

Ancient Pharology from Google earth, of a Beautiful Mystery

to my grown up son and daughter, Yed and Cristiana Su

The emplacement of some of the most ancient lighthouses known, tentatively explained

Beauty and lighthouses

Lighthouses are beautiful, more often than not, and, undoubtedly, the seafront context in which we expect to find them is quite inspiring.

Arts and literature linger since long time on them, some have become tourist resorts, people even tour dozens of distant lighthouses just to see them, or “collect” them, as notably radio-hams do.



Italian radio ham diplomas. W.A.I.L., “worked all Italian lighthouses” Fbook group-one sets up a station, many try to confirm a radio contact

Lighthouses' society exist in the anglophone world in particular, often populated not just by passionates, but by former, and now ever more rare figures: present lighthouse wardens. Dr. Trethaway, one of the most noted pharologists, discovered he is the descendant of a lighthouse keeper family as he developed his [skills](#) and passion. I am indebted to his site for a number of illustrations here, as well as for a few critical concepts. Today, most lighthouses are unmanned.



Chania lighthouse Crete, the base is Venetian, end of XVI century, the tower Egyptian, early XIX.



Kjeungskjær lighthouse, Ørland, Norway.



Torre de Hercules, Galicia, Spain. A splendid Roman Lighthouse



© 2010 Matt Shetzer <http://Shetzers.com>

Enoshima, Japan, recently renovated Peggy's Cove, Halifax, Nova Scotia, Canada

Types of Lighthouses and their emplacement

A modern lighthouse equivalent uses radio waves rather than light, and is usually quite uncut.



**Cape Peloro navigational radio beacon, Sicily, Messina straits: ugly.
Enough to spoil one of southern Italy's most noted tourists spot**

Navigation lights are distinguished in light structures, built just to hold lights, and lighthouses, when they are accessible and have liveable spaces.

The first often have the aesthetics of... a spray can, some of the latter are utterly splendid.



Scottish light structure



Baleineaux lighthouse, France, in tempestuous waters

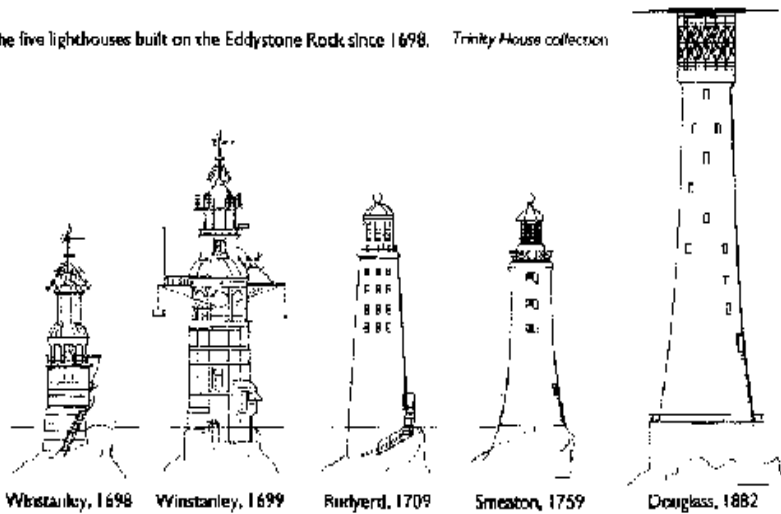
Lighthouses and structures are, since the Eddystone rock lighthouse, English Channel, 1698, ever more daringly set on rocks at sea.

This was not the case in antiquity.

In fact the positioning of a few ancient lighthouses puzzles historians so much some doubt they are lighthouses at all.

Typical emplacements include a rock or a promontory, to signal danger or on a harbour natural or artificial entry, indicating a port. Lighthouses are today in general studied as part of port structures.

The five lighthouses built on the Eddystone Rock since 1698. Trinity House collection



Evolution of increasingly resistant towers at Eddystone rock, the last has its own large foundations, no longer lies on the rock



This beauty once indicated the access to Baltimore port, US. It is today a much appreciated marine museum.

While Eddystone indicates a notoriously, historically famous wrecks' rock, in antiquity a now lost pillar at Cape Sigeum, ancient Lycia, Turkey indicated the Dardanelles mouth, in front of Troy. Some think it was a Lighthouse, others revered it as an hero's tomb. Were it found, it would be the oldest of them all.

Some authors think the two uses, tomb and lighthouse could well coincide. They do for the two oldest known extant lighthouses, not in use, the one at Pyrgos (meaning a light) on Thassos island, an inscription on it indicates it was built to use as a lighthouse, one coeval to the Alexandria famed Pharos, 42 kms from it, indicating Taposiris Magna, Cleopatra's favourite residence.



Philon's tomb-lighthouse, ca 250 BC, in the style of the Alexandria pharos and the tomb of Akerates, V century BC



Taposiris Magna could be reached either by sea or along the now drying Mariout lake, 42kms from Alexandria

Capo Peloro, Sicily's north-eastern tip had a Roman Lighthouse, recently its foundations have been dug, near the awfully looking radio signaller beacon above mentioned. It undoubtedly and historically indicated the Messina straits. The Messina port, just South had a second, now unidentifiable, Roman Lighthouse.



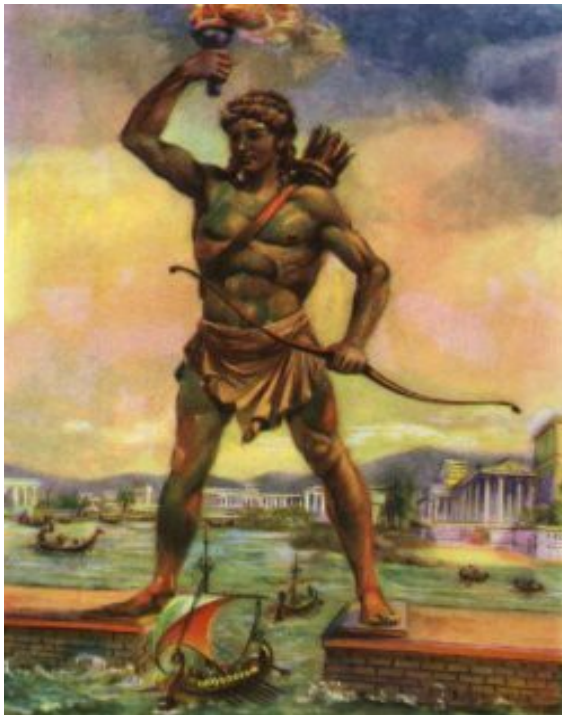
Capo Peloro Roman lighthouse excavations, under the “English Fort”, definitely more attractive than today's beacon

Like today, lighthouses of antiquity guided to an harbour, like at Centumcellae, the Roman Port that substituted Ostia antica, and at Ostia itself. This latter is lost, though its foundations were probably found, just a few years ago, exactly where a new kind of port ends, Rome Fiumicino airport.



