



heritage

IMPACT
FACTOR
1.7

CITESCORE
2.8

Article

Post-Medieval Wrecks in the Western Mediterranean and Pottery: The Mortella II Wreck (1527) and the Chronology of Montelupo Tin-Glazed Earthenware

Marco Milanese

Special Issue

Ship Archaeology and Material Culture: Artifacts, Representations, Structures, Narratives, Materialities (16th-19th Centuries)

Edited by

Prof. Dr. Ana Crespo-Solana and Dr. Tânia Manuel Casimiro



<https://doi.org/10.3390/heritage6020111>

Article

Post-Medieval Wrecks in the Western Mediterranean and Pottery: The Mortella II Wreck (1527) and the Chronology of Montelupo Tin-Glazed Earthenware

Marco Milanese 

Department of History, Human Sciences and Education, Medieval and Post-Medieval Archaeology, University of Sassari, 07100 Sassari, Italy; milanese@uniss.it

Abstract: This paper discusses and underlines the importance of investigations on post-medieval shipwrecks, particularly for wrecks where archival documentation is also available, in relation to gaining a better knowledge of tin-glazed tableware produced in Montelupo (Florence, Tuscany). The case of the Mortella II wrecks is interesting in this sense and also shows how an exact dating of the wreck can allow for a revision of the chronologies of the ceramic classes found on board. In the case of the majolica of Montelupo, the revision of the dating of these ceramics with great diffusion (Europe, Americas, Africa) has major repercussions on international archaeological research. This paper presents a preliminary study of the Montelupo tin-glazed tableware found in the 2021 excavation researches conducted on the Mortella II wreck. The interest in the pottery recovered is high, for several reasons: (A) The dating of the wreck to 1527, clarified thanks to the discovery of a written document related to the sinking of the two Genoese “twin” ships off Saint-Florent (Haute-Corse), which are conventionally defined as Mortella II and III. (B) The almost exclusive presence of Montelupo majolica, a ceramic class among the most important between the 16th and 17th centuries, with a very wide dispersal throughout in the Mediterranean and Europe, as well as internationally. (C) The variety of decorations of the majolica of Montelupo documented thus far in the wreck (at least nine) makes this first sample a reference site for the study of this ceramic class in the first quarter of the 16th century, especially for the precise date of closure for the context (1527).



Citation: Milanese, M. Post-Medieval Wrecks in the Western Mediterranean and Pottery: The Mortella II Wreck (1527) and the Chronology of Montelupo Tin-Glazed Earthenware. *Heritage* **2023**, *6*, 2056–2078. <https://doi.org/10.3390/heritage6020111>

Academic Editors: Tânia Manuel Casimiro and Ana Crespo-Solana

Received: 30 December 2022
Revised: 9 February 2023
Accepted: 12 February 2023
Published: 16 February 2023



Copyright: © 2023 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Keywords: post-medieval archaeology; tin-glazed tableware; Montelupo; archaeological contexts; western Mediterranean

1. Introduction

This study aims to highlight how the informative potential of organic and inorganic findings in post-medieval underwater wrecks can be decisive for the overall growth of post-1500 western Mediterranean, European and international archaeology. It also highlights the utility for better development of terrestrial archaeology itself. The first part of the present article is freely inspired by a text in the Italian language [1] dedicated to the closed post-medieval archaeological contexts—terrestrial and underwater—of the Mediterranean area. The second part, which deals with the preliminary study of the Montelupo majolica found in the excavation (2021) of the wreck of a Genoese commercial ship that sunk in Corsica in 1527, is presently unpublished.

A part of the text will therefore deal with a general discussion on the methodology and with some findings of post-medieval wrecks in the western Mediterranean, with particular reference to the importance that the pottery found in these underwater archaeological sites may have for all European (and non-European) post-1500 archaeology.

While the dating of terrestrial archaeological contexts is generally formulated and expressed for fairly extended time periods (e.g., late 16th–early 17th century or the second half of the 16th century), the excavation of post-medieval wrecks can instead pinpoint contexts to the year. Some examples allow dates to the year 1516 (La Lomellina in Provence),

1527 (Mortella II and III in Corsica), 1555 (Rocciu I in Corsica), 1581 (San Juan/Parissona Grossa in Sciacca) and 1587 (San Giorgio and Sant Elmo in Cadiz), thanks to specific research on written archival documents.

The systematic and comparative study and the development of Mediterranean maritime archaeology research on wrecks that can be connected to a precise date of the shipwreck are important paths for the qualitative development of European post-medieval archaeology.

In this way, it is possible to specify the dating of ceramic finds that are configured as chronological markers of post-medieval archaeology, and also to review the datings of terrestrial archaeology, which has been formulated, up to now, in a more generic way.

The second part of this contribution is instead dedicated to an in-depth study of the finding of the underwater excavation carried out in 2021 in northern Corsica at the site of the Mortella II wreck, a Genoese commercial ship that sunk in 1527, and investigated by an international team led by Arnaud Cazenave de la Roche [2].

The aim is to discuss what kind of innovative contributions could be brought to international post-medieval archaeological research through the study of the ceramics from a shipwreck dated through written documentation.

The wide presence of Montelupo tin-glazed tableware (majolica) in the Mortella II wreck makes it possible to focus on the date of 1527 in relation to the current chronologies of the ceramics found. This is important for European post-medieval archaeology (and beyond) due to their widespread diffusion in archaeology, both underwater and terrestrial—at least in the western Mediterranean and northern Europe.

2. Mediterranean Post-Medieval Wrecks and Pottery: Methodology, Materials and Methods

The general setting of this research, and also the contextual and interpretative reference for this work, is the western Mediterranean, which represents an observatory of great interest due to the intense maritime and commercial circulation that has characterized this great sea in almost every historical period.

Despite its extension, the western Mediterranean has its own coherence and homogeneity. However, in its vast geographic space, specific areas can be recognized, such as the Tyrrhenian and the High Tyrrhenian, in relation to the more extensive north-western Mediterranean, with southern France, the Catalan region and the south of the Iberian Peninsula.

Each of these seas features their own characteristics and their own internal circulation in continuous connection with goods and markets in mutual relation, despite the long distances, as is the case of the so-called “Islands Route” (Ruta de las Islas), which crossed several seas—from the Iberian Peninsula to Sardinia and Sicily—under the unitary reference of the Aragonese Crown [3].

Even the Ligurian Sea and “Tyrrhenian Seas different from one another” (northern, but without excluding the southern section); the seas of the major islands (Sardinia, Corsica and Sicily) and the Gulf of Lion in France were in constant and mutual connection, with a maritime trade koiné that emerges in terrestrial and underwater archaeological contexts, as well as in written documentation.

The basic possible theme referred to in this article as a general interpretative element for the wrecks and for the ceramics found in them is the trade in the western Mediterranean starting from the 16th century in archaeological documentation. Closed contexts are mainly represented by wrecks, which constitute the direct sources of those trades and of the main routes followed.

However, the ceramics found in wrecks can take on different meanings, which we can schematically link to two different cases. When they are represented by few or relatively few objects, even of different ceramic types, they can be interpreted as the ship’s crockery used as the officers’ tableware or sailors’ manufactured goods; however, wooden artefacts would be more frequently used.

When ceramics are instead found in the excavation of wrecks in large quantities and with identical characteristics in terms of shape and decorative motifs, they can be interpreted as the real trade of objects (thousands of pieces) intended for sale.

However, in some cases, ceramics may only represent a part of the load, adding to the supply of more economically important goods such as wheat.

Some of the large 16th century ships that will be mentioned in this paper were merchant ships of significant tonnage used for the trade of grain on long-distance routes, such as from Sicily to Genoa.

The ceramics found thus far in underwater excavations or in the first recoveries in these wrecks seem mainly attributable to the first case just described, or interpretable as the ship's tableware.

