

## The Enigma of the Great Thapsus Harbour Mole

D. P. Davidson

*The Old Rectory, Osgathorpe, Leicestershire, UK, LE12 9SY*

R. A. Yorke

*Silver Birches, Bashurst Hill, Itchingfield, Horsham, W Sussex, UK, R13 0NY*

On the East coast of Tunisia, between Sousse and Sfax, lie the scant remains of the ancient city of Thapsus, notable mainly for a battle fought in the civil war in 46 BC. Visits by the authors resulted in the discovery of one of the longest-known harbour moles in the entire Roman Empire. No ancient sources make reference to any work of such magnitude and the paper suggests that the harbour was never completed, but might have been started by the local emperors Gordianus, none of whom survived long enough to have executed such a project.

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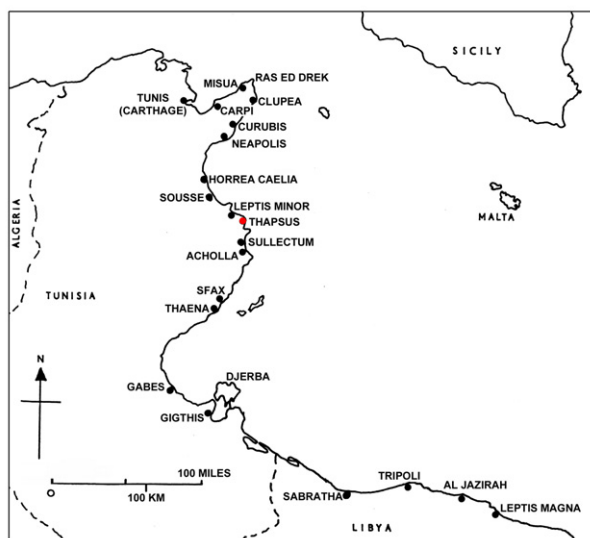
*Key words:* Roman, Thysdrus, concrete, Vitruvius, Pliny, Civitavecchia.

On the east coast of modern Tunisia, between Sousse and Sfax (Fig. 1), lie the scant remains of the ancient city of Thapsus, notable mainly for a battle fought in the civil war in 46 BC. Visits by the authors, however, in 1966, and again in 1968 and 1971, resulted in the discovery of what is believed to be one of the longest-known harbour moles in the entire Roman Empire, longer even than those at

Ostia (Portus), Caesarea Palaestina/Maritima or Civitavecchia (Centumcellae). The remains of this huge breakwater stretch nearly a kilometre out to sea into a water depth of more than 8 m at its far end (preliminary results were published as Yorke *et al.*, 1966; Yorke, 1967; Dallas and Yorke, 1968). The volume of stone needed to create this submerged monster is comparable with a large pyramid. As one of the largest marine structures (Fig. 2) in the ancient world, it has received remarkably little attention.

Reported by many antiquarian travellers (Shaw, 1830 and others), the modest remains of a Roman jetty were still visible in 1966. In subsequent years, as the sand and sediment in the area have moved with the waves and currents, signs have been reported in the sea-bed of a few additional marine structures that have been presumed to be associated with the Punic period (Younes, 1999: vol. 1, 217).

Of the Roman remains with which we shall here concern ourselves, only the first 133 m, consisting of Roman ‘concrete’ 10 m wide, were visible when the authors first visited in 1966 (Fig. 3). The remainder of this structure was found to continue under water for a further 830 m, mainly consisting of large rough-cut sandstone boulders (Fig. 4), and its width being as much as 100 m along its submerged length. Around 115 m off the end of what we have termed the Great Mole lies a mound of submerged stone blocks of approximately 60 by 80 m in plan, possibly the remains of a lighthouse, and which we might euphemistically call the ‘pharos’ of Thapsus.



