

However, biblical commentators have often struggled to identify a reason for this comprehensive narrative forming the climax of the Book of the Acts. Many biblical scholars have been sceptical about the historicity of the story and the veracity of the description. However, historians and maritime archaeologists, such as Lionel Casson (1971), the professor emeritus at New York University and a classical scholar and archaeologist, who read contemporary ancient literature about seafaring and who are familiar with the maritime archaeological record, generally find the narrative authentic and treat it as an excellent source of information about Roman period seafaring. Heinrich Holtzmann, University of Strasbourg, considered this ‘description of seafaring, one of the most instructive documents for knowledge of ancient shipping and seafaring’ (1892: 421). Another archaeologist and classical scholar, William Ramsay, Regius Professor of Humanity, University of Aberdeen, studied the circumstances and geography of the account (1898) and established the location of many of the places mentioned in the narrative (Figure 2).

The first readers of this narrative would have had the interest level that we may now have in an air-crash investigation, where the passengers live to tell the tale. Today, it would inevitably be made into a film like *Sully*, which recounts how Captain Chesley Sullenberger landed US Airways Flight 1549 in the Hudson River on January 15, 2009, with 155 people on board, all of whom survived. To be interesting and authentic, such reports must contain accurate technical and topographic details. In fact, it is the details, often dismissed as incidental by commentators, that establish the veracity of the account and provide a certain poignancy.

Paul’s voyage and shipwreck has been the subject of technical study for over two hundred years. The first investigators were not associated with the few universities of that time, but they were well versed in classical languages and literature and could draw upon the contemporary experiences of sailing square rigged ships in the Mediterranean as well as the information from Admiralty charts and naval documentation. One of the later books produced by this field of study was written by James Smith (1782–1867). He was the son of a wealthy merchant of Scotland and devoted his life to the pursuit of sailing and the study of geography, nautical matters, and the writings of Saint Luke. His book, *The Voyage and Shipwreck of St. Paul* was first published in 1848 and ran to a fourth edition in 1880, which was edited by his son, Walter Edward. The book was a *tour de force*, and has left biblical scholars with little choice, either to accept its discussion of the story’s substantive details and focus on the literature (Bruce 1952: 451) or ignore it and treat the passage as a theological metaphor. Most commentators seem to adopt the former approach.

So, to Rome

The Acts describes how Paul’s return to Jerusalem in about AD 57 ended abruptly, when word of his impending

assassination by the Jewish religious establishment reached the Roman authorities, who promptly arrested him, and escorted him from the city in the company of about 470 soldiers. He was taken to Caesarea, where he was held as a prisoner for two years on unstated charges. He was eventually examined by Porcius Festus, the Procurator of Judea, who suggested that he may be tried in Jerusalem. A trial in Jerusalem would have raised theological matters, which had the potential to be provocative and unhelpful, so Paul exercised his right as a Roman citizen to be tried by the emperor in Rome (Acts 23: 12–25: 12). It soon became clear that Paul had committed no offence under Roman law, but the Procurator did not acquit him, and Paul did not withdraw his appeal (Sherwin-White 1963: 53–70; Hemer 1990: 130). It seems that Festus wanted Paul to leave the province because of the unrest that his presence may continue to provoke and, for his part, Paul had always wanted to visit Rome (Rom 15: 22–29).

When the decision to send Paul to Rome was finalised, he and some other prisoners were assigned to a centurion named Julius. We are told nothing about the other prisoners, but the centurion belonged to the Augustan Cohort. A cohort was a company of about 600 soldiers, with six cohorts comprising a legion. Josephus mentions cohorts in Syria recruited from the area of Sebaste, but Julius is not a Palestinian name so he was unlikely to have been associated with such forces. Hemer considers *Σεβαστής/Augustus* to have been an honorary title (1990: 132), while Ramsay pointed out that cohorts were not normally named and that Julius probably belonged to an Imperial corps of officer-couriers, probably similar to officials known later in the second century as *frumentarii* (1898: 315; Bruce 1952: 452); thus the *New International Version* (NIV) deems him to belong to the ‘Imperial Regiment’. As such, Julius would have attended to communications and certain logistical matters throughout the empire on behalf of the emperor. This may explain the rapport that he had with Paul, a fellow Roman citizen and experienced traveller, and how Paul was able to influence events that were to unfold during the journey.