The ceramics found in closed terrestrial archaeological contexts related to these commercial dynamics almost always derive from commercial transactions by sea if they come from long distances (e.g., Liguria-Sicily), especially from production centres present on the coasts of western Mediterranean.

In fact, these artifacts were mainly transported with large 16th-century commercial ships, which explains the important diffusion of, for example, Ligurian or Montelupo majolica [4] in 16th-century archaeological sites of the Mediterranean and even further towards northern Europe and the Americas [5]. In these cases, the circulation of large commercial volumes by sea is directed towards the main ports, from which ceramic goods could also be subsequently traded with smaller ports and landing places of the region through the navigation of small coastal cabotage or through the waterways and land roads and roads towards the interior [6].

These long-term dynamics concern not only the 16th century, but also the 17th century, as well as the previous and following centuries.

However, data from written sources and their intersection with data from archaeological sources can illustrate and define new scenarios for the distribution of ceramic goods over long Mediterranean distances and suggest explanations with great incisiveness in detail [7].

The finds of submerged wrecks can also document trade by sea other than that undertaken by large commercial ships, which were generally engaged in the transport of grain over long distances. The wrecks also document other dynamics and different forms of navigation and trade, such as coastal cabotage—local or regional—which organized the stops of boats in minor landings or ports in a route divided into stages. The theme is complex, and many 16th-century wrecks from the south of France, as well as the “Leudo del Mercante (or of Varazze)” in Liguria [8], seem to attest to these dynamics [9].

The area that the general context of this study observes is the northern part of the western Mediterranean, more precisely the major islands, such as Sardinia and Corsica; the coastal regions, such as Liguria, Provence, Languedoc and Catalonia; and other areas of the southern Iberian Peninsula, the Tuscan Archipelago and Tuscany.

The purpose of this paper is not to provide a complete catalogue, but to suggest and start a methodological path of complex research to be developed over a long period of time.

The aim of the present paper is also to highlight the contribution of the underwater archaeological contexts to a better interpretation of those of terrestrial archaeology in this large geographical area, with questions on the composition of the contexts, on the chronologies available today and on the possibility of their correction or their refinement.

In many cases, the dating of pottery classes present in this large geographical area between the 16th and 18th centuries are still unsatisfactory today because they are too broad: there is indeed a research potential that can also be derived from underwater archaeology and allow for a narrower and more punctual identification.

In the contexts of the 16th century, for example, a reasonable goal is to go beyond generic datings, e.g., “sixteenth century”, and instead try to discern the first quarter from the second quarter, and even the second half of the century itself.

Similar observations may also apply to the 17th century, where the difficulties may perhaps be overcome locally in the case of restricted regional circulations, but are amplified if the point of observation moves to the north-western Mediterranean. The chronology in which reflection on contexts to identify more narrow chronologies must also usefully deal with the archaeological finds in the New World, which are sometimes correlated with the *post quem* chronologies of the foundation dates of colonial sites.

There are objectives that only a large-scale comparison of numerous terrestrial and underwater archaeological contexts and written sources can, in any case, allow to be achieved.

Wrecks and their loads are therefore closed contexts of the greatest interest because they represent a photograph of a specific moment (even exactly dated) in the history of trade. In our case, this is in the western section of the Mediterranean, often over long distances, although not always.

Ceramics and objects of other materials (glass, metals, wood) found in wrecks can represent a commercial load of specific artifacts, and in those cases, the idea of being able to identify the exact date of a shipwreck on an archival basis represents an opportunity of great interest to progress in the knowledge of archaeological markers, which is a relevant step for archaeological research. These case studies make the central importance of “Text-Aided Archaeology” more understandable.

When the material of a commercial cargo includes ceramics and artifacts well known to archaeologists because they are widespread in terrestrial contexts over wide geographical areas, the situation is even more interesting.

The ceramics found in wrecks may represent the daily tableware on board used by the captain and officers, as in the case study of the Genoese ship *La Lomellina*, which was wrecked in 1516 in the bay of Villefranche sur Mer, near Nice. In these cases, the research deals with contexts of use, and, in the presence of *majolica* or objects of a certain value, the chronologies of the ceramics may not necessarily be close and may not coincide exactly with the date of the shipwreck due to the intellectual or affectionate use of older artifacts by the commander and officers, who are able to appreciate their symbology (Figure 1).

The aim of the present research is also to organize the information from the wrecks, which have been precisely identified in the written sources—for which there is therefore a sure date (in particular for the 16th century, but also later for the 17th century)—and to place them in a dialogue with contemporary terrestrial contexts to clarify the chronology.

For the study of Mediterranean wrecks, especially those of the 16th century, a stimulating work environment that favours the exchange of information is the *Projet collectif de recherche. Navires du XVI siècle* coordinated by Max Guerot; I am a member of this project, which has allowed me to undertake important collaborations, particularly with Arnaud de la Roche, who involved me in the study of the *Mortella* wrecks (1527) in Corsica, an extremely significant case for the beginning of the 16th century.

The summary table of the published or known wrecks of southern France and Corsica [10]—featuring chronologies of wrecks from the 10th to the 19th century—is of sure interest, pioneering the expression of the vivacity of French research, in particular of the DRASSM and the LA3M of Aix-en-Provence [11].



Figure 1. Tin-glazed tableware from La Lomellina, Mucem—Marseille (Photo M. Milanese).

Of the thirteen wrecks from the 16th century, the Lomellina wreck (1516) is the only one to have an exact date, derived from archival investigations; for other wrecks, the dates are much broader, such as the early 16th century (three cases), first half of the 16th century (six cases), late 16th century (two cases), or, generically, the 16th century (one case).

After more than twenty years, those datings should be reviewed as a whole and discussed again; this work can only partially be carried out on published research and would require direct examination of the finds. The new discoveries must be added to this need for revision. Above all, I would like to underline the role of investigation of archival written sources, which have made it possible to date the sinking of two Genoese merchant ships called *Mortella II* and *Mortella III* [12,13] to 1527, whose ceramics are discussed in this paper. Research on written documentation has again allowed us to specify the previous, very generic dating to the 16th century of the *Rocciu 1* wreck in Corsica [14].

For the second half of the 16th century, we can recall the same joint excavation and written documentation for the wreck of the Basque commercial ship *San Juan/Parissona Grossa*, shipwrecked in 1581 in the sea of Sciacca [15,16], and for the important wreck of the Genoese sailing ship *San Giorgio and Sant’Elmo* in the port of Cadiz, sunk by Francis Drake in 1587 [16].

Despite this, I observe that the mature debate on the post-medieval wrecks of the western Mediterranean still experiences evident difficulties, as recently demonstrated by the XLV International Conference on Ceramics, held in Savona (2012) on the topic “Ships, wrecks and ports: the maritime trade of ceramics medieval and post-medieval”, where extensive reports on 16th- and 17th-century wrecks were lacking [17].

The crucial importance of archival research for this type of investigation is now well established, as well as the existence of “shipwreck documents without wrecks and wrecks without documents” [18]. The recognition and publication of the results of the several underwater excavation campaigns conducted on the wreck of the Genoese ship *La Lomellina*—sunken in the bay of Villefranche sur Mer in 1516 [19]—therefore clearly highlights the important information growth that can affect the excavation of a post-medieval wreck if archaeological investigation is accompanied by archival research.

The identification of the *Mortella* wrecks in 1527 and that of the *Brocciu* in 1555 lead in the same direction. The cases mentioned therefore allow us to establish a first sequence of wrecks in the western Mediterranean with the combination of archaeological sources and documentary data: 1516 (*La Lomellina*), 1527 (*Mortella* II and III), 1555 (*Brocciu*), 1581 (*San Juan/Parissona Grossa, Sciacca*), 1587 (*San Giorgio and Sant’Elmo, Cadiz*) (Table 1).

