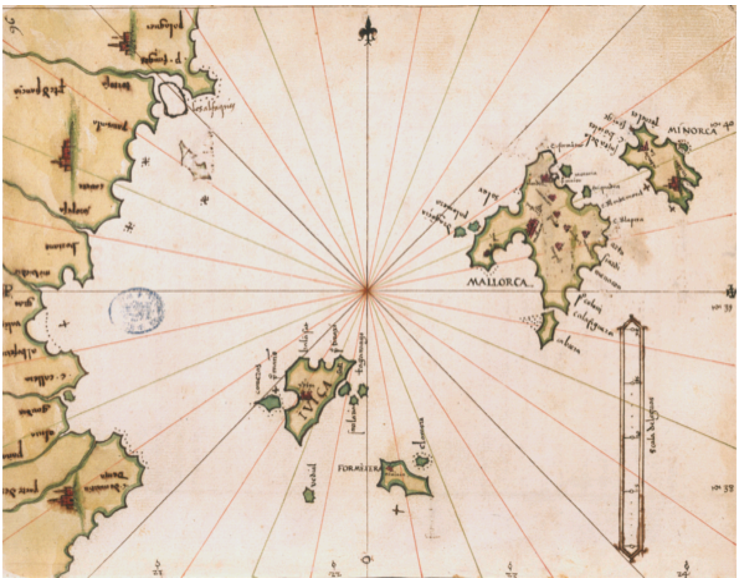
[20] There are a range of publications on this subject, see above all, Muñoz (1974); Blanes i Blanes et al. (1990); Zucca (1998, pp. 15-35); Mayer Olivé (2005); Amengual i Batle (2017). Other classical authors have treated or mentioned the Balearic Islands in wider works or histories, often taking up information provided by earlier authors. Additional sources which discuss the Balearics in less detail include: Lycophron (4th-3rd century BCE), Pseudo-Aristotles (3rd century BCE), Livy (1st century BCE-1st century CE), Pomponius Mela (1st century CE), Dionysius Periegetes (1st-2nd century CE), Ptolemy (2nd century CE), Dio Cassius (2nd-3rd century CE), Lucius Ampelius (2nd-3rd century CE), Julius Solinus (3rd-4th century CE), Festus Avienius (4th century CE), Severus of Menorca (4th-5th century CE), Julius Honorius (4th-5th century CE), Orosius (4th-5th century CE), Marcian of Heraclea (4th-5th century CE), Martianus Capella (5th century CE) and Stephanus of Byzantium (6th century CE).



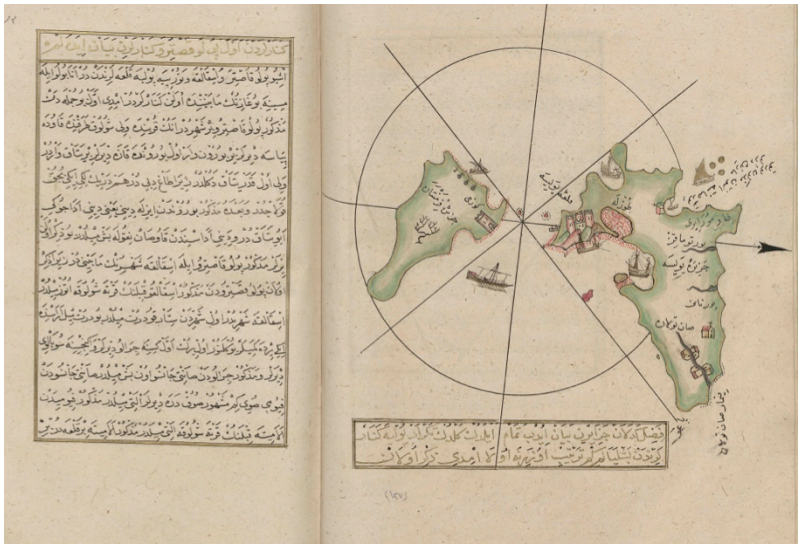
Leguas q es casi lo que Plinio dixo, esta despoblada el dia de oy
y tiene muchos Asnillos saluages a sueste es de forma prolongada,
ala parte septentrional tiene vna ysleta rodeada de baxos dsa
clamora

MALLORCA Y MENORCA

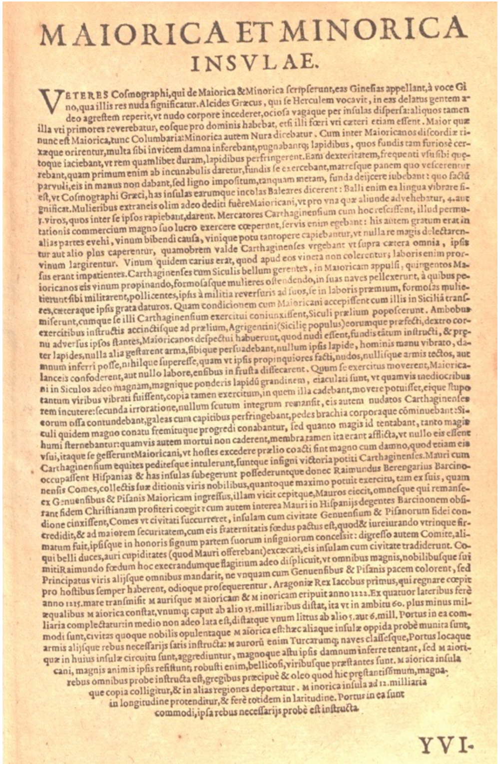
Al Nordeste de Yuiça y formentera estan Mallorca y menorca por los
antiguos dichas Baleares de Ballin (segun algunos quieren dezir) verbo
Griego q quiere dezir arrojar o saltar (q es casi lo mismo) por el gran exercicio
q tenian los Insulanos enel tirar con las hondas q estremadamente aqui vsaua
y fuera por muchos tpōs enlas guerras oras por si oras por de baxo de afri
canos otras vezes de Romanos otras de Españoles como mas larga mente
dan testim° las historias a cada paso assi q por el grande exercicio q
estos enel tirar toman llamaron los Griegos alas yslas Gimnasias o Gimne
sias q quiere dezir exercitamientos o lugares de exercicios delos modernos
se llama Mallorca y Menorca. por q son dos la vna mayor q como dize
Diodoro Siculo sacando a siete q son Sicilia, Cerdeña, y Corcega Candia, Eu
boea, Chipre, Lesbo de todas las restantes era la mayor Menorca es menor
q ella aun q segun estos se auian de dezir Maiorica, y Minorica como dize
Pomponio Mela q se solian llamar por sobre nombre, Cuyos antiguedades y Bar
baros ritos en q fueron otros tpōs con otras muchas yslas y prouincias comunes
q son oy famosas en policia, Las quales pone Diodoro siculo scriptor antiguo
diziendo q enel Estio andauan desnudos y descalços, y q en tanto eran amigos
delas mugeres q si los cosarios les robauan vna muger dauan tres y quatro
hombres en rescate por ella, y que habitauan en cueuas de piedras, y en aspere
zas de montes y se cobrian con pellejos de conejos los cuerpos, Item q no querian
vsar plata ni oro, ni consentir fuese traido ala ysla, trayendo en exemplo a Ge
rion hijo de Crisauro q por q era rico de oro y plata, lo auia destruido Hercules
otro tpō, y con esto pensauan estar seguros y biuir en paz, y por esto como
antiguamente fuesen salariados por los Carthaginenses en la guerra el
sueldo que les pagauan no lo quisieron traer sino en vinos
y Mugeres que traxeron en precio Dize assi mismo que



Figures 8 and 9 - Description of Mallorca and Menorca and map of Balearic Islands by Alonso de Santa Cruz Map (*Islario general de todas las islas del mundo*, 16th century CE. (Courtesy of the Biblioteca Nacional de España.)



Figures 10 and 11 - Maps of Mallorca and Ibiza in Piri Reis' *Kitab-I Bahriye*, 1521 CE. (Courtesy of the Turkish Ministry of Education).



MAIORICA ET MINORICA INSVLAE.

