

NINETEENTH-CENTURY SHIP-TO-PORT COMMUNICATION IN THE SOUTHWESTERN ATLANTIC: THE CASE OF THE RIO GRANDE WATCHTOWER, BRAZIL

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RESUMO: Este artigo baseia-se em informações provenientes de fontes documentais e arqueológicas para estudar a comunicação na navegação atlântica do século XIX. Particularmente, lançamos o foco sobre o sistema de comunicação por sinais estabelecidos entre os navios e o porto da cidade do Rio Grande, buscando discutir sua importância para a comunidade local e seu engajamento com a cultura mercantil marítima do Atlântico oitocentista.

Palavras-chave: navegação; comunicações; cultura marítima; século XIX.

ABSTRACT: This paper draws information from documentary and archaeological sources to examine nineteenth-century shipping communications. I will focus on the study of a ship-to-port communication setting in the port city of Rio Grande, Southern Brazil, to discuss its importance for the local community and its engagement with a broader Atlantic seafaring culture.

Keywords: shipping; communications; maritime culture; 19th century.

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Introdução

During the nineteenth-century, the growth of maritime trade throughout the Atlantic rim demanded better communication in its sea lanes. As the science of optics improved, new materials and construction techniques became available, lighthouses and seamarks spread out favoring the mariner's safety (Naish, 1985; Beaver, 1973). Furthermore, regional semaphore systems and later the submarine telegraphic cables provided more precise and elaborate means of communication, anticipating the era of global networking (Lew & Cater, 2006).

By the 1800's, however, communication at sea was still travelling like any other commodity on board, thus depending on the ship's performance, speed and opportunities to reach its destiny (Clark & Feenstra, 2003). To get the message across, the ship's company would have to resort to a variety of visual and acoustics devices. Flags, lights, fire, land and seamarks, canon blasts, megaphones, bells, whistle and horns were the typical signaling expedients in the ship-to-ship and ship-to-port communication.

The combination of flags colors, formats, sizes and positions thus evolved into signal and semaphore codes, following the trend for standardization in the merchant marine shipping of the period. Issued by naval officers and private individuals, they were intended to provide rather complex meanings, yet through clear and direct messages that could be used in national and foreign ships and ports. H. P. Meads (1932) refers to at least thirteen signaling codes being issued between 1814 and 1857, of which the most generally adopted was the *Marryat's Code Flags for the Merchant Service*, first issued in the year of 1817.

Proper signaling is crucial for safety in any means of transportation. This was particularly true for ships calling a port, getting through tricky and shallow passages, or when maneuvering within roadsteads and harbors. Maritime communications were also a key factor in the logistics of seaborne commerce, linking merchants and consignees in an embarked capitalist economy. Moreover, signaling was typically the first point of connection between the floating microcosm aboard ships and land societies elsewhere.

In this paper, I intend to draw information from documentary and archaeological sources to examine nineteenth-century shipping communications. I will focus on the study of a ship-to-port communication setting in the port city of Rio Grande, Southern Brazil, to discuss its importance for the local community and its engagement with a broader Atlantic seafaring culture.

Francisco Marques Lisboa and the Rio Grande Watchtower

Early in that century, still under Portuguese colonial ruling, the urban maritime space of the port of Rio Grande was steadily being structured, stimulated by the rising of jerked beef business which started in the region around 1780 and expanded throughout the nineteenth century, following the domestic demand for foodstuffs in central and northern parts of Brazil (Gutierrez, 2001). By the 1800's, the urban population was little more than 2,000 citizens when Francisco Marques Lisboa, a Portuguese businessman whose family migrate to Brazil after the

drawbacks of the famous 1755 earthquake in Lisbon, moved to the port town of Rio Grande to start a business with initial capital granted from his father-in-law.