Table 1. Dates of the main 16th-century wrecks in the western Mediterranean.

La Lomellina (Villefranche sur Mer—France)	1516
Mortella II and III (Corsica, France)	1527
Rocciu I (Corsica, France)	1555
San Juan/Parissona Grossa, Sciacca, Italy	1581
San Giorgio e Sant’Elmo/Delta 2 (Cadiz, Spain)	1587
La Ballenera (Getares, Gibraltar)	Late 16th c.
Cap Lardier (Saint-Tropez, France)	Late 16th c.
Mariposa (Alghero, Sardinia, Italy)	16th c.
Leudo di Varrazze	Early 16th c.

These important wrecks are followed, without any archival reference, by the wrecks of the French and Corsican seas mentioned above and differently dated on an archaeological basis to the 16th century [20]; the boat (*leudo*) of *Varazze* and the wrecks of the Sardinian Sea, with chronologies and characterizations, are still to be specified [21].

The connection of a submerged wreck with archival written sources that allow its identification is an important process for the overall interpretation of the historical significance of underwater finds, which, in some cases, has led to the correction of previous incorrect attributions [22]. A dating only based on the archaeological elements of a wreck frequently leads to the formulation of quite broad or generic chronologies due to the poor definition (or knowledge) of the archaeological indicators.

With a multidisciplinary study, the large report published on the *La Lomellina* wreck has also shown how dendrochronology and numismatic finds can also provide a good approximation to the dating that can be obtained from archival sources, even in the absence of an in-depth study of ceramic materials (I thank Max Guerot for inviting me to follow the study of the material of this wreck and the Directorate of the Archaeological Museum of Marseille for allowing me to study the finds preserved in the museum’s deposits).

I would like to underline how the availability of the exact date (1516) for the *Lomellina* shipwreck has not yet been exploited in all its informative potential regarding the ceramic context.

On the same unexpressed potential of the wrecks identified in the written documentation, of particular interest is the *Rocciu 1* wreck in Corsica (1555). The significant presence of blue berettino tin-glazed pottery of Ligurian production (*Albisola, Savona*) in the wreck is not only important in relation to the specific find, but also in relation to its impact of exceptional scientific importance because it accurately fixes the first archaeological date known (1555) for the distribution of Ligurian berettino tableware by sea outside the production region (Figure 2).

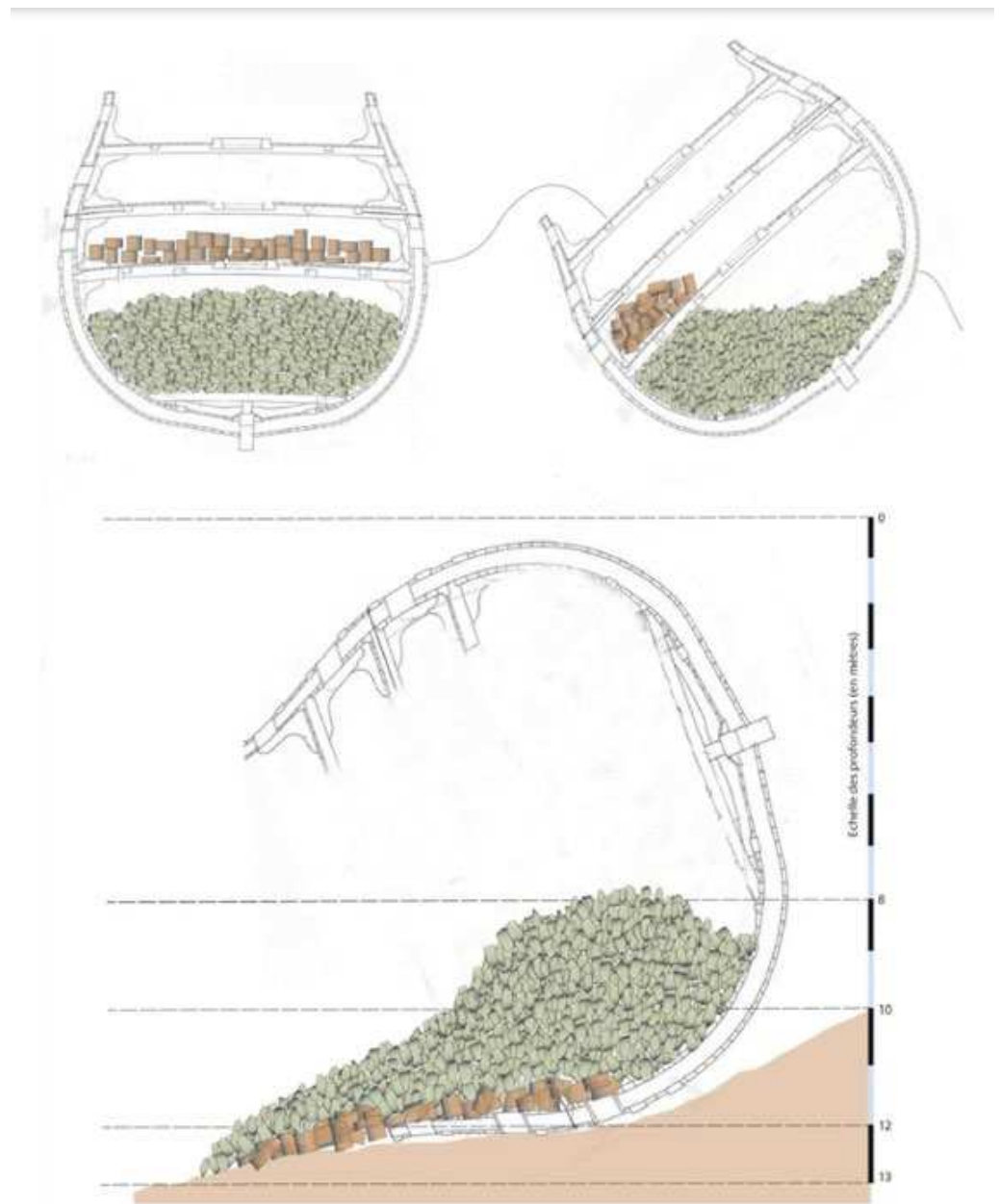


Figure 2. Roccia 1—shipwreck hypothesis (C. de La Roche A.—Cean-Seas 2013, Figure 20).

These particular artifacts, which constitute a specific class of ceramics, are widespread in archaeological contexts throughout the western Mediterranean, but also in northern Europe and America. When completed, the study and excavation of Brocciu 1, with its precise chronology, will become a useful point of reference for dating many archaeological sites in the large geographical area mentioned.

Recent research has also highlighted the role of the study of cannons for dating wrecks and for identifying the origin of boats, always in close synergy with archival research. It is appropriate to recall the research activity of Renato Gianni Ridella, an internationally recognized specialist in the study of cannons who conducted research mainly in relation to the archaeological contexts of origin. Using the example of the Venetian Sveti Pavao ship wreck, Carlo Beltrame recalls the chronological divergence of almost half a century between some finds of this wreck due to the dating being on an archaeological basis: a piece of artillery (before 1540, the year of its founder's death), the ship's bell (1567) and the coins (early 1580s) [22].

3. A Recent Case Study: The Ceramic Finds from the Mortella II Wreck in Northern Corsica (1527)

3.1. The Context and Its Interest

This case study presents a preliminary study of the ceramic finds found in the 2021 excavation campaign conducted in the area of the Mortella II wreck. This case study is also strictly related to the paper coordinated by A. Cazenave de la Roche in this same volume, and the general considerations regarding underwater excavation therefore refer to that article.

