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The Fortress of Sarda-Shurdhah, Northern Albania: Documenting Submerged Cultural Heritage in a Dam Context

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Abstract

Throughout the 20th century, numerous dams were built to take advantage of lakes and rivers for energy production. In Albania, the development of the hydroelectric industry led to profound changes in the physical environment. While the impact on landscapes is clearly visible, the effect on cultural heritage is less well understood. To that end, the current research program of the archaeological mission in northern Albania's Lower Drin Valley aims to document and develop a methodology adapted to this specific context. The case study is the city of Sardë-Shurdhah, located in the Vau i Dejës reservoir.

Keywords: Medieval, Underwater archeology, Dams, Urban archeology, Environmental studies, Cultural heritage management

Introduction

The archaeological site of Sarda is located on the island of Shurdhah in the center of Vau i Dejës Lake, east of Shkodër in northern Albania (**Fig. 1**). Surrounded by the foothills of the Dinaric Alps, the site was formerly a hill, the location of a once flourishing medieval city, the remains of which can still be visited. Despite the charming landscape, the site has been deeply impacted by recent events. The construction of two hydroelectric dams upstream (Koman) and downstream (Vau i Dejës) of the Drin River led to rising water levels. The river became a lake and the hill an island, with the lower part of the archaeological site of Sarda being completely submerged.

The precise foundation of the site remains unknown, but it could have been between the 4th and the 6th centuries AD (Spahiu, 1976). Throughout its history, the region was controlled successively by Byzantines, Slavs, Avars, Venetians and Ottomans (Ducellier, 1976; 2006). This context of wars and conquests explains the early construction of the lower-city's defensive wall, which was later followed by the construction of the upper-city's ramparts.

In the 11th century AD, Sarda became an important centre of the Latin church, making it one of the key settlements in the region. Its power was also economic, as it controlled access along the Drin River, one of the main arteries of trade between the wealthy plains of Kosovo and the harbours on the Adriatic coast. Throughout its history, the city has been connected to several events and transitions, such as the Byzantine empire's presence in the Balkans, the incursions of Avars and Slavs from the north towards Greece, and the rise of the first Serbian kingdoms (Curta, 2006). Nonetheless, our historical and archival studies have revealed a significant lack of direct data concerning Sarda itself. In fact, the main documentation available is only related to its religious history, concerning the episcopal centre and its chronology (Farlati, 1817).

The 15th century witnessed the beginning of the Ottoman period in Albania, during which fortified centers progressively lost their power and autonomy (Trochet, 2016). Sarda was most likely one of them, although the city was already in decline following the transfer of the episcopate to Sappa, another site in the region (Spahiu, 1976). Since then, no long-term occupation has taken place on the site, aiding in the preservation of the medieval urban fabric and its different infrastructures (**Fig. 3**).

A major part of the study of Sarda-Shurdhah is understanding the role of geography in the early development of the site, specifically the Drin River. The founding of the site was almost certainly motivated by the close proximity of the watercourse, which already was recognized in antiquity as an

important river, referred to as “Drilon " by Strabo (VII, 5). He noted the river was navigable as far up as Dardania, in present-day Kosovo.

There is a lack of data concerning the environmental characteristics of the river around Sarda before the 1960s. Nevertheless, in the few sources that mention it - travellers' accounts, ancient maps, and old photographs - the river was anastomosed at the level of the lower Drin Valley (Gautier & Touchart, 1999). The river section where the site is located crosses the foothills of the Dinaric Alps (Fouache, 2006). The river channel, depending on the season and the precipitation, would vary in size and depth. Today, the bottom of the valley is made up of alluvium resulting from the erosion caused by the action of water on the slopes of the mountain. Old photographs also show the presence of alluvium, whose grain size varied from clay to pebble and small blocks. The photographs also provide a precious glimpse of Sarda prior to its partial submergence (Degrand, 1903). Old maps give a good account of the presence of islands and sediment banks which caused the separation of the main riverbed into several branches (**Fig. 4**).

