Introduction

The 1741 siege of Cartagena de Indias caused great damage to the city and its bay. The damage was not limited to the infrastructure which composed the defence, as the fleet of ships which defended the port was also reduced (Zapatero 1967; Segovia 1987; Dorta 1988). The ruins of the fortifications and the remains of ships lost during the battle are currently preserved in terrestrial, intertidal and submerged contexts. Consequently, archaeological excavations have produced data suggesting the presence of archaeological sites from the confrontation throughout the bay and its environments (Del Cairo 2009; Del Cairo et al. 2002; Fundación Terrafirme 2016, 2017; Aldana 2019).

For many of these investigations, research interest has focussed on Bocachica Channel, which lies south of Tierrabomba Island. The remains in the channel have enormous archaeological potential for answering questions about the battle and its development. In these projects, contexts linked to the fortifications of San Luis, San José, Santiago and San Felipe de Bocachica have been excavated (Del Cairo 2011b), as has a shipwreck tentatively identified as the ship-of-the-line San Felipe (Fundación Terrafirme 2017; Aldana 2019; Del Cairo and Aldana 2023). To date, most archaeological operations have focussed on the first phase of the 1741 confrontation between the English and Spanish. However, based on analyses of the archaeological data collected, another geographical point to consider for future research is the area of Manzanillo Channel, particularly the entrance to Bocagrande which lies north of Tierrabomba Island (Del Cairo et al. 2002, 2021; Fundación Terrafirme 2016).

Each of these archaeological investigations has yielded new and diverse data on the material culture in the bay of Cartagena de Indias, where military constructions, civil infrastructures, shipwrecks and isolated sites stand out above all. Despite the progress made in the last 20 years, there is an emergent need to characterise the archaeological context on a larger scale, one which integrates the different components attested. In response, theoretical and interpretative frameworks have been built and applied, allowing for a comprehensive understanding of the historical trajectory of this ‘Fortified Landscape of War and Maritime Defence’. As a result, among other issues of the colonial trajectory of the city from the sixteenth to the early nineteenth century, we have been able to gain insight into the strategies and tactical offensive and defensive movements used during the 1741 battle, as well as the associated material remains (Del Cairo 2011b).

Other consequences included increases in the spatiotemporal scale of analysis and interpretation, as well as filling in gaps in the sociohistorical trajectory of the...
region, emphasising events of the 1741 battle. However, it is important to clarify that this particular event was the result of many changes and adaptations of the landscape across a period spanning more than two centuries. Therefore, this territory cannot be understood solely from this warfare confrontation between the English and Spanish. On the contrary, it is necessary to understand the configuration of this landscape through the continuous history of tactical decisions and the mistakes of previous battles which took place in Cartagena de Indias (Del Cairo 2012). As a result of all these historical processes, multiple contexts of the Underwater Cultural Heritage have been identified and documented throughout the bay. These contexts can provide valuable information linking several sources of data (Del Cairo et al. 2004; Romero and Pérez 2005; Del Cairo et al. 2022a).

The archaeology of war and battlefields acquires a leading role, as it enables us to understand aspects such as the planning, development and outcome of a war confrontation (Landa and Hernández 2014, 2020). Therefore, it is pertinent to complement the analysis of this particular battle through diachronic frameworks which contribute to an understanding of this landscape over the centuries. Thus, starting initially from the interpretative proposals of Maritime Cultural Landscape (Westerdahl 1992, 2011), this concept has been applied and adapted to the particular conditions of the bay of Cartagena de Indias. Based on its complex military and war history, today we have sought to understand this territory through approaches such as the ‘Cultural Landscapes of War and Political Regeneration’ (Kim 2013) or as a ‘battlescape’ (McKinnon and Carrell 2015).

This ‘Fortified Landscape of War and Maritime Defence’ can be an object of study for this type of local archaeological research (Del Cairo et al. 2022a). In this regard, this chapter reviews the discussion and research advances around an archaeology of the 1741 maritime battlefield of Cartagena de Indias. This chapter follows from a paper presented at the seventh International Congress of Underwater Archaeology (IKUWA 7) held at the University of Helsinki, Finland in the session ‘War on Board: The Archaeology of Warships and Maritime Battlefields’.