The finds covered by this preliminary report refer to a concentration of pottery fragments found in the eastern area of the wreck, which is believed to be the stern area of the ship where several ceramic objects that were still stacked were found. Although it is only a first sample, the interest of the material found is high, for several reasons:

- The chronology of the wreck dating back to 1527, which was clarified thanks to the discovery of written documentation relating to the sinking of two “twin” Genoese ships off the coast of Saint-Florence (Haute-Corse), conventionally defined as Mortella II and III (Figure 3).
- The almost exclusive presence of tin-glazed pottery from Montelupo, one of the most important ceramic classes between the 16th and 17th centuries, with a very wide and even extra-European geography of attestations.
- The variety of decorations of Montelupo tin-glazed pottery thus far documented in the wreck (at least nine different types of decorations), which already makes this first sample a reference site for the study of this ceramic class in the first quarter of the 16th century, above all for the precise date of closure of the context (1527).

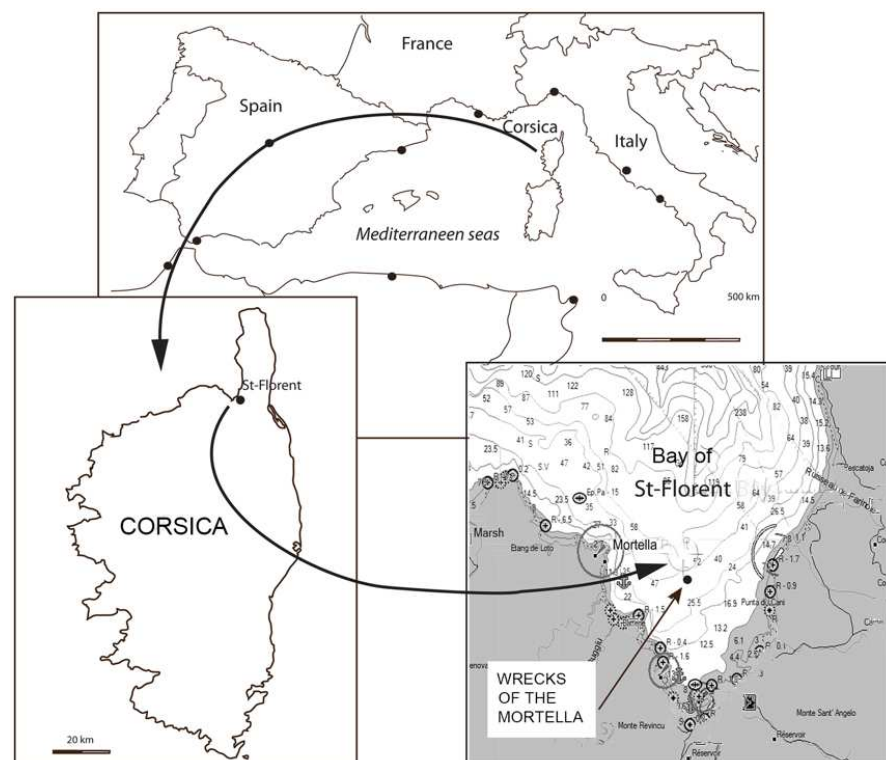


Figure 3. Location of the Mortella II wreck site in northern Corsica (Maps arrangement: Arnaud Cazenave de la Roche).

3.2. Conservation Conditions of the Ceramic Material

The conservation of the ceramics on the wreck was already seriously compromised at the moment the ship began to sink due to the great fire voluntarily started by the two commanders on board the two sister ships, *Mortella II* and *Mortella III*. The main factors to consider are the following:

- a. The fragmentation index of the ceramic materials is varied and can be traced back to the sinking dynamics of the ship, which will be further studied with the continuation of the excavation in order to understand whether or not the ship was also affected by explosions and to what extent. The seabed on which the wreck lies is quite deep (−48 m), and this may have easily caused the types of ceramic, such as the fragile Montelupo tin-glazed pottery, to shatter.
- b. The damages caused by the fire voluntarily started on board to cause the sinking of the ship are of different entities and types due to various factors: intensity of the fumes; direct action of the flames on the artefacts, of the fumes, or of both factors; protection of some objects by others—as in the case of stacked dishes, which have undergone different exposures to different factors, even for different amounts of time.

These complex phenomena have resulted in the blackening of the white surfaces of the tin-glazed pottery in most of the tableware due to the absorption of the dense black fumes of the ship's fire. The objects that have perhaps been directly exposed to flames or to greater heat (due to the absence of protective elements) have been affected by the melting of the vitrified coatings of the tin-glazed pottery. These phenomena have led to the illegibility of some surfaces, the detachment of the tin-glazed layer from the ceramic bodies and the difficulty of recognizing the decorations, the colours of which have sometimes undergone changes (for example, blue colours turning yellow) that must be studied with archaeometric methods.

- c. To these already devastating predepositional factors, even if they occurred in a time that is considered extremely fast (the sinking time of the ship), depositional factors have been added in which five centuries of underwater position, with the sedimentary cover perhaps limited, have caused the erosion of the tin-glazed layers. These coatings, already weakened and compromised by the fire, have in fact suffered further damage caused by the salts of sea water, affecting the thin tin-glazed layers and making them prone to easily detaching.
- d. A different and particular factor of degradation, which will have to be better studied in relation to the state of conservation of the ceramics of *Mortella II*, is represented by the strong corrosion caused by the sea water due to a consistent concentration of ferrous masses in the wreck site originating from the cannons and from the remains of other shipboard artifacts.

The presence of chlorine ions in sea water is, in fact, an element of acceleration of the iron corrosion processes, leading to oxide production. The electrolytic phenomenon that is generated determines the transfer of electrons into the sea water by iron, which, in the case of *Mortella II*, are deposited on the ceramic materials near the ferrous masses, affected by active and continuous corrosion. The extreme porosity of the clay pastes of the Montelupo tin-glazed pottery, deprived of its tin-glazed coating by the processes described above, behaves as an ideal substrate for the secondary deposition of the iron continuously present in the solution in sea water and produced by the corrosive activity.

This process has mainly caused two different types of damage. The first is the formation of strong ferrous encrustations (even more than 1 mm thick) on ceramic artifacts due to the migration of metal ions, favoured by the saline environment. These cases of new formation of ferrous coatings on *Mortella's* ceramics are of particular complexity and interest for the restoration of the artifacts due to the fragility of the tin-glazed layers and their high informative value (decorations). The second problem, which concerns the study of the finds more than the restoration and requires a targeted archaeometric study, is the probable absorption through the electrolysis of the iron ions of the Montelupo tin-glazed

pottery by the ceramic bodies with a rather soft consistency, with a change in the original clay past colour (ivory) to different shades of orange.

3.3. *The Ceramic Finds of the Mortella II Wreck*

Some preliminary observations are presented below, pending a more analytical quantification of the number of fragments and the number of forms (individuals), which is, however, presented in this paper as a working hypothesis. The limits are given by the still-preliminary state of the study and by the sample, which can be enriched with the continuation of the excavation.

Due to the great interest in this context, it is considered useful to provide a general, but already punctual, picture of the attestations, and to postpone the presentation of record cards of individual finds with more precise data regarding the dimensions and profiles of the artifacts.

The presence of ceramics (coarse ware, glazed ware) other than Montelupo tin-glazed pottery is only mentioned, such as a storage jar of considerable size (about 18 cm around the rim) with a purified ceramic body and two handles, which was used for the conservation of liquids; the archaeometric investigations will clarify this due to the content and the production area (Figure 4). Together with this artifact, few other ceramic finds can be traced back to the equipment on board other than the Montelupo tin-glazed tableware (open forms, dishes, bowls and other food vessels).



Figure 4. Fragment of an unglazed storage jar. (Photo M. Milanese).

Nine different decorations were recognized in the Montelupo tin-glazed pottery, and an attempt was made to estimate the number of artifacts, which is information that is summarized in a table presented later in this paper (Table 2); below, following an order dictated by the conventional chronology of the different decorative types, the recognized decorations are presented.