*Figure 1.* Location of sites surveyed by the Authors in 1966. (Dallas and Yorke, 1968: fig. 1)

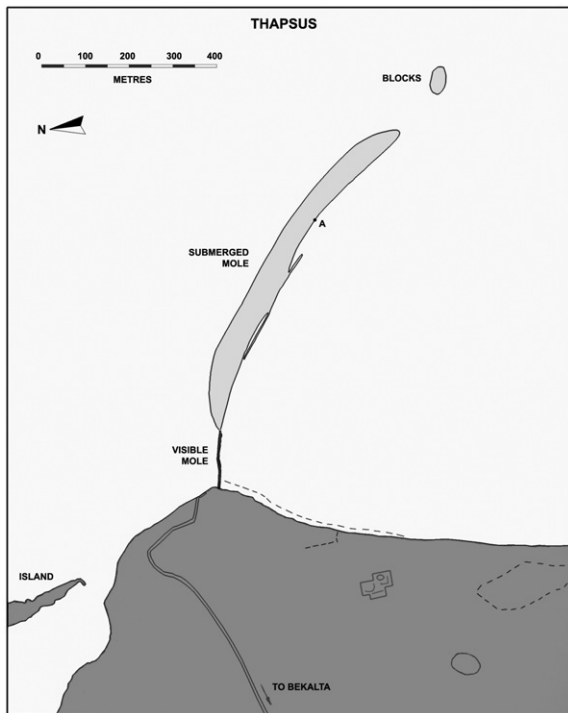


Figure 2. Plan of Thapsus mole. (R. A. Yorke)

Daux (1869: 169) reported that in 1868 the visible mole was 259 m long and conjectured that it had originally been 413 m in length, although it is not known on what grounds he based this estimate, since the terminal points are indeterminate at both ends. His elevation view (1869: Plate VI) clearly exaggerates its height, although his quoted measured height at 2.45 m above the apparent water line is quite plausible (1869: 170). But Daux's supposition about the length was perhaps also reasonable, as the water above the submerged part of the mole is today only 2 m deep out to 400 m, and the scattered remains of Roman 'concrete' can be seen out to 300 m. With centuries of erosion by waves, and the pillaging of stone to build local towns, some submergence is readily explainable. Further, a recent geo-archaeological study, confirmed by others (Slim *et al.*, 2004; Anzidei *et al.*, 2011), documented glacio-eustatic sea-level rise near Thapsus in the range of 0.50–0.75 m. Thus, the initial 400 m length of the mole could easily have been above water in Roman times. However, from 400 to 960 m, the top of the mole drops to as much as 5 m below sea-level in 8 m of water and this is more problematic (Figs 5 and 6).

The obvious interpretation is that, like many ancient marine structures (see below), it has subsided or been eroded or sunk into the soft sandy sea-bed. Sinkage can be the result of general sea-level rise, or of local tectonic movement. Without prejudging the results of any of the on-going analysis of these effects, there remains the possibility that the structure was never actually finished (Muckelroy, 1980: 172).



Figure 3. Thapsus Roman 'concrete' mole in 1966, width of mole c.10m. (R. A. Yorke)



Figure 4. Quarried blocks on the submerged mole. (R. A. Yorke)

The visible part of the structure was clearly made by the classic Vitruvian process of casting concrete into wooden caissons confirmed by the existence of holes in the mole with vestiges of the horizontal timbers that had once tied the sides of a caisson together (Daux, 1869: 171; Yorke *et al.*, 1966: 15; Yorke and Davidson, 1985: 163). The submerged part of the mole was made by another traditional Roman process. This involved tipping large quantities of quarried rocks from carts, or over the sides of boats, for long enough and in the right place for the surface eventually to be broken and a shelter from the weather thereby formed. Such a method is seen at Ostia, at Caesarea Maritima, at Leptis Magna and was described by Pliny the Younger at the turn of the second century at Centumcellae:

'This delightful villa is surrounded by the greenest meadows, and overlooks the shore, which bends inwards, forming a complete harbour. The left arm of this port is defended by exceedingly strong works, while the right is in process of completion. An artificial island, which rises at the mouth of the harbour, breaks the force of the waves, and affords a safe passage to ships on either side. This island is formed by a process worth seeing: stones of a most enormous size are transported hither in a large sort

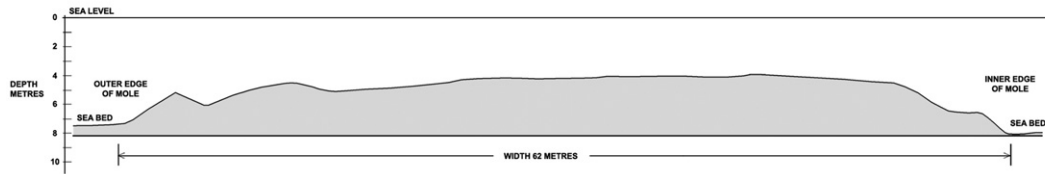


Figure 5. Measured profile of submerged mole at point A on Fig. 2. (R. A. Yorke)