Based on the theoretical and interpretative frameworks already mentioned and discussed in greater detail below, we wanted to understand the evidence which defines this Maritime Cultural Landscape and its associated naval battlefield. Thus, different analytical and methodological proposals are linked to this particular scenario, wherein...
social and natural factors play equally important roles in the planning, development and conclusion of the conflicts. As a result, there is evidence of an active relationship between human and non-human actors which shaped this battle from its broad outlines to its minute details (Del Cairo 2011a).

In the context of the Colombian Caribbean, a research approach from the archaeology of war and battlefields has also been proposed for the insular region, particularly the islands of Providencia and Santa Catalina (Del Cairo et al. 2020, 2022b). From the archaeological evidence there as linked to community historical and oral sources, an interdisciplinary approach to the ‘Maritime Landscape of Mobility and Connectivity’ was sought. In this case, multiple maritime battles took place between the different colonising powers of the Caribbean between the seventeenth and eighteenth centuries, resulting in shipwrecks and fortifications on the coastline and underwater (Del Cairo et al. 2022b). On the other hand, in the Latin American context, there are several examples of an archaeology interested in maritime battlefields. These include the investigation of a battle which took place during the 1898 American intervention in Matanzas Bay, Cuba (Hernández et al. 2014). Interdisciplinary studies of the War of Intervention between Mexico and the United States around the years 1846 and 1848 have also been conducted (Herrera et al. 2020).

Investigations in international contexts include the final battle of the Egadi Islands, which took place around 241 BC during the ‘First Punic War’ between Rome and Carthage (Tusa and Royal 2015). Similarly, there is the investigative approach to two naval battlefields located on Takashima Island, Japan and the Bạch Đằng River in Vietnam, both dated to the thirteenth century (Kimura et al. 2013). In addition, there are studies about two naval confrontations which took place in Turkey from 1770 and 1853 in the vicinity of Çeşme, Mediterranean Sea and Sinop, Black Sea (Özdaş and Kızıldağ 2020). Likewise, there is the 1827 naval battle of Navarino, a war context located in Greece (Papathedorou et al. 2005). On the other hand, there is an analysis of the naval battlefields of the American Civil War (1861–1865), which particularly concerns the 1864 sinking of the H. L. Hunley, a submarine, and the USS Housatonic, a sloop-of-war (Conlin and Russell 2006). From this same war, there are also archaeological approaches to the naval operations of Charleston Harbour, South Carolina (Spirek 2012).

More recent and from the Pacific theatre of World War II is the archaeological study of the 1944 battle of Saipan in the Northern Mariana Islands of Micronesia (McKinnon and Carrell 2015). Also from Micronesia, there is a study of the 1944 battle in the Palau Islands in the Caroline Islands archipelago (Carrell et al. 2020). Again linked to World War II are analyses of the anti-torpedo protection pontoons located at Flotta Island, Scotland, which operated between 1941 and 1942 (Christie et al. 2016).

Finally, there is an investigation of a series of shipwrecks in North Carolina which occurred in 1942 during the battle of the Atlantic (Bright 2021). From a theoretical and interpretative perspective, it is critical to emphasise that these investigations have focussed on different aspects of their subjects (Borrero, 2018). In general, from the beginnings of the discipline towards the second half of the twentieth century, these approaches can be categorised within the particularist historical-cultural, processual and post-processual perspectives (Borrero 2018).