Paul travelled with Luke, a physician, possibly from Troas, with an excellent command of the Greek language and Aristarchus, a long-standing colleague from Thessalonica who is mentioned three other times in the New Testament (Acts 19:29, Col. 4: 10; Philm 24). The ship they boarded at Caesarea was from Adramyttium, a city on the Aegean coast north of modern-day Izmir, near Edremit, Türkiye. It was likely to have been a medium-sized merchant ship, 18–22 m in length, that plied its trade along the coast of Asia taking advantage of sea and land breezes (on-shore and off-shore winds) and calling at most ports on its way home to Adramyttium. Julius would have been hoping to encounter another vessel that was sailing to Rome at one of those ports. The first port-of-call was Sidon, where there was a substantial harbour frequented by vessels bound for Rome, but none were in dock. However, at the second mentioned port, Myra, they boarded a ship sailing



Figure 2: A map of the Eastern Mediterranean showing the locations mentioned in the text. Professor Sir William Ramsay was the main contributor to the map. Map modified from Hastings (1947: 384).

from Alexandria to Rome with a cargo of grain (Acts 27: 6). It is this ship that is the focus of this study.

The Roman grain trade

Unlike many large ancient cities, Rome did not have a hinterland to supply it with sufficient food, especially wheat, which was vital to the ancient Mediterranean diet (Rickman 1980a: 262; Aly 2017: 12). As the population of Rome grew, the demand for grain increased and Rome's governing bodies had to identify grain sources, arrange mercantile infrastructure, engage shippers and merchants, and provide security and a practical legal framework for the grain supply (Rickman 1980b). Grain supply was a contentious issue in Republican Rome (Rushmer 2025). After the defeat of Mark Antony and Cleopatra in 30 BC, Augustus, the first Roman Emperor, made Egypt an imperial province and the principal source of grain (Rushmer 2025: 366).

For much of the Republican period, piracy was endemic in the Mediterranean and a major impediment to maritime commerce. After a pirate attack on the Roman port of Ostia a little before 67 BC, the tribune Gabinius defied the Senate and appointed the Roman general, Gnaeus Pompeius Magnus (Pompey) to have command over all the seas giving him substantial resources to tackle piracy comprehensively (Rickman 1980b: 51). In a well-co-ordinated process beginning in the west and moving eastward over a period of three months, he eradicated pirates in the Mediterranean so completely that they did not reappear for a few hundred years. One of the most

intractable areas for pirates had been the rugged southern coast of Türkiye, known as Rough Cilicia, which Paul's ship was able to sail past without the threat of piracy (Rauh 1998; Rauh *et al.* 2000; Hoff & Townsend 2013).

Pompey's efforts were recognised in 57 BC when he was granted command over the Roman grain supply for five years (Rickman 1980b: 55, Vervaeke 2020). With his previously demonstrated efficiency, he restructured the trading environment, securing Rome's grain supply and providing a basic commercial administration in a manner that later emperors, such as Augustus, would follow.

In the mid-first century there was a drop in the grain supply leading Claudius (AD 41–54) to build Portus, a port two kilometres north of Ostia, and to offer incentives for the building of ships capable of carrying at least 10,000 *modii* (70 tonnes) (Steinby 2020: 37; Graham 2024). The port was completed in AD 64 under Nero (AD 54–68), who issued coinage to celebrate the occasion. This was too late for Paul, whose ship had docked four years earlier at Puteoli in the Bay of Naples. Portus was later expanded by Trajan (AD 98–117) (Steinby 2020: 38).

Casson estimated that 150,000 tons of grain were shipped to Rome from Alexandria each year, and Paul Erdkamp estimates it to have been 135,000 tons (Casson 1971: 297; Erdkamp 2009: 237). This was a substantial undertaking, which required a fleet of at least 750 100-ton grain carriers, each making two voyages annually. In fact, much larger ships became common, but the aim of two voyages a year often proved to be challenging.