It may therefore be deducted that before 1965 and the initiation of the Drin dam project (Furrer & al., 2014), the river had a braided profile in the area of the hill of Shurdah. Flowing from east to west, it meandered from the north to circumvent the promontory, thus giving it the appearance of a promontory, on which Sarda was built. Its channel is marked by the presence of several islands, the largest measuring up to 500 metres in length, according to the maps of the Italian geographical institute made during the first half of the 20th century (**Fig. 4**). Since the power and volume of water in the river varies according to the time of year, it is likely that these islands were partially or completely submerged on a temporary basis. However, major changes in recent times have significantly modified the site’s physical environment, requiring new methodologies to study the archaeological remains.

In the 1960s, a project emerged that would have major consequences for the Sarda-Shurdah archaeological site: the Drin River dam complex, a vast infrastructure project that would result in the autonomy of Albania’s energy sector. The objective of the project was the construction of a series of dams leading to the creation of artificial lakes (**Fig. 2**). These freshwater reservoirs would be supplied by the Drin River, the most important in the country, and power the turbines of the hydroelectric stations. The project began with the construction of the first dam at Vau i Dejës, commissioned in 1971 (**Fig. 3**). In the years that followed, the rest of the Drin Valley was subject to new developments, with the construction of the Fierzë dam, planned in 1978, and then the Koman dam, completed in 1985 (**Fig. 6**). Due to the importance of the river and the measures taken by the Albanian government, the Drin dam complex is today the primary source of energy in Albania, satisfying 70% of the country’s energy

needs, according to the state company *Korporata Elektroenergjitike Shqiptare*, and is the largest dam complex in the Balkans. A preliminary study for the construction of a new dam at Bushat, downstream of Vau i Dejës, is currently underway. If this project is realized, it will be the sixth dam located on the course of the Drin River, with the Ashta I and II dams located downstream of Vau i Dejës; the seventh if we also include the dam located in North Macedonia on the course of the Black Drin River.

The Vau i Dejës dam belongs to the category of gravity dams, the resistance of which is ensured by the mass of locally sourced limestone rocks and supported by concrete reinforcement. The dam itself consists of a series of three water reservoirs, one of which retains the water.

The development of the Vau i Dejës dam, formerly the Mao Zedong dam, has had a decisive impact on the region. It led to the creation of the reservoir *liqeni Vau Dejës*, in the lake of Vau i Dejës. This significant rise in water level led to the submersion of the entire lower Drin Valley. The anastomosed palaeo-channel gives way to a lake, whose current limits are the Vau Dejës dam to the west and the Koman dam to the east. The total surface of the reservoir is 25 km² for a length of 27 km (**Fig. 5**), making it the second largest lake in Albania, after the natural lake of Shkodër. Due to its artificial nature, this lake belongs to the geomorphological category of Type 1 lakes, that of "young lakes" (Touchart, 2000). Beyond modifying the natural landscape, the lake has also had significant social and cultural consequences. At least two villages, Vjerdhë and Mllojë, were affected by the rising waters, which led to their submergence or their displacement on heights, outside the artificial reservoir (Spahiu, 1975). The projection of the current limits of the lake on an old map of the region makes it possible to confirm and measure the direct consequences of this profound evolution of the profile of the Drin River (**Fig. 5**). The company Kesh, which manages the dam, provided some data to measure the scale of the project. The maximum water height to operate the turbines of the hydroelectric plant is 76 metres above sea level (m.a.s.l.), with a minimum height of 61 m.a.s.l. The maximum level recorded at the dam was 75.33 m.a.s.l. in 2005, and a minimum level of 67.91 m.a.s.l. in 1999. The average water level of the lake is measured at 74 m.a.s.l., with an average depth of 25 metres, and a maximum depth of 50 metres from the top of the Vau i Dejës dam. The level of the lake changes year to year depending on dam management, rainfall, and water supply. The period of the year when the water level is lowest is between the months of October and February, around 73 m.a.s.l., against 74 m.a.s.l. between April and June.