VETERES Cosmographi, qui de Maiorica & Minorica scripserunt, eas Ginesias appellant, à voce Gi
no, qua illis res nuda significatur. Alcides Græcus, qui se Herculem vocavit, in eas delatus gentem a-
deo agrestem reperit, vt nudo corpore incederet, ociosa vagaque per insulas dispersa: aliquos tamen
illa vti primores reverebatur, eosque pro dominis habebat, etsi illi fœri vti cæteri etiam essent. Maior quæ
nunc est Maiorica, tunc Columbaria: Minorica autem Nura dicebatur. Cum inter Maioricanos discordiæ ri-
xæque orirentur, multa sibi invicem damna inferebant, pugnabantq; lapidibus, quos fundis tam furiosè cer-
toque iaciebant, vt rem quamlibet duram, lapidibus perfringerent. Eam dexteritatem, frequenti vsu sibi quę-
rebant, quam primum enim ab incunabulis daretur, fundis se exercebant, matresque panem quo vescerentur
parvuli, eis in manus non dabant, sed ligno impositum, tanquam metam, funda deijcere iubebant: quo factũ
est, vt Cosmographi Græci, has insulas earumque incolas Baleares dicerent: Balli enim ea lingua vibrare si-
gnificat. Mulieribus extraneis olim adeo dediti fuère Maioricani, vt pro vna quæ aliunde advehebatur, 4. aut
5. viros, quos inter se ipsos rapiebant, darent. Mercatores Carthaginensium cum hoc rescissent, illud permu-
tationis commercium magno suo lucro exercere cœperunt, servis enim egebant: his autem gratum erat in
alias partes evehi, vinum bibendi causa, vinique potu tantopere capiebantur, vt nulla re magis delectaren-
tur aut alio plus caperentur, quamobrem valde Carthaginenses vrgebant vt supra cætera omnia, ipsis
vinum largirentur. Vinum quidem carius erat, quod apud eos vineta non colerentur; laboris enim pror-
sus erant impatientes. Carthaginenses cum Siculis bellum gerentes, in Maioricam appulsi, quingentos Ma-
ioricanos eis vinum propinando, formosasque mulieres ostendendo, in suas naves pellexerunt, à quibus pe-
tierunt sibi militarent, pollicentes, ipsis à militia reversuris ad suos, se in laboris præmium, formosas mulie-
res, cæteraque ipsis grata daturos. Quam condicionem cum Maioricani accepissent cum illis in Siciliã trans-
miserunt, cumque se illi Carthaginensium exercitui coniunxissent, Siculi prælium poposcerunt. Ambobus
exercitibus instructis accinctisque ad prælium, Agrigentini (Sicilię populus) eorumque præfecti, dextro cor-
nu adversus ipsos stantes, Maioricanos despectui habuerunt, quod nudi essent, fundis tãtum instructi, & præ-
ter lapides, nulla alia gestarent arma, sibique persuadebant, nullum ipsis lapide, hominis manu vibrato, da-
mnum inferri posse, nihilque superesse, quam vt ipsis propinquiores facti, nudos, nullisque armis tectos, aut
lanceis confoderent, aut nullo labore, ensibus in frusta dissecarent. Quum se exercitus moverent, Maiorica-
ni in Siculos adeo magnam, magnique ponderis lapidũ grandinem, eiaculati sunt, vt quamvis mediocribus
tantum viribus vibrati fuissent, copia tamen exercitum, in quem illa cadebant, movere potuisset, eique stupo-
rem incutere: secunda irroratione, nullum scutum integrum remansit, eis autem nudatos Carthaginenses
eorum ossa contundebant, galeas cum capitibus perfringebant, pedes brachia corporaque cõminuebant: Si-
culi quidem magno conatu fremituque progredi conabantur, sed quanto magis id tentabant, tanto magis
humi sternebantur: quamvis autem mortui non caderent, membra tamen ita erant afflicta, vt nullo eis essent
vsui, itaque se gesserunt Maioricani, vt hostes excedere prælio coacti sint magno cum damno, quod etiam eis
Carthaginensium equites peditesque intulerunt, suntque insigni victoria potiti Carthaginenses. Mauri cum
occupassent Hispanias & has insulas subegerunt possederuntque donec Raimundus Berengarius Barcino-
nensis Comes, collectis suæ ditionis viris nobilibus, quantoque maximo potuit exercitu, tam ex suis, quam
ex Genuensibus & Pisanis Maioricam ingressus, illam vicit cepitque, Mauros eiecit, omnesque qui remanse-
rant fidem Christianam profiteri coegit: cum autem interea Mauri in Hispanijs degentes Barcinonem obsi-
dione cinxissent, Comes vt civitati succurreret, insulam cum civitate Genuensium & Pisanorum fidei con-
credidit, & ad maiorem securitatem, cum eis fraternitatis fœdus pactus est, quod & iureiurando vtrinque fir-
matum fuit, ipsisque in honoris signum partem suorum insigniorum concessit: digresso autem Comite, ali-
qui belli duces, auri cupiditates (quod Mauri offerebant) excæcati, eis insulam cum civitate tradiderunt. Co-
miti Raimundo fœdum hoc execrandumque flagitium adeo displicuit, vt omnibus magnis, nobilibusque sui
Principatus viris alijsque omnibus mandarit, ne vnquam cum Genuensibus & Pisanis pacem colorent, sed
pro hostibus semper haberent, odioque prosequerentur. Aragoniæ Rex Iacobus primus, qui regnare cœpit
anno 1215. mare transmisit Maurisque Maioricam & Minoricam eripuit anno 1222. Ex quatuor lateribus ferè
æqualibus Maiorica constat, vnumq; caput ab alio 15. milliaribus distat, ita vt in ambitu 60. plus minus mil-
liaria complectatur: in medio non adeo lata est, distatque vnum littus ab alio 5. aut 6. mill. Portus in ea com-
modi sunt, civitas quoque nobilis opulentaque Maiorica est: hæc aliaque insulæ oppida probè munita sunt,
armis alijsque rebus necessarijs satis instructa: Maurorũ enim Turcarumq; naves classesque, Portus locaque
quæ in huius insulæ circuitu sunt, aggrediuntur, magnoque astu ipsis damnum inferre tentant, sed Maiori-
cani, magnis animis ipsis resistunt; robusti enim, bellicosi, viribusque præstantes sunt. Maiorica insula
rebus omnibus probe instructa est, gregibus præcipuè & oleo quod hic pręstantissimum, magna-
que copia colligitur, & in alias regiones deportatur. Minorica insula ad 12. milliaria
in longitudine protenditur, & ferè totidem in laritudine. Portus in ea sunt
commodi, ipsa rebus necessarijs probè est instructa.

YVI.

Figures 12 and 13 – Descriptions of Mallorca and Menorca and map of the Balearic Islands in Jean Matal's *Isularium.* (Courtesy of the Bayerische Staatsbibliothek.)

3.1. Places, People, and Culture

3.1.1 Island Names and Locations

The Balearic Islands have long been considered two distinct groups of islands. Mallorca and Menorca (The Gymnesian Islands) were considered one unit, and Ibiza and Formentera (The Pityusic Islands), the other. Ancient authors often refer to the two separate identities of the island groups, as do early modern authors who cite directly from "the ancient cosmographers, who wrote about Mallorca and Menorca" (Matal, 1601). Diodorus, for example, writes about Ibiza that:

> *comes first an island called Pityussa, the name being due to the multitude of pine – trees (pityes) which grow throughout it. It lies out in the open sea and is distant from the Pillars of Heracles a voyage of three days and as many nights, from Libya a day and a night, and from Iberia one day; and in size it is about as large as Corcyra.* (V, 16)

About Mallorca and Minorca, he writes that:

> *There are other islands lying opposite Iberia, which the Greeks call Gymnesiae because the inhabitants go naked (gymnoi) of clothing in the summer time, but which the inhabitants of the islands and the Romans call Baliarides because in the hurling (ballein) of large stones with slings the natives are the most skillful of all men. The larger of these is the largest of all islands after the seven, Sicily, Sardinia, Cyprus, Crete, Euboea, Cyrnus, and Lesbos, and it is a day's voyage distant from Iberia; the smaller lies more to the east.* (V, 17)[21]

Strabo likewise writes that:

> *One of the Pityussae is called Ebusus, and it has a city of the same name; the circuit of the island is four hundred stadia, with the breadth and the length about equal. The other island, Ophiussa* [nowadays Formentera], *which lies near Ebusus, is desert and much smaller. Of the Gymnesiae, the larger has two cities, Palma and Pollentia, one of which, Pollentia, is situated in the eastern part of the island, and the other in the western.* (III, 5, 1)[22]

Pliny the Elder gives information not only on these four main islands, but also on some of the smaller islands around them:

> *The first of all the islands scattered over these seas are called with the Greeks the Pityussae, from the pine trees that grow on them; each of these islands is now named Ebusus, and in treaty with Rome, the channel between them being narrow. Their area is 46 miles, and their distance from Denia 87½ miles, which*

[21] Another tradition, reported from Hecataeus by Stephanus Byzantius, assigned to the two Gymnesiae the names of *Kromyousa* and *Melousa*. On the different ancient names of the Baleares, in addition to the sources mentioned in previous footnotes, see also Curchin (2010). For Palma de Mallorca in particular, see Vallori Márquez (2018).

[22] Strabo continues, the "length of the island falls but little short of six hundred stadia, and the breadth but little short of two hundred—although Artemidorus has stated the length and breadth at double these figures. The smaller of the two is about two hundred and seventy stadia distant from Pollentia."

> *is the distance by land from Denia to New Carthage, while at the same distance from the Pityussae out to sea are the two Balearic Islands, and opposite the River Xucar lies Colubraria… The larger island* [Mallorca], *is 100 miles in length and 475 in circumference… The smaller island* [Minorca] *is 30 miles away from* [Mallorca]; *its length is 40 miles and its circumference 150…* (III, 5, pp. 76-78)[23]

Ptolemy, in his Geography (II, 6, 77-78), provided names and coordinates of the two Pityussae and of the four main cities of the two Gymnesiae, too (Ptolemaios, 2006, pp. 196-197).

The location of the Balearic Islands made them historically vulnerable to pirate and conquest attacks. Jean Matal reported that:

> *the ships and fleets of the Mauritanians and Turks attack the ports and places that are around this island* [Mallorca]*, and attempt to bring damage to them with great cunning, but the Mallorcans resist with great souls; for they are strong, warlike and excellent in strength*. (1601)

In one striking example from antiquity, recounted also by Santa Cruz in the 16th century, islanders allegedly eschewed richness, such as gold and silver, to make themselves less attractive for potential invaders (noting that they only accepted payment in "wine and women" (92v.). Pseudo-Aristotle (3rd century BCE), in the *De Mirabilibus Auscultationibus* ('On Marvellous Things Heard'), wrote:

> *None of them is allowed to possess any gold or silver article. It is added that this is done with a view to preventing them from bringing in gold, because Heracles made an expedition against Iberia because of the wealth of the inhabitants.* (837a, 88, Teubner Version)

Diodorus' account is worth quoting as well:

> *Silver and gold money is not used by them at all, and as a general practice its importation into the island is prevented, the reason they offer being that of old Heracles made an expedition against Geryones, who was the son of Chrysaor and possessed both silver and gold in abundance. Consequently, in order that their possessions should consist in that against which no one would have designs, they have made wealth in gold and silver alien from themselves. And so, in keeping with this decision of theirs, when in early times they served once in the campaigns of the Carthaginians, they did not bring back their pay to their native land but spent it all upon the purchase of women and wine.* (V, 17)

Thus, several authors from antiquity and the early modern period reported accounts of islanders aiming to reduce their attractiveness to outsiders.

[23] Pliny continues: "Twelve miles out to sea from Mallorca is Cabrera, treacherous for shipwrecks, and right off the region of Palma lie Menaria and Tiquadra and the small Hannibalis." About the interpretation of these last small islands, see Blanes i Blanes et al. (1990, pp. 17-18); Rosselló Calafell (2012). For archaeological findings in some of these smaller islands, see e.g., Camps Coll (1962) for Cabrera and Conejera.