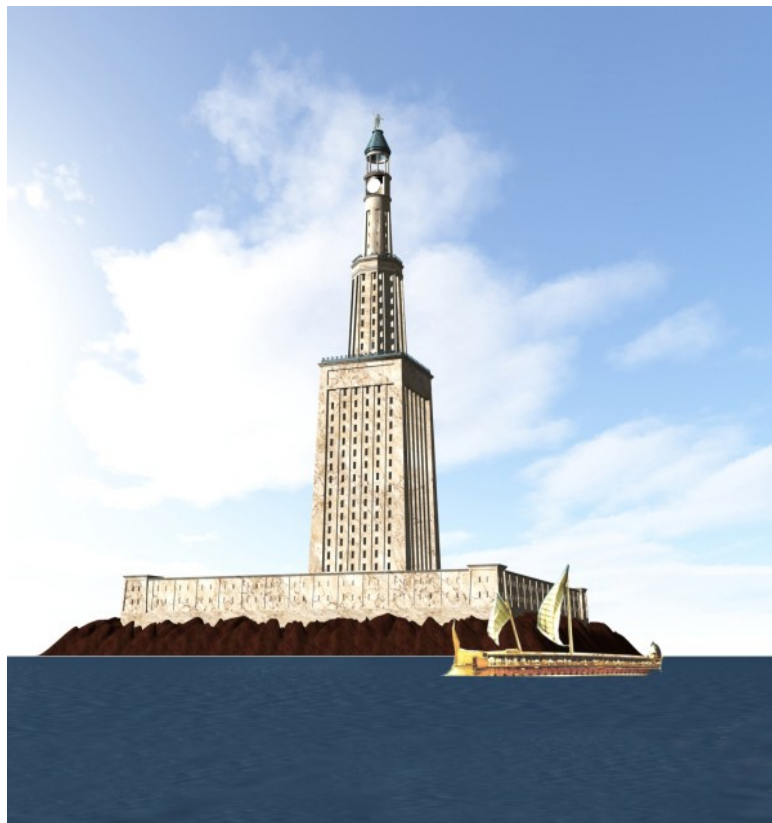
Torre del lazaretto at Centumcellae, southmost of three Roman lighthouses indicating the harbour. Main was destroyed in WWII

The Colossus at Rhodes was a giant statue near the local port's entrance, erected in 280 BC, 30 metres tall in all. Its remains have been described by both Philo of Alexandria and Pliny the Elder. It was, possibly, a lighthouse, but its nature and indeed exact emplacement are uncertain. We know it was made of metal and its scrap, after an early collapse, was sold to a Jewish trader, soon after the AD 653 Muslim conquest of Rhodes.



Artists' impressions of the Colossus

Alexandria, the hugest of all ever, on the island of Pharos at the port entry, defied a tsunami and was destroyed only by a succession of earthquakes, its stones were used in AD 1480 to build a fort.



Alexandria Lighthouse, ca 280 BC, from a 2005 study reconstruction

It was about 140m tall and imposed a construction style that prevailed in antiquity, with a large base and successive rectangular and round base towers.

Two Roman lighthouse indicated the only harbour in the tall white English Channel cliffs, the East one still is seen in most of its original height next to the Dover fort Church.



Dover Roman Lighthouse, 1st century AD

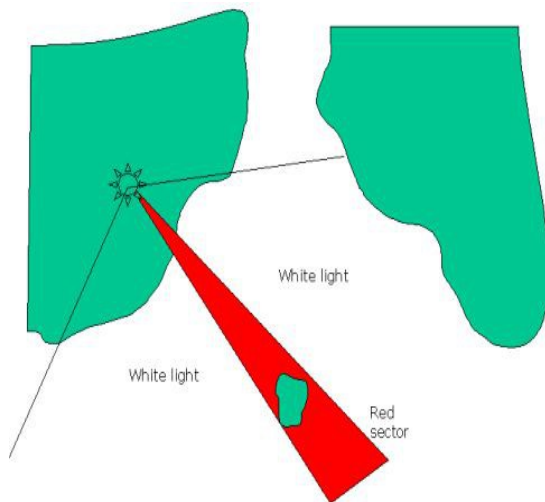
The other one was on the hill west of the port town, both have a total height well in excess of 135m, nearly equivalent to the single standing Alexandria Pharos. Well above the height theoretically needed to be seen, both, from Calais, the other side of the Channel.

$$D = 2,04 (\sqrt{h} + \sqrt{H})$$

Applying the trigonometric formula of first light seen over the earth's curvature, 10 feet or three metres be h, height of seer on the ship boards, 110m hill and 25m original tower, for a total of 443 feet H or light height, gives 28.33 nautical miles, over 52 km. Dover to Calais is 40.

Not a different emplacement necessarily, but another **type** of lighthouse are **Sectoral light** towers. They indicate a danger with a sector of a different colour, conventionally, red.

I need to refer to these last two, rather less commonly known types to debate my hypothesis on location of a few of the most ancient lighthouses.



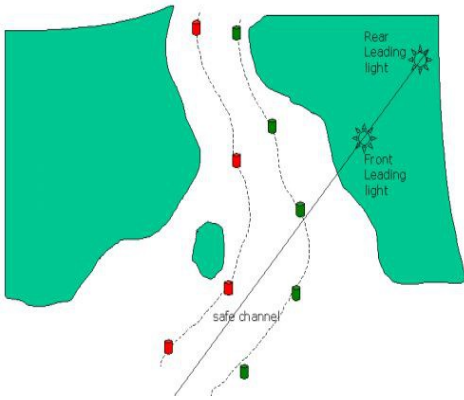
A model, pharology.eu



And a sectoral lighthouse from within.

Navigation in a danger zone will correspond to seeing a red light on the structure.

The channelling or **leading lights** are the last sort I debate here.



Model by Dr. Trethaway

Red Light structure and

Green light, both in Calais

Two lighthouses indicate the channel safe entrance with precision and at great distance, allowing to approach the narrows easily. Once in it, a pilot needs just to keep red lights at his left and green on his right.

Concluding, lighthouses are not necessarily just port structures, are placed where they can indicate danger, and safe access to harbour, modern ones are at times on rocks at sea, ancient ones often used the height of their emplacement to further their light's reach.

Lighthouses were of ancient symbols of power of the States that owned them, necessary tools of maritime power, from which stemmed State wealth, and proof of might.



Coins depicting, from left, the Ostia, Alexandria and Messina lighthouses, verso, Scilla, the monster of the straits

Is the Verezzi tower a Lighthouse?

An interesting tower in Verezzi, Liguria, Italy has stirred debate some three decades ago. A local former footballer, necessarily with permission of the owner, a lawyer, modified the structure to adapt it for his leisure. A prize bearing the tower's name is awarded yearly "The Verezzi Windmill" though a few of the brightest people in the area doubt it could have ever been a windmill.

I have probably [contributed](#) to dismantle totally the idea it was ever an horizontal mill, and proposed it was originally, in fact, a lighthouse.



The Verezzi tower, before being closed and modified, in the eighties.

I have known the structure for a couple of years, and immediately understood the place, distant from the village, not on a windy top but on a hillside, and the windows clearly showed it was not a windmill. In spite of finding it stated everywhere, including a tourist information stand on the spot. Most would not think it is a lighthouse, even if when lit it could be seen from as far as Capo Mele, whose single street lights are, reciprocally, seen from it. But it is not a port structure, and it is not seen if approaching from East: only from West or South.