From theory to practice in the maritime battlefield

To understand the maritime battlefield of the 1741 confrontation, it is necessary to address several theoretical aspects. Each one of these constitutes a practical understanding of the planning, development and outcome of the conflict. One of the fundamental aspects is landscape, which links space and human relationships. Landscape is an integrative unit associated with multiple interpretations and perceptions; it is a polyvalent notion meaningful to those who inhabit a territory (Westerdahl 1992, 2011; Gibbs and Duncan 2015). In this way, landscapes link physical and cognitive dimensions. For this reason, the concept of Maritime Cultural Landscape has emerged as an integrating unit between terrestrial and underwater data. This definition, which has been much discussed over the last three decades, is based on human use of maritime space, through material culture and human practices (Westerdahl 1992, 2011; Gibbs and Duncan 2015). Thus, landscape brings together terrestial and coastal aspects such as port constructions, docks, anchorages, intentional blocking areas, topography, contour lines and bathymetry, among others (Del Cairo 2012). Considering the tangible and intangible relationships which are built into a territory, it is important to apply a construct such as Actor-Network Theory (ANT) in order to understand the symmetrical contributions of the human and non-human actors involved, as well as their capacity for agency, to materialise a hybridisation of space (Dolwick 2009; Del Cairo 2011a).

For the particular case of Cartagena de Indias, its long military and war history requires us to understand it as a ‘Fortified Landscape of War and Maritime Defence’. Specifically, for the case of the 1741 battle, analyses are based on ‘Military Geography’ and the ‘KOCOA’ proposal. These concepts allow us to understand how military activities are shaped by landscape. Military Geography aims to comprehensively analyse the characteristics of a landscape to understand how it will influence a military operation through its strategic and tactical features (Harm on et al. 2004). Strategy is the art of establishing decisive points within a battle scenario, as well as understanding and exploiting key routes for troop and logistics movements in order to achieve military objectives (Heuser 2010). Tactics consist of the ability to execute plans during a battle and the ways in which troops are readied and deployed, according to available resources and the battlespace (Montgomery 1969).
The ‘Battle Landscape’ (McKinnon and Carrell 2015) is directly influenced by war, as it is modified and conditioned by the reciprocal actions of the opposing sides. This differs from the ‘Landscape of Conflict’, which encompasses events and components of a territory before, during and after a war (i.e. it includes events not limited exclusively to the battle itself) (Asadpour 2016). In order to understand the Battle Landscape of Cartagena de Indias in terms of its natural and cultural components and the ways in which the battle unfolded, we followed the KOCOA methodology (Scott and McFeaters 2011; Babits et al. 2013; National Park Service 2016; Del Cairo et al. 2022c). This methodology is named by an acronym which lists the aspects considered the most relevant to understanding a conflict, including its environment, conditioning factors and constitutive components (Babits et al. 2013; National Park Service 2016):

- **(K) Key Terrain:** The areas where a battlefield advantage can be acquired (Babits et al. 2013).
- **(O) Observation and Fields of Fire:** The features allowing for the visualisation of enemy actions, informing the decisions of the friendly side (Babits et al. 2013).
- **(C) Cover and Concealment:** The factors or components which provide cover and concealment for friendly troops in order to protect them against exposure and possible enemy fire (Babits et al. 2013).
- **(O) Obstacles:** Terrain features which restrict friendly and enemy mobility, such as natural barriers or obstacles (Babits et al. 2013).
- **(A) Avenues of Approach:** The routes by which friendly forces can attack enemy positions or which leave friendly forces open to being attacked (Babits et al. 2013).

From this analytical structure, the topology of war can be derived. This topology can be visualised as a strategic and tactical geographical organisation of a particular network, in which human and non-human actor linkages are organised either as a hub hierarchy or as a more decentralised rhizomatic pattern (Shields 2013). To analyse a battle topology, we must consider the relationships and intersections between various nodes, which can be human or non-human. To do so, the topology must be seen as the result of ‘indicators or representations [which] may no longer be fixed measures of stable entities out in a neutral environment but … [which] participate together with their referents in a dynamically animated relationship to amplify the intensity of a phenomenon (positive feedback), to build new relationships between entities (by tagging or classifying them together with previously unlike entities) as if the field has been shrunk, bringing them together. A topological sensibility considers the intersection or “transitive” relationships which arise between categories and their mutual constitution as aspects of the same temporal and spatial continuum’ (Shields 2013: 160).