3.1.2 Population

About the population and the demographics of the Balearic Islands, Diodorus gives us one indication (V, 17), namely that for the two Gymnesiae, "both islands have… a multitude of inhabitants numbering more than thirty thousand", while the other reference of the classical tradition is provided by Strabo (III, 5, 1), "he [Metellus] brought thither as colonists three thousand of the Romans who were in Iberia" for the foundation of the two main cities of Mallorca, Palma and Pollentia.[24] Regarding the two Pytiussae, we have no direct evidence about demography from literary sources. About Ebusus, according to a calculation on the evidence of the necropolis of Puig de Molins, in Ibiza, instead, it could be estimated that the population of the main centre in the middle-late Punic age could count between 3,600 and 4,500 inhabitants (Muñoz, 1974, p. 15, note 16). For Formentera, however, in an indirect way Strabo (III, 5, 1) tells us that the "other island, Ophiussa, which lies near Ebusus, is desert and much smaller", as well as Pomponius Mela, who reports the fact (II, 7, 125-126) that Colubraria is "uninhabitable" because of snakes. Anthropic presence on this island is however testified for the Punic and Roman ages by material findings,[25] as well as for the prehistoric and Islamic age.[26]

The early modern sources do not attempt their own updated census data for the island populations and cite directly from ancient sources to reference an estimated 30,000 inhabitants on each island of Mallorca and Menorca, and 5,000 residents in "the city of Mallorca", referring to what we today know as Palma (Santa Cruz, n.d., 16th century, 92v.).[27] Santa Cruz mentions the residents as a peace-loving people, "even though Metello named them 'the Balearics' because they started wars to defend themselves from the privateers (*corsarios*) that roamed the sea and attacked them frequently" (n.d., 16th century, 92r.).

3.1.3 Defence Training

Most people today know about Sparta's history of military training, but the impressive reports about the Balearic Island residents are less well known. Authors from antiquity were fascinated by the Balearics' custom of defence through use of a sling to hurl large stones. About the slings, Diodorus wrote:

> *Their equipment for fighting consists of three slings, and of these they keep one around the head, another around the belly, and the third in the hands. In the business of war, they hurl much larger stones than do any other slingers, and with such force that the missile seems to have been shot, as it were, from a catapult; consequently, in their assaults upon walled cities, they strike the defenders on the battlements and disable them, and in pitched battles they crush both shields and helmets and every kind of protective armour.* (V, 18)

[24] Discussion in Marimon Ribas (2010).
[25] See for example González Villaescusa and Dies Cusí (1990-91).
[26] See for example Marlasca Martín and López Garí (2014).
[27] On the current-day population of Mallorca compared to other Mediterranean islands, see (Picornell, 2014, p. 225)

Strabo stated:

> *still they are spoken of as the best of slingers. And this art they have practiced assiduously, so it is said, ever since the Phoenicians took possession of the islands…. with three slings worn round the head, of black-tufted rush (that is, a species of rope-rush, out of which the ropes are woven…) the sling with the long straps for the long shots, the one with the short straps for the shots at short range, and the medium sling for the medium shots… This is why Metellus, when he was approaching the islands from the sea, stretched hides above the decks as a protection against the slings.* (III, 5, 1)

In addition to numerous brief references that echo that tradition, Pliny described the inhabitants of the Balearic Islands as "formidable in warfare with the sling" and the following, Dio Cassius: "for the natives from a distance kept using their slings, in which art they were masters."[28] Early modern author, Jean Matal, includes an additional description in his *Insularium* about the superiority of Balearic fighters, who were said to be underestimated for their lack of clothing and weapons:

> *When the Carthaginians were leading a war against the Siculians, they landed in Mallorca, offering wine and exhibiting wonderful women…* [who they promised] *as a reward for their effort… Since the Mallorcans accepted this condition, they transported them to Sicily and joined the army of the Carthaginians, demanding war against the Siculi… the Agrigentini (a people of the Siculi)… had disregard of the Mallorcans, since they were naked, equipped only with slingshots, and except the stones, did not carry any other weapon. They thought that no stone, thrown by a man's hand, could do any damage, and that nothing would remain after they had come closer, naked, and protected by no weapon… When the armies moved, the Mallorcans threw towards the Siculi such a great hail of stones and of great weight…* [the Siculi] *did not fall dead, but their limbs were so afflicted as to be of no utility, and thus the Mallorcans behaved, and the enemies were forced to withdraw… and the Carthaginians won the insignia of victory*.

Several authors report that children were only fed after they hit targets during their training. Diodorus explained the reason for their precision to be due to their demanding training:

> *And they are so accurate in their aim that in the majority of cases they never miss the target before them. The reason for this is the continual practice which they get from childhood, in that their mothers compel them, while still young boys, to use the sling continually; for there is set up before them as a target a piece of bread fastened to a stake, and the novice is not permitted to eat until he has hit the bread, whereupon he takes it from his mother with her permission and devours it.* (V, 18)

Strabo reported that: "from childhood up, that they would not so much as give bread to their children unless they first hit it with the sling" (III, 5, 1). Santa Cruz, Matal, and Bordone, during the 16th century CE, followed the ancient authors directly to mention that

[28] About this topic, see other references in Blanes i Blanes et al. (1990, pp. 34-38).

mothers had the customs of requiring their children to hit certain targets during their sling training before they were given food. While Santa Cruz tended to summarise ancient authors curtly, Bordone did the opposite, embellishing wherever possible; Matal was somewhere in between.[29]

3.1.4 Land and Architecture

Concerning the characteristics of the landscape and anthropic constructions, we can refer to only a few hints in the sources, although they are interesting. In addition to the mention of pine trees (Pliny the Elder, III, 5, 76), Diodorus writes that "the island is broken up at intervals by notable plains and highlands" (V, 16). Regarding dwellings, a substantial difference between Ebusus and the Gymnesiae is made. Indeed, Diodorus in reference to Ibiza reports that it:

> *has a city named Eresus, a colony of the Carthaginians. And it also possesses excellent harbours, huge walls, and a multitude of well-constructed houses. Its inhabitants consist of barbarians of every nationality, but Phoenicians prevail. The date of the founding of the colony falls one hundred and sixty years after the settlement of Carthage.* (V, 16)[30]

while he points out that in the Gymnesiae:

> *Their dwellings they make under hollow rocks, or they dig out holes along the faces of sharp crags, in general putting many parts of them underground, and in these they pass their time, having an eye both to the shelter and to the safety which such homes afford.* (V, 17) [31]

Then, in Roman times, Pliny the Elder reports that the Gymnesiae had cities and towns with different levels of status:

> *The larger island* [Mallorca]*… contains towns of Roman citizen colonists, Palma and Pollentia, towns with Latin rights, Cinium and Tucim; a treaty town of Bocchoris, no longer existing. The smaller island* [Minorca]*… contains the towns of Iamo, Sanisera and Magon.* (III, 5, 77-78)[32]

[29] It is not apparent whether Bordone based his accounts on still additional sources we have not been able to access or if he invented additional details for his readership, similar perhaps to the genre of historical fiction we know from today.

[30] The date of the founding of Carthage given by Timaeus, whom Diodorus is probably following here, was 814 BCE, so this means 654 BCE for Ebusus. References to archaeological evidence of ancient architecture in Ibiza are, for example, Díes Cusí and Matamoros de Villa (1991) or Ramón Torres (2014).

[31] Surely following an older tradition, probably again from Timaeus (see e.g., Muñoz, 1974, pp. 14-16). For discussion of domestic groups and dwellings on Mallorca and Minorca between 6th and 2nd century BCE, see Torres Gomariz (2020).

[32] Regarding all the issues concerning the identification of these various cities and their political status, see e.g., Blanes i Blanes et al. (1990, pp. 69-77); Zucca (1998, pp. 150-172); also Zucca (2012).

The information above from antiquity was copied directly by Santa Cruz in his account of the islands, citing Diodorus, Strabo and Pliny,[33] also adding more updated information. Palma and Pollencia are named as the two major cities on Mallorca. Palma, with its good port, is reported as not only the biggest and best city on the island but one of the best that there is in Spain, with very beautiful buildings of homes "almost as nice as the ones in Barcelona" (n.d., 16th century, 94r.). With 5,000 residents, he concluded, Palma "is a very noble city" (94r.). The port of Palma was reported to have many large sea contracts for merchants, who transported fine wools to many places in the Levant, and olives across the Mediterranean. Santa Cruz reported that Palma boasted many professionals from all trades.[34]

Santa Cruz mentions the Cathedral of Palma as well attended, and many other "devote monasteries" (94r.). Palma is described as not only "abundant in all things necessary" but also possessing fruit, "which had an intense taste and was very much esteemed" (94r.).[35] Santa Cruz continues: Also, Alcudia, with 1,500 residents (*vecinos*) was "abundant with all things necessary because it also has many sea contracts… and two ports" (94r.). Santa Cruz mentions also smaller islands, including: Meraria, Triquadra (described as the homeland of Hannibal), Sa Dragonera, Palmeria and Cabrera (94v.).[36]

On Menorca, Santa Cruz describes a very good port and a city called Maon (Mahón, officially Maó in Catalan), which was built "according to some" by a Carthaginian captain named Mahon. The city was said to have had up to 1,000 residents and was "well served with everything necessary for life" (94v.). After the destruction of the city by Barbarossa in 1535, it was reported by Santa Cruz to be almost rebuilt at the time of his writing (94v.). In the north of Menorca, Ciutadella was described to have more than 500 residents, also self-sustainable with its resources and in possession of a good port. Menorca was overall described as follows:

> *It is a small island close to Spain and separated from the continent by little space. At the mouth of the river Ebro, called Alfaques and by the Arabs called Albuferras, there are some estuaries or discharge points to the sea where they catch a lot of fish.* (94v.)

3.1.5 Harbours and Navigation

The harbours of the Balearic Islands were described by authors of antiquity and especially by authors of the early modern period. Strabo describes that the Gymnesiae "also have good harbours, though the harbours are full of reefs at the entrances, so that there is need of vigilance on the part of those who sail in" (III, 5, 1). Piri Reis goes into depth on the topic of the harbours of the Balearic Islands. He includes navigational hazards for entering

[33] Santa Cruz includes that a city taken from the Carthaginians was populated 160 years after the foundation of Carthage, celebrated for its good and well-located port with many inhabitants, populated mostly by "barbarians, principally Phoenicians" (n.d., 16th century, 92r.).

[34] This is a notable point when we consider that a lack of occupational pluralism is a typical trait of insularity, at least for smaller islands (Royle, 2004, Chapter 3). For a well-researched study on trade in the region, see Martín (2001).

[35] Given its perishable nature and the limited transport options before the invention of the steam engine, fruit was considered a luxury good for many mainland residents at this time period.

[36] Cabrera was described as not populated and only containing a lookout to observe ships approaching (94v.). On the history of Alcudia, including transcriptions of primary sources, see Ventayol Suau ([1927] 1982).