Marques Lisboa soon realized the potential for the establishment of a well-organized pilotage service, in order to meet with more safety and efficiency the demands of vessel transposing the intricate Rio Grande bar. In 1802, he was appointed by a group of fourteen members of the city's Board of Trade to organize and operate a pilot station at his own expenses, with the advantages he could derive for the services rendered. Later, in 1808, a Royal Decree declare Lisboa lifetime civil servant in charge of the Rio Grande pilotage, able to bear a Royal Armada 2nd Lieutenant uniform, with a compatible salary and a house in the north spit by the bar entrance (Lima, 1983).

From the contract, Lisboa had to keep a well-equipped pilot-boat manned by a skipper and ten sailors to guide vessels either leaving or entering the bar bound to the ports upriver, as well as to provide salvage service for vessels in distress. Moreover, in 1809, he ordered the substitution of the old wooden look-out post for a twenty meters high masonry watchtower known as *Atalaia*, with flagpoles in the top to hoist the flags used for the communication with demanding vessels (Homem de Mello, 1872) (Figure 1).

The first consulted documentation to mention the pilotage in Rio Grande de São Pedro was the "*Sailing Directions to and from the Coast of Brazil [...]*" published in 1819 by John William Norie. The author gives a very brief description on the operation of the pilot-boat and the flag code used in the communication between the pilotage and a vessel in demand to cross the bar however there is not a mention of the *Atalaia* watchtower (Norie, 1819). However, a French traveler and naturalist who visited the port city in 1821 do mention the tower and its operation (Saint-Hilaire, 2002).

In 1836, Captain James Harrison from the British merchant Brig "General Wolfe" publishes in the *Nautical Magazine* (Harrison, 1836) a thorough note with detailed directions for entering in the Port of Rio Grande, where the code of flags, color, format and the respective meanings in palms and English feet are first described. Eight years later, in 1844, a pilot-guide to the southern coast of South America named "*Derrotero de las costas de la América Meridional [...]*" is published in Spanish, largely based in the survey works of French Navy hydrographers Albin-René Roussin and Louis Marius Barral, therein translated and added by D. Juan Doy and Carbonell (Doy & Carbonell, 1844: 180-81). As part of the added sections, however, is a plate with a colour sketch portraying the *Atalaia* and describing its mode of operation as in 1836, which I believe to be a graphic expression connected with the textual description presented in the note published early by J. Harrison in the *Nautical Magazine*, as the French survey was originally published before that, in 1833 (Figure 2).



Figure 1: Picture of the *Atalaia* watchtower taken by the 1940's. The pilotage had already moved and the tower is seen here with a large spyglass fitted on the top for the surveillance during the Second World War (Source: LEPAN Digital Collection, original at the Bibliotheca Rio-Grandense, Rio Grande).

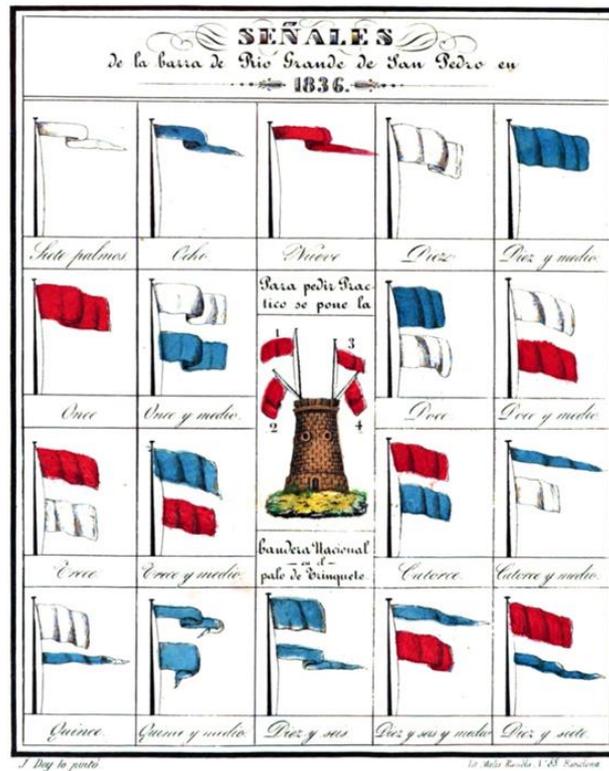


Figure 2: Plate with the flag code for the employment in the pilotage of the Rio Grande de São Pedro bar entrance as in 1836, with an imaginary sketch of the *Atalaia* watchtower to show the position of the flagstaves (Doy & Carbonell, 1844).