Since the construction of the Vau i Dejës dam in the 1970s, the archaeological site of Sarda-Shurdhah, which previously had no direct connection with the Drin River, has been below lake level. The promontory, which until the creation of the lake was attached by a strip of land to the south of the left

bank, became an isolated island in the middle of the lake. The hill of Shurdhah became Shurdhah Island. Its toponym derives from the former medieval name “Sarda”, the medieval city established on the hill, which later changed to Shurdhah, its modern name (Spahiu, 1976). The surface area of the island is a little over 7 hectares, with a perimeter of 1,140 metres. Its maximum length along the north-south axis is 393 metres, with a maximum east-west width of 294 metres. The island is separated from the left bank of the lake by only 200 metres, but it is nearly twice as far from the lake’s north shore. The ancient hill overlooked the lower Drin Valley, while the modern island maintains a positive topography with an altitude of 75 m.a.s.l. at the bank and 133 m.a.s.l. at its top. It is uninhabited and does not have any modern infrastructure except for the concrete wharf on the south side of the island, which allows boats to dock. Although it seems isolated, the site is considered a cultural heritage tourist attraction that visitors frequent mainly during the summer period and is located in a relatively accessible part of the mountains.

These recent changes have led to a whole new perception of the archaeological site of Sarda, firstly by considering the considerable changes in the physical environment and how that has impacted on documenting the settlement. A new approach, dam archaeology, is to be considered to properly document the medieval remains in their present context.

Many sites around the world, natural as well as cultural, find themselves impacted by this type of industrial-scale development. If heritage managers cannot successfully argue for the importance of archaeological sites over such infrastructure projects, the development of which enables energy production necessary for the industrial and economic growth of many countries (Cunliffe *et al.*, 2012), it is nonetheless imperative for all stakeholders, including the general public, to recognize the intrinsic value of archaeology, to spread awareness, and to do everything possible to protect the cultural heritage.

In consideration of the scientific value of this endangered cultural heritage, but also of its importance for the local communities, the deliberate destruction of an archaeological site without its preliminary study seems quite problematic. Following this line of reasoning, emergency and rescue archaeology, embodied by the *Association pour les Fouilles Archéologiques Nationales* (AFAN) in France in the 1970s, is on the rise. Preventive archaeology aims to combine facilities and archaeological documentation. In Albania, the emergency excavation of Sarda has been a part of this initiative. The construction of the Vau i Dejës dam was an absolute necessity for the Republic of Albania to achieve energy autonomy, but the preservation and enhancement of the country’s cultural heritage was also taken into account. To that end, a series of excavations in the years prior to the construction of the dam

were carried out by archaeologists Hëna Spahiu and Damjan Komata. Nevertheless, many sites in the region remain unexplored and undocumented. The ongoing evolution of underwater survey and recording methods and techniques in a dam context is another motivating factor in the reopening of archaeological studies at this site.

The issue of identification, documentation, and enhancement of submerged heritage in the context of a retaining dam is its own subject, the development of which was first initiated in British archaeological research. It was the subject of an international symposium, "Dam(ned) Archaeology: How to Build a Dam and Save Cultural Heritage," organized in 2012 by the universities of Durham and Edinburgh in the UK, and led by E. Cunliff, M.W. Gruchy, and E. Stammitti. Over the course of the symposium, a series of comprehensive methodological approaches emerged, adaptable to different cases and site types. Each method concerns a specific physical space in which a wide variety of sites can be identified, and the methodology is able to respond to the problems of each site. The greatest challenge is the paucity of time that archaeologists have at their disposal to prospect and study the area scheduled for development, which often covers hundreds of hectares. The use of modern methods and techniques currently applied in survey archaeology, in particular satellite images, aerial prospecting, Lidar, and geophysics (electro-resistivity), are particularly effective in this context. Nevertheless, these techniques, although relevant in the context of prospecting thematically, may not be entirely sufficient (Cunliffe, 2012). Comprehensive documentation often requires intervention in the field, namely targeted excavations in sectors that have been identified as more interesting. In this context, however, time constraints remain at the center of the problem. Nevertheless, in some cases, such as Sarda, it seems possible, even after the submergence of the site, to continue the documentation of the archaeological remains. The following study aims to demonstrate the use of underwater archaeological survey methods in the recording of a submerged site in a dam context.