(shoals, islets, hidden reefs, rocks, shallow ground), points of orientation (towers, castles, breakwater walls) and guard towers with lookout points ("[i]f this lookout sees any ship at sea he blows a trumpet in the direction of Mayarko [Mallorca] and so advises them of her" (Reis, [1521] 1988, p. 1141). Anchorage points for mooring ships based on their size are carefully recounted, along with coves described for protection of ships from wind. All the harbours are described as natural, except for the port of Palma of Mallorca, and all Balearic harbours were described by Reis as safe havens. With a navigator's perspective in mind, Reis provides the circumference for each island. Mallorca is recorded as 250 miles in circumference, Ibiza as 140 miles, Menorca as 130.[37]

Antonio Millo, a navigator and mariner like Piri Reis, focuses on the navigational hazards around harbours in the Balearic Islands. For example, about Ibiza he wrote:

> *I warn you that there are many small reefs along this course, and outside the harbour mouth, going northwest, there is another high reef called Vediani with another small reef next to it, and you can reach safety on these if need be*. (Millo &Tselikas, [1582] 2006, p. 14)

Like Piri Reis, Millo notes that Palma has a man-made pier "where small vessels moor, but stout ships anchor out to sea in the bay". Millo focuses most of his description on water depth, orientation points like fortresses, islets and sandbanks that present dangers to navigation, compass directions, distances, anchorage advice, small harbours where you can check the hull of your boat, and locations where one can find freshwater (Millo & Tselikas, [1582] 2006, pp. 14-25). Overall, early modern authors were impressed by the harbours of the Balearic Islands. Benedetto Bordone likewise reported: "these islands have good, indeed excellent harbours; although Menorca is small, it is not inferior in virtue to Mallorca, and both are fertile" (1528, n.p.).[38]

3.2. Resources

3.2.1 Agriculture, Oil, and Wine

Classical texts provide some indications about the environment and the natural resources on the Balearic Islands. Accounts about the fertility of the soil and the possibilities of agricultural resources are varied. The Pytiussae islands (Ibiza and Formentera) and the Gymnesiae (Mallorca and Menorca) are mentioned separately. Regarding the former (and essentially Ibiza), Diodorus reports that "[t]he island is only moderately fertile", and regarding the Gymnesiae, "both islands have good land which produces fruits" (V, 16-18). Strabo takes up the same tradition:

> *Now although it* [Menorca] *falls far short of the larger island in size, it is in no respect inferior thereto in the excellence of its soil; for both are blessed with fertility… And it is on account of the fertility of these regions that the inhabitants are peaceable, as is also the case with the people on the island of Ebusus… On account of the same fertility of their islands, however, the*

[37] Antonio Millo does the same, reporting 200 miles of coastline for Mallorca and 90 miles for Ibiza, but the circumference for Menorca is not included (Millo & Tselikas, [1582] 2006, pp. 14, 20).

[38] The name of Menorca comes from the Latin *insula minor*, (in Spanish, *menor*) meaning smaller island. The island name is thus defined in contradistinction to Mallorca (the larger island).

> *inhabitants are ever the object of plots, albeit they are peaceable… indeed, the landholders reap profitable crops from the soil.* (III, 5, 1-2)

Similar mentions by Latin authors, such as Pomponius Mela, report that Ibiza is "not fertile, however, of wheat, but more generous for other products" (II, 7, 125-126) and Livy "[t]hereupon they crossed over to the smaller of the Balearic Islands, fertile in its land" (XXXVII, 8).[39]

The most noticeable differentiation on this subject, evidently carried over from earlier times and remained established in historical sources, is the one that saw the lack of olive oil in the Balearic. Gymnesiae, where the oil obtained from the mastic tree was widely used instead, was reported as early in the 3rd C BCE by Pseudo-Aristotle: "[i]n the islands of Gymnesiae… oil is said to have come not from olives, but from the terebinth, which corresponds in every respect to olive-oil," followed later by Diodorus "and they are altogether lacking in olive-oil and therefore prepare an oil from the mastich-tree" (V, 17).

The Pytiussae seem to benefit from a different tradition, since according again to Diodorus "[t]he island [Ibiza] is only moderately fertile… but it has olive trees which are engrafted upon the wild olive" (V, 16). Archaeological evidence of oil mills and lithic presses for oil, thus confirming the existence of this aspect of the islands' economy, have been found in Ibiza, for example, in various late-Punic and Roman rural settlements such as Can Toni de Ca Na Marina (Pérez Ballester & Gómez Bellard, 2009, p. 151), Can Pep d'en Curt-Coll, Can Sorà-Ses Païses de Cala d'Hort, Can Fita and Can Corda (Puig Moragón et al., 2004, pp. 28-32, 51-58.)

First summarising directly from ancient description, Santa Cruz recounts the former lack of oil and notes that the bodies are anointed with a certain ointment (94r.). Later in his island description, Santa Cruz provides an updated account to describe what has come to dominate the rural landscape of Mallorca, the existence of large, high-quality olive groves (*olivares*) (94r.). Piri Reis praises the quality of Mallorcan olive oil, "for there is no olive oil known that is as fine and pure as that of Mayarko [Mallorca]" ([1521] 1988, p. 1141). Jean Matal likewise praises Mallorcan oil, "which is excellent here and is gathered in great abundance and is exported to other regions" (1601).

Wine production was reported to be different. Diodorus mentioned that Ibiza has "little land that is suitable for the vine," whereas the two Gymnesiae Islands "for their food products they raise no wine whatsoever; consequently, the inhabitants are one and all exceedingly addicted to indulgence in wine because of the scarcity of it among them" (V, 16-17). There is a curious contention by G. Charles-Picard that Carthaginian wine, in

[39] Other hints are given by literary sources about the "consumption" of bread if struck with a sling, as well as the Plinian reference (XVIII, 13, 67) for military bread (which must have one-third more grain), where "some species of wheat already have the required weight by themselves, such as that of the Balearic Islands: a bushel of triticum gives 35 pounds of bread". For the archaeology of agriculture and ancient cultivation/plow signs in Punic-Roman Ibiza, see Marlasca Martín and López Garí (2006); Costa Ribas and Graziani Echávarri (2020). Other agricultural products typical of these islands are reported mostly by Pliny: the figs of Ibiza (XV, 21, 82), the sea squills (*Drimia maritima*) of the Balearic Islands (XIX, 30, 94). On these Balearics' products, see also Blanes i Blanes *et al.* (1990, pp. 39-45); Zucca (1998, pp. 173-188). About the sea squills, Zucca (1998, p. 181, note 13), reports that "to their diffusion refers certainly the name "Kromioussa" assigned by Hecataeus to Mallorca", while this same name (meaning "onion") is, according to Curchin (2010, p. 156), perhaps referred to the shape of the island itself.

particular that of Capo Bon, was not particularly appreciated on the external market; however, it was sold "to the Barbarians", in particular to the Balearics, "in order to be able to buy good wine from the Greeks" (1958, p. 184, note 49).

In fact, at least still during the 3rd century BCE, wine was mainly imported (Muñoz, 1974, pp. 15-16), although the same author reports possible archaeological evidence of vine stumps in the underwater find of El Sec, in Mallorca, which would date the introduction of this wine culture in the island to at least during the 4th century BCE (Muñoz, 1974, p. 16, note 19). In Punic-Roman Ibiza, as mentioned above, agricultural trenches, possible signs also of wine cultivation, have been studied (Marlasca Martín & López Garí, 2006), which would confirm the quote of Diodorus.

According to Pliny the Elder, on the other hand, Balearic wine is among the best ones of Spain:

> *Among Spanish wines, the ones from Leetania are famous for their abundance, whereas thanks to their exquisiteness, the ones from Tarragona and Lauro, together with the ones from Balearic Islands, compete with the best Italian wines.* (XIV, 8, 71)

This certainly implies a better specialisation in wine production between the previous sources (Timaeus for the first half of the 3rd century BCE) and the Plinian era.[40] Moreover, there is the mention provided by Bishop Severus (24, 2-3) in 418 CE of a place used as a *vinea* on the island of Minorca, including a wine press and a basin for wine making (Zucca, 1998, p. 174). The early modern sources recount Diodorus' description of the Balearic inhabitants as "very fond of wine although they do not have much". Future research could compare local sources to consider what accounts for the discrepancies of information by foreign authors.

3.2.2 Animals

Regarding breeding and animals, again we find the main reference in Diodorus (V, 16 – 18). For Ibiza, of "all the products of the island, they say that the softness of its wool stands first in excellence",[41] for Minorca, "the smaller lies more to the east and maintains great droves and flocks of every kind of animal, especially of mules, which stand very high and are exceptionally strong", although an archeozoological study seems to disprove this claim, at least as far as Mallorca is concerned (Muñoz, 1974, p. 15). For the Balearics, Diodorus says the same: "[an oil] which they mix with the fat from pigs, and with this they anoint their bodies," thus implicitly speaking also of pig farms. Pliny writes that:

> *The Balearic Islands send the porphyrio, an even more splendid bird than the one mentioned above. In those islands the buzzard of the hawk family is also in repute for the table, and the vipio as well—that is their name for the smaller crane.* (X, 69, 135)[42]

[40] See also Blanes i Blanes et al. (1990, p. 39). About the Balearic wine, also see Étienne (2006).

[41] So, also Pomponius Mela (II, 7,, 125-126).

[42] Pliny also reports about the cod of Ebusus region (IX, 32, 68), the snails, loved by the islanders (VIII, 59, 140 and XXX, 15, 45), the *cuniculi* (a kind of hare, VIII, 83, 226).