Using classical sources, Casson discussed the schedule of the ships plying the Rome-Alexandrian trade route. They could winter in Rome or Alexandria, and set sail in April, hoping to complete two voyages before the season closed in September (Casson 1971: 297–9). The frequency and reliability of this schedule meant that Roman officials, such as Julius, could use grain ships to travel between Rome and the eastern provinces. Indeed, after the capture of Jerusalem, Titus needed to return to Rome quickly and so boarded a grain ship in Alexandria on 25 April AD 71, and landed at Puteoli (Suetonius *Titus* 5; Casson 1971: 298).

The prevailing summer wind over the eastern Mediterranean Sea is from the north-west, which meant that ships sailing from Rome to Alexandria could expect a direct and rapid passage, but the return journey was slow and challenging. John Purdy sums up wind conditions in the Mediterranean:

Throughout the whole of the Mediterranean, but mostly in the eastern half, including the Adriatic and Archipelago, the N.W. winds prevail in the summer months. During winter the winds are variable, but the S.E. and S.W. blow frequently with great force near the solstices, or longest and shortest days (Purdy 1841: 197).

Casson lists voyages quoted by Pliny the Elder¹, three of which travelled from Italy to Alexandria in six to nine days at VMG (velocity-made-good)² of 4.6–5.9 knots (1971: 283). He also lists from literature ten Roman-period voyages that were made with unfavourable winds, three of which included segments of the return journey to Rome from Alexandria (1971: 289). All achieved VMGs of less than 2 knots. Casson (1950), using information reported by Lucian, discusses one of these voyages, and the onward journey passed Crete.

Lucian of Samosata (AD 125–after 180) was a prolific writer, who lived in Athens. When a grain ship named *Isis* returning to Rome was blown off-course and docked at Piraeus, Lucian, some his friends, and many other Athenians made the five-kilometre trek to Piraeus to see the spectacle. Lucian spoke to the ship's master to get information about the huge ship and to find out where it had been and why it had arrived at Athens (Casson 1991: 208). The *Isis* had left Alexandria and sailed close-hauled in north-westerly winds toward Cyprus, taking six and a half days, which implies a VMG of 1.6 knots. However, the ship finished up in Sidon, leading Casson to suggest that it had encountered a storm with strong westerly winds that had driven it eastward to Sidon (1950: 46). It appears that Roman ships were unable to weather storms easily, so they often reduced sail and ran before the wind in an action called *scudding*. Ship hulls at the time had a shell construction with planks fastened to each other by mortice and tenon joints and therefore had limited capacity to withstand a pounding from breaking seas. Substantial frames were incorporated into ship-hulls after the seventh century (Steffy 1994).

The *Isis* voyage from Sidon to the Chelidonian Isles passed Cyprus to the east and then sailed close-hauled in variable winds to the Chelidonian Isles taking nine and a half days with a VMG of 1.5 knots. The Chelidonian Isles, which are known today as Beşadalar and are near Cape Gelidonya, about thirty kilometres east of Myra, where Paul's ship docked. At least half of this progress may have been due to the favourable current. The *Isis* continued sailing westward past Cnidus, where Casson (1950: 46) suggests that it encountered south-westerly winds, rather than the normal Etesian winds from the north. It sailed close-hauled across the Aegean Sea, eventually arriving at Athens. The master of the *Isis* expressed frustration with this situation: 'Had they taken Crete on the right [i.e. sailed south of Crete] and avoided Cape Maleas [the southeast tip of the Peloponnese], they would then have been in Rome' (1950: 47–8). Casson amplified this comment by referring to Nelson's experience when returning from the Battle of the Nile in 1799, he sailed south of Crete while his subordinate, Admiral de Saumarez, sailed to the north and arrived at Gibraltar five days after him (1950: 49 n.14; Smith & Smith 1880: 80). A westward passage south of Crete was known to be preferable and was the course that Paul's ship sailed.

