Ancient Lighthouses

by Ken Trethewey

In recent years there has been little consideration of the subject of ancient lighthouses and how they might have come into existence. Several factors have given new impetus to renewed study. The maturation of the Internet and the digitisation of ancient texts has greatly improved the availability of information for such research. Likewise, the tool known as Google Earth offers remarkably detailed satellite data to all. Finally, today there is an unparalleled level of understanding of ancient civilisations, supported by extensive archaeological studies. This new information environment gives us a far better opportunity to revise what we know about ancient lighthouses. In limited space, this article attempts to give an overview of the latest research, full details of which are provided elsewhere. [1]

Most students of lighthouse literature are familiar with three milestone works by noted pharologists, David A. Stevenson (1959) [2], Douglas Hague and Rosemary Christie (1974) [3] and Friederich Zemke (1992) [4]. Each of these works presented the evidence of ancient lighthouses only as a brief introduction to in-depth analyses of more recent lighthouse history, and although each essay improved upon the one before, none provided satisfactory answers to the question of the origins of lighthouses which remains almost entirely unresolved.

Almost everyone is aware of the Pharos of Alexandria and that it was popularly known as one of the Seven Wonders of the Ancient World. Yet when we look to times earlier than the construction of the Pharos we are peering into a world where nothing of substance seems to exist. It is as if a new mythology has been created and accepted as being the end of the discussion of where lighthouses came from. It is as if one of the most remarkable, ambitious (and costly) engineering achievements of its time was taken out of a box and placed on the shores of Egypt by some visiting alien. When we realise that the name 'Pharos' is the island on which the tower was built, and that there was no specific word for 'lighthouse' in any of the ancient languages – except for the rarely used term 'fire-tower' - the lack of an answer to the question raises much curiosity.

There have been many artistic representations of the Pharos, and, as a result of research for a new book on ancient lighthouses, I have collaborated with the artist Alfonso Biescas to present a new image here for the first time. This artist's impression is based upon a careful review of the available evidence that has not changed significantly for a hundred years and therefore contains little that is new, except for its power to dispel some of the fanciful and erroneous impressions created by other artists.

The date of construction of this magnificent tower will probably never be known accurately, but we may take it to be 280 BCE. This date corresponds to other better known historical dates for the conquering of Egypt by Alexander the Great in 331 BCE and the founding of the city of Alexandria. It allows for the assumption of power by Ptolemy I Soter following Alexander's death in 323 BCE and the passing of a reasonable period of time during which the tower was planned and built by Ptolemy, assisted by his son, Ptolemy II Philadelphus, who became king when his father died in 283 BCE. The year 323 BCE corresponds with what historians today call the commencement of the Hellenistic Period of Greek history that lasted until the overthrow of Octavian and Cleopatra in Alexandria in 31 BCE.

During the latter part of the 20th century, new archaeological remains were discovered in the shallow waters of the bay adjacent to the site of the Pharos. [5] These have provided important evidence of its existence and some new clues about its structure, but no confirmation of the details of the design, particularly the internal structure, which are still a matter for debate. We can be quite sure about some details. The main body of the tower consisted of three sections of diminishing cross-section. The bottom third was a most substantial square tower. The central section was octagonal in shape, whilst the top was short and cylindrical with an open lantern area. I believe the octagonal shape was chosen because of a direct correlation with the mariner's ancient compass rose (although, of course, he had no compass at the time). Awareness of the wind direction was essential to ancient mariners.

Without necessarily having words to identify them, early hominins made an association of east and west with the sun some time near the start of human consciousness. It was followed quite naturally with the recognition of north and south. This led to four main points of direction that lasted across all cultures for many thousands of years. As navigation methods developed, it seemed natural to identify