The strong presence of snakes on Formentera (its name Ophiussa/Colubraria means serpent in Greek and Latin respectively), is also reported anecdotally by almost all ancient authors. Pomponius Mela states that:

> *In front of it there is Colubraria, of which it is necessary to remember that, although it is swarming with numerous and evil kinds of snakes and is therefore uninhabitable, nevertheless for those who arrive there and define a space using the soil from Ibiza, it is at that point safe and without danger, while for those same snakes that are used to attack those who arrive there, the nature of that soil makes them flee far away and with terror.* (II, 7, 125-126)

For Pliny:

> *The soil of Iviza drives away snakes, but that of Colubraria breeds snakes, and consequently that island is dangerous to all people except those who bring earth from Iviza; the Greeks called it Ophiussa* [Snake Island]. (III, 5, 78-79)

He also states that, "Iviza does not breed rabbits either, which ravage the crops of the Balearics": the problem of rabbits, so, does not seem to be attested for Ibiza. Strabo, in fact, reports that on the Balearic Islands:

> *In addition to the fruitfulness of the soil, there is also the fact that no injurious animal can easily be found in the Gymnesiae. For even the rabbits there, it is said, are not native, but the stock sprang from a male and female brought over by some person from the opposite mainland; and this stock was, for a fact, so numerous at first, that they even overturned houses and trees by burrowing beneath them, and that, as I have said,*[43] *the people were forced to have recourse to the Romans. At present, however, the ease with which the rabbits are caught prevents the pest from prevailing; indeed, the landholders reap profitable crops from the soil.* (III, 5, 2)[44]

Santa Cruz, many centuries later, paraphrased Strabo directly from the above quotation, reporting fertile soil on Formentera and citing Metello's description of Mallorca "much fertility of the soil from not raising any harmful animals there" (n.d., 16th century, 93r.) As a typical characteristic of islands to not have endemic mammalian species, Santa Cruz's citation of ancient scholars accords with findings of biogeographers for islands in general. Only rabbits are described as found on Mallorca, and it is noted by Santa Cruz that they were not endemic species but brought there from other places. Piri Reis describes an explosion of rabbits on an islet opposite from "Kabrara" on Mallorca.

> *On this islet there are so many rabbits that their number defies description. Once when we happened to take rest on this island our men caught three hundred seventy or so rabbits.* (Reis, [1521] 1988, p. 1135).

[43] See Pliny (III, 2, 6).

[44] Julius Solinus, in the 3rd-4th century CE, follows the same tradition about snakes and rabbits (23, 11-12).

Bordone likewise reported:

> *from Minorca a male and a female were brought there, and so they multiplied, that so many rabbits were made from them, that many houses and trees fell, and in so much danger and fear put the inhabitants, that they were forced to send to Rome for help; but after having had themselves practice in hunting, killing those did not leave for the future the possibility of multiplying.* (1528, n.p.)

Animals on the Balearic Islands were reported as both resources and as threats to resources. The mental image of an island overrun with rabbits was a profitable inclusion for writers seeking to interest a broad readership and played into the trope of islands as locations of the bizarre and remarkable.

3.2.3 Salt and Slavery

Among the mineral resources on the Balearic Islands, a major source of income stemmed from salt mines. Active in all four of the main Balearic Islands, in both Punic and Roman times, salt production was connected also to *garum* (fish salting) production facilities (Zucca, 1998, pp. 176-177).[45] Piri Reis reported centuries later:

> *There is a salt mine on Pevise [Ibiza] island opposite this channel. It has a pier where ships take on cargoes of salt. It is a well-known salt mine and fifty or sixty bargias a year come here and load up with salt. There are many Turkish and Arab captives in this salt mine. Indeed, in the whole country of Gedelan [Balearic Islands] there is no place known to have more slaves at work than this salt mine has*. (Reis, [1521] 1988, 1149)

Jean Matal likewise reported about Ibiza's salt: "here is a large trade in salt, which is extracted here and exported to other regions" (1601). Benedetto Bordone reported the same phenomenon, going into much detail about the connection between salt production and slavery, describing some of the conditions under which the slaves lived.[46] Bordone's words are reproduced here at length, as they give us a chance potentially to reconstruct the plight of voiceless people, from whom normally no written records remain. Bordone writes:

> *And on Ibiza there is a great quantity of salt, for which the islanders make a lot of money, and for this reason the corsairs here bring many slaves to sell, which are bought by the islanders for this purpose, that they load the salt on*

[45] Other resources produced include *purpura*, with an indication of the various species of shells and *Murex* found in archaeological contexts of *baphia* (dye works) in Ibiza and Formentera (but also Menorca and Mallorca). The climax of the production of *purpura* in Ibiza is fixed during the Lower Empire, probably reaching the Byzantine period. See Costa Ribas (2018, pp. 253-270); see also Zucca (1998, pp. 140-141, 176). The *sinopis* is also mentioned, cited by both Vitruvius (VII, 2) and Pliny (XXXV, 13, 31), which is a kind of colour (probably the red ochre), used in painting or as a pharmaceutical product; also Blanes i Blanes et al (1990, pp. 46-48); Zucca (1998, pp. 176). Finally, it is worth mentioning the metal resources, in particular the lead and the galena (a lead sulfide): about these, see Perelló Mateo and Llull Estarellas (2019), with bibliography.

[46] About slavery on Mallorca, see Mummey (2016). On slavery in early modern Spain, see Hershenzon (2018), Martín (2014) and Martín and Periáñez (2014).

> *the boats of merchants, who come here for that, and to this purpose there are always many boats to load, and the inhabitants are obliged at their own expense to load them for a certain price, and so the owners want their slaves to bring a quantity of salt every day to these boats, which quantity is a certain number of measures imposed by their laws…*
>
> *And so in this exercise they always keep them naked and chained with irons at their feet, with a piece of cloth to cover them for the places that need to be hidden, and if by chance any of these slaves should not be able to work well, with an iron rod their owners give them many beatings; then, when the evening comes, their masters, even if they are chained in this way, lead them to a place with a wall, which is built for this purpose, and here, locked up they are fed with bran bread and water, and for this reason this island is very rich in money.* (Bordone, 1528, n.p.)

Bordone provides us also with a detailed account of the Ibizan slaves' alleged capacity to obtain freedom if they worked extra hard and did not spend their small remuneration:

> *These islanders have so much good, and by their laws are so constrained, that whenever a slave wishes to be freed from such servitude and to regain his freedom, he can have it by returning to the owner the amount of money that was paid by him in buying him, and the owner is then obliged to set him free.*
>
> *And if, by chance, the said slave does not have the way to free himself, this is granted to him by the laws, which state that if he brings the amount of salt that he owes, and if he wishes to work harder to bring salt in the time that he has left, he will be paid by the Commune, and the money that he earns for this service will be kept by the Commune; and when he has earned the amount that his owner paid for him, the Commune will give it to his owner, and the said slave will remain free. But the other slaves, who similarly work and care not for freedom, but with their companions enjoy that money which they earn, and of that servitude are satisfied, even unto death.* (Bordone 1528, n.p.)

Santa Cruz provides us with an almost identical, albeit shortened account of slaves working in salt mines on Ibiza (n.d. 16th century, 92r.). These accounts are particularly arresting and lengthy compared to the other descriptions about the Balearic Islands, and we are left to speculate as to why their authors included these passages in-depth. Was this the only information about Ibiza they had available? Was there an implicit condemnation of these practices? Not all authors of the time period mentioned slavery, as mariner Antonio Millo wrote about Ibiza's salt with no labour descriptions, showing us how different island encyclopaedias could be, depending on who wrote them.[47]

3.2.4 Freshwater

Piri Reis and Antonio Millo demonstrate their local experience by recounting freshwater sources on the islands throughout their compendiums and the Balearic Islands are no

[47] Millo wrote about Ibiza ("Gievizza"): "opposite the city there are two small reefs and the harbour where ships load their cargo of salt" (Millo &Tselikas, [1582] 2006, p. 14).

exception. Piri Reis describes Mallorca as "well-watered" ([1521] 1988, 1133), with descriptions of rivers near harbours (1137), and a river flowing on Ibiza is likewise described near Santa Olarya, but the description of Menorca's water resource is more detailed. On Menorca, near the harbour Portori on the northern side of the entrance to the Gulf of Mahon, Reis reports:

> *a natural spring that gushes forth from the base of a fig tree. Now there is never any lack of Arab or Turkish caiques at this spring for they take on water there. While there is a castle above, there is a mountain between it and the spring so no precautions are needed"* (1988, 1129).

Antonio Millo likewise provides the locations of freshwater sources, such as when you enter Phedro harbour of Menorca from the southeast, "about 100 paces high… where there is a tower" (Millo & Tselikas, [1582] 2006, p. 25).

The classical authors do not provide us with any particular information on the water resources, as their descriptions were seldom oriented towards practical use. Comparing the Balearic Islands to other areas of the central-western Mediterranean, in particular to those with a semi-arid climate such as western Sicily or southern Sardinia, which are located at approximately the same latitude, in accordance with the description of Piri Reis, it can be assumed that also during antiquity the resource of "freshwater" was neither abundant, nor was it scarce. Rivers, natural watercourses, springs (albeit of a limited size), and vegetation denote that these islands and their inhabitants could count on certain amounts of drinking water.

In this aspect of the presence or possibility of water use, a difference between the Pytiussae and Gymnesiae must also be considered, even though it might be slim. For the former, there are some climatological studies and references,[48] which describe the semi-arid nature of the two main islands, Ibiza and Formentera,[49] as well as a significant seasonality of rainfall typical of this climate zone, with greater intensity during the autumn-winter months and a scarcity, sometimes very patent, for the summer months. As for the subsoil, Ibiza is endowed with clayey sediments that allow the formation of an underground aquifer, which was certainly drawn upon in ancient times. In Formentera, however, the limestone lithography and karst phenomena prevent this, and an underground aquifer is absent here. Since prehistoric times, nevertheless, human communities have been able to rely on a very particular method of water supply, consisting of caves in which they could draw a sufficient amount of water (Marlasca Martin & López Gari, 2014). For the two Gymnesiae, on the other hand, a slightly higher annual rainfall is denoted with greater rainfall in the northern part of Mallorca, that is, in the area with the highest altitudes.[50] This data, together with a greater quantity of springs and streams, evidently guaranteed a larger water possibility than the two islands located further southwest.

[48] Gómez Bellard (1995, pp. 444-445); Puig Moragón *et al.* (2004, pp. 18-19). The data concerning the average temperature and the average rainfall referred to derive from the State Meteorological Agency of Spain (Agencia Estatal de Meteorología, AEMET), for the period 1981-2010.

[49] These islands currently have an annual rainfall of about 400 mm p.a. and an average annual temperature of 18°C for both (about 11°C in winter and 25°C in summer).

[50] Currently, Mallorca averages 450 mm/year of rainfall, and Mallorca has 550 mm/year. The average annual temperature of Mallorca is about 18°C and 17°C for Menorca.