According to the document, as a demanding ship approached the Rio Grande inlet, the captain should aim at finding the tower situated two miles further inland at the north spit, where a pilot there stationed would hoist a red flag in the flagstaff n° 1 indicating they started communication, thus signaling the pilot-boat stationed near the bar to go down and sound the canals (Figure 3). The captain, in turn, should indicate the ship's draft by means of a combination of white, blue and red flags and a blue pennant hoisted in the fore topgallant or royal mastheads, according to the code in the accompanying sketch. This code was exclusively to indicate the ship's draft and the canals shallowest passage depths, expressed in palms, being one palm equal to $8\frac{3}{4}$ inches or 0.22 meters.

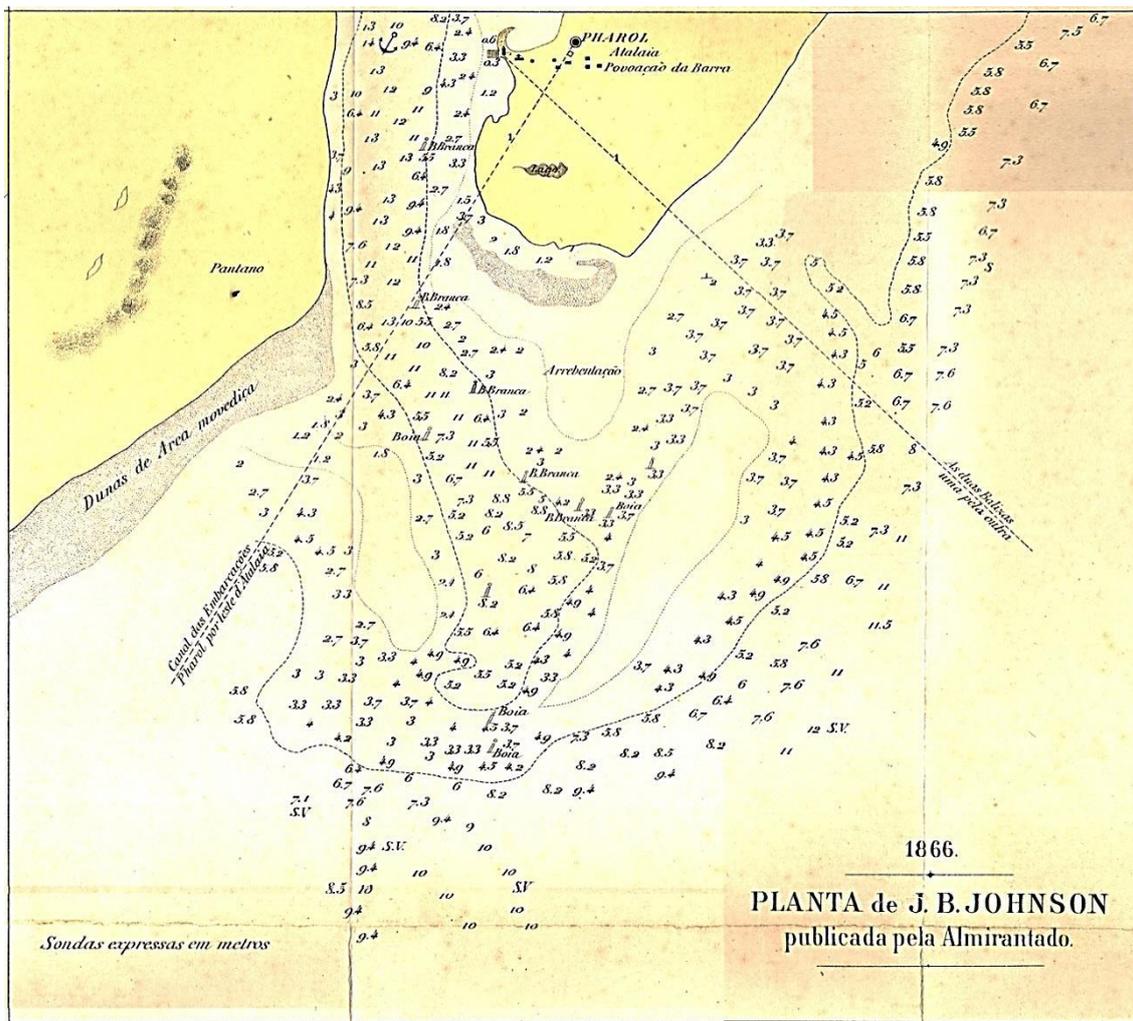


Figure 3: Soundings chart of the Rio Grande inlet as surveyed in 1866. It shows the intricate passages in between the sand bars and two main alignments to reference for approaching vessels. They both refer to landmarks in the Atalaia village (Johnson, 1866).

The canal's shallowest draft signal was repeated by the tower in the flagstaff n° 3 so vessels demanding a deeper draft were to give way and cast off their anchors or tack outside the sea lane. In case the canal was impracticable for not having enough water according to the ship's signed draft, the tower would hoist down the red flag in flagstaff n° 1 and the vessel should too haul out to sea and cruise on and off until the water rised again. But in the contrary, the pilot-

boat stationed in the bar entrance would sign otherwise by means of a red flag hoisted on the end of a long pole at the boat's stern, thus directing the demanding vessel by inclining it either to starboard or larboard to indicate which direction to steer or, when positioned straight down, to follow in close the pilot-boat's wake (Figure 4).



Figure 4: The pilot-boat at station in the Rio Grande bar with its characteristic flagstaff. The *Atalaia* watchtower can be seen in the backdrop (left). Watercolor from William Lloyd painted in 1873 (Barreto, 1979).