Table 2. Montelupo decorative patterns found in the Mortella II wreck (2021 excavation).

GENRE	DEFINITION	CONVENTIONAL CHRONOLOGY	NEW PROPOSAL	CALIBRATED CONTEXT CHRONOLOGY	NUMBER OBJECTS
21	Palmetta persiana	1480–1520	Final chron. 1520–1525	1520–1525	1
25	Nastri spezzati	1480–1510	Final chron. 1520–1525	1520–1525	1
26	Ovali e rombi	1480–1520	Final chron. 1520–1525	1520–1525	1
30	Scudi e Tamburi	1490–1510	Final chron. 1520–1525	1520–1525	1
38	Piatti baccellati	1505–1515	Final chron. 1520–1525	1520–1525	2
34	Fascia in blu graffito	1510–1520	Final chron. 1520–1525	1520–1525	3
40	Gruppo 40.5	1530–1540	Initial chron. 1520–1525	1520–1525	1
43	Nodo orientale evoluto	1510–1540		1520–1525	1

For this work, the terminologies of G.Cora [23] and F.Berti [24] (to whom we owe credit for the classification of the decorations into “Genres”) were used, but the study of Fornaciari was also of considerable use, guided by an archaeological reading of the material, unlike the historical artistic one used in the cited literature.

Persian palmette family (“Famiglia della Palmetta Persiana”) (Genre 21)

Some fragments with this decoration can be traced back to a dish in which, despite the poor state of conservation due to the ship’s fire, sufficient elements can be recognized on the side of the basin, while the bottom has suffered almost total loss of the tin-glazed layers and the central decoration, which is probably attributable to a flower type. The strong blackening and metallic reflections make it possible to identify the plant motifs and to guess the characteristic colours of the decoration of the “Persian Palmetta” (Figure 5). The conventional dating of this decorative genre is between 1480 and 1520 [4] (pp. 305–306).



Figure 5. Dish with the motif of Persian palmette family. (Photo M. Milanese).

Broken ribbons pattern (“Nastri Spezzati”) (Genre 25)

At present, this decorative pattern is clearly the most attested from Mortella II, and an estimate of approximately 12 different ceramic objects decorated with “broken ribbons” has been proposed.

Mostly apode (seven cases), open-bowl-shaped forms with a wide brim, a basin diameter of 7–8 cm, and an umbonate or sucker-shaped bottom with a diameter at the rim of about 16 cm (Figure 6) seem to be documented. This shape finds its place in the Bb1 type established by Fornaciari 2016. If these objects can perhaps be interpreted as *senaparii* intended for sauces, other objects in the Montelupo tin-glazed pottery with a “Nastri Spezzati” motif may be plates, where the phenomenon described in point d of the previous paragraph can be seen (Figure 7).

The conventional dating of this decorative genre is between 1480 and 1510 [4] (pp. 305–306).



Figure 6. Broken ribbons decorative pattern. (Photo M. Milanese).



Figure 7. Broken ribbons decorative pattern. (Photo M. Milanese).

Ovals and Diamonds motif (“Ovali e Rombi”) (Genre 26)

In the available sample, at the moment there is only one open form attributable to this particular decoration. The fragment has a good state of legibility and conservation of the tin-glazed layers and the typical colours, blue and orange (Figure 8), with a ceramic body of salmon red, probably modified as in the previous find (Figure 7).

The conventional dating of this decorative genre is between 1480 and 1520 [4] (pp. 305–306).

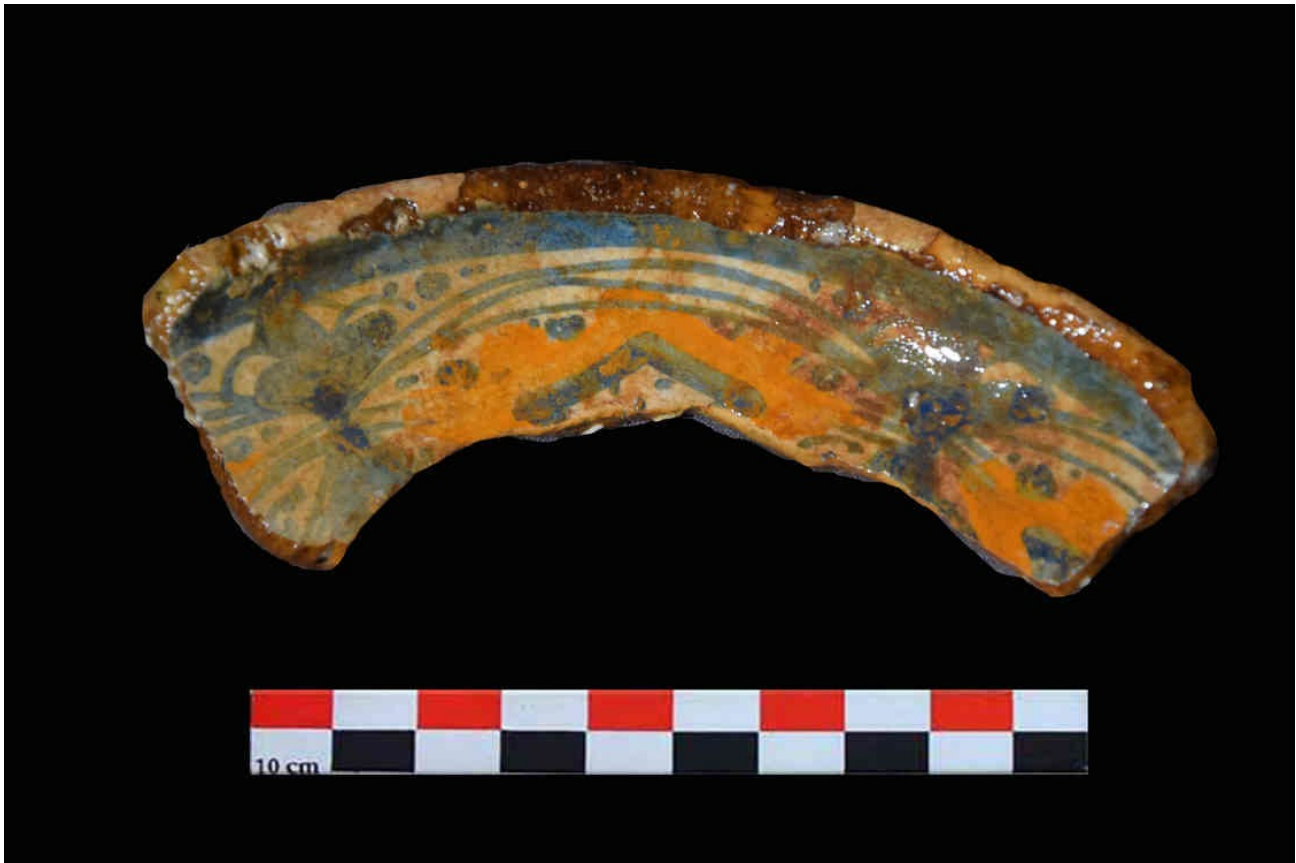


Figure 8. Ovals and diamonds motif. (Photo M. Milanese).

Shields and drums decorative patterns (“Scudi e Tamburi”) (Genre 30—associated)

One of the objects is a small, shallow dish (diameter at the rim 20 cm) with a slightly everted rim and a disc-shaped bottom (Figure 9). It has large gaps in the tin-glazed layers, and, where residual, the legibility of the colours is not excellent due to alterations as a result of the fire on the ship.

Although it was created with a somewhat hurried pictorial stroke, a simple central rose window can be recognized, surrounded by recognizable motifs such as “shields” and “drums”; therefore, it can be ascribed (as a variant) to the well-known decorative Genre 30 “Armi e Tamburi” established by Berti (1997).

The specific qualitative discussion of this decoration is carried out in a more advanced stage of the study.