Conducting methodical excavations in the wake of the Sarda-Shurdhah valley project has enabled the collection of archaeological field data and initiated the comprehensive documentation of this endangered site. Nevertheless, several remarks can be made: Firstly, the archaeologists found themselves working in an emergency context that limited their capacity and the scope of the work; secondly, only a small fraction of the site was subject to systematic excavations within the time available. It is estimated that less than 20% of the known remains have thus been satisfactorily documented (**Fig. 11**).

Insofar as the total area of the site remains unknown to us, it is difficult to claim that the current knowledge of Sarda-Shurdhah and its surroundings is exhaustive and representative of what the urban

center used to be. The time constraint partly explains why only a small part of the site could be explored. Furthermore, the excavation team only focused their efforts on areas most at risk from lake-related floodings. It is only with the resumption of research carried out by the Franco-Albanian archaeological mission since 2015 that the summit of the island and the upper town have been the subject of surveys and excavations using modern methodologies (Nallbani *et al.*, 2018). The implementation of programmed interventions is proving to be essential for excavating and drawing up an accurate portrait of the city and its different phases of occupation. Archaeological work undertaken by H. Spahiu and D. Komata is now the focus of a re-appraisal of the site, supplemented by new field data from land excavations and underwater.

New data from the survey of 2020

In September 2020, a first coastal survey was undertaken by the French-Albanian archaeological mission of the Drin Valley. While a significant amount of attention was given to the identification of features and the documentation of emerging structures located on the western shoreline of the island, a preliminary underwater survey was also conducted (**Fig. 7**). Due to logistical and safety considerations, this part of the operation was limited to surface observations (**Fig. 8**).

The underwater survey brought to light several key results: Firstly, a certain number of vestiges could, for the first time, be documented underwater; secondly, the survey highlighted the location of previously undocumented remains, as well as the general archaeological potential of the underwater site (Courné, 2020). Among the 14 walls observed on the shoreline, the northern extremity of the defensive wall was identified, with a significantly preserved elevation of more than 2 metres **(Fig. 9**). As one of the objectives of this survey was to find new evidence of the limits of the city, this discovery allowed us to compare the data from the survey carried out in the 1960s. The underwater survey also gave interesting results concerning the other sections of the defensive wall. A continuation of the submerged part of the southern portion of the wall was observed at a length of 3 metres and a width of 1.5 metres. This feature provided new evidence of the conservation conditions of the submerged structures, as mortar was still present in the masonry (**Fig. 10**). These results are encouraging regarding the archaeological preservation of the site. The survey also made it possible to establish that the aquatic environment and the terrestrial environment were intimately linked, since the current water line is both recent and in no way related to the operation nor to the initial development of the site. It is therefore highly likely that the structures continue underwater.

Future Perspectives

One of the main objectives for a future expedition would be the continuation of the topographical survey of the identified structures and the creation of geo-referenced points. These points would enable the placement of the structures on a geo-referenced plan using the national system, make their positioning as precise as possible, and enrich the archaeological map of the Sarda site by adding submerged structures.

Challenges

The submerged remains are difficult to access, and their documentation is complex because of their environment. Their state of conservation is variable, and features are sometimes difficult to identify, especially in shallow depths where they are exposed to weather conditions and erosion. However, they do exist and contain essential information for our understanding of the Sarda site as a whole. Their study has become even more relevant since the remains are exposed and at threat of destruction.

Besides the impact of time and natural degradation, other dangers threaten the site. During the year 2020 a fire broke out on the island of uncertain origin. Part of the structures were directly exposed, and the masonry underwent a process of calcination. This kind of event, while fortunately rare, is in any case dramatic and could lead to the loss of vital information.

The archaeological documentation of a submerged site in the context of a dam is a complex and multidisciplinary process, in which a large body of data must be collected. As soon as a dam is built and profound modifications in the area take place, archaeological remains will continue to be destroyed. As such, the local heritage will be forgotten, and the archaeological research will be incomplete. Finally, modern issues concerning the protection and enhancement of cultural heritage can motivate scientific support and an interest in preventing the loss of archaeological sites in the wake of dam construction. Beyond the international protection measures that regulate the management of submerged heritage, for example the 2001 UNESCO Convention on Underwater Cultural Heritage, all issues concerning culture, heritage, and tourism are also criteria that generate interest in the submerged heritage and economic development. The sheer complexity of a dam construction project can often overwhelm archaeologists and heritage managers. While in some rare cases, a salvage project to recover archaeological remains has been put in place, examples being the Abu Simbel temple in Egypt