The only significant island along the four hundred kilometres tract from iles d'Hyère, Toulon, France to the Tuscany archipelago and Leghorn is Isola Gallinara. A fiercely dangerous one for ships, especially of that tormented period spanning a few centuries around the birth of Christ, when heavy, large and poorly manageable ships were the most prone to disaster in history, as a whole.

The Verezzi tower emplacement has, to me, been chosen as its light beam cuts across Gallinara as one navigates off Capo Mele, a major promontory. Approaching the island, the light will be obscured by its peak on the north side, and its rocky sides, nearly seventy metres above the sea. If the light was placed at the level of the houses of Crosa, the Verezzi fraction associated with the tower, just 250 metres north, the light would just not disappear as a ship approaches Gallinara. No one has ever dated the structure, or investigated the nearby twenty or so dwellings village, clearly not related to local architecture, indicated since long as an Arab or "Saracen" hamlet. It should be done, not just for the science. The area is a famed tourism one, yet a quarry of disproportionate size is destroying an amazing archaeological area. Since the palaeolithic people have been residing in the carstic caves there, as the splendid white sands -now transformed into cement ligand for profit by the Genuese Family Ghigliazza, the quarry owners- attracted mariners.

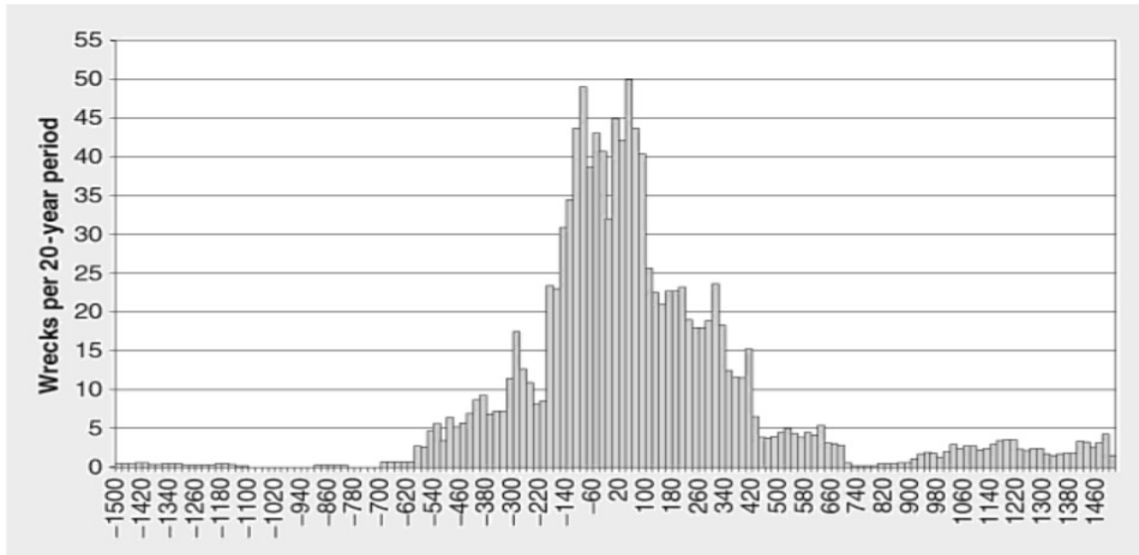
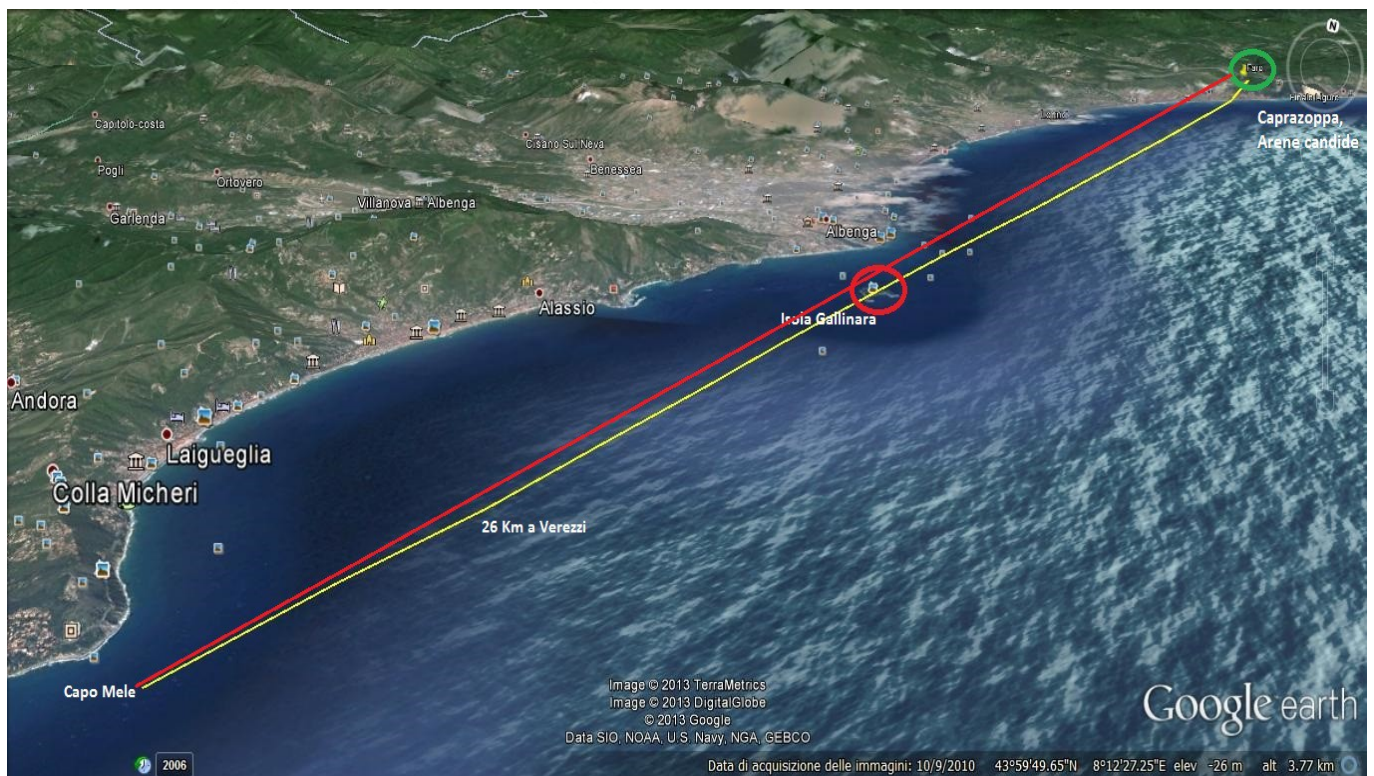


Fig. 9.6. Mediterranean shipwrecks by 20-year period, using probability per annum (data from Parker 1992a)



Yellow line indicates how the light would disappear on a west approach, 250 m inland and it would no longer work



Verezzi Crosa hamlet walls. Unstudied.