The conventional dating of this decorative genre is between 1490 and 1520 [4] (pp. 305–306).



Figure 9. Small dish with a shields and drums decorative pattern. (Photo M. Milanese).

“Baccellati” dishes (Genre 38)

Among the objects, a small plate (diameter at the rim 20 cm), with an inverted rim and a slightly umbonate, sucker-shaped bottom was found (Figure 10).

The basin is moulded, with pods in imitation of metallic (silver) pottery, underlined inside by elongated oval motifs in the form of floral petals, sometimes bipartite and coloured in yellow, orange and green. Accessory decorations in blue and orange enrich the pod decoration with details, which develops around a central rose window with no openings. The presence of a second specimen is probable.

The conventional dating of this decorative genre is between 1505 and 1515 [4] (pp. 305–306).



Figure 10. Small “baccellato” decorative pattern. (Photo M. Milanese).

“Graffiti blue band” decorative pattern (Genre 34)

Numerous fragments attest to this decoration. Three identifiable shapes, but in particular two dishes (diameter 22 cm), with a slightly everted rim and a shallow, disc-shaped bottom can be recognized. A blue band develops under the rim, where different decorations are made using the pointed graffiti technique with oblique plant shoots (Figure 11) or with more schematized geometric motifs (Figure 12).

The motif of the band in blue graffiti is an accessory (secondary) present on the side, while the large bottom (cavetto) has different decorations. In one case (Figure 11), there is a fruit (possibly an apple) hanging from a branch (green, yellow and blue). The fruit is painted in the foreground against a sky schematized by blue brushstrokes. There are no known comparisons with central motifs of a vegetal nature, while other subjects prevail (zoomorphs, human busts or heraldic shields).

In another case (Figure 12), there is a central enneagonal shield (with nine arched sides) in blue reaffirmed by yellow, surrounded by orange ribbons in the foreground between side curtains. The main motif represents an orange cross on the schematization of Golgotha in blue, which persists on a lower part that is perhaps divided in blue and white.

The conventional dating of this decorative genre is between 1510 and 1520 [4] (pp. 305–306).

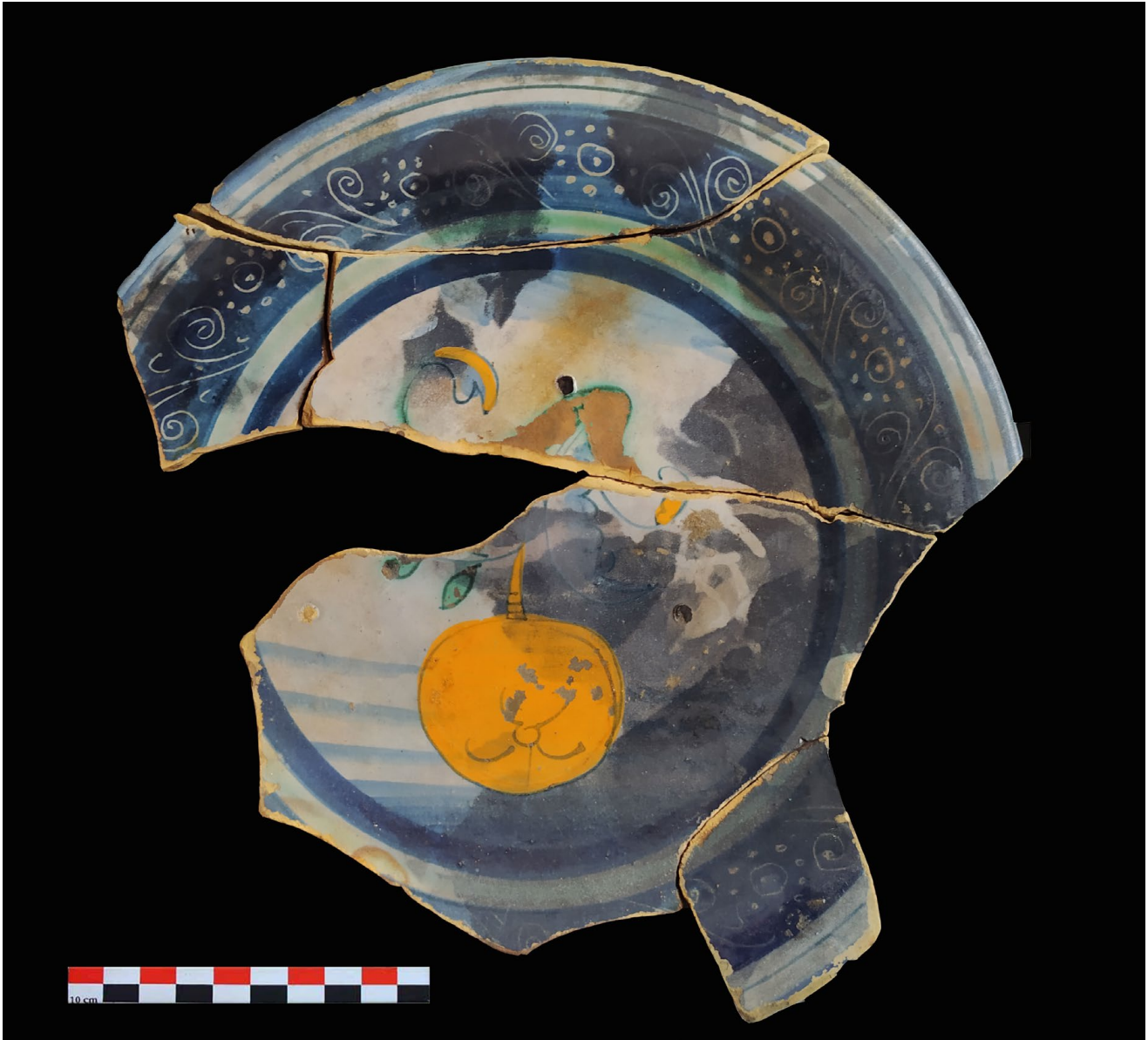


Figure 11. "Graffiti blue band" decorative pattern. (Photo M. Milanese).