Nineteenth century experience was recorded by Purdy: 'On leaving Alexandria work up to Candia [Crete]; the average summer passage to Malta is 22 to 30 days; in winter, from 18 to 26' (1841: 280). A further two to ten days could be added to complete the voyage to Rome. This travel time was as good as could be expected under sail. Roman period ships took somewhat longer and could not sail this course in the winter.

While James Beresford (2013) has argued that commercial seafaring on the Mediterranean Sea was not bound by a 'sailing season', he is aware that there were regional climate variations and that winter weather was much more variable than at other times. Winter season wind averages do not give an indication of the danger of shipwreck caused by storms. Casson notes that 'in the Middle Ages Venetian ships were prohibited by law from returning from Alexandria, Syria or Constantinople between 15 November and 20 January' when treacherous weather was expected (1950: 45 n.1; Jal 1840: 261–2). Flavius Vegetius Renatus, writing in the fourth century about naval operations, specifies a longer period of closure:

Therefore, from the third day before the Ides [11th] of November until the sixth day before the Ides [10th] of March, the seas are closed. For the very short day and the long night, the density of the clouds, the obscurity of the atmosphere, the severity of the winds doubled by rain and snow, deter; not only fleets from the sea, but also travelers from land journeys (Vegetius 4.39; 1990: 285).

Robert Ogilvie recently interviewed four seamen resident at Loutro, on the southern coast of Crete, and found that the prevalent winter winds there were from the north

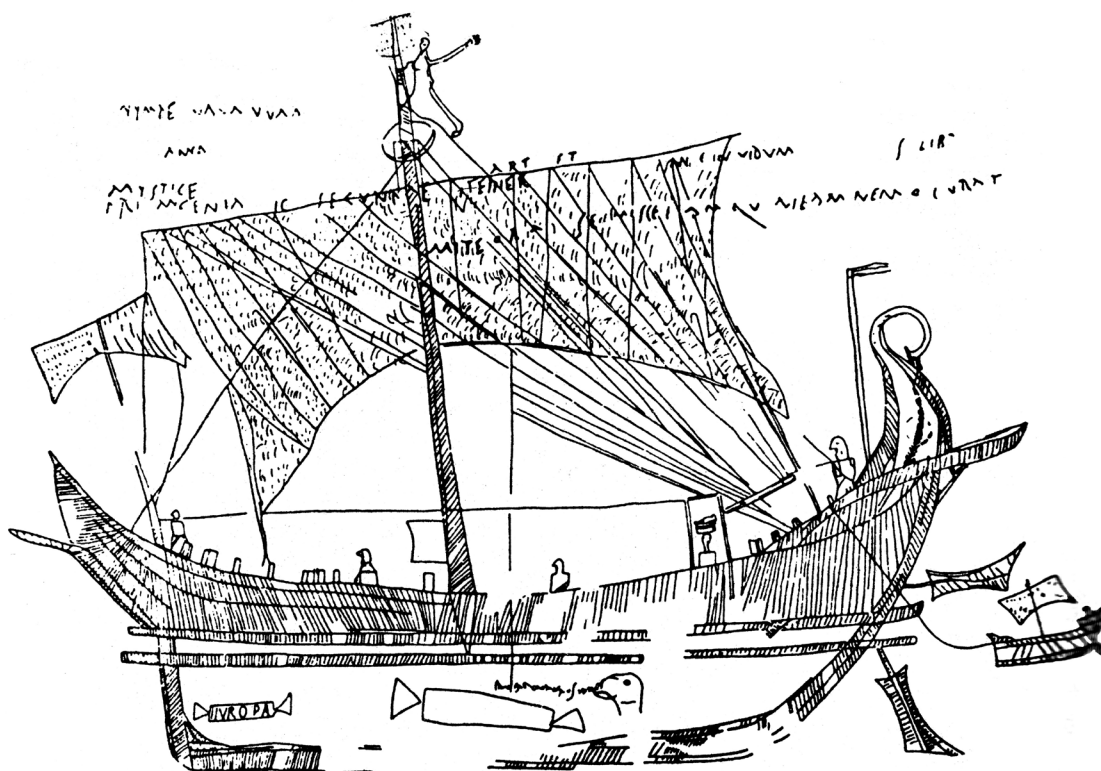


Figure 3: Graffito of a Roman merchant ship called *Europa* found at Pompeii. The scene would appear to be satirical, but it does have a significant amount of technical detail: the ship's boat trailing astern, a raised steering oar, timberheads on the gunwales, brail-lines on the mainsail, a nameplate, and near the bow, a bowsprit and on it a spritsail (artemon). From Benoit (1961: fig. 73).