I suggest the tower was a lighthouse to indicate the caves and sands, the Finale bay port just beyond the Caprazoppa promontory. In the isolated hamlet lived the lighthouse keepers. It worked as a modern Sectoral Lighthouse, indicating clearly the reefs of Gallinara:

- There was a burner, more than two metres tall, fed from the lower storey, with local resinous wood or charcoal, whose flame was protected by the upper walls.
- The number of windows could act as an identifier, like modern lighthouse's flash type and timing.
- An external ladder gave access to the flame. A reflecting mirror, akin to the “burning mirrors” of Archimedes could better direct the light, on the top or at the back of the first floor.



Gallinara's rocky, hazardous peninsula

The structure itself, as the “lighthouse village” should be excavated, walls dated through the appropriate [technologies](#). The area has been used by both Carthaginian and Arab navigators.



An underground, Verezzi Crosa

Patara, the incredible



Nero's monumental lighthouse, Patara, AD65. The most ancient of Roman lighthouses found.

In Patara, Lycian Pttr(a), Latin and Greek Arsinoe, some construction company moved masses of sand in 2005, I presume to sell it as building material.

They sure did not imagine they were moving the deposits of a huge tsunami, that killed the lighthouse warden as he tried to escape under the door architrave. And, effectively, were excavating the best port find of the millennium so far. A totally unique, fascinating one.



A stone reads the name of Nero: dating is certain.

But, immediately Professor Havva Isik, convinced he had found a lighthouse, faced the usual critic. In particular, from Italian scholars. “It is an altar, or other, not a lighthouse, the emplacement makes no sense for signalling a port”! Arsinoe, or Roman Patara massive, fascinating ruins are just North East, the coast was most likely less wide, and that amazing white beach is most probably at least partly due to the tsunami that interred and preserved the structure. But logic, modern logic would never see a lighthouse there, with two hill promontories to the east, nearer the town.



The white beach, haven for a lucky few



The freshly restored Roman Fora



A family of newly hatched Caretta tortoises

Yet, even more than in Verezzi, a dangerous navigation blocking island line could, in my hypothesis explain the awkward placing, on a beach just above sea level, while hills and promontories were closer to town. Once again, certainly not a last case, the lighthouse is perfectly placed to indicate the line of islands, the one noted to some google earth regulars as the “Antalya exclamation mark”. The three islands in line, forming the sea feature, are called Çatal islands, from the name of the long, very dangerous one to the south, Çatal Adalari, while the round one is called Siçan Adasi.



Nero's time navigators just... did not have aerial photography, still, they knew the (!) danger!

This time, moving the tower just one hundred metres inland would mean needing a fifteen metres higher light to obtain the obscuring of the light, index of the near presence of danger. Moving it closer to shore would have been totally unwise, as much weaker, lesser seas than the tsunami would have endangered it. And, in those years of tragic wrecks, it was vital: exactly there.

Once reconstruction will be complete, the tower height will dictate the distance from the southern tip of Çatal Adalari, at which the Romans had felt navigation safe.

A bounty of ideas for guided tours, and an historical reconstruction feat: professor Havva, Antalya tourism office, why not. put a light up there! Cruising off the Çatal and into Patara will soon mean feeling like ancient seafarers, and experience, directly, ancient navigation techniques.



The higher the lighthouse, the nearer to danger is the approach. Certainly, no need for a very high tower!



The central, smaller islet of the Çatalas



One hundred metres inland, and it doesn't simply work, anymore. Unless the tower is fifteen metres higher.

Similarly, but less evidently, experienced seafarers would note the light on the Patara beach after a promontory, hidden by another one, when approaching from West. Definitely, a less dangerous situation.

The beaches, though less long and amazing, offered the only harbour for the Arsinoe visitors. Those beaches also nest the second strongest population of endangered sea tortoises *Caretta caretta* of Turkey.

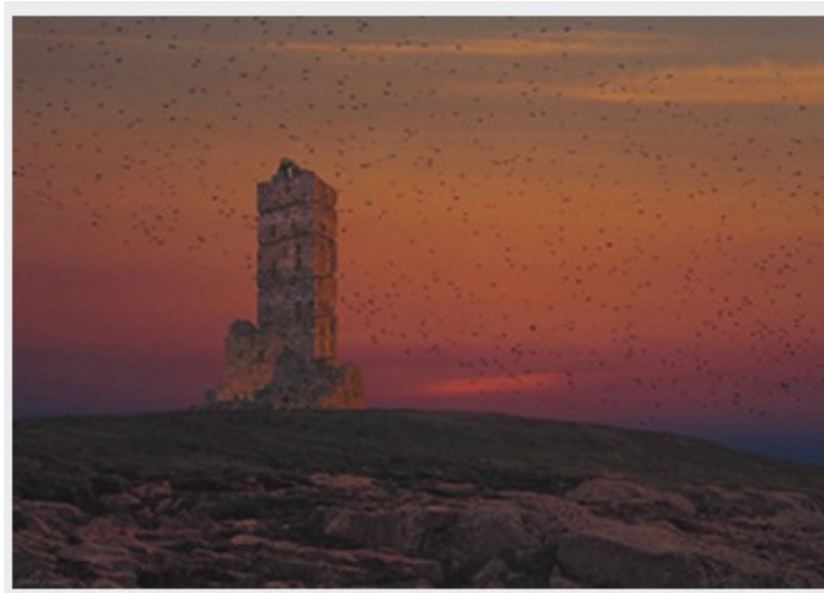
An archaeological park second to none in beauty and liveability, along the Mediterranean shores.



The dunes west of the lighthouse, the promontory hill chosen for the 'trick' is clearly seen, the Çatal islands behind, just not.

La Coruna, of distant crossings and near treacherous rocks

The Torre de Hercules lighthouse at La Coruna, a noted landmark and a UNESCO world heritage site can boast to be the only working Roman lighthouse. In its present state it is actually a rebuilt, taller XVIII century enhancement of the original, according to some on the exact site of a Carthaginian lighthouse. It stands, in an area with abundant more accentuated promontories, in a bay, where no one today would dream to put a radio beacon or a lighthouse. One cannot see the light until after the Sisargas, or the "Death Coast", thirty km off. El Faro de Sisargas, modern and automatic, duly signalling the right place, there. Approaching from west, one cannot see the light until 18 km distance, after doubling Cabo Prior. The logic place for signalling of any kind, that side.



A rendering of the Roman Lighthouse before the first restoration of the late XVI Century

Its present structure offers an important hint at its past. A pillar stands in front of the light, pointing exactly to the dangerous el Portiño rocks. It is a first kind of sectoral light: the light disappears if you are navigating towards the rocks. I suggest the Roman lighthouse, whose light disappeared beyond the San Pedro hill if you approached the first el Portiño rock if it were forty metres tall, and the second one if it were around 20 metres, was placed there to indicate danger.