and the Tabula Traiana site, saved from submergence during the construction of the Iron Gate I dam in Serbia, it is more common to see construction of dams with few concerns about the preservation of cultural heritage. Nevertheless, submergence, as mentioned above, does not necessarily imply the disappearance or permanent loss of a site and its memory. At Sarda-Shurdhah, coastal and surface prospection in 2020 successfully identified several structures that are still resistant to environmental change. However, the ongoing studies taking place in Sarda underline the need to apply an adapted methodology using multiple fields of research and methods. Underwater archaeology already provides an effective suite of tools, methods, and techniques adapted to this situation, especially from lake archaeology (Bonnamour, 2000; Dumont & Benoit, 2006; Horevoets, 2017). More specifically, the documentation of Sarda, and the trials of different methods coming from environmental studies, teledetection (Pelgas *et al*., 2015), underwater excavations, social studies on the perception of disappearing heritage by the local population (Garrett, 2006; Marchetti *et al*., 2020), all in collaboration with the dam construction companies, could help provide data that might be useful to properly understand the impacts of artificial lakes. Considering the numerous dams construction projects scheduled in the coming years (Schwarz *et al*., 2019), the best option will be to forge a close working collaboration with the relevant companies or institutions to quickly obtain a precise environmental awareness of the local area, the extant archaeological remains and cultural heritage.

Concerning the documentation of Sarda itself, conducting archaeological fieldwork will also allow the collection of new data to know more about this medieval urban site, its evolution throughout the centuries, and its relationship with the surrounding area. Urban medieval sites in Albania remain an unknown quantity, as modern cities have been built on earlier urban settlements. However, Sarda was abandoned in the 15th century and much of the infrastructure has been preserved from that time. Therefore, Sarda being severely impacted by the construction of a nearby dam is to be considered as a perfect case study in dam archaeology, as many questions remain unanswered concerning its own history, function, and organization.

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Figures

Fig. 1. Geographical location of the island of Shurdhah, northern Albania

(Google Earth/E. Courné, 2020).

Fig. 2. Shurdhah's island in Vau i Dejës Lake(Google Earth/E. Courné, 2020).

Fig. 3. Aerial view of Shurdhah's Island, from the south (E. Nallbani, 2018).

Fig. 3. Satellite view of the Vau i Dejës' dam (Google Earth/Kesh, 2019).