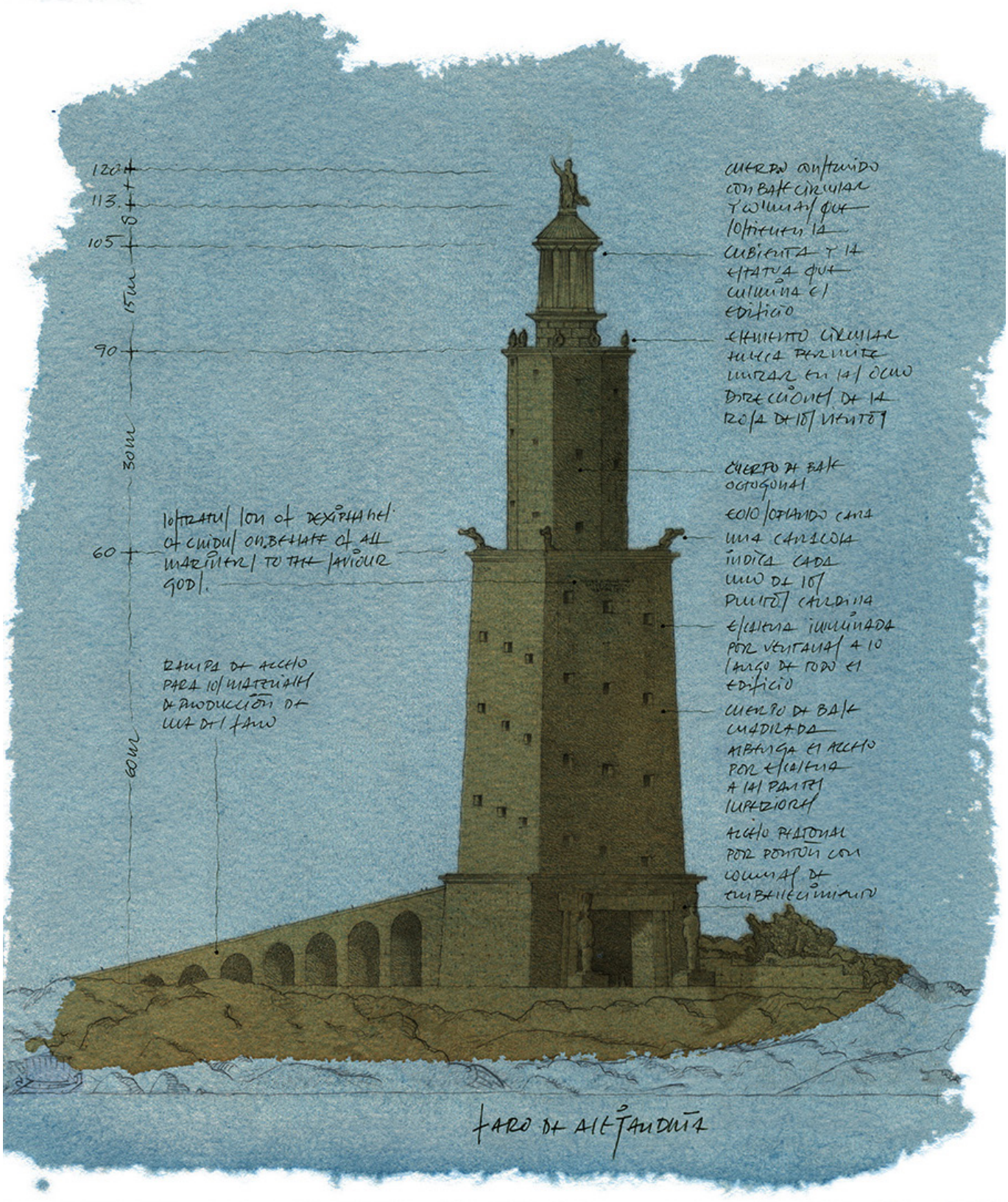

Figure 1: A new artist's impression of the Pharos of Alexandria. ©2016 Alfonso Biescas

winds that were slightly off the four main cardinals, so increasing the directions either side of the four led to a rose of twelve directions, all associated with winds that were of fundamental importance to mariners. However, many mariners also concluded that it was sufficient to define directions that were midway between the four, and so an eight-point rose was also created. Men working at the level of the lantern of the Pharos would have been instantly aware of the direction of the wind (as well as, perhaps, the direction of the smoke from the fire) by looking down at the compass rose displayed

Figure 2: Torre dels vents in Athens (2011).
This well preserved tower is a very strong indicator that the shape of the central octagonal section of the Pharos of Alexandria was deliberately chosen because of its relationships to the eight winds of the compass rose, so essential to mariners of ancient times.

by the octagon beneath their feet. One of the finest reminders of this is the *Torre dels vents* (Tower of the Winds) in Athens, a perfect example of how the ancients divided the compass into eight directions. I am sure that this is the reason why the octagonal shape was used for the central section of the Pharos. The three-part design, once established for the Pharos, was copied extensively in many subsequent designs of lighthouse around the Mediterranean coastline.