and east (1958: 314). During the winter they therefore, moored their fishing fleet in the west-facing harbour to protect it from the fierce east-northeasterlies, the Grigale wind, that St Paul's ship encountered.

Roman grain ships

To service the Alexandrian grain trade adequately, ships needed to be large and able routinely to sail against the wind. Roman-period merchant ships were commonly depicted in graffiti, as well as more formal artwork such as mosaics, stone reliefs, paintings, and coins (Basch 1987), affirming the status and importance of merchant ships at that time. Their advanced technology was a source of pride. The graffito images clearly do not belong to a formal graphic tradition and would appear to represent what the illustrators saw and knew (Davey 2015). The consistency of the depictions suggests that they reliably showed the important features of the ships, although not necessarily drawing them to scale.

One graffito, Figure 3, found at Pompeii illustrates a merchant ship named *Europa*.³ Pompeii was destroyed in AD 79 so the image is earlier than that and almost contemporary with Paul's travels, indeed when he eventually disembarked in Italy, it was at the port of Puteoli, which was located on the Bay of Naples opposite Pompeii.

The graffito illustrates several aspects of Paul's ship, which will be mentioned later, but the significance of the

small sail on the bowsprit at the front of the ship needs comment here because it was the reason for Roman ships being able to sail routinely to windward and why sailing ships could be made much larger than previously (Davey 2015; 2016; 2018). The sail is called in Latin an *artemo*, and its only known occurrence in Greek is in this narrative (Acts 27: 40). In English it is called a spritsail and is not to be confused with the large foresail used on some Roman ships, the square mainsail used on some smaller river craft, or the *dolon*, a small temporary sail used on ancient warships. There are no depictions of the spritsail from before 100 BC, indicating that it was probably first used in the second century BC. It regularly appears in later Roman period ship illustrations:

Basch (1987) depicts about 46 Roman-period merchant ships without oars. Of these, ten have large foresails, while 28 have spritsails or bowsprits on which to rig spritsails. Of the eight ships depicted to have no sail at the bow, only three have square mainsails. There are also images of merchant ships with spritsails not included in Basch, especially on coins (Torr 1895: pl. 6 no. 27; Smith & Smith 1880: 201). (Davey 2018: 24)

The small size of the spritsail meant that it did not normally provide aerodynamic power, but it was easy to operate and was used to aid steering, principally while sailing to windward and tacking (Davey 2015, 2018). Sailing ships rigged with square sails could sail as close

to the wind as six points, that is 67.5 degrees from the wind, although Smith thought that ancient sailing ships could only achieve seven points, 78.75 degrees (1880: 135). Replicas of ancient ships, such as the *Kyrenia II*, have achieved headings of 61 degrees to the wind, suggesting that Smith's reasoning was conservative (Cariolou 1997: 92).⁴

When sailing to windward it is important to maintain the boat's forward motion as the resistance to sideways movement, leeway, is generated by the speed of the ship through the water. Steer away from the wind and the boat increases in speed but does not make very much progress toward the wind; steer too close to the wind and the boat slows, reducing the lateral resistance and increasing leeway, thus reducing progress toward the wind. Steering oars that were used during the Roman period lacked the power and robustness of a rudder and were prone to breaking even in moderate breezes when sailing to windward, so it was the spritsail that was used primarily to guide the ship when sailing close hauled. Ships with spritsails were therefore able to sail to windward and tack routinely in fair sailing breezes.⁵

Spritsails also presented the opportunity to make ships larger (Davey 2016). The forces exerted by larger sail plans could be balanced by spritsails so that the steering oars were not overpowered. It is noticeable that shipwreck data shows that sailing ships increased in size from the

second century BC (Davey 2016: table 1). It is the advent of the spritsail that made the trade in bulk commodities feasible in Roman times.