The light of the Roman lighthouse would be concealed behind San Pedro hill, revealing the perilous rocks



Note the pillar of the present, first known sectoral lighthouse. Restored by Charles III, late XVII century

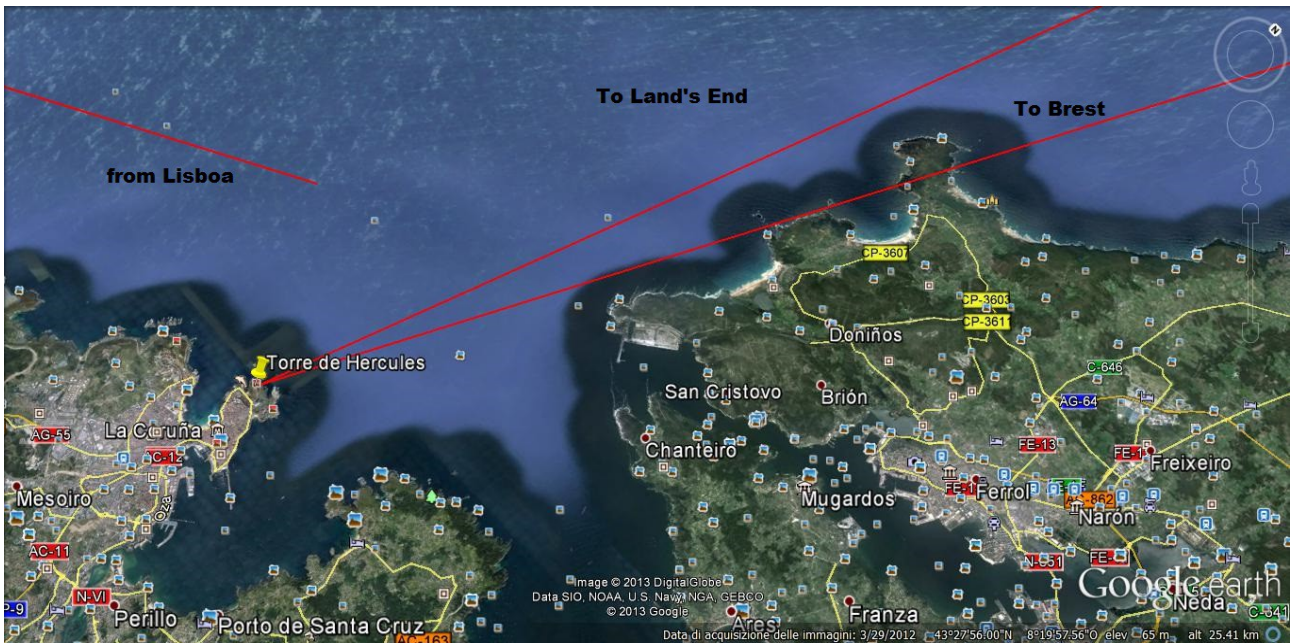
Navigators of the area would be as well placed as pharologists, or lighthouse experts, to judge on my hypothesis.



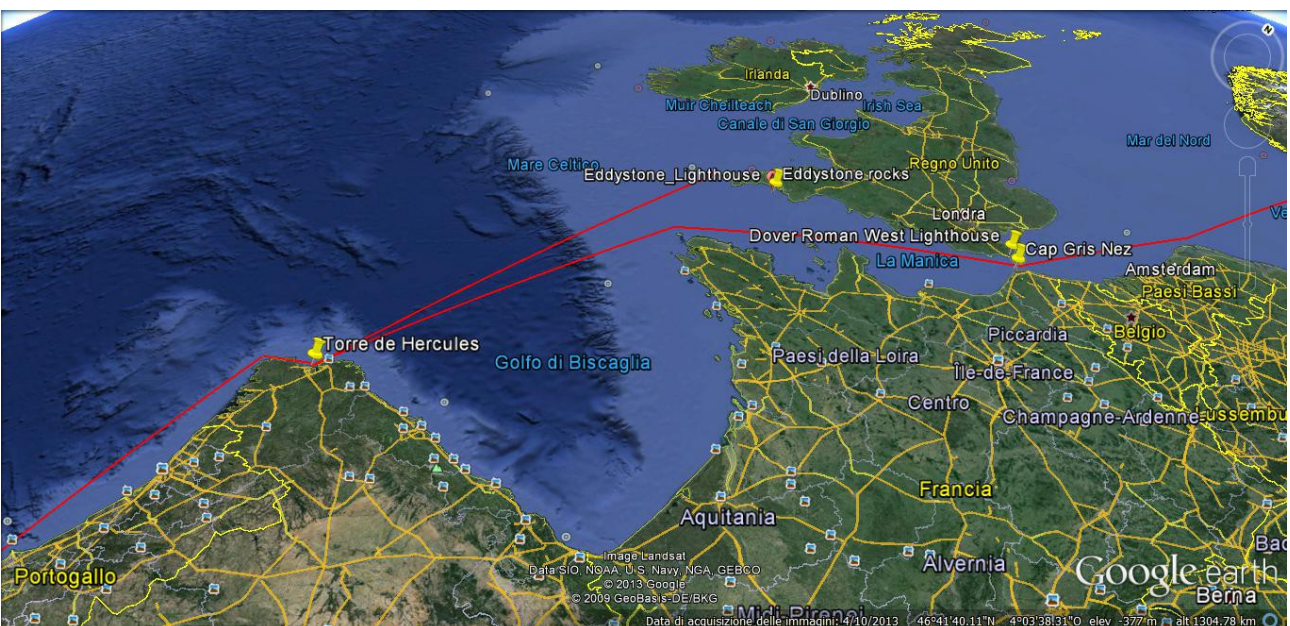
Two views of the el Portiño rocks

I have to note the tower emplacement, approached from west, makes sense only to long distance haulers. Approaching from North East. This points to direct crossings of the bay of Biscay, as no one could see the light until after Cabo Prior, from West.

If an ancient, in fact, vary ancient mariner of those long pre compass times needed a good evening head-start to the Channel, Britain and the North, he could easily have it, as his ship left La Coruña: the light of the Roman, or any preceding signalling system there would disappear as you left the port in the exactly correct direction to the Channel. From then, pointing to one of the greater chariot stars as it lay down East of Polaris would have been the experienced seafarer's choice. Incoming from Britain, Scandinavia or Saxon north Germany, the light could have been recognised far beyond Cabo Prior, indicating how to avoid it.



La Coruña and other near Galicia ports would have been vital in a number of ancient trades, like the one of copper for bronze smelting. Seventy one Swedish artefacts have been [examined recently](#), those of the middle Nordic bronze age were made of copper from Sardinia and Spain.



The necessary direct crossing to trade from the Mediterranean to the Baltic, copper passed here in the bronze age.