For hundreds of years, many dedicated scholars have scoured the available literature looking for definite indications of the existence of any lighthouse that may have acted as the inspiration for the Pharos. None has so far been found. We should remember at this point that the Romans were prolific lighthouse builders. However, all evidence of Roman lighthouses post-dates the Pharos. Likewise, numismatic readers may also know that images of lighthouses crudely corresponding to the Pharos appeared on many coins of the period, but that all of them date from years after the construction of the Pharos. The same applies to iconography in general, a complete discussion of which there is no space for here.

A number of possible avenues for research are immediately obvious. Surely the answer must lie in a deeper study of ancient civilisations prior to the Hellenic Period. Perhaps the idea of lighthouses was already deep-seated in the Egyptian civilisation prior to its conquest by Alexander?

It is clear today that the earliest human groupings were formed along the banks of the River Nile starting in the real Garden of Eden somewhere in lands we identify today as Ethiopia-Eritrea-East Sudan. Human dispersals took place down the Nile, and across regions of the Horn of Africa to lands of southwest Arabia. Crossings of the Red Sea were much easier in days when sea levels were far lower than they are today. Humans are known to have been crossing water on floats for at least 800 thousand years, and their migrations (for example, to Crete at least 130,000 years ago) using water-borne transport must surely have identified the need for aids to navigation early on in that period. It has become clear in the past two decades that the rises in sea level that have occurred during more recent human history have resulted in the loss of many early human habitats and that there is a need for underwater archaeology in the shallow waters adjacent to Mediterranean and Middle-East coastlines. Fortunately, such studies are presently gaining momentum, but are still largely new. There is much yet to discover.

A great deal is known about Egyptian history and of their methods of navigation, but there is no direct evidence of any specific structures that might have provided lighted aids to navigation. Indeed, had there been a word for 'lighthouse' in the Egyptian language in 280 BCE it would surely have been used for the structure at Alexandria. Additionally, although the Egyptians were prolific users of water transport, their ships were obtained despite the lack of suitable timber in the Nile hinterland. Ships were either purchased elsewhere or made from timber bought from external sources. Neither were Egyptians especially known for open sea voyages, preferring to keep mostly to inland waterways or occasional short coast-hopping journeys. Thus it would seem that Egyptians are not obvious candidates for being early lighthouse engineers.

Many writers have offered the Arab peoples as

Figure 3: The Greek Temple of Poseidon at Cape Sounion. Situated on a high promontory, the temple is strategically placed to guide seamen entering and leaving Athens.

unquestionably good navigators, but as yet there is no evidence to suggest that the waters of the Erythraean Sea were made safer by lighted aids to navigation before the existence of the Pharos. As far as we know, the peoples of far eastern origin were not sufficiently active at sea for them to have used lights for navigation during these very early times. So, in view of the peculiar absence of lighthouses prior to 280 BCE, let us consider that we may not find structures that look like lighthouses, but that the function of lighthouses may have been provided in other ways. We need to examine the wider context of seafaring and the ways that early humans went about their business on water.

The Greek civilisation was well established by the time of the completion of the Pharos, and it was out of the Hellenic culture brought to Egypt by Alexander that the Pharos was conceived. It is certainly here that we must look harder for clues about earlier lighthouses. The Greek civilisation emerged gradually from a time in the second millennium BCE that is known as the Dark Period. Most people associate this as a time in pre-history, that is, a time before written records of the progress of a civilisation were kept by its citizens. In these times (and afterwards) life was carried on in the daily oversight and influence of a number of gods, each of whom was associated with certain aspects of life. In the Greek culture, Zeus was in the senior position of a hierarchy of other gods, and Heracles (Hercules) was his son. Poseidon (Neptune) was the god associated with the sea. (It is thought that the statue adorning the top of the Pharos was of Zeus himself, thus emphasising the importance of the structure.) When citizens were about to embark upon a sea journey (or when they returned safely from one) sacrifices were made to Poseidon (or Apollo who had dominion over colonists). Ritualistic offerings were made to the gods on altars situated close to (but not in) the points of arrival and departure. Whilst sacrifices often involved the killing of animals, there was also a significant dependence upon fire, and it is now easy to imagine how these altars, situated often in open air locations at the end of promontories enclosing harbours, or on adjacent hilltops, could have acted as lighted aids to navigation, even on a temporary basis. Thus the idea of the *function* of a lighthouse is at once derived from the culture of religious worship associated with travel by sea. In my opinion, it is a strong possibility that throughout the Greek Archaic (750 to 500 BCE) and Classical (500 to 31 BCE) Periods, the function of lighted aids to navigation was provided in this way. Furthermore, some readers will immediately associate the early