While the written sources from antiquity do not provide information on water fonts, the archaeological sources show the use of different systems for water supplies. During the Punic and Roman period, there is evidence of some wells that drew water from the underground aquifers and cisterns that collected rainwater in private, craft and rural contexts as well as in worship buildings.[51] Surely there were water structures, maybe public, also to supply sailors and ships, both commercial and military, which passed or stayed and departed from here. Finally, there is evidence of the presence of at least two aqueducts of Roman times, one in Mallorca[52] and one in Ibiza.[53]

Future Research

Descriptions of the Balearic Islands in historical island encyclopaedias leave open numerous lines for future research. After the completion of our investigations, an additional source came to our attention, courtesy of the Biblioteca Statale in Siena, Italy, which contains detailed information about the Balearic Islands. The *Isolario ossia descrizione delle isole del Mediterraneo*, an anonymous manuscript in Italian, contains 12 pages of descriptions of the Balearic Islands (258-270), including separate sections on Sa Dragonera and the Gulf of Alcudia.[54] This source is one example left for future research.

Cooperation with geographers, anthropologists, economists, and scholars from cultural studies and digital humanities, among others, could lead to many possibilities for future interdisciplinary research. For example, Island Studies colleagues could consider collaboration on one of the following questions:

- What was the impact of the historical 'common knowledge' about the Balearic Islands on trade partners, immigrants, and islander identity formation?
- Were island encyclopaedias read and cited by local Balearic residents in the past?
- How did the history of one resource (such as salt, freshwater, wine, or oil) influence the history of the Balearic Islands and its global encounters?
- How does the Balearic Islanders' use of non-coin currencies contribute to the larger history of island money?
- Can historical island encyclopaedias provide information about cultural heritage or outsider perceptions of islanders for use in (virtual) museums?
- Can descriptions of no-longer standing architecture help scholars from the digital humanities reconstruct models of former buildings?

[51] There are many examples from Ibiza: cfr. Puig Moragón et al. (2004, pp. 31-32, 45-51), with bibliography; Ramón Torres (2012); Marlasca Martín and López Garí (2019); in Palma de Mallorca, in the military camp of Son Espases Vell (see Estarellas Ordinas, Merino Santisteban and Torres Orell (2012, pp. 35-38); in the sanctuary of Sa Galera (see Martín Gordón & Balboa Lagunero (2020, pp. 140-142), to mention only a few.

[52] This led the waters of the spring of Ternelles to Pollentia, with a path of just less than 13 km, probably supplying some thermal buildings of the city (Zucca, 1998, p. 151). About the Roman bridge of Pollentia and the aqueduct-road system, cf. Cerdà Juan (1978, pp. 20-21, 26-27).

[53] Aqueduct of Ibiza (Ebusus), built thanks to the munificence of members of the gens Cornelia, for the Municipium Flavium Ebusum: cfr. Veny Meliá (1965, pp. 215-218, n. 191); also, Muñoz (1974, pp. 24); Zucca (1998, pp. 160, 267-268, n. 56).

[54] Konrad Kretschmer (1909) concludes that this source was written by two authors due to the change in handwriting. We are indebted to Miriam Kroiher for bringing this to our attention.

Island encyclopaedias make a direct contribution to research into the reception of antique sources into later time periods. Historians of social, cultural, and religious history will find in *isolarii* descriptions of religious practices, cultural traditions, languages, local terminology, diet, and norms of dress. The genre of *isolarii* could be compared with travel narratives describing the same islands around the same time period. The role of censorship for authors of island encyclopaedias is also a path for future research, where one could examine censored passages, using for example the work of Santa Cruz.[55] Those interested in the history of island cartography will find ample material in *isolarii* for teaching (Kouremenos & Dierksmeier, 2020).[56]

The past availability and use of freshwater on the Balearic Islands during antiquity is one very interesting topic for future research, not least because it has not yet been studied comprehensively. Such a study could provide a specific overview of the archaeological structures connected to water supplies and management, as well as aspects of technology, demographics and socio-political life, as for example how these structures evolved over time, how many there were, how accessible they were and to whom, how much and in what way they changed due to the construction of aqueducts, one of the most important monuments in this sense in antiquity. Likewise, an in-depth study of archive sources for the early modern period could provide insights into the history of water use, management, and challenges. For example, records held in the Arxiu del Regne de Mallorca include material on city water decrees (*Decrets de l'aigua de la Ciutat)*, water payments (*Libre de grácies de pagament de l'aigua*), water mill guilds (*libre del ofici dels moliners*), in addition to hospital records, lawsuits, canal repair records, and records of academic societies on water technologies.[57]

This pilot study compared only descriptions of one archipelago, which could be done for many other island groups or islands. As many *isolarii* deal exclusively with the Aegean, the Aegean islands could yield even more results. Alternatively, it would be worth comparing many island descriptions for one topic, such as one of those listed in Table 1 (e.g., piracy). A comparative topical analysis could then consider local sources to reveal differences between external and internal perceptions, and/or be compared with mainland descriptions to ascertain whether historical descriptions appear to be island-specific. Last, future publications will hopefully complement our work with research from other regions of the world.[58]

Conclusions

This article has compiled descriptions of the Balearic Islands in island encyclopaedias from antiquity through the early modern era, clustering descriptions of the islands' respective

[55] Often censored passages were simply crossed out, although some censors used hot metal to burn out the unorthodox words.

[56] The University of Sassari Postgraduate Courses in Archaeological Heritage in Oristano, Sardinia, have a program entitled 'Nesiotika', whose focus includes the Balearic Islands (see university website for details).

[57] For an overview of the sources available in the archive, see Urgell (2000). For studies on the history of water use, conflicts, management, and maintenance on Mallorca, see: Reyes García Hurtado and Rey Castelao (2016), Nogué, Puncernau and Centre d'Estudis Comarcals de Banyoles (2014), Sebastián (2010), Gomila (2000), Tudela (1992) and Costa I Llobera (1947).

[58] Such as the forthcoming work of Gang Hong on historical Chinese island encyclopaedias.

places, people, culture, and resources (agriculture, oil, wine, animals, salt, and freshwater). Authors of *Nesiotikà*, *peripli*, *isolarii*, *islarios*, and *de insulis*, were in some ways Island Studies authors *avant la lettre,* sharing an interest to compare information about specific islands. Early modern authors, such as Alonso de Santa Cruz, Benedetto Bordone and Jean Matal based their descriptions largely on those from antiquity, demonstrating the still resonant authority of Diodorus, Strabo, and Pliny. *Isolarii* by admiral Piri Reis and the mariner Antonio Millo were based explicitly on first-hand experience and concentrated predominately on the ports and navigational hazards of the Balearic Islands. Their descriptions included also details about natural resources, but these sources by seamen were otherwise largely absent of cultural commentary. The practicality of the information provided depended in large part on whether or not the author had visited the Balearic Islands himself and the reason he decided to write, or was commissioned to write, his island book.

One major limitation to the genre of *isolarii* is the dominance of outsider perspectives. When island encyclopaedias are compared with, for example, a locally produced Catalan atlas of Mallorca created by J. Binimelis in 1593, it is immediately apparent that local sources are significantly more informative.[59] Thus, historical island encyclopaedias teach us more about the history of common knowledge about islands, than about the history of the islands themselves. It is not until the 18th century that decidedly more weight is given to first-hand information and to the incorporation of many different forms of non-book knowledge, typical of the Enlightenment. Consequently, the merit of historical island encyclopaedias sources for the field of Island Studies is not in the absolute veracity of their material but in the chance to see which information was distributed about certain islands for more than a thousand years, to compare differences between authors, and to reflect on the repercussions that information had for islanders.

Acknowledgements:

This research has been funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) within the collaborative research centre SFB 1070 ResourceCultures – project number SFB1070/3 and within the DFG Network 'Island Studies Network, project number 452312841. Three research assistants helped us to locate sources, proofread this article, and format the bibliography; we are indebted to Arnau Kuska, Vincent Laun, and Miriam Kroiher. Any remaining errors are our own. We sincerely thank Philip Hayward, Adam Grydehøy, José Manuel Montesdeoca Medina, Ferruh Özpilavcı, Güngör Öğüt, and the anonymous reviewers for their assistance.

Archival Sources

Finland
Digitaaliset Aineistot
https://digi.kansalliskirjasto.fi/teos/binding/2199157?page=1
Wanochius, Andreas Jacobi, *Dissertatio geopraphico-historica, de insulis*, 1682

Germany
Bayrische StaatsBibliothek

[59] The text by Binimelis will be analysed in more depth in a future publication by Dierksmeier.

https://daten.digitale-sammlungen.de/0009/bsb00093631/images/index.html?id=00093631&groesser=&fip=qrsewqsdasewqxdsydewqsdaseayayztsqrs&no=21&seite=5
Matal, Jean, *Insularium Orbis Aliquot Insularum, Tabulis Aeneis Delineationem Continens, Coloniae Agrippinae*, Köln, 1601

Italy
Biblioteca Statale in Siena, Italy
Isolario ossia descrizzione delle isole del Mediterraneo (K.11.14)

Spain
Biblioteca Digital Hispánica of the Biblioteca Nacional de España
http://bdh.bne.es/bnesearch/detalle/bdh0000149359
Alonso de Santa Cruz, *Islario general de todas las islas del mundo*, 16th century, RES/38.

Turkey
Süleymaniye Manuscript Library, Ayasofya, Turkey
Manuscript collection number 02612, p. 270b & 272b.

UK
British Library Digitized Manuscripts
http://www.bl.uk/manuscripts/FullDisplay.aspx?ref=Burney_MS_111
Ptolemian Map of the Balearic Islands, MS 111, f. 21r

USA
The Renaissance Exploration Collection, Stanford University Libraries, USA
https://exhibits.stanford.edu/renaissance-exploration/catalog/cb466fd5827
Camocio, Giovanni Francesco and Bertelli, Donato, *Isole famose porti, fortezze, e terre maritime sottoposte alla Ser.ma Sig.ria di Venetia ad altri principi Christiani, et al Sig. or Turco, nouame[n]te poste in luce*.

Primary References

Angelicus, B. (1964). *De rerum Proprietatibus*. Minerva. (Original work published 1601 CE.)

Belfiore, S. (Ed.) (2011). *Il geografo e l'editore. Marciano di Eraclea e i peripli antichi*. Aracne. (Original work published ca. 3rd – 5th century CE)

Biblioteca Digital Hispánica. (n.d.) Biblioteca Nacional de España. http://bdh.bne.es/bnesearch/detalle/bdh0000149359

Binimelis, J. (2014). *Descripció Particular de l'illa de Mallorca e viles.* Publicacions de la Universitat de València: Institut Cartogràfic de Catalunya. (Original work published 1593 CE.)