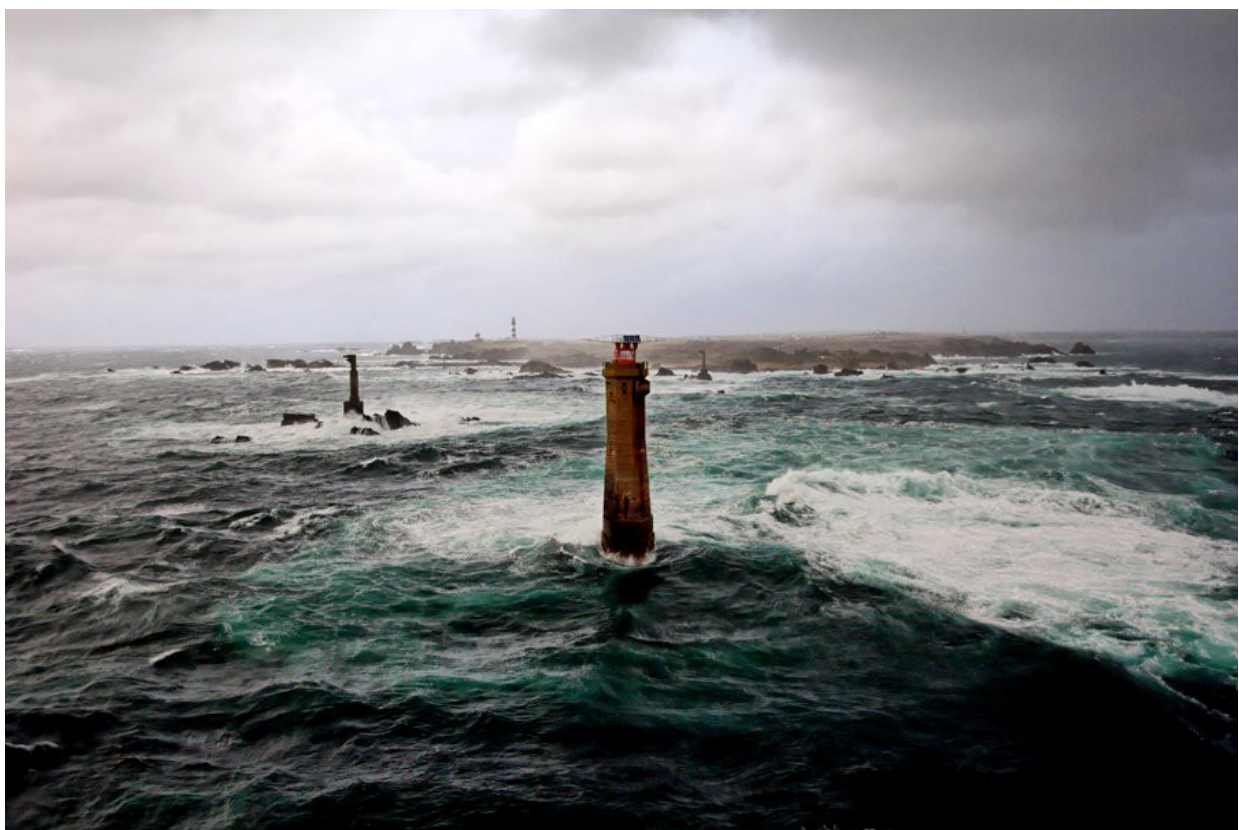
So vital were direct bay of Biscay crossings the very early medieval Britons took control of the Brest area, Armorica, of La Coruña and most of Galicia by establishing their own colonies there.



Briton's settlements in Armorica and Galicia

Land's End Longships islands radio beacon and lighthouse

As a conclusion, three very ancient lighthouses, amongst the oldest found, appear to have been placed to direct ships away from danger, rather than to port, with a precise positioning that renders all three the equivalent of a sectoral lighthouse. Only, no red colour recognises the danger area as the light sweeps behind Fresnel lenses, hills and promontories just obscure the beam.



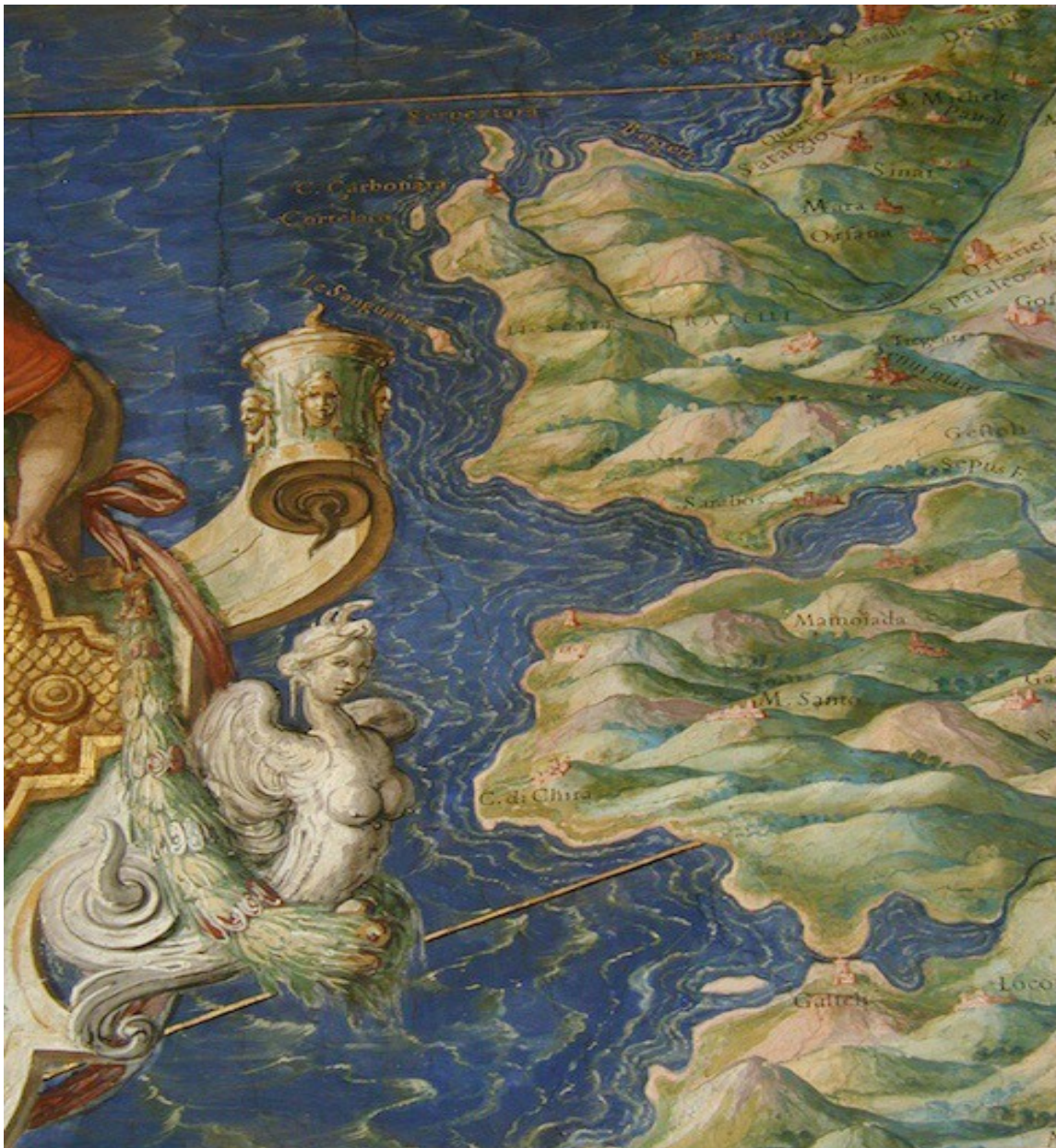
An array of lighthouses and light structures, beacons in Nividic, off Brest, photo Boiscq Erwan

Studere necesse est. More lighthouses to be found

Ancient Pharology is a tricky, controversial subject. Amongst often Anglophone Scholars, an Italian expert has recently published a monumental 350 pages [essay](#), as a BAR, British Archaeological Reports paperback. "Navigare Necesse Est", dimensions exaggerated by its characteristic -a book in Italian with its complete English translation- does not appear to satisfy the knowledge gap it demonstrates. Baldassarre Giardina's massive many years work has actually stirred [disagreements](#), tied also to some readers finding his writing prolix and imprecise, at times inconclusive.