The topology encourages an approach that stresses not only relations in networks but … [sees] their nodes, rather than being “sealed units”, … [as] alive and in process’ (Shields 2013: 159). For the case of centres of gravity in the maritime operational art, nodes can be conceived as battle targets or as economies of force. The identification of a centre of gravity begins with the recognition and analysis of critical factors at the individual and physical levels (Uribe 2020). In this way, they are analysed according to their dynamism. Centres of gravity can change over time and space. As a result, nodes can lose relevance or gain greater importance in the course of battle. Wind, sun, troop morale, weapons, forts, navigational skill, knowledge (or lack of knowledge) of key terrain, obstacle management, etc., change the topological relationships. Nodes in a topological approach can be identified at decisive points in a battle. These can be, for example, a geographical location, an event or an army’s capabilities. These types of elements can allow friendly forces to gain important advantages over enemy forces and influence the outcome of an operation.

This is why topology ‘develops the character of these nodes in relation to their engagement, their co-becoming, with a milieu of other nodes. . . . [It also] draws on a milieu that is both and at once spatial and temporal and has a range of dynamisms—a dynamic repertoire’ (Shields 2013: 159). To understand the topology of a battle, the war objective must first be identified, as it has implications for the strengths and weaknesses of the opposing forces in their movements, manoeuvres and battle actions, space, time and power. The relationship (direct or indirect intersections) of the nodes can be considered as lines of action in the operational art. They are decisive actions which are connected to the control of a geographical objective or force orientation. These lines are related to offensive, defensive and stability tasks with geographical and positional references in the area of operation (Joint Planning 2017 in Uribe 2020). For a topological analysis of the 1741 naval battle, we must recognise the various human and non-human actors which contribute to developing the process of a battle. We start from an analysis in time and space which identifies where military bases and camps were established and operated. Next, it is necessary to know actions related to decisive points and the best ways to exploit key terrain from the perspectives of defence and attack. In this sense, topology ‘accommodates multiple milieux, spatialisations and temporalisations with different qualities so that they coexist and intersect in an object whether material or virtual, a site or a geographic space. Not location, position and fixed shape: instead, Relation, Connection, Boundary-drawing and crossing, Interaction and Dynamics’ (Shields 2013: 159).

In such a way, the entire landscape is overlapped by pre-existing natural and cultural forms as a function of the battle. In the case of maritime battlefields, each component is associated with a moment of confrontation (Del Cairo 2011a; McKinnon et al. 2020). The physical spaces of a battle, by their dynamic and changing nature, generally leave a confused and traumatic record. There are gaps related to the duration and intensity of the conflict,
Its continuity or lapses of non-aggression, the extent (area) of what happened and the behaviour of the material culture. These vary according to the different protagonist spaces during the war event and the aspects which shaped it (McKinnon et al. 2020). Everything depends on the strategic and tactical approaches, the human and non-human actors which determine the conflict, the military geography, the factors of the battle, its natural and anthropic components, the topologies of the war and the Maritime Landscape.

The mise en scène of the war theatre in 1741

This scenario involves the articulation of several natural and cultural components which allow us to understand the continuity between the sea and land. As a result, the boundary between the terrestrial and the aquatic is limited to a merely physical aspect. For within the framework of the configuration of this landscape and the development of this contest, there is a symbiotic relationship derived from both spaces. The bay of Cartagena de Indias, therefore, constitutes a whole archaeological and historical corpus which accounts for the strategies and tactics implemented to guarantee the Spanish territorial domination of the American continent during the colonial period (Del Cairo 2011b).

This particular war, which took place in the so-called ‘Modern World’ during the ‘Age of Enlightenment’, was consolidated in a long-term context which would guarantee the security and sovereignty of Caribbean ports for centuries. As discussed, the defensive components of the 1741 battle are the result of the city’s military background and the knowledge acquired from the confrontations which took place throughout the colonial Caribbean.

There were continuous changes in the different defensive and offensive strategies and tactics of the Spanish Crown. Consequently, over the years, concepts such as ‘defence’, ‘prevention’ or ‘fortification’ became especially relevant in maritime contexts of economic and commercial interest (Del Cairo 2012).

Thanks to the analytical proposals and theoretical frameworks implemented in the archaeological study of the ‘Fortified Landscape of War and Maritime Defence’, the notion of this type of battlefields has changed. This change occurred because of the spaces where war confrontations took place do not include only the areas where conflict was focussed, whether in maritime or terrestrial environments.