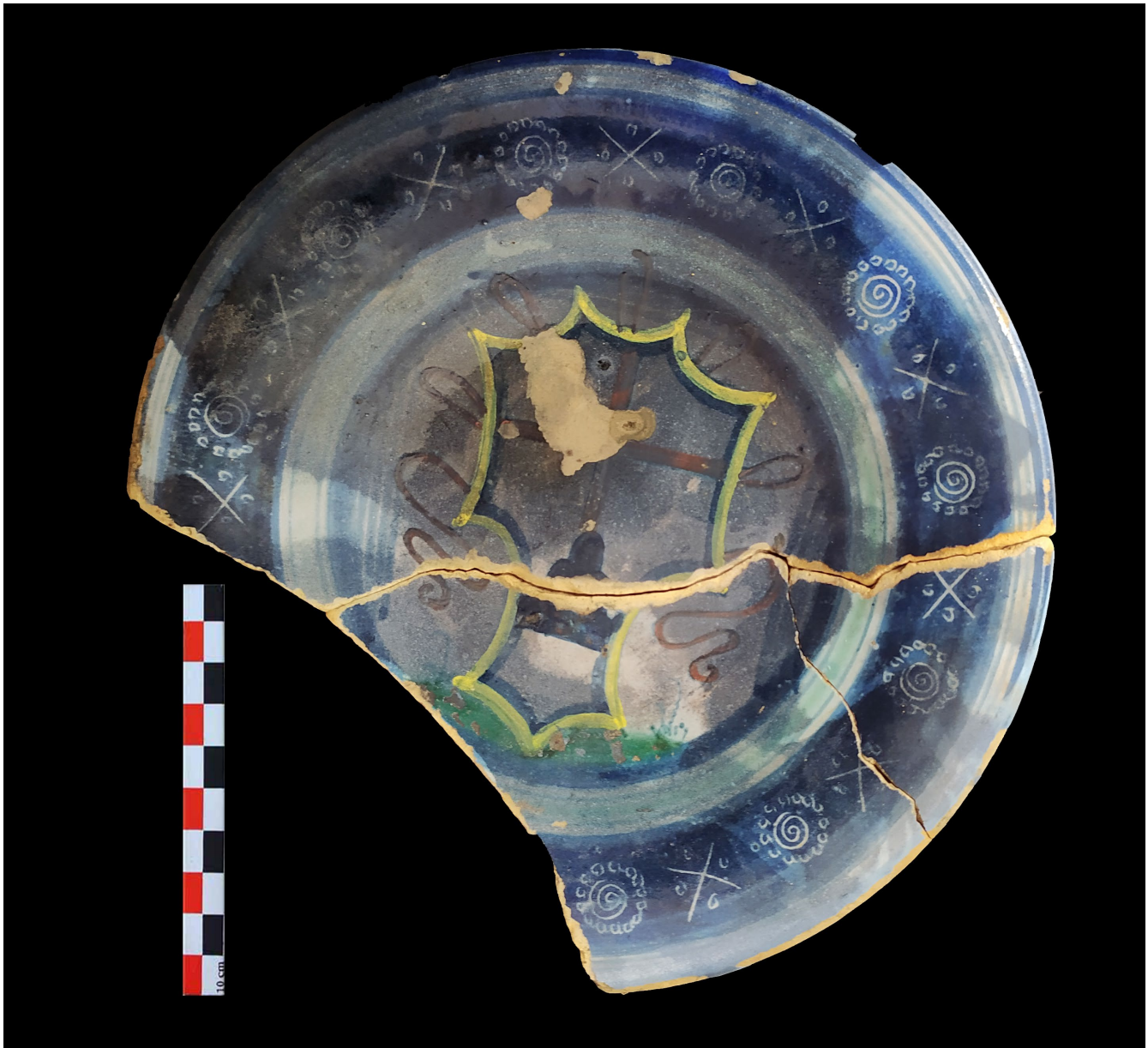


Figure 12. “Graffiti blue band” decorative pattern. (Photo M. Milanese).

“Vegetable motifs of the Bleu family” decorative pattern (Genre 40.5)

A dish (diameter 20 cm) with a slightly everted, shallow rim and a disc-shaped bottom can be traced back to this decorative genre. A schematic decoration develops under the rim and on the basin with discontinuous plant shoots in four groups separated by isolated flowers on a portion of the shoot. The same motif is present in the centre of the plate (Figure 13).

This decoration finds a good comparison with Genre 40.5 of Montelupo tin-glazed pottery [24], Figure 20.

It should be noted that due to the damage caused by the heat of the fire, a particular colour change occurred: the blue of the plant motifs was transformed into golden yellow, while the white was transformed into a very dark blue.

The conventional dating of this decorative genre, and of the comparisons, is between 1530 and 1540 [4] (pp. 305–306).



Figure 13. Dish with “Vegetable motifs of the Bleu family” decorative pattern. (Photo M. Milanese).

“Advanced oriental knot” decorative pattern (Genre 43)

A plate (diameter 20 cm) with a slightly everted, shallow rim and a disc-shaped bottom can be traced back to this decorative genre. A schematized decoration develops under the rim and on the basin, recognizable as an “evolved oriental knot”, which originally must have appeared in blue on white (Figure 14). The conditions of its conservation are quite precarious due to both the blackening and partial fusion of the coverings, and to vast detachments of the extremely thin and fragile tin-glazed layers.

The conventional dating of this decorative genre, and of the comparisons, is between 1510 and 1540 [4] (pp. 305–306).



Figure 14. Dish with “Advanced oriental knot” decorative pattern. (Photo M. Milanese).

4. Discussion

The preliminary analysis of the finds discussed above is not easy because of their poor conservation and legibility due to the damage caused to the ceramics by the fire started on board causing the sinking of the ship. Despite these limitations, the extreme importance of context is evident.

It must, in fact, be highlighted that if the controlled stratigraphic association (underwater or terrestrial) of such a large number of Montelupo tin-glazed earthenware decorations is already a rather rare fact in itself, then the context of Mortella II adds a further important element.

The exact chronology (1527) that closes this context makes Mortella II the only archaeological site in the Mediterranean where we can associate a precise date with such a high number of Montelupo tin-glazed earthenware attestations.

A similar case is the Genoese ship “La Lomellina” (1516), but this seems to have yielded a single object of Montelupo tin-glazed pottery: an open bowl-like shape with a wide brim decorated with “ovals and diamonds” (Genre 26).

For this pottery class (Montelupo tin-glazed tableware) of large importance for post-medieval Mediterranean archaeology, but also for northern Europe and many extra-European sites, I wish to underline how a site like Mortella II can be especially useful for a critical and constructive comparison to the conventional chronologies of Montelupo tin-glazed earthenware and to propose revisions for each specific decoration.

The wide diffusion of these tin-glazed earthenware, not only in the Mediterranean, therefore determines the general spread of the information produced through the excavation of Mortella II as a dating tool.

The following table (Table 2) shows the decorations of the Montelupo tin-glazed earthenware identified thus far in the Mortella wreck, their conventional chronologies and, in red colour, the conventional date (early and late) that the excavation of Mortella II intends to modify.

The data available today indicate that the ship did not carry a cargo of ceramics, but that her journey (and that of her sister ship Mortella III) was for other purposes, such as the supply of grain necessary for the population of the city of Genoa.

The ceramics found in the 2021 campaign could therefore, as a first working hypothesis, be identified as the equipment of the captain's and officers' table.

In the case of the sister ship Mortella III, dendrochronological dating indicates that construction of the ship began between 1517 and 1520, and that the life of the ship, which sank in 1527, may have been particularly short. If the same situation were also verified for Mortella II, it could be hypothesized that the equipment on board could have been acquired on the ship between about 1520 and 1525—this date could be assumed as the date of “formation” of the ceramic context on board—and was then shipwrecked in 1527.

This preliminary hypothesis suggests the “calibrated chronology of the context”, which is used to propose corrections to the conventional chronologies present in the literature.

As can be seen in Table 2, the conventional chronology of the different decorative genres is subjected to a revision in almost all cases.

The table also includes the number of objects (approximately 22 individuals) recognized for each decoration, which are evidently preliminary.

In the case of the “broken ribbons” decoration (Genre 25), the high number of objects (large brims, open bowl) with this decoration (approximately 12), which was also found in Mortella III, suggests a new chronological proposal. I suggest that this is the particular reliability of the displacement of at least fifteen years of the “low” (final, late) chronology of this type of decoration, which is extremely widespread in Mediterranean archaeological sites and beyond.

A similar consideration can be developed for the decoration “Fascia in blu graffito” (Genre 34), attested by at least three individuals (shallow plates) and also documented in Mortella III, perhaps suggesting coordinated times and dynamics in the preparation of the endowments onboard the two sister ships [25].

It appears evident that in the economy of a preliminary contribution, such as the present one, a number of aspects of potential further study must be postponed, such as the interpretation of the colour of the ceramic body of some objects, a theme on which archaeometric analysis will be necessary beyond the lines of possible interpretation advanced in this text.

An important study could also concern the (modest) qualitative aspects of some decorations, a theme almost never mentioned in the literature of Montelupo tin-glazed earthenware; however, in some objects (such as the “band in blue graffiti”), the quality seems to be aligned with known standards.