Only in case of the pilot-boat was prevented from going down the bar due to adverse weather, these procedures were performed directly from the tower, using the flagstaffs n° 2 and n° 4 for signaling board to tack. In case the captain of a demanding vessel wanted to ask for a pilot to come aboard, he should hoist the ship's ensign in the fore topgallant masthead, bellow the flags there hoisted to indicate the ship's draft of water (Figure 5).

Parallel to the pilotage service, other important improvement to Rio Grande do Sul navigation safety was the construction of lighthouses. The first lighthouse built in the Brazilian southern coast was the Rio Grande lighthouse, precariously established over a wooden frame in 1820 a hundred meters from the *Atalaia* watchtower. Later, it was replaced by a cast iron tower painted with black and white horizontal bands, with lantern and gallery. It was prefabricated in England, installed in 1847, and extended locally in 1852 (Homem de Mello, 1872). It represents a rare example of an early English design (Figure 6).



Figure 5: National ensigns representing the “Maritime Merchant of All Nations” according to Richardson’s edition of the “*Universal Code of Signals* [...]” (Richardson, 1854: Plate 5). The British flag is shown in a separate plate in that publication.



Figure 6: Rio Grande lighthouse, photographed from the top of the Atalaia tower. It is thirty-six meters high, with active lights that can be sighted from approximately 21 miles offshore. Author: Torres, 2017.

Another noteworthy contemporary work, in regard to organization of the port of Rio Grande communication setting, is the “British Shipmaster’s Hand Book to Rio Grande do Sul”, published in 1860, by the British consul in Rio Grande, Sir. Henry Prendergast Vereker. Very complete and detailed, yet concise, the handbook brings among other information the pilotage regulations as in 1857 and reproduces the previously published Atalaia code of signals, thus appending the System of Telegraphic Signals which apparently was made current in the Atalaia only after 1858 (SARAIVA, 1857). While the Atalaia code of signals was long used, at least since 1819, but most probably since its erection in 1809, and continued effective throughout the nineteenth-century, the new telegraphic system was introduced to allow conveyance of more elaborate messages in the communication between the pilot-station and demanding vessels, by means of combining blue balls (balloons) and blue pennants (Figure 7).