On the contrary, the battlefield also includes areas where the preliminary events which led to the battle took place, as well as those which occurred later, the routes and connecting roads, logistical areas of manoeuvre or retreat and camps and areas of imprisonment, among others (Babits et al. 2013; National Park Service 2016).

Thus historically, throughout Cartagena de Indias, a strategy of defence in ‘depth’ was configured and implemented, one capable of delaying an enemy attack by sea. This defensive strategy was due to the strategic location of the fortifications (and sometimes of the warships), which sought to delay but not avoid the enemy advance at all costs. This strategy derived from a tactical rethinking, a result of battles which took place before 1741, as for example, invasions by the English in 1586 and French in 1697. Thus, from this diachronic perspective, the archaeological records of the 1741 battlefield have been recognised as the result (tangible or intangible) of the wartime background of the bay. As a result, several sources of data associated with defensive and offensive dynamics, as well as the intensity and development of the battle, have been identified on the coast or underwater (Del Cairo and García 2006; Del Cairo 2012; Del Cairo et al. 2021).

For many of these archaeological contexts, intrusive and non-intrusive interdisciplinary studies have been conducted. These studies enabled us to understand the use of space and the historic relationships between the population and its environment, materialising a landscape with diverse military archaeological contexts (Del Cairo 2011a, 2012). In the specific case of the 1741 conflict, the English force appeared along the coast of Cartagena City under the command of Edward Vernon. The force consisted of 186 ships, including three-masted ships, fighting frigates, transport ships and burners. These carried 2,000 guns and nearly 9,000 soldiers, 12,600 sailors and 1,000 slaves, as well as a regiment of 4,000 young Americans recruited in the British colonies (Martínez 1961; Zapatero 1967; Segovia 1987; Dorta 1988).

On the other hand, Cartagena had as its defence 3,000 soldiers and 600 Indians, as well as militias and landing troops from six warships and almost a dozen merchant ships. Faced with the immense numerical differences in the offensive and defensive components, defending the city depended on finding various tactical solutions to gain advantage during the battle. The Spanish forces achieved victory by developing plans linking and maximising the military contributions which could be provided by the fortifications (batteries, platforms and forts) and the strategically arranged artillery ships (ships of the line and merchant ships). Once the English attacked, the battle spanned nearly two months, from March to May 1741 (Martínez 1961; Zapatero 1967; Segovia 1987; Dorta 1988).

Military constructions related to the battle have been studied, including the forts of San Luis and San José de Bocachica, San Juan de Manzanillo, Santa Cruz de Castillo Grande and San Sebastián de Pastelillo; the batteries of San Felipe, Santiago, Chamba, Ángel de San Rafael, Varadero and Punta Abanico in Bocachica; the Castillo San Felipe de Barajas; the walls of the urban centre; and the submerged breakwaters of Bocagrande and Isla Draga.

Ships wrecked during the battle include the Conquistador, Dragón, San Felipe, África and San Carlos, all ships of the line, as well as an unidentified merchant ship (Del Cairo and García 2006; Del Cairo et al. 2021, 2022a).

Applying the KOCOA methodology to the 1741 maritime battlefield began by articulating the different lines of evidence. With this, we sought to understand each of the
military and war details which materialised the strategies and tactics of the conflict, yielding this particular landscape and its topology of war. In short, this interpretative proposal allowed us to approach the archaeological contexts resulting from the decisions made by both sides. Thus, it encompasses the ‘Principles of War’, including Objective, Offensive, Manoeuvre, Mass, Economy of Force, Unity of Command, Security, Surprise and Simplicity (Scott and McFeaters 2011; Bartels et al. 2013; National Park Service 2016; Del Cairo et al. 2022c).

- (K) Key Terrain: For the 1741 battle, the areas which stood out were those presenting a high intensity of confrontation in terms of crossfire during the entire conflict. As a consequence, in order for both sides to fulfil their missions, areas with the greatest confrontational force were associated with spaces of transit to the city. Fortifications considerably strengthened by artillery units were located there, as were vessels whose mission was to attack the enemy. These areas correspond mainly to the navigation channels of Bocachica and Manzanillo.