Bordone, B. (1528 CE). *Libro di Benedetto Bordone, nel qual si ragiona de tutte l'Isole del mondo: Con li lor moni antichi e moderni, historie, favole, e modi del loro vivere, ed in qual parte del mare stanno ed in qual parallele e clima giacciono*. Vinegia. (Facsimile reprint edition.)

De Beauvais, V. (1964). *Speculum quadruplex sive Speculum maius I. Speculum naturale*. Akademische Druck- u. Verlagsanstalt. (Original work published 1624 CE.)

De Beauvais, V. (1965). *Speculum quadruplex sive Speculum maius IV. Speculum historiale*. Akademische Druck- u. Verlagsanstalt. (Original work published 1624 CE.)

De Saint-Victor, H. (1988). *La "Descriptio mappe mundi" de Hugues de Saint-Victor: Texte inédit avec introduction et commentaire* (P. Gautier Dalché, Ed.). Études Augustiniennes. (Original work published 12th century CE.)

Farinelli, M. & Hayward, P. (2019). Place, visibility and perception: The materiality of Es Vedrà and its enfolding within New Age discourse and media-lore. *Coolabah* 27, 31-51.

Fernandes, V., Bensaúde, J., & Costa, J. P. (1997). Códice Valentim Fernandes. Academia Portuguesa da História. (Original work published early 16th century CE.)

Isidore of Seville, Barney, S., Beach, J., Lewis W. J., & Berghof, O. (2010). The Etymologies of Isidore of Seville, Cambridge: Cambridge University Press. (Original work published 7th century CE)

Millo, A., & Tselikas, A. (2006). *Isolario*. Transcription and Translation of the Italian Original. Adventure Publications. (Original work published 1582 CE.)

Münster, S. (2007). *Cosmographia* (A. Rücker & F. Palm, Eds.). Edition Offizin in der Akzente Versandbuchhandlung. (Original work published 1628 CE.)

Reis, P. (1988). *Kitab-I Bahriye*. The Foundation for Establishing and Promoting Centers for Historical Research and Documentation. (Original work published 1521 CE)

Pseudo-Aristotle. (1888). *Peri Thaumasion Akousmaton (De Mirabilibus Auscultationibus)* (Otto Apelt, Ed.). Teubner, pp. 47 – 92. (Original work published in antiquity.)

Ptolemaios, K. (2006). *Handbuch der Geographie* (A. Stückelberger & G. Grasshoff, Eds.). Schwabe Verlag, pp. 196-197. (Original work published 1st century CE)

Stephanus Byzantius. (1849), *Ethnikà* (A. Meineke, Ed.)

Von Tilburg, G. (2009). *Kaiserliche Mußestunden* (H. E. Stiene, Ed.). Hiersemann. (Original work published 13th century CE.)

Xenophon. (1925), *Hiero. Agesilaus. Constitution of the Lacedaemonians. Ways and Means. Cavalry Commander. Art of Horsemanship. On Hunting. Constitution of the Athenians.* (E. C. Marchant & G. W. Bowersock, Trans.). Loeb Classical Library 183. Harvard University Press. (Original work published 4th century BCE.)

Secondary References

Abulafia, D. (2002). *A Mediterranean emporium: The Catalan kingdom of Majorca*. Cambridge University Press.

Alcover, J. A. (2008). The First Mallorcans: Prehistoric colonization in the Western Mediterranean. *Journal of World Prehistory*, *21*(1), 19-84.

Amengual i Batle, J. (2017). The origin and timespan of the names for the archipelagos, the islands and the cities of the Balearic and Pityusic Islands. In J. Velaza (Ed.), *Insularity, Identity and Epigraphy in the Roman World* (pp. 197-219). Cambridge Scholars Publishing,

Bär, W. F., & Runge, J. (2004). *Das Kartenbild der insel Mallorca vom ende des 15. Jhs. bis um 1700: Ein vergleich aus kartographischer sicht*. Frankfurter Geographische Gesellschaft.

Benítez-Aurioles, B. (2020). Impacts of the peer-to-peer market on tourist accommodation on the Balearic Islands of Mallorca and Menorca. *Island Studies Journal*, *15(2)*, 353-370.

Blanes i Blanes, C., Bonet i Rosselló, J., Font i Jaume, A. et al. (1990). *Les illes a les fonts clàssiques*. Miquel Font.

Buswell, R. J. (2013). *Mallorca: The making of the landscape*. Dunedin Academic Press.

Camps Coll, J. (1962). Primeros hallazgos arqueológicos en las islas de Cabrera y Conejera. *VII Congreso Nacional de Arqueología* (*Barcelona, 1960),* 188-190.

Ceccarelli, P. (1989). I Nesiotika. *ASNP, 19*(3), 903-935.

Cerdà J. D. (1978). Economía antigua de Mallorca. In G. Colom Casasnovas & J. Mascaró Pasarius (Eds.), *Historia de Mallorca* (Vol. 1) (pp. 20-27). Colom Rosselló.

Charles-Picard, G., & Charles-Picard, C. (1958). *La vie quotidienne à Carthage au temps d'Hannibal: IIIe siècle avant Jésus-Christ.* Hachette.

Costa I Llobera, M. (1947). *De l'arge de la terra*. Editorial Moll.

Costa Ribas B. (2018). Captura y gestión de recursos malacológicos en algunos talleres productores de púrpura de la isla de Ibiza. In M. García Sánchez &, M. Gleba (Eds.), *Vetus textrinum: Textiles in the Ancient World - Studies in honour of Carmen Alfaro Giner* (pp. 253-270). Universitat de Barcelona Edicions.

Costa Ribas B., & Graziani Echávarri, G. (2020). La explotación de recursos agropecuarios en la Ibiza púnica. Estado actual de la cuestión. In S. Celestino Pérez & E. Rodríguez González (Eds.), Un viaje entre Oriente y el Occidente del Mediterráneo. Monografías y Trabajos de Arqueología, 5 – IX. *Congreso Internacional de Estudios Fenicios y Púnicos*, 689-704.

Curchin, L. A. (2010). A Babel of tongues: The ancient names of the Balearic Islands and their meaning. *Philologus*, *154*(1), 155-160.

Díes Cusí, E., & Matamoros de Villa, C. (1991). Introducción al estudio de la arquitectura púnica de Ibiza. In E. Acquaro (Ed.), *Atti del II Congreso internazionale di studi fenici e punici* 2 (pp. 817-824). Consiglio nazionale delle ricerche.

Donattini, M. (2000), *Spazio e modernità: Libri, carte, isolari nell´etá delle scoperte*. CLUEB.

Estarellas Ordinas, M. M., Merino Santisteban J. & Torres Orell F. (2012). Noves dades sobre els inicis de la romanització de Mallorca: Els treballs arqueològics a Son Espases Vell de Palma. In M. L. Sánchez León (Ed.), *Les Balears romanes. Nous estudis* (pp 31-60). Edicions Documenta Balear.

Étienne R. (2006). Le vin des Baléares. In F. Mayet (Ed.), *Itineraria Hispanica. Recueil d'articles de Robert Étienne* (pp. 519-525). Ausonius, Maison de l'archéologie.

Fernández-Armesto, F. (1994). *Before Columbus: Exploration and colonisation from the Mediterranean to the Atlantic, 1229-1492*. University of Pennsylvania Press.

Gómez Bellard, C. (1995). The first colonization of Ibiza and Formentera (Balearic Islands, Spain): Some more islands out of the stream? In J. F. Cherry (Ed.), *Colonization of islands* - theme issue of *World archaeology, 26*(3), 442-455.

Gomila, J. S. L. I. (2000). *Derechos sobre el agua de la fuente de la villa en la Huerta de Palma: Año MDCCCLXVIII*. Ajuntament de Palma.

González Villaescusa, R., & Díes Cusí, E. (1990-91). Evolución de la ocupación del suelo de Formentera: épocas púnica y romana. *Cuadernos de Prehistoria y Arqueología Castellonenses 15*, 335-373.

Guerrero Ayuso, V.M., Calvo Trias, M.A., García-Rosselló, J. et al. (2007). *Prehistoria de las Islas Baleares. Registro arqueológico y evolución social antes de la Edad de Hierro*, BAR Internation Series/Archeopress.

Hendrich, Y. (2007). *Valentim Fernandes - ein deutscher Buchdrucker in Portugal um die Wende vom 15. zum 16. Jahrhundert und sein Umkreis*. Lang.

Hershenzon, D. (2018). *The captive sea: Slavery, communication, and commerce in early modern Spain and the Mediterranean*. University of Pennsylvania Press.

Kouremenos, A., & Dierksmeier, L. (2020). Teaching insularity: Archaeological and historical erspectives. *Shima 14*(1), 284-297.

Kretschmer, K. (1909). *Die Italienischen portolane des Mittelalters: Ein beitrag zur geschichte der kartographie und nautik*. E. S. Mittler und Sohn.

Landín, C. A. (1984). *Islario español del Pacifico*. Cultura Hispanica.

Marimon Ribas P. (2010). Demografia i poblament de les Illes Balears a l'Antiguitat. *Mayurqa*, 33.2009/10, Universitat de les Illes Balears, 193-205.

Marlasca Martín, R., & López Garí, J. M. (2019). Montañas sagradas fenicias: Culto y evidencias en la Eivissa púnica. *La vie, la mort et la religion dans l'Univers*

Phénicien et Punique: actes du VIIème congrès international des études phéniciennes et puniques, (Hammamet, 9-14 novembre 2009), Vol. 3, Tunis: Institut National du Patrimoine, 1739-1750.

Marlasca Martín, R., & López Garí, J. M. (2014). Aprovisionamiento de agua y culto en la prehistoria pitiusa. In C. Ferrando & B. Costa (Eds.), *In amicitia: Miscel·lània d'estudis en homenatge a Jordi H. Fernández* (pp. 397-410). *Museu Arqueològic d´Eivissa i Formentera*.

Marlasca Martín, R., & López Garí, J. M. (2006). Eivissa, la isla recortada: Las zanjas y recortes de cultivo de época púnico romana. In J.-P. Morel, J. Tresserras & J. C. Matamala (Eds.), *The archaeology of crop fields and gardens: Proceedings of the 1st Conference on Crop Fields and Gardens Archaeology, (Barcelona, Spain, 1 – 3 June 2006)*, Bari Edipuglia, 87-99.

Martín, C. A. (2014). *Esclavitudes hispánicas (Siglos XV al XXI): Horizontes socioculturales*. Universidad de Granada.