Figure 4: The Christian churches of Panagia Thalassini (left) on the island of Andros and Agios Ioannis (right) on the island of Skopelos: two examples of religious sites in positions of advantage to mariners.

lights of the medieval period with places of Christian worship. Indeed, this tradition continues to this day throughout Greece where thousands of small sanctuaries and Christian religious artefacts have been set up either on hill tops or other places close by the sea, as if to perpetuate the desire to provide the seaman with recognisable navigational aids.

The possibility that we have stumbled upon the answer to the question of missing ancient lighthouses before the Pharos is beguiling, for although we have by no means excluded the possibility of using bespoke stone towers to bear lights at night, the single step from simple religious sacrifice to magnificent Pharos still seems unacceptably great. Perhaps we should look for more supporting evidence.

It is clear that the great height of the Pharos was deliberately chosen because of the knowledge that it would be seen from a great distance, a property that was not normally possible in Egypt because of the absence of high ground along the Egyptian coast in the vicinity of the mouth of the Nile. The value of having a light at high elevation had already been amply demonstrated by the Temple at Sounion, dedicated to Poseidon, where its grand position, high up with the sea on three sides, made it a welcome navigational landmark for seamen arriving at or leaving Athens. The temple was built there in 444-440 BCE, but over the site of an earlier one for which there is no date at present. Here is clear, solid evidence of the existence of a structure that must surely have been easily identifiable at night and of great benefit to navigators, but a structure in the form of a temple and not of a lighthouse.

Of the period prior to 750 BCE – the year generally associated with the works of Homer who wrote the first 'histories' of the Trojan Wars in *The Iliad* and *The Odyssey* - far less is known. However, many of the features relevant to our discussion of Greek culture can be found in those pages, as well as useful indicators disguised as mythology but that, like the Old Testament of the Bible, contain significant elements of truth.

One of the earliest ideas of a lighthouse was discussed and dismissed by Stevenson and focusses on a tower called the Sigeum Pillar. It concerns the death of the Greek hero Achilles who was supposedly killed on the battlefields of Troy. After much debate and archaeological investigation since the original excavations of Heinrich Schliemann in 1868, it is now generally agreed that Troy was located on the southern shore of the entrance to the Hellespont at Hisarlik in western Turkey. It was a truly ancient centre of civilisation with strong connections to seafaring because of its strategic location for traffic

passing between the Mediterranean and Black Seas. Here, there was a well-known and significant change over centuries that greatly altered the landscape and disguised many important geographical features, most notably the landing places for ships and their Troy-bound passengers. There is good evidence of the existence of a promontory on which there may well have been an altar for sacrificial purposes, and if this were indeed the case, this would have become a *de facto* lighted aid to navigation. There is also a strong suggestion that after the death of Achilles, a mound was created over his burial place, a site that has long been (unsuccessfully) searched for by archaeologists. Perhaps the use of an eternal flame might even have marked the grave of one of the greatest Greek heroes. The name associated with this site is Sigeon (Greek) or Sigeum (Latin) and whether there was actually a built tower there or not is irrelevant. We may never be certain of the true existence of Achilles, although contrary to the fashion of late 19th and early 20th century historians to instantly dismiss everything that was not forensically provable, there is no reason to disbelieve his existence in a time before the writing of history books. Many scholars believe his death occurred around 1250 BCE and marked the end of the Trojan Wars. Even were Achilles to be mythical, the religious rites of sacrifice at the start and end of voyages to this strategic focus of sea routes would surely have taken place at a prominent location somewhere along the coast adjacent to Troy. In consequence, this would constitute the earliest example of a lighted aid to navigation that we have found so far, and indicate a triumph for the Greek team in our competition for who first thought of a lighthouse. However, like Odysseus, we should not end our quest here.