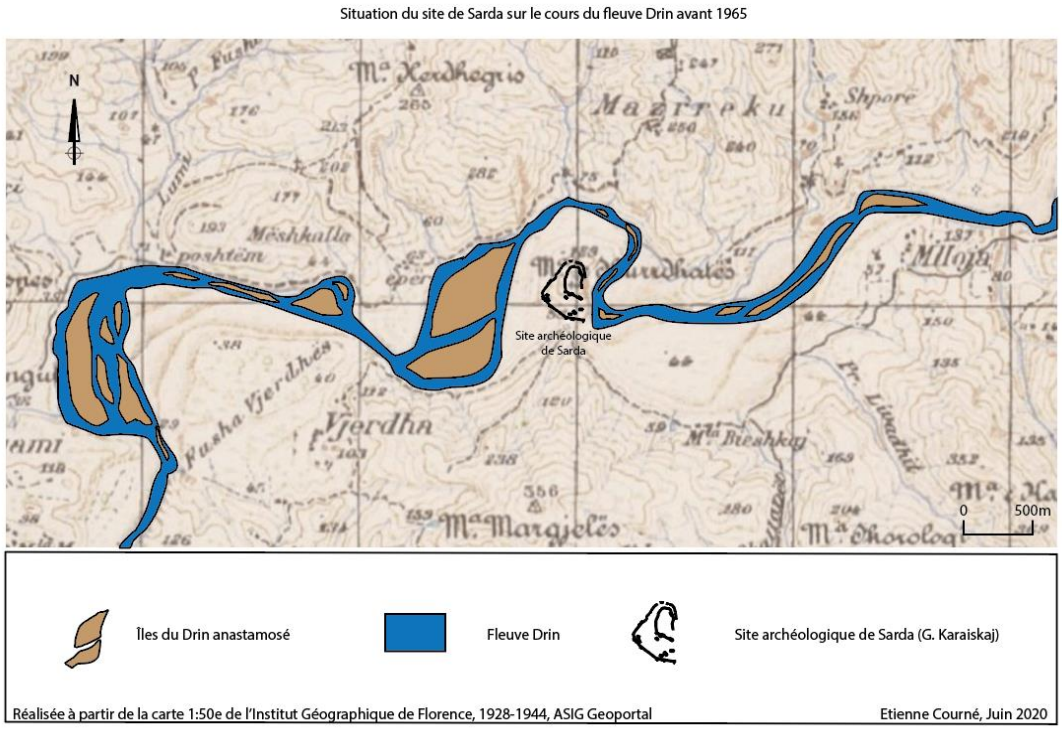

Fig. 4. The course of the Drin River prior to 1965 (Courné, 2020).

Fig. 5. The extension of Vau i Dejës' Lake in the Drin Valley (Courné, 2020).

Fig. 6. Komani's dam, upstream of Shurdhah's Island (Courné, 2020).

Fig. 7. Bathymetric survey on the lower city's defensive wall at Sarda-Shurdhah (Courné, 2020).

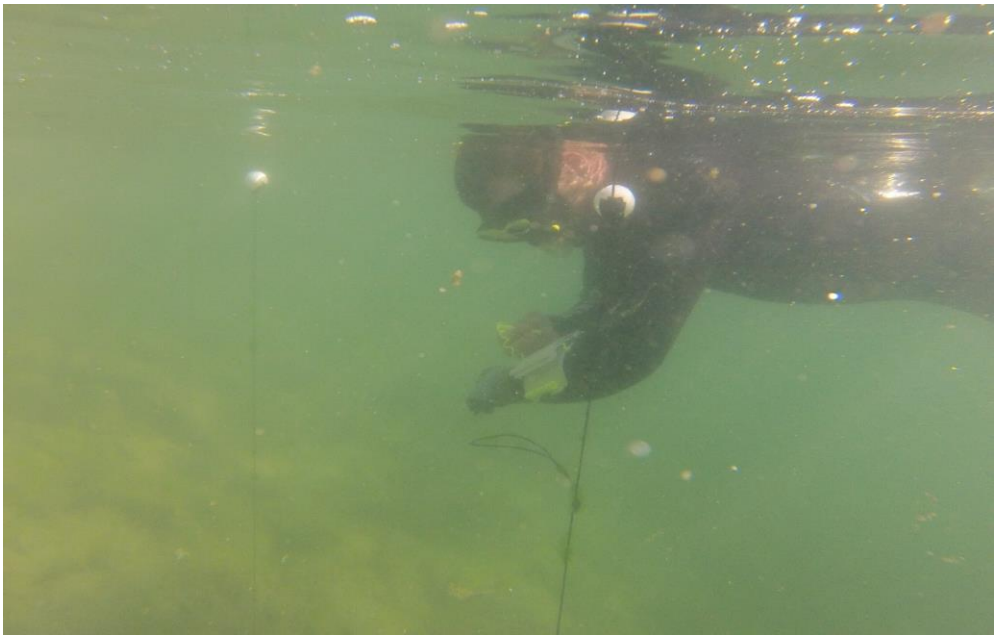

Fig. 8. Underwater survey and identification of the lower city's defensive wall (Courné, 2020).

Fig. 9. Remains of the lower city's defensive wall, located on the north-west shoreline of Sarda-Shurdhah Island (Courné, 2020).