- (O) Observation and Fields of Fire: Fortifications were strategically located, built and relocated according to military objectives. The strategic locations of the forts correspond to geomorphological units of the coastal and underwater topography. In short, a complex natural and cultural defence of the battle, which significantly contributed to the outcome of the war.

Narrow canals where fortifications were located were dug in parallel and oriented to direct crossfire on any vessels seeking access to the urban centre. These canals witnessed a high intensity of the battle due to artillery fire from both the Spanish forts and ships, as well as from the English ships. As a consequence, several ships from both sides were wrecked in the two canals. In the historical archives, there are references to the intentional sinking of ships of the line and merchant ships as a defensive tactic. In addition to the destroyed forts, wrecked ships and the isolated remains of bullets within the range of cannon fire, key geomorphological units determined the enemy’s advance or retreat. In short, a complex natural and cultural defence of the coastal and underwater topography was configured for battle, which significantly contributed to the outcome of the war.
coastal border in a way designed to make friendly and enemy forces visible in order to guarantee artillery support to transit zones. This involved both navigation channels and military units located towards the open sea to identify the arrival of enemy forces. Thus, fields of fire are determined by cover and efficiency of fire from the forts and ships which were located in the bay to counteract the English fire. However, shipborne armament defines a ship’s field of fire, but this will also fluctuate with factors such as wind, tides, channel obstructions, topographical obstructions and enemy defences.

- **(C) Cover and Concealment:** Several areas of influence from the conflict can be identified, which respond to anthropic and natural components. In the continuous search for protection from enemy fire, observation and surveillance to which friendly forces may be exposed, the tactics of both sides involve the location and relocation of units in land and maritime areas. As a consequence, defenders must know how navigable routes and waters will affect the movement of ships. At the same time, this knowledge is associated with the creation (by means of military structures) or implementation (thanks to natural components) of efficient defences. These defences must protect and obstruct shipping lanes and landing zones which can be used by the enemy. For the latter, the dense areas of mangroves which prevented the English from landing on different coastal edges of the inner bay of the city stand out. At the same time, these mangroves acted as areas for the propagation of mosquitoes which continually affected the English forces, leading to the proliferation of diseases. In this way, the coverage of the static and mobile components of the regional defence of the bay was guaranteed, delaying the enemy’s advance and reducing their numbers.

- **(O) Obstacles:** Obstacles are referenced in various historical documents, and several defensive components have been identified in the archaeological record with the purpose of obstructing and hindering the transit of troops and enemy ships. Of course, these obstacles were not only anthropic elements. On the contrary, they also correspond to natural components of the landscape which, in one way or another, were implemented to prevent or divert strategically undesirable movements. With regard to the latter, the water in maritime environments is itself an obstacle to land forces. This forces a reliance on maritime methods of transport, and these, in turn, may be exposed to natural obstacles such as weather (which is always variable) and the bathymetry of the transitable area (i.e. shallows). In relation to artificial obstacles, predetermined areas for navigation (e.g. dredging activities) could also be included. Submerged breakwaters—underwater stone barriers designed to prevent the enemy from accessing a given space at the cost of likewise impeding friendly transit—also fall into this category. As a result, throughout the bay of Cartagena de Indias, there are historical and contemporary records of fixed and temporarily variable obstacles.

- **Avenues of Approach:** Finally, terrestrial and maritime routes in the bay determined the access, retreat or free transit of local and foreign troops in one way or another. The land routes were relatively free of obstacles,

![Figure 13.4](https://example.com/figure13.4.png)
although fire from the forts obviously affected mobility. On the other hand, water routes were essential spaces for the advance (or withdrawal) of naval forces which supported landings (or not) at tactically relevant points. In this case, tides and wind can delay offensive or defensive ship movements. In the same area, it is thus possible for a route to be seriously affected by anthropic or natural aspects. As such, all these factors have the potential to prevent units from fulfilling their military objectives. In the case of Cartagena de Indias, the approach routes correspond to those historically used by local populations and the transit areas defined by the military history of the city in past centuries.