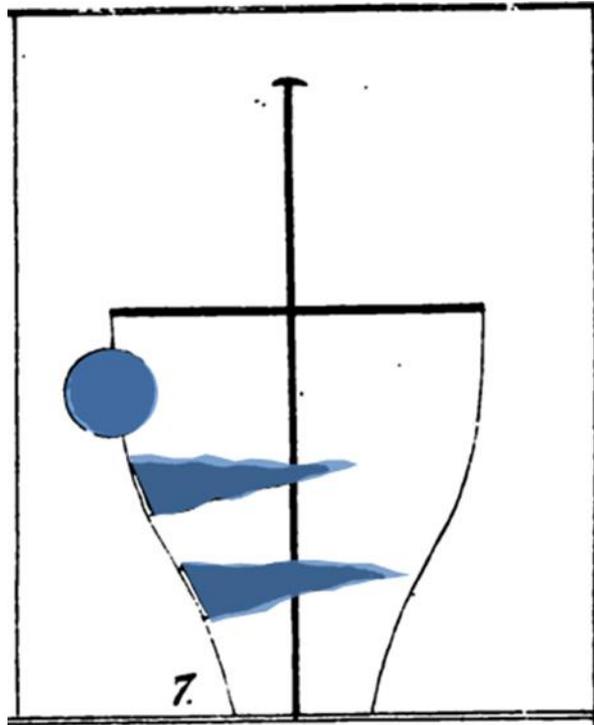


Figure 7: Example of message conveyed in the telegraphic system. As published in the “*British Shipmaster’s [...]*” (Vereker, 1860: 74), the signal n°7 means: “*Look out! On this tack you get aground*”.

The telegraphic signals spread along the margins of the canal, with stations which reproduced the messages back and forth, hence networking the pilotage village to a station positioned in the roof of the theater in the city’s downtown upriver. Therefore, by conveying telegraphic signals, a ship captain could for example communicate with his consul or consignee, signal distress, ask for a spare hawser, anchors or water. Moreover, the city could now track the arrival of a mail packet or circus troupe, as well as follow more closely the outcome of maritime accidents. An example of the later scenario actually happened in 1887, when the Brazilian Packet steamer *Rio Apa* of 400 tons disappeared off the bar with 119 passengers aboard (Pimentel, 1944).

Coming from Rio de Janeiro and bound to the River Plate, the ship was seen outside the bar on the afternoon of July 11, tacking in bad weather and waiting for the signs from the *Atalaia* tower when she was caught by a severe southeast squall, the so-called “Carpinteiro” wind, and disappeared before the pilot-boats could reach the bar. The news of the accident filled the local papers headlines and the population could follow stunned the outcomes:

News arrived from the bar in the last minute: unfortunately there are no more questions about the sinking of the Rio Apa [...]. The beach is strewn with debris and volumes from here to many miles up north. The Rio Apa was probably surprised by the hurricane at the time they crossed the sight of the lighthouse; [...] Taken by the vortex while tacking or maneuvering, careened sinking deep in the waters of the abyss. There hull should therefore no to be far too far away. PS.: After I’ve written the above lines, arrived a fisherman with the news that beyond the Araçá are several stranded corpuses. “Echo do Sul” Newspaper. Rio Grande, July 16, 1887.

Material Culture and Atlantic Community

At the end of the 1860s, the port of Rio Grande de São Pedro had become a major center of maritime trade in South America, performing communications and business operations between the southern provinces of Brazil and other national markets, Europe, North and South Americas (Camargo, 1868) (Figure 8).