5. Conclusions

In conclusion, the case of Mortella II clearly shows the informative potential of an interdisciplinary work aimed at studying several aspects of wreck materials (shipbuilding technique, dendrochronology, cannons and artillery), but above all, the contribution brought to research by the discovery of written documentation in the archive makes it possible to acquire the names of ships and data concerning the history of boats and the events of their sinking. In this way, European research can acquire underwater archaeological documents of exceptional value, with broad knowledge crossovers into terrestrial archaeol-

ogy. Mortella II can therefore aspire to a prominent position in European post-medieval archaeological research in which the level of the depth of analysis of the relationship with archives and with terrestrial archaeology still appears modest and coordinated in a way that is still unsatisfactory. This is aimed at the construction of a Mediterranean geography of finds capable of overcoming the conventionality of the dating of underwater sites, aiming instead at a qualitative leap made possible by the connection with archival research.

Funding: This research received no external funding.

Data Availability Statement: Archived datasets in progress.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Milanese, M. Per un'archeologia del Mediterraneo Nord-Occidentale post 1500: Aspetti teorico-metodologici e casistica di contesti chiusi subacquei e terrestri del XVI secolo. *RODIS J. Mediev. Post-Mediev. Archaeol.* **2021**, *4*, 7–24. [[CrossRef](#)]
2. Cazenave de la Roche, A.; Ciacchella, F. The Mortella II wreck, a Genoese Merchantman Sunk in 1527 in Corsica (Saint-Florent, France): A Preliminary Assessment of the Site, Hull Structures and Artefacts. *Heritage* **2023**, *6*, 1028–1068. [[CrossRef](#)]
3. Milanese, M. Aspetti del Commercio Catalano Medievale in Sardegna. Sistemi di Fonti e Nuovi Sguardi Sulle Fonti Archeologiche, in Margine All'enclave di Alghero. In *Tra il Tirreno e Gibilterra: Un Mediterraneo Iberico?* Gallinari, L., Ed.; CNR: Cagliari, Italy, 2015; Volume 2, pp. 601–624.
4. Fornaciari, A. La sostanza delle forme: Morfologia e cronotipologia della maiolica di Montelupo. In *Documenti di Archeologia Postmedievale*; All'Insegna del Giglio: Firenze, Italy, 2016; Volume 7.
5. Lister, F.C.; Lister, R.H. Ligurian Maiolica in Spanish America. In *Atti del IX Convegno Internazionale della Ceramica*; Albisola: Savona, Italy, 1976; pp. 269–310.
6. Milanese, M. La maiolica ligure come indicatore archeologico del commercio in età moderna e la sua diffusione nei contesti stratigrafici della Toscana. In *Atti del XXV Convegno Internazionale della Ceramica*; Albisola: Savona, Italy, 1992; pp. 211–226.
7. Milanese, M. La ceramica invetriata di Patti tra XVIII e XIX secolo. Un nuovo indicatore per l'archeologia postmedievale mediterranea. In *Atti del LII Convegno Internazionale della Ceramica*; All'Insegna del Giglio: Savona, Italy, 2019; pp. 142–151.
8. Benente, F.; Zucchiatti, A.; Fedi, M.E.; Cartocci, A.; Prati, P.; Martino, G.P.; Bracco, C. Archaeological and instrumental analyses of pottery and wood from the 'Leudo' wreck of Varazze, Italy. *Mediev. Ceram.* **2006**, *30*, 61–72.
9. Abel, V.; Amouric, H.; Kauffmann, A. *Un Gout d'Italie: Céramiques et Céramistes Italiens en Provence du Moyen Age su XXème Siècle*; Narration: Aubagne, France, 1993.
10. Amouric, H.; Richez, F.; Vallauri, L. *Vingt Mille Pots Sous Les Mers*; Edisud: Aix-en-Provence, France, 1999; pp. 186–187.
11. Cézans d'Archimbaud, G. Préface. In *Vingt Mille Pots Sous Les Mers*; Edisud: Aix-en-Provence, France, 1999.
12. Cazenave de la Roche, A. The Mortella III Wreck. In *A Spotlight on Mediterranean Shipbuilding of the 16th Century*; Bar International Series; BAR Publishing: Oxford, UK, 2020; Volume 2976.
13. Cazenave de la Roche, A. L'épave de la Mortella III (Saint-Florent, Haute-Corse). In *Archéologie Moderne Contemporaine*; Editions Monique Mergoïl: Drémil-Lafage, France, 2021; Volume 8.
14. De La Roche, A.C. *CEAN-SEAS, L'épave du Rocciu, I, Informations Préliminaires Issues du Sondage Archéologique Réalisé sur une Épave du XVIème Siècle à Ile-Rousse (Haute-Corse)*; Centre d'études en Archéologie Nautique: Oletta, France, 2013.
15. Ridella, R.G. L'ultimo viaggio della "Parissona Grossa". Storia di un veliero basco-genovese naufragato a Sciacca nel 1581. In *Per fortuna di mare. Il recupero e il restauro dei cannoni del relitto di Sciacca, a cura di M.E. Palmisano*; Dipartimento dei beni culturali e dell'identità siciliana: Palermo, Italy, 2012; pp. 35–55.
16. Ridella, R.G.; Brown, R.; Milanese, M.; Smith, K. The San Juan/Parissona grossa—1581. The identification of o wreck found off Sciacca, Sicily, through archaeology and archives. *J. Ordnance Soc.* **2019**, *24*, 38–68.
17. Ridella, R.G.; Alzaga García, M.; Enríquez Macías, G.; Gallardo Abárzuza, M.; Higuera-Milena, J.M. The Cadiz-Delta II wreck: The "San Giorgio", a Genoese merchantman sunk by Francis Drake in 1587. *Archeol. Postmedievale* **2016**, *20*, 11–63.
18. Pesante, L. Ceramiche e vasai alto laziali in viaggio per mare. Anno 1550. In *Atti del XLV Convegno Internazionale della Ceramica, Navi, Relitti e Porti: Il Commercio Marittimo della Ceramica Medievale e Post-Medievale, (Savona, 25–26 Maggio 2012)*; Centro Ligure per la Storia della Ceramica: Albisola, Italy, 2012; pp. 57–62.
19. Guérou, M.; Rieth, E.; Gassend, J.-M.; Liou, B. Le navire Génois de Villefranche, un naufrage de 1516? *Archaeonautica* **1989**, *9*, 5–171. [[CrossRef](#)]
20. Joncheray, J.-P. L'épave dite "des ardoises" du Cap Lardier. In *Atti del XIX Convegno Internazionale della Ceramica*; Centro Ligure per la Storia della Ceramica: Albisola, Italy, 1986; pp. 103–114.
21. Gavini, V.; Silveti, R. Osservazioni sulla circolazione dei manufatti ceramici in periodo medievale e postmedievale da una analisi dei relitti di Alghero. In *Atti del XLV Convegno Internazionale della Ceramica*; Bacchetta: Savona, Italy, 2012; pp. 73–84.
22. Beltrame, C. (Ed.) *Archeologia dei relitti postmedievali*. In *Archeologia Postmedievale*; All'Insegna del Giglio: Firenze, Italy, 2014; Volume 18.
23. Cora, G. *Storia della Maiolica di Firenze e del Contado. Secoli XIV-XV*; Sansoni: Firenze, Italy, 1973.

24. Berti, F. Storia della ceramica di Montelupo. Uomini e fornaci in un centro di produzione dal XIV al XVIII secolo, II. In *La Ceramica da Mensa dal 1480 alla Fine del XVIII Secolo*; Aedo: Montelupo Fiorentino, Italy, 1998.
25. de la Roche, A.C.; Ciacchella, F.; Guérout, M.; Langenegger, F.; Milanese, M.; Crespo Solana, A. Review of the research programme on the Mortella III wreck (2010–2020, Corsica, France): A contribution to the knowledge of the Mediterranean naval architecture and material culture of the Renaissance. *Open Res. Eur.* **2022**, *2*, 6. [[CrossRef](#)]

Disclaimer/Publisher’s Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.