Next we should consider historical contributions made by people of another culture who spent a great deal of time sailing the open ocean and who were named Phoenicians by the Greeks. Later, the term Punic was applied to people from Carthage. Three ancient settlements emerged on the coast of the Levant – present day Lebanon and northern Israel – called Byblos, Sidon and Tyre. The settlements developed as city-states, each with a slight variation in their culture on the basis that they worshipped different gods, but in time the inhabitants of all three towns became collectively known as Phoenicians. Assisted by large quantities of the natural resource known to us a Lebanese Cedar (regarded as the finest ship-building material) these peoples developed great skills in shipbuilding and seamanship, and became Masters of the Sea. Furthermore, many of them made livings as merchants and traders, using their skills to travel far and wide in search of new sources of goods that could be sold on for profit. Phoenicians grew wealthy as a result, and inevitably attracted a certain degree of envy, first by Greeks, and later by Romans.

As the Phoenician civilisation developed, new city states were founded beyond the three original ones. Eventually, there were numerous city states along the coast of the Levant, as well as many others across and beyond the extent of the Mediterranean, the most famous of which were Gades (modern Cadiz) on the Atlantic coast of Spain and Carthago (Carthage) in today's Tunisia. These great trading cities were established to include their own religious rites and festivals, but it was part of their culture to pay respect to Tyre as the mother city and to the god known as Melqart that had been adopted as the senior deity by Hiram, King of Tyre, in the tenth century BCE. Recent studies have concluded that there were many aspects of overlap between the Phoenician and Greek cultures, not least a co-identification of Melqart with Heracles. [6] It is now clear that when Phoenicians decided to found a new settlement, they first instituted a sacred altar and/or temple dedicated to Melqart that would act in the same way as we have seen for Greek migrants respecting Heracles. A state of passive co-existence between Greek and Phoenician city-states lasted for centuries and resulted in much cultural cross-over between them, until around 500 BCE when the demands of commercial competition created hatred and outright enmity. It resulted in the Roman defeat of Carthage in 146 BCE to end the Punic Wars (Phoenicia had already been defeated by Alexander) and bring defeat to the Carthaginians and those Phoenician siblings who remained.

The current estimate of the founding of Cadiz by Phoenician settlers is 1104 BCE, and we can be confident that sacrificial altars were set up from the first occasion of landing on those distant shores. We can also say with a measure of certainty that the Phoenicians had already established ports of call at numerous other waypoints across the Mediterranean, and in so doing had set up a network of lighted aids to navigation that, if not lit purposefully for the aid of mariners and maintained

Figure 5: The Phoenician temple of Ras il-Wardija on the southwest tip of Gozo, close to Malta. The strategic location would have made an ideal lighted aid to navigation in the early 1st millennium BCE.

every night during the hours of darkness, at the very least acted as occasional visible markers to help them find safe harbour. One site worthy of serious consideration is on Gozo where a Phoenician temple was excavated at Ras il-Wardija near San Lawrenz on the southwest tip of this small island close to Malta in the 1960s. [7] In a remarkable position on top of precipitous cliffs, it maintains a strategic viewpoint over a part of the central-southern Mediterranean in which Phoenician sea traffic was prolific for centuries. Despite our lack of understanding of Punic religious practices, we must ask if this site was used as a lighted aid to navigation by virtue of its role in Phoenician culture of Melqart worship. There is at least one place at the site that may have been used as the place for a significant fire, and if it was indeed used as such we might propose that it is the first real evidence of a Phoenician lighthouse in the times before the Pharos, although the dates for its use remain uncertain.

Phoenician sites are quite easy to identify thanks to their characteristic locations on small islands or harbours protected by encircling promontories. There is much to be learned from studying the Mediterranean as a whole and identifying typical sites, for the result is a surprisingly efficient network of port-to-port sea legs that were of great assistance to the Phoenicians as they went about their business from one end of the Mediterranean to the other, as well as around the Black Sea and into the north Atlantic. The Romans named the Scilly Isles of Cornwall UK, *Cassiterides* – the Isles of Tin, but it seems most likely that they were simply traversing routes established centuries before them by the Phoenicians. It is quite consistent with their strategy to have established distant outposts at La Coruña in northwest Spain, in the Iles des Ouessant in Britany, and on one of the Scilly Islands such as St. Agnes where they could then have traded tin or tin ore extracted both from the island, and (more likely) from open cast mining by locals in West Cornwall.