An example of a large grain ship is the *Isis*. Lucian's description states its length to be 120 cubits (55 m), beam 30 cubits (13.75 m), and deck to keel 29 cubits (13.25 m), but does not mention its displacement, which has been variously estimated to have been 1,100–3,000 tonnes (Casson 1950: 186–9). Doubts about the veracity of the account have been raised, because the literary form and purpose of the text was not technical, and no grain ships of that size are known in the maritime archaeological record (Houston 1987), but shipwrecks are normally detected by their indestructible cargo of amphora, and since the large grain ships did not carry amphora, their timbers floated away leaving little trace. There is no *prima facie* reason for the technical details not being correct. The Madrague de Giens shipwreck was almost two hundred years earlier and was of comparable size. It had 6,000 amphora, was 40 m long and displaced an estimated 520 tons (Tchernia et al. 1978). Casson also describes the accommodation aboard the grain ships, which were able to carry up to 600 people (1971: 172, 175–82). Paul's voyage had 276 people aboard.

Historically, the Roman grain ships were comparatively large. The 17th-century *Mayflower* by contrast, displaced about 250 tons and was about 30m long, and the 18th-



Figure 4: Relief of a large Roman merchant grain ship from a sarcophagus found at Sidon, second-century AD in National Museum, Beirut. Image: Public domain, https://commons.wikimedia.org/wiki/File:Phoenician_ship.jpg.



Figure 5: The Roman site of Andriake, the port of Myra. The port is now partly silted. The roofed buildings are the reconstructed granaries built by Hadrian (117–138), now used as a museum.
Image: courtesy of Google Earth and e-yasamhberi.com, accessed 11/5/2025.

century *Endeavour* displaced 360 tons and was also 30m long. In fact, merchant ships of the size of the Roman grain ships were not built again until the 18th century.

The narrative of Paul's voyage

The course of the voyage is plotted on Smith's chart (Figure 1). Place names used in this paper may be found in Figure 2, which has been modified from a map prepared by Ramsay.

Throughout the narrative, Luke accurately uses nautical terms (Smith & Smith 1880: 61 n.1). Many of the words used are to be found in Julius Pollux's late second century *Onomasticon*, which has numerous pages of Greek nautical terms and phrases (Pollux 1824; Smith & Smith 1880: 29). Pollux was born at Naucratis in Egypt, became a Greek scholar and rhetorician, and was appointed to a Chair of rhetoric in Athens by emperor Commodus (AD 177–192).

In Acts 27: 2, the *New Revised Standard Version* (NRSV) fittingly translates the passive voice of Greek *anagō* as 'put to sea'.⁶ The term is in Pollux's nautical section and describes a ship getting underway (Smith 1880: 65, n.1). Another nautical term used only by Luke, *katēchthēn*, (27:3) means 'to put in',⁷ and is another idiom still in use today conveying the sense of a brief stop.⁸

The sailing distance from Caesarea to Sidon is about 70 nautical miles, and it appears that it took a little over a day at a VMG of about 2.5 knots. Sailing along the coast or *coasting*, could be treacherous if wind conditions changed for the worse especially during the hours of darkness.

According to Strabo, 'Sidon is situated upon a fine naturally-formed harbour on the mainland' (16.2.22). Smith thought it a good place to winter (1880: 64 n.3) and Captain Edward Smith reported that in 1840 it was still possible to anchor there in water 6 fathoms deep (Smith R.N. 1840: 15). At Sidon, Julius gave Paul the freedom to go with his party to eat and sleep ashore. They would have remained near the port in readiness to leave the moment that a favourable wind arose. Land breezes are common at sunrise, allowing ships to leave port and get sea room before the gradient winds of the day set in.

