

The Oldest Lighthouse

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Fig. 1: The Pharos at Dover, built around the 2nd c. BCE., is a candidate for the oldest existing lighthouse.

Introduction

Pharologists are frequently asked, *What is the oldest lighthouse?* The answer is, of course, difficult to answer without further qualification. Different people might argue over the definition of a lighthouse, for example.² Others might be asking about the first lighthouse that was ever built. A third group might be asking for the oldest lighthouse they can see right now. All of these questions have been dealt with in detail in my recent publication.³ The paper that follows is an overview of the subject for the casual reader.

Ancient Lighthouses

Most commonly the answer given to questions about the oldest lighthouse has been the Pharos at Alexandria, the magnificent structure built around 280 BCE, illustrated in Figure 2.⁴ Its existence has never been questioned, but its structure as portrayed in the early literature varied considerably. In truth, the structure changed over the course of the 1600 years in which it existed, mostly because of damage suffered during several major earthquakes. Its role in the ancient Hellenistic culture was complex, and included its use for military and political purposes, but its function as a lighthouse is also beyond doubt. The question as to whether such a great engineering achievement could have been built without a precedent is more difficult to answer. Nothing even close to it in size had been constructed before the Pharos.

There is good evidence to believe that Greeks were using small fire-bearing stone structures for navigational purposes in the early third and fourth centuries BCE. The marking of sacred sites with fire - often on headlands and other high locations visible from the sea - was a vital part of ancient Greek culture.⁵

A light marking the tomb of Achilles at Sigeum in the Hellespont has frequently been proposed. Its location at the entrance to the strategic route between the Mediterranean and Black Seas would have created a vital navigational aid as long ago as the twelfth or thirteenth centuries BCE. This could have inspired ideas of lighthouses, even if its form was inconsistent with our traditional designs. In later centuries (though still prior to the building of the Alexandrian Pharos) Greeks seem to have been using small stone towers with fires on top (Figs. 3, 4 and 5) to indicate the approaches to ports in the Aegean. Thus, however the idea was actually conceived, the Greeks can legitimately claim to have inspired an aid to navigation that has been of great value to mariners right up to the present day.

But what of other cultures? I should say right away that there is no evidence at present that lighthouses were used by Chinese mariners or those in other parts of Asia. Arab seamen are regarded as having great competence in ancient times, but with no known reference to the use of lighthouses.

Phoenicians were expert navigators, but from what we know about them, their efforts were expended in gaining the maximum understanding of natural phenomena - sun, moon stars, seasons, tides, winds, weather conditions etc, rather than by engineering artificial aids to navigation.⁶ Like the Greeks, there is evidence that the Phoenician culture also employed fire in sacred locations which, as we have seen, would act as *de facto* beacons for mariners at night. Historians have speculated over many decades that Phoenician temples at Cadiz were early lighthouses. Indeed, the Phoenician reputation as long-distance explorers in north Atlantic waters resulted in the theory that they established a beacon at La Coruña in northwest Spain, Fig. 6.