I esteem more collaborative work, especially proper archaeological research is, rather, most in demand at present. Mediterranean researchers have knowledge to share, sites to explore, while Northern Europeans, more and ever more by the month as the real dimensions of Italian and other Countries crisis appear, are the only ones to have the means and real interest, on the Continent.

Just as a visual example, the Vatican Gallery of Maps holds forty 1580-85 marvellous paintings of Italy's coastline, in tracts dotted with towers that could well, and in some cases appear to be, lighthouses.



Ignazio Danti, Sardinia around Cape Carbonara. Photo Dr. Ken Trethaway, 2003

I propose my hypothesis may help in the task of finding more sites.

Considering ancient light structures as a navigational tool, understanding their emplacement better: at times to obscure lighthouses from sight to indicate perilous coast or features, may lead us to lost towers' sites. Or to recognising a tower as a lighthouse, as I am convinced is the case in Verezzi. Find an area from which hiding a light behind a hill would point to danger, explore it.

Let us consider two ports in the Red Sea.

To us studying the far East to Mediterranean ancient trades, *Mare Erithraeum* was basically just a passage with limited ports, on the way to and from China and India and the spice islands.

Jeddah, at times Roman, then also Axumite, before becoming a main Arab port, must have had a lighthouse. One also, I guess, capable to guide safely off a good dozens shallows and coral islands that dot the bay. Now a science fiction lookalike 133m tower directs port activity, more a control tower than a lighthouse. I propose someone could explore an area not totally overbuilt, where a light could, again, have disappeared behind some jetty land, if it was there already in old times.



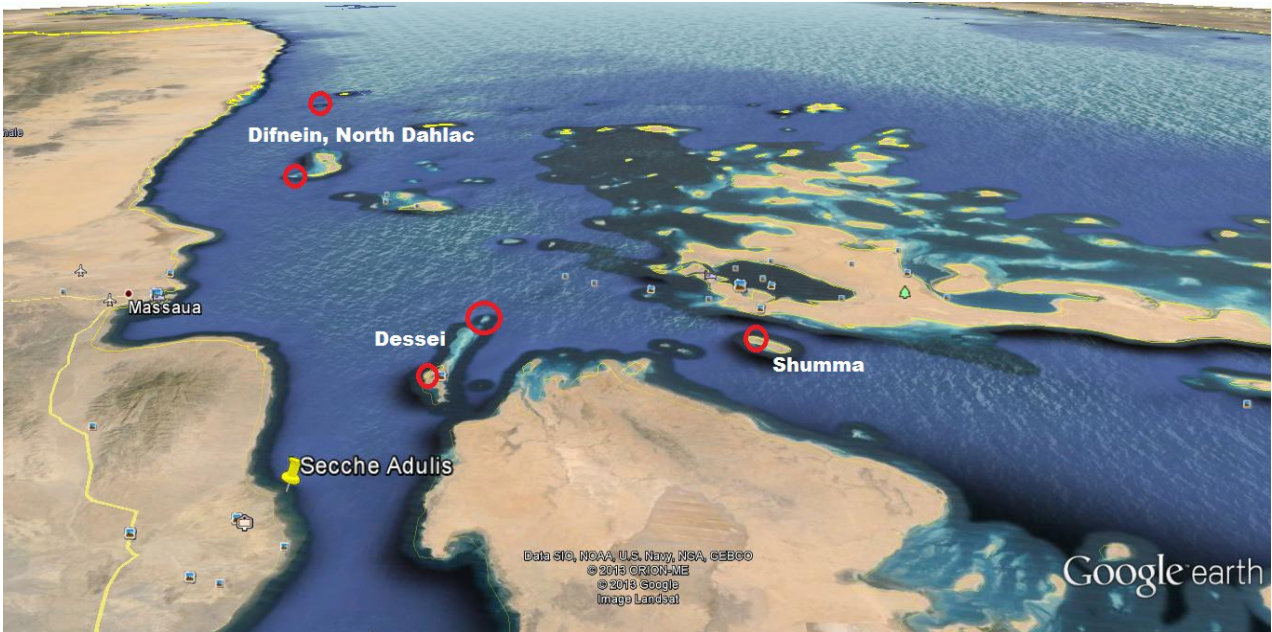
A potential light area? A yet unbuilt area where possibly a reappearing light could have indicated coral shallows.

The **Dahlac** islands present a difficult channel with coral reefs and shallows. They face the main Axumite port of Adulis, where Cosmas Indicopleutes, “Cosma who travelled to the Indies” witnessed in 525 AD King Kaleb's naval army preparations to invade Yemen for a second time: a good hundred sewn plank marvels of the time, probably single rudder and one or two masted, certainly safer to conduct than Roman disastrously wreck prone huge triremes and quinquiremes.

I attempt indicating in a sat view a few good spots for a potential guiding light, from North -the then Roman and Bizantium ports- to the “Indies” the far East Ethiopian Axum was the door to.

Axumite wealth descended from its role of trade link between Rome/Byzantium and the far East, in the period during which it dominated the spice, ivory, gold and slave trade, between the III and the VII century.

A wealth witnessed by the cross-findings of African and Indian, Chinese coins on both sides of the Indian Ocean. The Axum standard, the Work or gold piece, was in fact found falsified in India. Marine archaeologists, like [Ralph Pedersen](#), are nearing the find of Axumite vessels, never uncovered, so far.



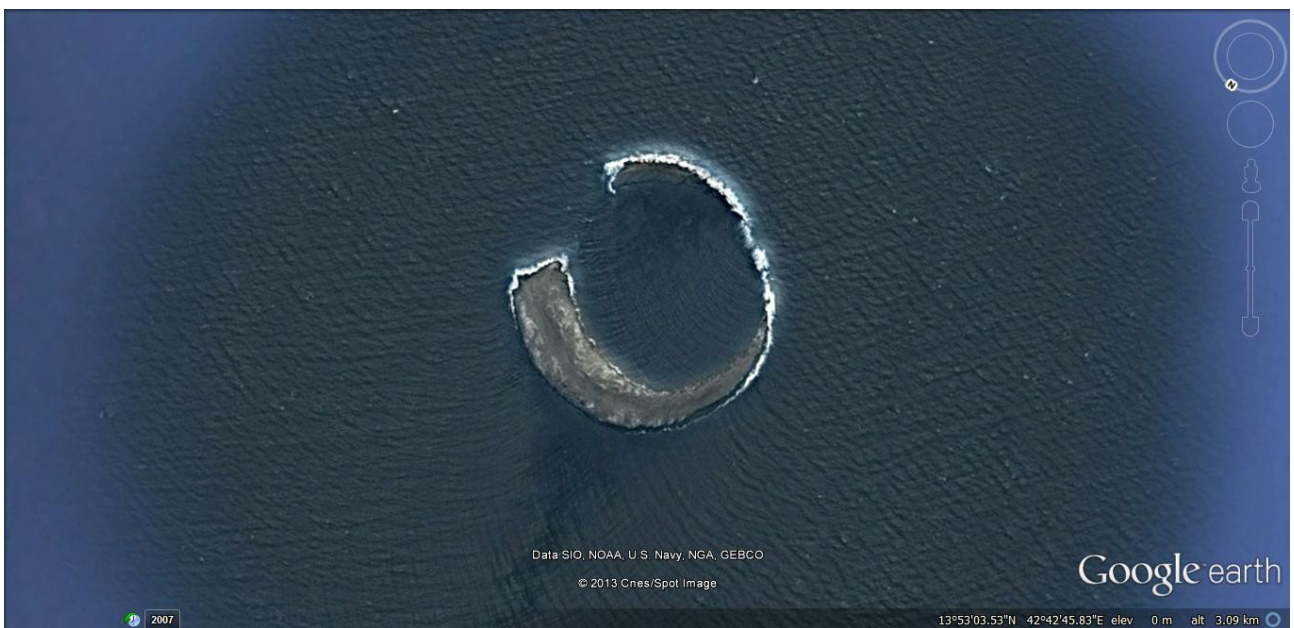
What is your guess for another, third new site to check in the Red Sea?