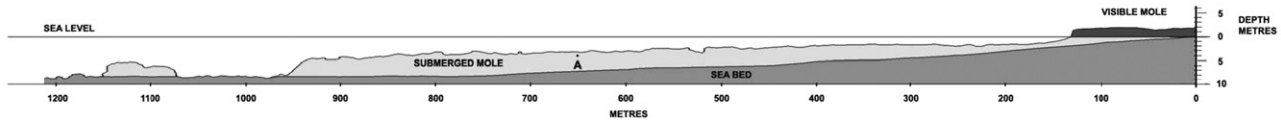


Figure 6. Longitudinal section of entire mole and 'pharos', (vertical scale 5 x horizontal scale). (R. A. Yorke)

of pontoons and, being piled one upon the other, are fixed by their own weight, gradually accumulating in the manner, as it were, of a natural mound. It already lifts its rocky back above the ocean, while the waves which beat upon it, being broken and tossed to an immense height, foam with a prodigious noise, and whiten all the surrounding sea. To these stones are added wooden piers, which in process of time will give it the appearance of a natural island. This haven is to be called by the name of its great author (Trajan) and will prove of infinite benefit, by affording a secure retreat to ships on that extensive and dangerous coast.' (Pliny the Younger. Ep. 6.31, trans. Melmoth)

The logical view is that a rock breakwater of this nature would be built out from the shore in an incremental fashion, rather than by dropping boulders blind into deep water, to ensure the optimum use of materials. Such a structure, once it had broken the surface, could be used as a simple breakwater, but also as the basis for a harbour wall in timber, in masonry or Roman 'concrete', thereby creating a vertical waterfront against which boats could be tied and along which access could be had to the vessels tied up alongside.

The example of Centumcellae is instructive, for it illustrates two aspects of construction that were also present at Thapsus. It would be logical for the two 'claws' of Centumcellae harbour emanating from the land to be built out from the shore, as this would provide the maximum accuracy of placement of heavy loads of stone, and the comfort of seeing progress in the right direction. It may even have been easier to move stone by sea for the outer parts of the long breakwater than by land, with only simple carts and rough tracks. For the artificial island at the entrance, to which there was no access from the land, the only method would be to drop stone from barges. The same would have been especially true of the putative 'pharos' at Thapsus, 115 m off the end of the Great Mole.

The Mediterranean provides other examples where harbour breakwaters have been built as at Centumcellae, and where the action of the waves over the centuries has caused the structures to shift and eventu-

ally to settle below the surface of the water. The moles at Sabratha (Yorke *et al.*, 1966: 14; Yorke, 1967: 24; Kenrick, 1986), Tipasa (Yorke and Davidson, 1969: 11–15) and Apollonia (Flemming, 1971: 95–135; Laronde, 1992: 54–63) and Caesarea (Raban, 1992) on the Southern Mediterranean coast all offer tantalizing parallels of submergence without actually matching the scale of the situation at Thapsus. The harbour at Ostia (Portus) is of similar scale, but does not have the submergence; Centumcellae—perhaps the nearest match in scale—was never subjected to underwater investigation and now lies irretrievably lost beneath the modern port structures (Marzano, 2007: 353). While it is fair to say that other major Roman ports such as Centumcellae, Portus, and Caesarea Palaestina are all enclosed harbours, Thapsus has only the one arm to it. If a second, southern, arm was ever planned, there is certainly no sign of it today. That truly would have been of epic scale.

The problem is that although the structure is huge—almost 1 km in length and some 100 m in width, in up to 8 m of water—in no place in open water does it approach closer to the surface than 2–5 m (Figs 5 and 6), and current thought is that the sea-level in this region has risen by less than a metre since antiquity (Slim *et al.*, 2004: 518). There is more than enough material to have reached the surface, if dropped accurately, so are we to believe that sea conditions have spread the large boulders by 25 m at each side, and in up to 5 m of water? The fundamental enigma of the submerged Great Mole is whether it was ever actually completed.