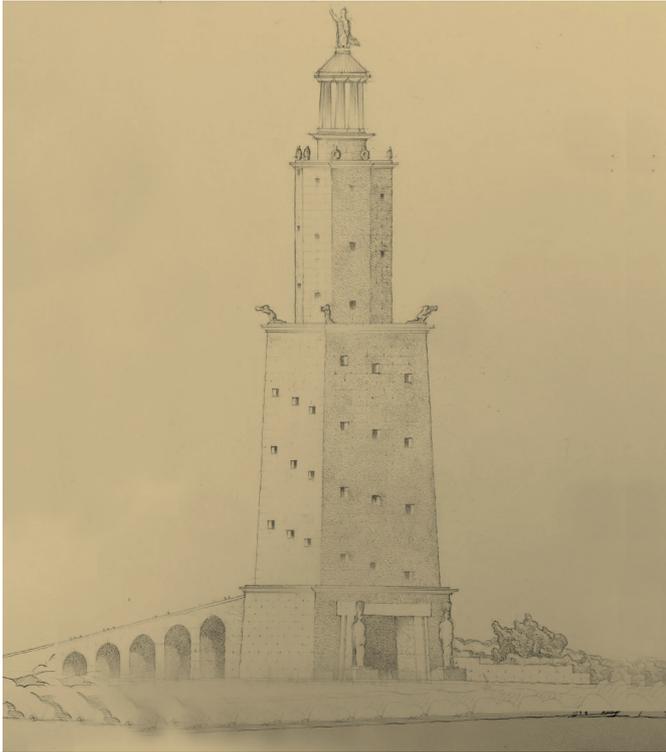


Fig. 2 (above): The popular candidate for the oldest lighthouse, the Pharos of Alexandria, was built around 280 BCE and survived in various forms for about 1600 years. No trace of it exists today, although some parts of its structure have been recovered from the surrounding seabed. [Drawing: Alfonso Biescas (2016)]



Above: The only hard evidence so far produced for a lighthouse in existence before the Pharos of Alexandria: Fig. 3 (top): A stone tower on Thasos, Greece. [Photo: Jonaten Christiansen (2015)]

Fig. 4 (middle): The tower sits on a mound of rubble. [Photo: Jonaten Christiansen (2015)]

Fig. 5 (above): An artist's impression of the tower when used as a lighthouse, with diameter approximately 2 to 3 m and height 1.5 to 2 m.

Fig. 6 (left): The Tower of Hercules at La Coruña, Spain. With Roman remains in its foundations and internal structure, it is without doubt the oldest working lighthouse. [Ken Trethewey (2004)]





Fig. 7 (above): The ancient Pharos at Dover - just to the left of the church, right of centre. [Ken Trethewey (2019)]

Fig. 8 (below left): The Pharos from the south. [Ken Trethewey (2019)]

Fig. 9 (below right): The Pharos from its northern approach. [Ken Trethewey (2019)]



Here, we are familiar with a magnificent structure often called the Tower of Hercules, which is today, without doubt, the oldest working lighthouse in existence. The location is of utmost significance to all shipping in transit between the Mediterranean and Northern Europe and so from the earliest times must surely have been the site of a navigational aid in one form or another. This leads inevitably to the conclusion that those mariners who first used the waters adjacent to La Coruña - whether Phoenician or Roman - surely established some kind of beacon there. Even if we discount the Phoenicians as having achieved it, the Romans surely did so. The presence of Roman remains on the site of the Tower of Hercules and forming a significant part of its internal structure indicates with a good degree of certainty that they established a lighthouse at this location. The structure was surely converted into the one we see there today, and the similarity with the structure of the Alexandrian Pharos is especially noteworthy.

The Romans were certainly the first to establish networks of lighthouses, intent as they were on maximizing the efficiency of seaborne capacity for both commercial and military purposes, but we can be confident that they did not build the first lit aid to navigation, neither did they invent the form of lighthouse we are familiar with today. However, we should award the Romans much credit for recognition of the lighthouse as an artificial construct that is of great assistance to mariners.⁷

The Pharos at *Portus Dubris* (Dover)

Across the Channel from Calais and Boulogne in France, at a location in England where there is today a very busy ferryport, Roman invaders chose to make a new base on a new territory, a camp they called *Dubris* - modern Dover. One of Britain's oldest known ports, the land of its Celtic inhabitants had been called *Dubra*, meaning 'the waters'. The geography was rather different from what we see today, for the location of *Dubra* was at a point on the mouth of a navigable river called Dour where the English shoreline dips down from the tall chalk cliffs on either side. Over time the mouth silted up and was built upon.

Britain had been previously inspected by scouting legionaries under the command of Julius Caesar who crossed the English Channel from *Gesoriacum* (Boulogne) in the year 55 BCE. Now it was time for a solid expansion of the Empire into this Celtic land and to establish a firm link across the sea to mainland Europe. In 38 CE, Caligula had tried and failed to cross but there was no turning back for troops who followed the orders of Emperor Claudius in 43/44 CE. Current ideas regarding the invasion include the possibility that

Roman forces landed not only at Dover, but also farther west along the south coast of England at Portchester in Hampshire, as well as at Richborough in the eastern corner of Kent. Nevertheless, a permanent garrison was constructed at *Dubris* and two lighthouses were built on the high ground to the east and west to mark the entrance through Britain's new gateway.