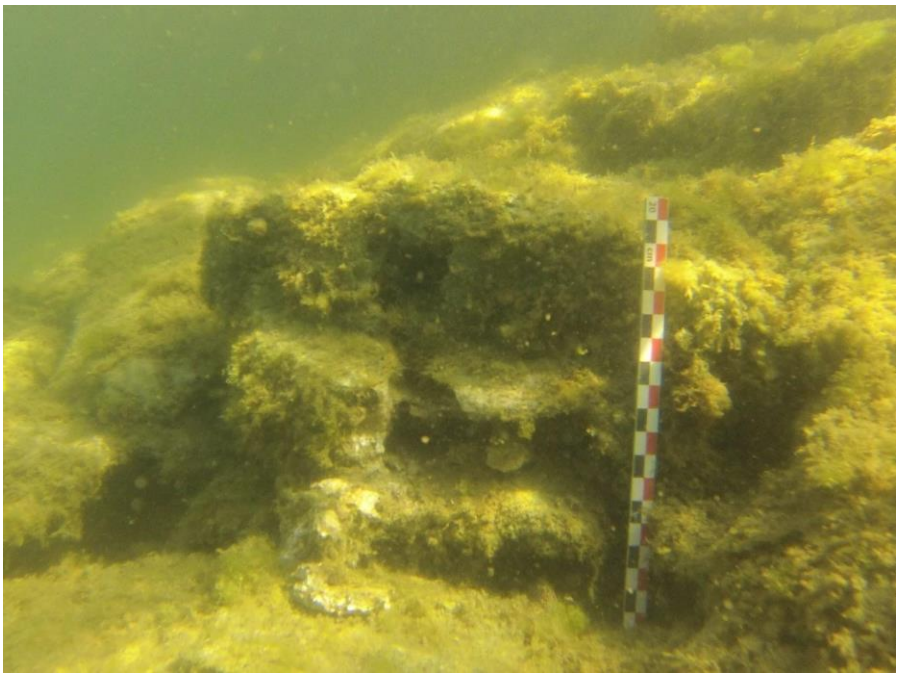

Fig. 10. View of the south-facing section of the lower city's defensive wall, with preserved mortar (Courné, 2020)

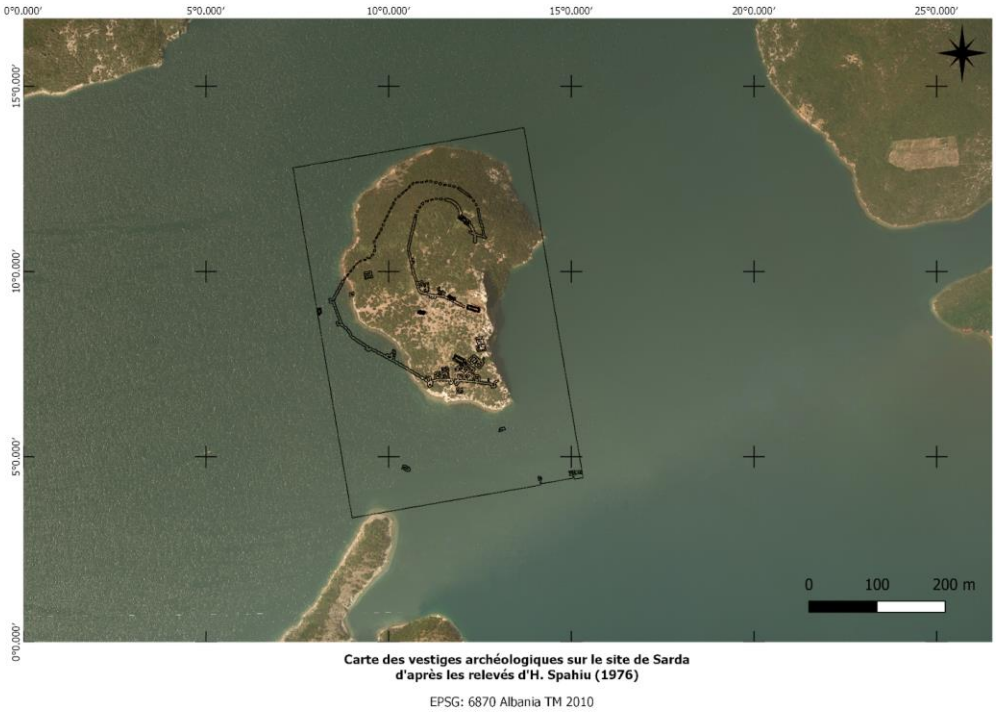

Fig. 11. Distribution of known archaeological remains on Sarda-Shurdhah Island, according to H. Spahiu, 1975

(Courné, 2021).