Figure 8: Detail of the Rio Grande’s waterfront in 1865. In the center, the “Hotel Moreau” has a warehouse in the first store, where we can see written in English “Ship Stores”. That is one of the many signs of integration with the Atlantic seafaring realm. Author: Camargo, 1868.

In fact, this integration with national and foreign markets happened within a wider land/seascape. Rio Grande flourished in the nineteenth-century as the administrative, fiscal, commercial and urban center of a maritime space which included several anchorages, as well as the port city of São José do Norte, situated right across the North Canal, and the pilot station village near the bar (Figure 9).

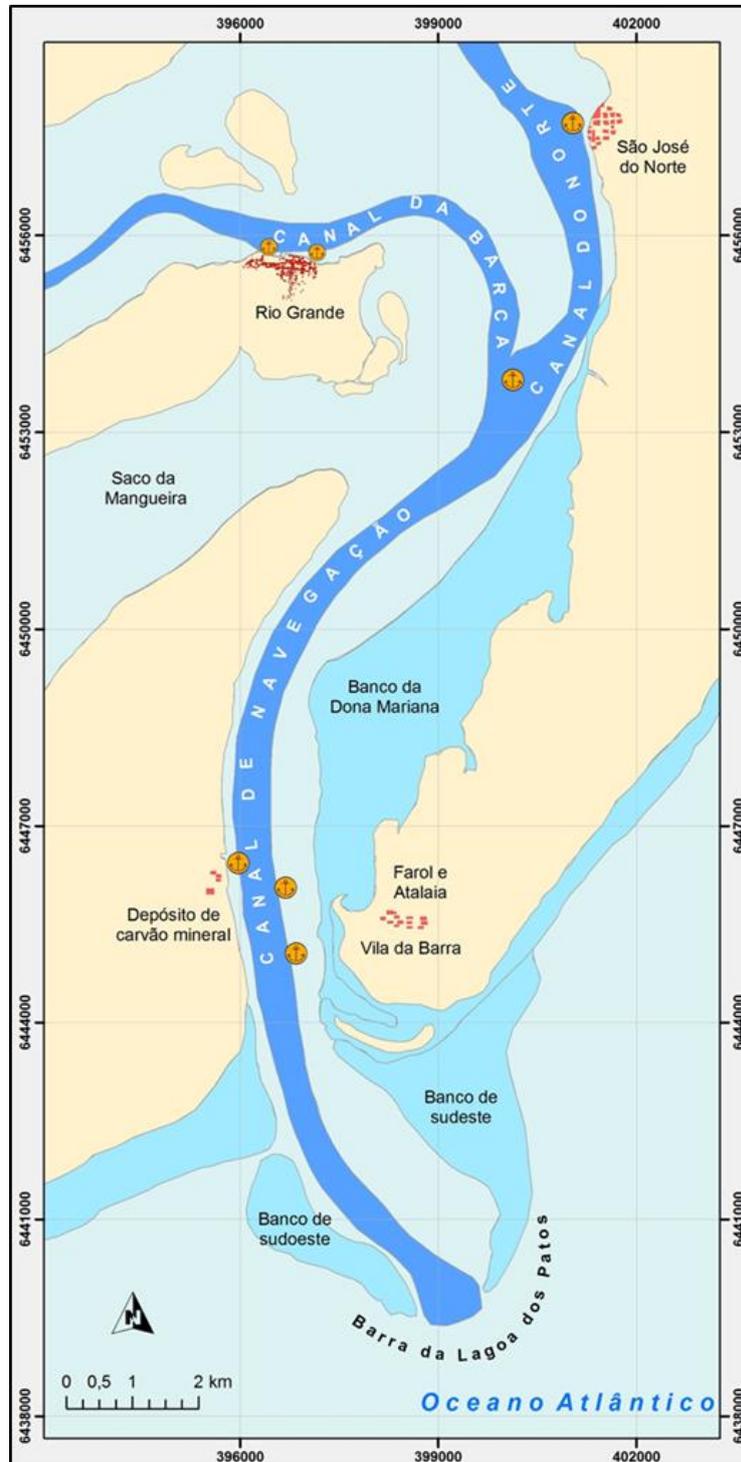


Figure 9: Urban-maritime space of the Port of Rio Grande around the 1850s. The orange circles indicate the anchorages. (After Dillon, 1849: “Planta hidrográfica da barra do Rio Grande do Sul”).