The existing eastern lighthouse at Dover is commonly known as the Dover Pharos, shown here in Fig. 1 and Figs. 7 to 13. This wonderful, unique building is probably the best surviving example of a Roman lighthouse and a strong candidate for the oldest lighthouse in existence. For centuries it has received little attention and archaeological investigation. Situated in the grounds of Dover Castle, it is of little interest to visitors compared with the impressive medieval fortifications that surround it.

Two comprehensive studies from the early 20th c. have filled a gaping hole in our knowledge.^{8 9} Of these, the second by Wheeler is a vital publication of the details of construction. Externally the tower is octagonal, with sides of 15 ft (4.6 m) length, but internally it is 13 ft 10 ins (4.2 m) square. The existing height is 62 ft (19 m), of which the top 19 ft (5.8 m) are medieval, leaving some 43 ft (13 m) of original Roman stonework.

The walls rise perpendicularly (Fig. 11) and holes in the masonry indicate the presence of wooden floors. At the base, the walls are nearly 12 ft (3.65 m) thick, and diminish to 3 ft 9 ins (1.1 m) at the top. In common with similar Roman constructions, especially the *Tour d'Ordre*, the floor area progressively diminishes towards the top, stepping inwards at intervals by around 30 cm. The effect is to make the tower look telescopic. External eroded and crumbling masonry has been periodically attacked to reshape/repair but has changed the form of the tower. Almost certainly, it had a design similar to the *Tour d'Ordre* with multiple stages up the exterior reducing the width by about 1 ft (30 cm) at each level. This suggests an original height of about 80 feet (24 m).

Wheeler believes there were probably eight stages and a parapet above the final floor or roof. Each floor had four arched windows and access to each floor was undoubtedly by wooden ladders. Both tiles and brick were used in the construction. Construction is from flint rubble bonded with double courses of tiles at regular intervals and faced with tufa ashlar.

The windows and doors are arched (Fig. 12) and are decorated by the alternate use of tufa and tile to achieve a multi-coloured effect. The tiles are of the same pinkish material found in the fort of the *Classis Britannica* and it seems reasonable to suppose that they were built at broadly similar dates. The early phase of the fort has been dated to around 130-150 CE. This may indicate that the oft-quoted date of the Pharos as being



Fig. 10 (above): The magnificent and unique Roman Pharos on the left, adjacent to the Saxon church of St. Mary in Castro, itself dating from around 1000 CE. Fig. 11 (below left): The internal structure is in fine condition. Fig. 12 (below right): The entrance to the Pharos on the south side. [All three photos: Ken Trethewey (2019)]