Martín, C. A., & Periáñez, G. R. (Eds.) (2014). *Mujeres esclavas y abolicionistas en la España de los siglos XVI al XIX*. Iberoamericana/Vervuert.

Martín, C. E. (2001). *Comercio de Cataluña con el Mediterráneo musulmán, siglos XVI–XVIII: El comercio con los enemigos de la fe*. Edicions Bellaterra.

Martín Gordón, R., & Balboa Lagunero, D. (2020). El santuario púnico-ebusitano de Na Galera: últimos hallazgos y nuevas interpretaciones. In S. Celestino Pérez & E. Rodríguez González (Eds.), *Un viaje entre Oriente y el Occidente del Mediterráneo*: *Monografías y Trabajos de Arqueología 5 - IX Congreso Internacional de Estudios Fenicios, (Mérida, 22 – 26 de octubre de 2018)* (pp. 137-147). CSCI – Junta de Extremadura/Instituto de Arqueología.

Martorell Garau, A. (2000). *Cartografia de les illes Balears: compendi de mapes impresos durant els segles XVI, XVII i XVIII: catàleg descriptiu il·lustrat: estudi cartobibliogràfic.* Obra Social i Cultural (Sa Nostra), Caixa de Balears.

Mayer Olivé, M. (2005). Les Illes Balears i llur reflex a les fonts literàries i epigràfiques. Revisió d'alguns aspectes. In M. L. Sánchez León & M. Barceló Crespí (Eds.), *L'Antiguitat clàssica i la seva pervivència a les Illes Balears: XXIII Jornades d'estudis històrics locals, (Palma de Mallorca, 17 – 19 de novembre de 2004),* (pp. 39-60). Institut d´Estudis Baleàrics.

Montesdeoca Medina, J. M. (2017). Los Islarios: un breve catálogo. In G. Santana Henríquez & L.M. Pino Campos (Eds.), *Paideia kai zhthsis: homenaje a Marcos Martínez* (pp. 571-578). Ediciones Clásicas S.A.

Montesdeoca Medina, J. M. (2001). Del enciclopedismo grecolatino a los islarios humanistas: Breve historia de un género. *Revista de Filología de la Universidad de La Laguna 19*, 229-254.

Mummey, K. (2016). Enchained in paradise: slave identities on the island of Mallorca, ca. 1360-1390. In J. Watkins & K.L. Reyerson (Eds.), *Mediterranean Identities in the Premodern Era: Entrepôts, Islands, Empires* (pp 121-136). Routledge.

Muñoz, A. M. (1974), Fuentes escritas griegas y romanas sobre las Baleares. *Prehistoria y Arqueología de las islas Baleares: VI Simposio de Prehistoria Peninsular, (Palma de Mallorca 1972)* (pp. 7-9). Universitat de Barcelona/Instituto de Arqueología y Prehistoria.

Nogué, F. J., Puncernau, C., & Centre d'Estudis Comarcals de Banyoles (2014). *Aigua i ciutat: Els recs de Banyoles, història i futur*. Centre d'Estudis Comarcals de Banyoles.

Ordinas Garau, A., & Binimelis Sebastián, J. (2017). Toponymy and nissology: An approach to defining the Balearic Islands' geographical and cultural character. *Island Studies Journal, 12*(1), 243 – 254.

Perelló Mateo L., & Llull Estarellas B. (2019), Circulación y consumo de plomo en las Islas Baleares durante la Edad del Hierro. Nuevos datos isotópicos de galenas y metales arqueológicos. I*Zephyrus* LXXXIV, 89 – 113.

Pérez Ballester, J., & Gómez Bellard, C. (2009). El depósito rural púnico de Can Vicent d'en Jaume (Santa Eulària des Riu, Ibiza). *Treballs del Museu Arqueològic d'Eivissa i Formentera, 63*. Museu Arqueològic d´Eivissa i Formentera.

Picornell Bauzà, C., Seguí Pons, J.M. & Ginard Bujosa, A. (1986). *700 anys de cartografia de les Illes Balears*. Ajuntament de Palma.

Picornell, M. (2020), The back side of the postcard: Subversion of the island tourist gaze in the contemporary Mallorcan imaginary. *Island Studies Journal*, *15*(2), 291-314.

Picornell, M. (2014), Insular identity and urban contexts: Representations of the local in the construction of an image of Palma (Mallorca, Balearic Islands). *Island Studies Journal*, *9*(2), 223-238.

Pinet, S. (2011). *Archipelagoes: Insular fictions from chivalric romance to the novel*. University of Minnesota Press.

Pons, A., Salamanca, O.R., & Murray, I. (2014). Tourism capitalism and island urbanization: Tourist accomodation diffusion in the Balearics, 1936-2010. *Island Studies Journal, 9*(2), 239-258.

Puig Moragón, R. M., Díes Cusí, E., & Gómez Bellard, C. (2004). Can Corda. Un asentamento rural punico-romano en el suroeste de Ibiza. *Treballs del Museu Arqueològic d'Eivissa i Formentera 53*.

Ramón Torres, J. (2012), RA – 91, un pozo púnico del siglo -V en la ribera NW de la bahía de Ibiza. In C. Del Vais (Ed.), *Epi oinopa ponton: Studi sul Mediterraneo antico in ricordo di Giovanni Tore* (pp. 587-612). S'Alvure.

Ramón Torres, J. (2014), Arqueología urbana y espacio doméstico en la ciudad púnica de Ibiza. In B. Costa & J. H. Fernández (Eds.), Arquitectura urbana y espacio doméstico en las sociedades fenicio-púnicas: XXVIII Jornadas de arqueología fenicio-púnica (Eivissa, 2013). *Treballs del Museu Arqueològic d'Eivissa i Formentera 70*. Eivissa: Museu Arqueològic d´Eivissa i Formentera, 191-219.

Reyes García Hurtado, M,. & Rey Castelao, O. (Eds.). (2016). *Fronteras de agua: Las ciudades portuarias y su universo cultural (Siglos XIV – XXI)*. Universidad de Santiago de Compostela.

Rosselló Calafell, G. (2012), Menariae ac Tiquadra et parva Hannibalis (Plin. NH 3.78): Algunes hipòtesis sobre la ubicació geogràfica dels nesònims. In M. L. Sánchez León (Ed.), *Les Balears romanes - Nous estudis* (pp. 11-30). Edicions Documenta Balear.

Royle, S. A. (2009). Tourism changes on a Mediterranean Island: Experiences from Mallorca. *Island Studies Journal, 4*(2), 225-240.

Royle, S. A. (2004). *A geography of islands: Small island insularity*. Routledge.

Sebastián, S. M. P. (2010). *Un pacto para el reparto del agua en 1510: La Concordia firmada entre Ricla y La Almunia de Doña Godina, estudio histórico, transcripción y facsímil*. Tintaura.

Schön, F., & Dierksmeier, L. (2021). Water scarcity at sea: Historical and archaeological perspectives on the preservation of freshwater on volcanic islands. In T. Schade, S. Schweizer, R. Teuber et al. (Eds.), *Exploring Resources. On Cultural, Spatial and Temporal Dimensions of Resource Cultures – Ressourcen Kulturen 13* (pp. 157-182). Tübingen University Press.

Smith, A., & Coll Sabater, M. (2021). Disentangling the Late Talayotic: Understanding Island Identities through Funerary Practices in the Balearic Islands during the Late Iron Age. In F. Schön, L. Dierksmeier, A. Kouremenos et al. (Eds.), *European Islands Between Isolated and Interconnected Life Worlds* – Ressourcen Kulturen 16 (pp 167-186). Tübingen University Press.

Stouraiti, A. (2013). Talk, script and print: The making of island books in early modern Venice. *Historical Research, 86*(232), 207-229.

Sureda, C., & Pons, M. (2004). (*Des)aïllats: narrativa contemporània i insularitat a les Illes Balears*. Publicacions de l'Abadia de Montserrat.

Tolias, G. (2007). Isolarii, Fifteenth to Seventeenth century. In D. Woodward (Ed.), *Cartography in the European Renaissance Vol. 3, Part 1* (pp. 263-284). University of Chicago Press.

Torres Gomariz, O. (2020), Vida cotidiana en la periferia púnica: hábitat y grupos domésticos en la Mallorca y Menorca Postalayóticas (VI – II A.N.E.) In S. Celestino Pérez & E. Rodríguez González (Eds.), *Un viaje entre Oriente y el Occidente del Mediterráneo - Monografías y Trabajos de Arqueología, Vol. 5. In IX*

Congreso Internacional de Estudios Fenicios y Púnicos, (Mérida, 22 – 26 de octubre de 2018). Junta de Extremadura/Instituto de Arqueología, 659 – 671.

Tudela, V. L. (1992). *El control de l'aigua a la Mallorca medieval*. El Tall.

University of Sassari (n.d.). *NESIOTIKA - Scuola di Specializzazione in Beni Archeologici.* https://old.consorziouno.it/UniversitaAOristano/ScuolaSpecializzazione/index.html

Urgell, H. R. (2000). *Arxiu del Regne de Mallorca: Guia/Guía.* Conselleria d'Educació i Cultura del Govern de les Illes Balears.

Vallori Márquez, B. (2018). The location of a city from classical texts with reference to Ptolemy and archaeology. *Rivista di Topografia Antica*, *28*, 15-28.

Van Duzer, C. (2006). From Odysseus to Robinson Crusoe: Early western island literature. *Island Studies Journal, 1*(1), 143-162.

Ventayol Suau, P. (1982), *Historia de Alcudia* 1. La Ultima Hora. (Original work published 1927)

Veny Meliá, C. (1965), Corpus de las inscripciones baleáricas hasta la dominación árabe. In Biblioteca de la Escuela Española de Historia y Arqueología en Roma 15. Consejo Superior de Investigaciones Científicas.

Wilson, B. (2013). Assembling the archipelago: Isolarii and the horizons of early modern public making. In A. Vanhaelen & J. Ward (Eds.), *Making Space Public in Early Modern Europe* (pp 101-126.). Routledge.

Zucca, R. (2012). La civitas foederata Bocchoris nel quadro della politica romana dei foedera con le città puniche e punicizzate mediterranee ed atlantiche. In M.L. Sánchez León, M.L. (Ed.) *Les Balears romanes. Nous estudis* (pp. 111-122). Edicions Documenta Balear.

Zucca, R. (1998). *Insulae Baliares: Le isole Baleari sotto il dominio romano.* Carocci.