There is no mention in the Roman or Arab literature of a harbour of this magnitude which would have been apparent to all. Caesar, in his account of the Battle of Thapsus in 46 BC, makes no mention of harbour features of any prominence (*Bellum Africum*). No comment on great harbour works at this site is found in either the 3–4th century BC Periplus of Pseudo-Scylax, which is not surprising for a work of such an early date, or the Stadiasmus Maris Magni of the 2nd century AD. In the Middle Ages, the poet Ibn Hamdis who lived part of his life in Mahdia, close to Thapsus,

described the campaign of Roger II of Sicily against Mahdia in 1123 and the subsequent fiasco at Ras Dimas (the island off Thapsus) apparently also without any mention of any remains or legend of a massive harbour and its mole (Younes, 1999: 45). In fact, all embarkation and disembarkation is described as taking place at the nearby Mahdia (ancient Gummi), which was by then the capital of the Zirids along the central Tunisian coast.

The concrete structure of the mole must have functioned as a quay or jetty during the earlier phases of the Empire and was built to classic Vitruvian instructions (Hohlfelder *et al.*, 2005), and as we have noted, was reported by many early travellers in the region. Since 1966 this, sadly, has been lost under a modern fishing and pleasure harbour, but fortunately the details of the Great Mole were surveyed and recorded by the authors in 1966, 1967 and 1971. So the possibility remains that Thapsus could share the history of other imperial indulgences such as Caesarea Maritima in having a short career (Raban, 1992).

Although not in any way contemporaneous, but presumably drawing on some knowledge of the location, the famous depiction of the Battle of Thapsus in Andrea Palladio's 16th-century treatise on the 1st century AD works of Vitruvius (Giocondo and Palladio, 1567) (Fig. 7) was supposed to demonstrate the use of machines of war. The artist appears to depict in the bottom right-hand corner of the picture what until recently was the visible extent of the mole at Thapsus, which was a classic example of construction of *pilae* in the Vitruvian manner. His depiction seems to show correctly (albeit somewhat displaced) the stubby Roman mole that was still visible a decade ago, but provides no hint of massive works in the sea.

The local trade, principally in olive oil, was of nothing like the scale that would merit a harbour that could boast a mole 1 km in length. Indeed, following

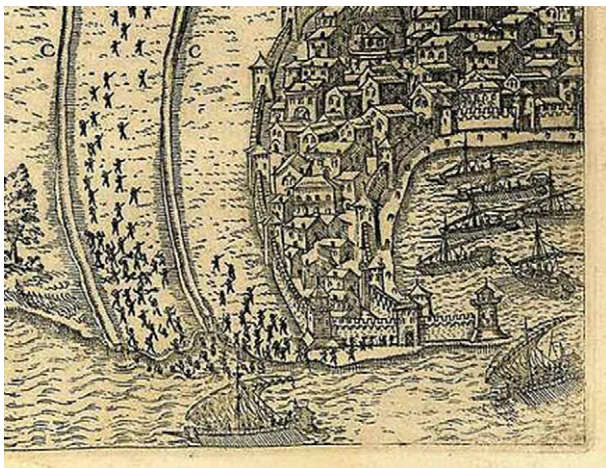


Figure 7. Scheme of the Battle of Thapsus. Reproduction of a copper printing by Andrea Palladio (Giocondo and Palladio, 1567)

the precipitous decline of Thysdrus (modern El Djem, 50 km from Thapsus) and the area around it in the late 3rd century (Leone, 2007), all trade was subsequently successfully accomplished through the much smaller local harbours of Sullecthum, Thaenae (Paskoff *et al.*, 1991: 526, 533–4), Leptiminus (Yorke *et al.*, 1966: 16; Davidson, 1992: 163–175) and Gummi (Leone, 2007: 49).

Here we may perhaps have a hint of an explanation, for in the 3rd century Thysdrus was the theatre (sic) for a typical late Roman tragic farce. It seems that for complex reasons, in AD 238 a local worthy by the name of Gordianus was proclaimed emperor by the local populace (Bomgardner, 2000: 127). The reign of Gordianus I, together with his unfortunate son, Gordianus II whom he made complicit in the fiasco, lasted less than a month. As chance would have it though, a third Gordianus in the family became emperor later that year and had the slightly better fortune to last some six years before he too met his untimely fate (AD 244). This then resulted in the subsequent economic decline of the region (Leone, 2007: 49).