Finding ancient lighthouses, excavating the nearby wardens' dwellings along the Red Sea and the Horn of Africa coasts would cast a new, interesting glaring beam into a yet unexplored, dark, but absolutely fascinating period and route of sea trade: the medieval gold, ivory, myrrh and slave routes out of Africa. On to India, Indonesia and China.

I willingly leave my reader with a few photoes of an Ottoman and two Italian lighthouses, not particularly ancient, but set in amazing whereabouts, *abandoned and absolutely worth saving*.

Quoin Island Ottoman lighthouse. Hanishes, total esthetic perfection



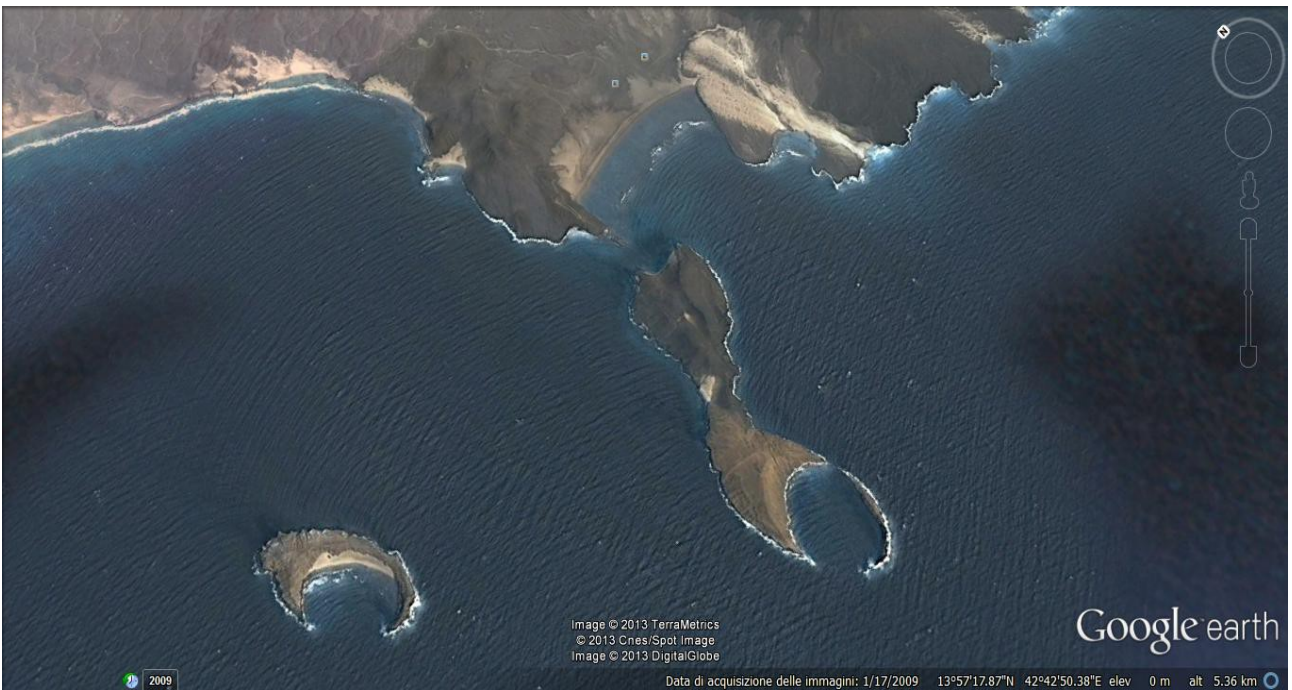


Can I unofficially name this atoll "Perfection"? Note the diffraction waves from the broken barriers and the access



Quoin Lighthouse, Ottoman, 1903, in rapid need of restoration

These total marvels are contended between Yemen and Eritrea. But Quoin, the lighthouse one, is definitely Yemeni. Anybody, possibly in the Arab world, ready to help? Say, now powerful Turkey?



Jabal Zuqar Island, Yemeni Hanish archipelago

Cape Guardafui

The name, in levantine lingua franca -an Italian based language for mariners on medieval east sea routes- means “See and run”. Dangerous, inhospitable, steep, totally dry. It now oversees the most piracy prone sea shores of the world. Not only do ships now “see and run”, they are, as in much of ancient history, defended by military trained specifically against piracy, and very well armed.

The lighthouse, representing a “fascio littorio”, the symbol of the regime, is in very good state. For how long? There is a project to elect it to a national Somali monument, but in Puntland, a non recognised breakaway republic. It was dedicated in 1924 to Francesco Crispi, the hard line right PM that fell irrecoverably after the Adwa Ethiopian thrashing victory over the colonial assailants.

The plaque reports the names of two military officers of high rank, both aged by then and engaged in Italy's liberation wars, as the captains of the two first ships opening an improbable route of return to ancient fasts of Rome, for Italy. The “necessary” trade with the East.

The area was called “Cape of Spices”, by the ancient Greeks, in Latin *Aromata promontorium*.



Photos from wikipedia

Mogagishu port Italian Lighthouse

This structure is a few decades older, pre fascist and about a hundred years old.

It is unique in style, emplacement, architecture, and may recall classic Ptolemaic and Roman lighthouses. Unless some Institution puts some funds and a restoring hand on it, it is condemned to collapse, albeit probably not soon, as it is very solidly built.



NATIONAL GEOGRAPHIC
Photograph by Pascal Maire

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A National geographic feature, 2009



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Addis Ababa, 8 December 2013

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- 15) <http://hrcak.srce.hr/file/153423> link directly downloads a paper by Italian Pharologist Baldassarre Giardina.
- 16) http://www.academia.edu/2085207/Scribere_non_necesse_Osservazioni_su_B_Giardina_Navigare_necesse_est A documented critic of the above author's latest publication, by a Catania University Academic, Prof. Enrico Felici. No need to inscribe via Fb, just click the x up left.



Mulkiteo lighthouse, Washington.