**Final considerations**

The ‘Fortified Landscape of War and Defence’ which was historically built and reconfigured in Cartagena de Indias played a leading role in the historical trajectory of the Colombian Caribbean. We can understand the historical complexity of this territory, thanks to an interdisciplinary approach, one capable of comprehending the archaeological and environmental contexts and the human and non-human actors which constitute it. The interpretative proposal for understanding the topology of war in the bay of the city acquires particular relevance. The integration of all the methodological and analytical approaches presented here, then, has as its goal the understanding of the landscape related to the 1741 maritime battlefield.

Given the diversity of coastal, intertidal and submerged archaeological sites present throughout the bay, there is a clear need to commemorate the great battlefield constituted by different components over several centuries. Based on all of these factors, the need to generate and apply mechanisms for managing and protecting this particular landscape has arisen. This need is not limited to preserving the material culture of past human activities, but also includes the ways in which this type of historical heritage can contribute to the development of local communities. Consequently, thanks to UNESCO’s designation of Cartagena de Indias as a World Heritage Site in 1984, the need to protect tangible (natural and cultural) and intangible (knowledge and traditions) heritages has become a priority in the last decades. Hence, the need to propose research approaches and protection mechanisms aimed at memorialising and commemorating the maritime battlefield finds its critical importance (Del Cairo et al. 2022c).

Figure 13.5. Cultural and natural components and their associations, based in Actor-Network Theory (ANT), which act as sources of information for the study of the ‘Fortified Landscape of War and Defence’ of the Bay of Cartagena de Indias. Image from Del Cairo 2012.
Each of the natural and cultural components of the environment and sources of information acquires great relevance, based as mentioned on the human and non-human actors from the ANT perspective. On the one hand, the cultural field includes fortifications, shipwrecks, civil constructions, artefacts and ecofacts, building traditions, traditional knowledge, historical archives and old maps, among many others. On the other hand, the natural field encompasses geomorphological units, seabed, mangroves, mosquitoes, viruses and diseases and so on. Together, these factors contribute to the proposed integrated view which will permit us to understand this particular landscape throughout time and as a whole.

In this sense, the planning, formulation and development of the Special Management and Protection Plan for the Fortified System of Cartagena de Indias (in Spanish, ‘Plan Especial de Manejo y Protección del Sistema Fortificado de Cartagena de Indias—PEMP FORT BAHÍA’) has been carried out (Del Cairo et al. 2022a). This document is an instrument for managing the different components which are part of the maritime, coastal and underwater heritage of the city. Through this mechanism, the Colombian Ministry of Culture has sought to structure and implement policies for protecting heritage spaces, managing marine territory and integrating coastal and underwater archaeological heritage in coastal marine management plans (Del Cairo et al. 2022a).

This type of heritage is obviously vulnerable to multiple natural and anthropic alteration factors, which can lead to its partial or complete loss. This includes not only shipwrecks, but also the fortifications affected by the rise in sea levels, infrastructure which is now underwater, vegetation associated with structures, their topography and the areas of confrontation observed in navigation channels. One of the first steps for the conservation of cultural sites is the inventory of assets linked to the maritime and underwater heritage located in Cartagena de Indias (Del Cairo et al. 2021).

On the other hand, the daily co-existence of local populations with archaeological contexts impacts both their significance and preservation. Many of the archaeological projects developed to date have been supported by local communities. Cultural heritage enhancement programmes have been developed, as well as workshops designed to recognise multiple voices and interpretations of local heritages (Fundación Terrafirme 2017; Aldana 2019; Del Cairo et al. 2020, 2022a). Based on all this, interdisciplinary archaeological research aims to document and plan, in an effective and comprehensive manner, the successive transformations, uses and adaptations of the marine landscape and its territorial components.

This research has been the focus of many agencies and institutions over the last two decades, including the implementation of research and management agreements among local, regional and national public and private entities. Among them are the Colombian Navy (ARC), Department of Diving and Salvage (DEBusa), General Maritime Directorate (DIMAR), Centre for Oceanographic and Hydrographic Research (CIOH), Colombian Ocean Commission (CCO), Ministry of Culture, Colombian Institute of Anthropology and History (ICANH), District Institute of Cultural Heritage (IPCC), Cartagena de Indias Workshop School (ETCAR), NGO Terrafirme and NGO Colombia Anfibía.