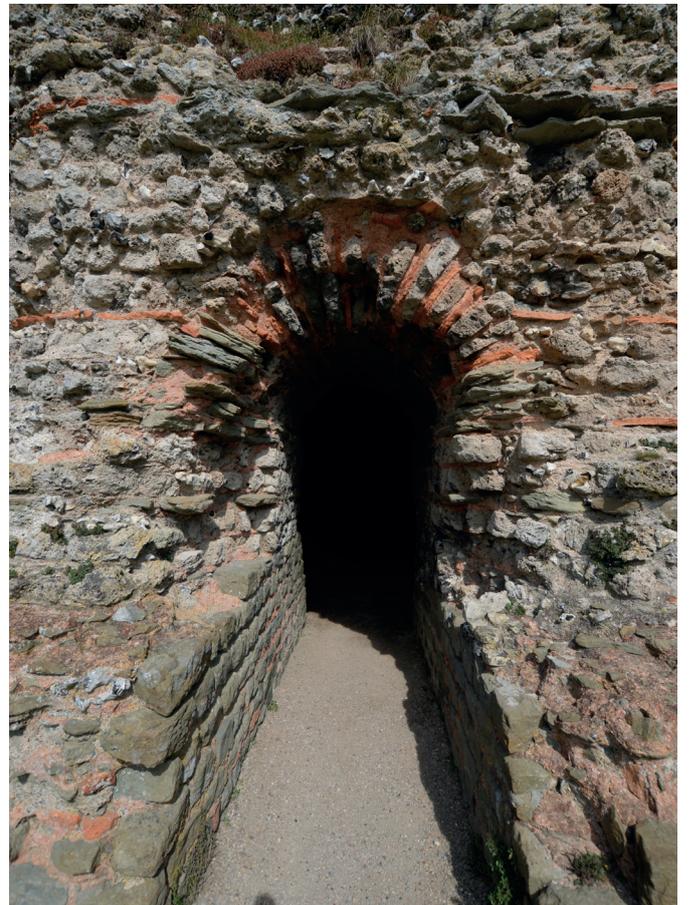




Fig. 13: *The Pharos and Saxon church inside Dover Castle, viewed from the north from the Keep of the Castle and overlooking Dover harbour. [Ken Trethewey (2019)]*

around 44 CE is too early. Clearly, the construction of the lighthouses post-dated the invasion and may have occurred much later as the city was being improved from its initial build.

The western lighthouse is even less well-known, undoubtedly because it is now largely invisible on the surface. Curiously, there was a time in the 16th and 17th centuries when it attracted more attention than its sibling because, from the sea, it stood out in the landscape more clearly because the eastern tower had been rendered less obvious by the heavy fortifications in which it had become absorbed. Unfortunately, the western tower received little or no protection over the centuries, whereupon various decay processes caused it to be almost eliminated from the landscape. Remains of the foundations do still exist, and careful local examination shows another octagonal structure with the same dimensions in plan. It is therefore natural to conclude that the two lighthouses were built to the same design.

It has often been suggested that there was an architectural relationship between the Dover towers and the *Tour d'Ordre*, and in many ways this remains a matter for debate since so little precise information exists. Certainly, cursory inspection of the images we have and the diminishing octagonal cross-section with height does indicate a similarity. One could further comment that the designs have diverged from the typical Roman format for a harbour lighthouse. There could be a number of reasons for this. Here, at the extreme edge of the Roman empire, there may

have been new ideas in play from a different school of architecture. Hague speculates that the lighting of a fire atop the towers must have been done on a fire-proof platform, perhaps having stone slabs laid on the wooden floor of the lantern level. Fuel for the fire may have been lifted by means of some kind of crane to the level below the lantern, but the length of its jib must have been long enough to accommodate the projecting base. It would also have been necessary to move the crane around the tower to deal with the different wind conditions and the smoke coming from the fire.¹⁰

Notes

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- 2 Trethewey, KR: What is a Lighthouse? https://pharology.eu/whatisalighthouse/W_index.html
- 3 Trethewey, KR: *Ancient Lighthouses*, Jazz-Fusion Books (2018). ISBN: 9780992657369. www.ancientlighthouses.co.uk
- 4 Trethewey, KR: Chapter 5, *The Pharos of Alexandria*; In: *Ancient Lighthouses* (2018).
- 5 Trethewey, KR: Chapter 3, *Early Greek Aids to Navigation*; In: *Ancient Lighthouses* (2018).
- 6 Trethewey, KR: Chapter 4 - *Phoenicians*; In: *Ancient Lighthouses* (2018).
- 7 Trethewey, KR: Chapter 6, *Lighthouses After the Pharos*; In: *Ancient Lighthouses* (2018).
- 8 Mothersole, Jessie: *The Saxon Shore*. The Bodley Head (1924).
- 9 Wheeler, R. E. M.: *The Roman Lighthouses at Dover*. *Archaeological Journal* Vol. 86 (1929) 1:, pp29-46. <https://doi.org/10.5284/1018054>; www.archaeologydataservice.ac.uk.
- 10 Hague, Douglas B; Rosemary Christie: *Lighthouses, Their Architecture, History and Archaeology*. Gomer Press (1975). ISBN: 850883245. p65-6.