No-one who has ever driven south through eastern Tunisia can have missed, or failed to be astonished by the majestic but unexpected appearance on the horizon at El Djem of the amphitheatre of Thysdrus (often incorrectly, but perhaps helpfully called a colosseum). The strange thing is that this was but the latest and the largest of no less than three amphitheatres in this small provincial town. The two older ones have, in a recent paper also authored by Younes (Younes *et al.*, 2012: 213–229), been linked with the amphitheatre at Thapsus, the foundations of which were still visible in 1970. All three are built from local stone from the same quarry and the first is believed to date from the 1st century AD. This third at Thysdrus, the 'Colosseum' is of a size and magnificence quite out of scale with anything around it, and has been dated to the 3rd century (Bomgardner, 2000: 121; Leone, 2007: 50).

As luck would have it, there is a medallion of Gordianus III that depicts a grand amphitheatre that has conventionally been believed to represent the Colosseum in Rome (Middleton, 1893: 81). But perhaps it truly represents the Colosseum in Thysdrus? Perhaps this was a part of the atonement that Gordianus III sought for his unfortunate native antecedents? We are told that there is some evidence that the building was not fully completed (Bomgardner, 2000: 128; Leone, 2007: 49) and this would be consistent with a project that had but six short years to be conceived, procured and constructed (Bomgardner, 2000: 128). Perhaps this is an indicator that the mole at Thapsus was a great white elephant commissioned also by Gordianus III and fell into disuse, or was never used. The possibility even exists that the structure might never have been completely finished.

The tempting thought is that the Great Mole at Thapsus might be a part of this great tragicomic story. It is certainly a construction of the later Empire, and

not un-typical of other grandiose 3rd-century projects, such as the iconic harbour of Septimius Severus (AD 203–211) at his native African town of Leptis Magna in neighbouring Tripolitania. While the later monumental Severan part of the harbour at Leptis is far more elaborate and essentially complete, it appears from evidence there, such as the lack of rope marks on the mooring rings, never to have been much used. While there is (or was) evidence of earlier phases of construction at Thapsus, this structure appears to be extremely large compared with other Roman harbours on the Tunisian coast, or indeed with harbour structures in any of the coastal towns of the Roman Empire.

So what are we to make of this colossal wreck? It is entirely conceivable that the Great Mole was built to the point that some, if not all of its length broke the surface. In the immediate aftermath the stone close to the surface would have settled under the action of the waves or been pillaged; there would have been some settlement of the foundation into the sandy sea-bed and we have seen that there is believed to have been glacio-eustatic sea-level rise of a half-metre or more since antiquity. All of this could conceivably account for the fact that much of the structure today is under up to 2–5 m of water. But was it actually completed, and if it was actually completed, was it ever used? Why is there no mention in the literature of what would be one of the greatest structures in the ancient world?

How would such a structure come to exist in the first place, when there is so little strategic or commercial rationale for it to be needed? These are questions to which we have no answer.

Given what we do know, who could have caused such a mega-structure to be undertaken? It would have required someone with absolute authority and control over massive resources and budgets; someone with scant regard for other priorities. Such a command would only match an emperor, an emperor such as Septimius Severus, who was born in AD 143 in Leptis Magna, proclaimed emperor at York in AD 193 and went on to honour his birthplace with one of the finest monumental harbours in the Empire.

However this emperor was not Septimius Severus but a potential imitator in the juvenile emperor Gordianus III who acceded to the purple in AD 238, in succession to two of his relatives who were proclaimed emperor at Thysdrus only 50 km distant from Thapsus. Gordianus III is known to have embellished their home town of Thysdrus, and possibly Thapsus, with an amphitheatre—why not also a harbour to upstage Septimius Severus in his own province?

All of these questions come to some resolution if they were the work of Gordianus III, an immature and possibly megalomaniac emperor of the later Empire. The temptation is to conjecture that Thapsus was ‘the enigma that never saw the light of day’—the ‘Gordians’ Last Hurrah’.

## Acknowledgements

While the opinions expressed are those of the authors, we must express our considerable gratitude for the valuable encouragement of Professor David Mattingly and for the painstaking review of the sources and the argument by David Stone, whose knowledge and experience from his work at the nearby site of Leptiminus/Lamta have been of great value.

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