A recently discovered curiosity exists on Sicily at Capo Gallo close to modern Palermo. [8] Palermo was first officially settled in 736 BCE when it became known as Panormus. It meets all the criteria for being a favourable Phoenician port, ideally placed for sheltered facilities, as well as being a point linked to similar settlements on Ustica and the Lipari Islands. Capo Gallo is the name of the promontory that led ships into and out of Panormus. There, surrounding the present day lighthouse, lie three massive boulders that have attracted recent attention because of their positions on the landscape. There are indications that at least one has been moved and supported by stones placed at its base. There is evidence its top may have been modified to sustain a structure or other artefact. The alignments of two pairs of the stones, taking the rear one as the high

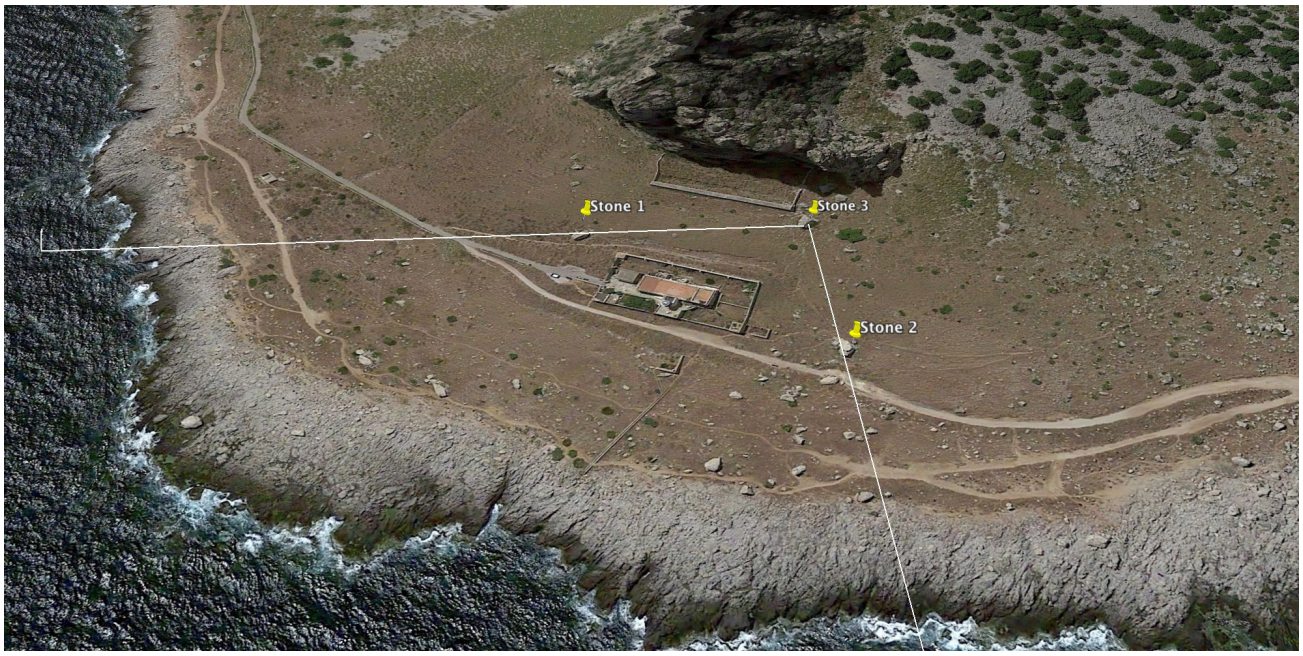

Figure 6: Three megaliths at Capo Gallo with favourable alignments for navigation. Stones 1 and 3 indicate an alignment to Lipari; stones 2 and 3 to Ustica. Image obtained from Google Earth (2016)

point in each case, point quite precisely to the Ustica and Lipari islands. Viewing them in line would have set a voyager on course, gaining time and profiting from coastal breezes to gain favourable seas. It seems quite possible that Phoenician seamen could have found much assistance in locating their destinations by use of these stone alignments by day, and perhaps even at night with fires burning on the flat tops. This is a recent discovery with interesting implications for ancient navigation. Whilst the Phoenicians may well have made use of these stones, Rapisarda believes that such megaliths, may have been established here by an even earlier bronze age society. Much archaeological work is necessary to derive a better analysis of their function, in particular the search for possible residues of ancient fires. If confirmed, this exciting discovery has given new impetus to a search for other second millennium BCE aids to navigation, and an answer to the puzzle of the missing lighthouses of ancient times.

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