As distances shrunk and integration with the Atlantic seaborne commerce grew, the pilotage service evolved to be a key element in the technological setting of the port of Rio Grande. This importance can be attested by closely looking at the small community developed in the vicinities of the pilotage facilities. In 2007, I had the opportunity to direct an archaeological survey in the village in search of material evidences of the studied period, in the scope of the “Nautical Archaeology Field School Project” (Torres, 2008) (Figure 10).



Figure 10: Map showing an aerial view of the old pilot station village, showing the area surveyed in 2007. The numbers indicate some of the identified features. Author: Torres, 2008.

At the north side, together with the *Atalaia* watchtower (N° 1 in Figure 10) and the lighthouse (N° 2 in Figure 10), the church devoted to “Nossa Senhora da Boa Viagem” (“Our Lady of Boa Viagem”), built in 1852, embellished the landscape and centered the religious practices of a small parish (N° 3 in Figure 10, Figure 11). Walking a couple of hundred meters southwest along the water margin, towards the old pilotage village, I identified what the older residents claim to had been a branch of the Rio Grande Customs.

Further along, the pilot station warehouse still standing by the wharf, nowadays occupied by local fishermen to keep their boats and fishing apparatus. Looking at the village from the top of the *Atalaia* tower, we see the old pilot’s village, in contrast with modern port structures across da navigation canal (N° 4 in Figure 10, and Figure 12). Furthermore, investigations in the canal margins in front of the church during low tide revealed a handsome amount of housewares dispersed in the intertidal zone (N° 5 in Figure 10, and Figure 13). The deposit, although mixed with other historical and modern material, has been preliminary dated to be

representative of early, mid and late nineteenth-century. Indications are that a modern built canal for small boats dredged over a submerged archaeological unit in the area where oral tradition indicates to have been Francisco Marques' cottage, possibly a domestic trash pit.



Figure 11: Picture of the church of "Nossa Senhora da Boa Viagem" Author: Torres, 2017.



Figure 12: View sight of the village from the top of the *Atalaia* facing southwest Author: Torres, 2017.



Figure 13: Historical material deposited among other debris in the margins of the canal .Author: Torres, 2017

Final Considerations

At this point, it is unclear whether or not the Rio Grande pilotage adhered to more widely used code of signals and telegraphic systems, such as those standardized by Captain Marryatt after 1817, added and reviewed by several authors henceforth. At least until the 1860s the *Atalaia* code of signals and telegraph were regularly in use for local ship-to-port communications. Actually, in the *British Shipmaster's Hand Book* [...] (Vereker, 1860: 23-24), the author advises the reader to avoid the employment of Marryatt signals, due to misunderstandings that could arise from the mixture of colors and formats.

The entrepreneur mindset of Mr. Francisco Marques Lisboa may have been of great importance for further developments in shipping logistic in the port of Rio Grande during the nineteenth-century. The composition of the artifact assembly found on the canal margins off the pilotage village during the 2007 survey points towards a cultural cosmopolitanism, characteristic of nineteenth-century maritime culture.

Considering the contemporary developments in Brazilian history, with the liberalization of colonial seaborne commerce in 1808 and the country's independence from Portugal in 1822,

the new waves of modern ideas and practices coming on board Atlantic vessels depended on diverse material and human mediations to diffuse into societies overseas (Torres, 2010). In this regard, the study of local settings of cultural and material contact, particularly those points of connection between seaborne and land communities are potentially rich for maritime and nautical archaeologists engaged in historical investigations.

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