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Lost on their way to Africa: on the provenance of brass rod ingots produced for eighteenth-century AD slave trade found on shipwreck Paal 27.1 on the island Terschelling, The Netherlands

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Abstract: Where did the (metal) trade wares used in the Transatlantic slave trade come from? Nowadays, we have come to understand quite a bit about the routes and relationships of peoples and wares involved in the slave trade. Much less is known about where materials were sourced and products were made, before being shipped to Africa. In this chapter, we present a case study of the shipwreck Terschelling Paal 27.1 and its associated artefact assemblage. Due to the cargo of—amongst others—specific glass beads and brass ingots with lead seals attached to them, we believe we have identified one of the few ships known in the world to have operated in the eighteenth-century slave trade. The shipwreck and ingots provide a unique opportunity to answer questions on trade product provenance, since ingots mirror the primary composition of metals sourced at certain locations. Through archaeological, historical and metallurgical analyses, we were able to trace the copper to Falun, Sweden and the zinc (calamine) to Stolberg, southwestern Germany. The inscriptions on the seals might point to a particular firm in Stolberg as the production location of the brass. The results testify to the enormous scale at which ingots were used in the African slave trade and link the ingots to a long history of ingot trade since pre-Portuguese contacts with West Africa.

Introduction

Following a northwestern storm in July 2012, a birdwatcher named S. van Dijk from the Dutch Forestry Commission found a shipwreck drifting in the North Sea surf near beach marker 27 on the island of Terschelling, The Netherlands (Figure 14.1). Upon closer inspection, van Dijk could not believe his eyes: there were artefacts lying on top of the shipwreck. This was a surprising find, since other wrecks found within the high-energy environment of the (Frisian) coasts have been mechanically beaten by waves and are typically found stripped of artefacts. As these conditions were rapidly affecting this particular wreck, van Dijk quickly collected some smaller finds as he saw them disappearing in the waves, and he notified the local cultural history museum, Museum ’t Behouden Huys (MTBH). The museum staff responded and had the wreck fragment pulled up onto the beach. The wreck was photographed, and the remaining artefacts were collected (Figure 14.2), cleaned and stored. None of the artefacts were subjected to conservation treatments.

As prescribed by the Dutch Monuments Law (1988), since 2015 renamed the Dutch Heritage Law, the find was reported to the Cultural Heritage Agency of The Netherlands (Rijksdienst voor het Cultureel Erfgoed; RCE). However, the wreck had already disappeared as a result of tidal action and beach-combing practices. Luckily, the artefact assemblage was still there to study: fragments of glass bottles and beads, stoneware sherds, clay tobacco pipe stems and a large collection of copper alloy rods and other metal objects. While the majority of artefacts were generic in terms of provenance or dating, the MTBH staff recognised the glass beads as having potential for typological analysis. The beads were macroscopically studied by Werkhoven et al. (2012), who identified them as a typical commodity amongst cargo on the first leg of the triangular Atlantic slave trade during the seventeenth, eighteenth and early nineteenth centuries. The beads were used for purchasing enslaved people or commodities on the West Coast of Africa.

Scholarly interest in the wreck find was initially limited. While the MTBH set up a small exhibit of the wreck find to introduce the public to the slave trade, the artefact assemblage was not fully studied. Five years later, however, an in-depth study and associated analyses were published on the wreck fragment, its site location and artefact assemblage (Vink 2018).

The artefacts and wreck were well preserved, with indications of mechanical rather than biological and/or chemical degradation. The sudden appearance of the wreck was similar to the situation of most wrecks on the Terschelling coast. The wrecks are buried in gullies in the naturally present or supplemented Holocene sands of the foreshore running parallel to the North Sea, only to recurrently appear for brief periods following northwestern storms. A few of them are known to move short distances (i.e. several metres), which calls into question the assumed relatedness of the wreck and artefacts. However, beyond their physical proximity, the