Grain ships frequented Sidon. The *Isis* called in there, and it was there that the most graphic image of a grain ship under sail was found (Figure 4). However, no grain ships were in port when Paul's ship called, so they 'put to sea' again, but as the winds were contrary, they 'sailed under the lee (*hupopleō*)⁹ of Cyprus' (27:4). This has been variously understood. Sailing terminology often refers to the wind, and in this case *hupopleō* denotes the sheltered side of Cyprus. Some have argued that the contrary wind was blowing from the north hindering the passage of the ship along the coast of Syria, so they sailed westward to the south of Cyprus. Others, including Smith, have envisaged a westerly wind and a passage to the east of Cyprus (1880: 66–68; Figure 1). The next verse says that they 'sailed through the sea (*diapleūsantes*)¹⁰ of Cilicia', which is to the north of Cyprus, so it appears that the contrary wind was from the west, and that they sailed anticlockwise around Cyprus where they had the advantage of the current that flows in the same direction (Beresford 2013: 101).

The next port-of-call mentioned was Myra, a Lycian town on the south coast of Türkiye. It had a theatre, temples and tombs cut into cliffs with relief facades. Its port was 4 km to the west at Andriake, where there was a substantial, sheltered harbour, which is now partly silted. Hadrian later built a granary there testifying to its strategic importance (Figure 5). As this was a major port, it would have been frequented by many ships returning to Rome from Alexandria with grain. Some may even have spent the winter there. It was there that Paul's group boarded an 'Alexandrian ship' that was sailing to Italy (27: 6).

The grain ship voyage

From Myra, the grain ship followed the southern coast of Türkiye (Smith 1880: 72). They 'sailed slowly' (*braduplooūntes*)¹¹ and 'with difficulty', indicating that the winds were light and, according to Smith, certainly adverse in direction, until they reached Cnidus (1880: 76). As the wind probably came off the land, it would also have been variable in strength and direction. The distance from Myra to Cnidus is about 290 km, and with a fair wind could have been sailed in about two days, however, it took 'many' days (27: 7).

Cnidus is located at the end of the Datça peninsula. It has two harbours, one on the north side sometimes used by warships and a larger southern port used by merchant ships. The lion statue, now in the British Museum's Great Court, was once atop a monument at an earlier site of Cnidus, now the town of Datça, and may have been visible at the time of Paul's voyage. Northwest of the Datça peninsula is the Aegean Sea and to the south is the Mediterranean Sea.

At Cnidus, the prevailing north-westerly wind was encountered without the shelter of the land, preventing a passage across the Aegean Sea to the north of Crete, so they headed southwest past Point Salmone, now Cape Sidero, the most north-easterly point of Crete. From there, sailing would have been in sheltered waters along the eastern and southern coasts of Crete where progress was again 'difficult' (27: 7–8). Before they reached Cape Malata, they anchored at a place called Fair Havens. This was identified by Smith to be modern Kaloι Limenes (1880: 82). It is 3 km west of a site that *Google Earth* labels as the 'Archaeological site of Lisaia', the ancient town of Lasea. It is near the Island of Trafos and today is adjacent to a small hamlet of holiday homes. All current images of the area depict ships at anchor, revealing that, although the bay is exposed to the southeast, it is a satisfactory anchorage for modern ships (Figure 6).

At Fair Havens, it was time to assess the situation as the voyage had not progressed to the point where it was possible to reach Rome before the winter. The autumnal equinox had passed, and storms could be expected. The voyage had become dangerous (*episphalous tou ploos*),¹² which Smith notes is the correct nautical expression as listed by Pollux (i: 105; Smith 1880: 84). In fact, the Fast, the Day of Atonement (*Yom Kippur*) that was observed

on the 10th Tishri, had passed, and it seems that the 15th Tishri, when the Feast of Tabernacles was kept, was still to occur, otherwise that event would have been mentioned instead. This identifies the date, the Fast fell rather late that year (AD 59) on about 5 October (Ramsay 1898: 322; Bruce 1952: 455).

There was a consultation to discuss the best course of action (27: 9–12). Ramsay proposed that this was a 'council' presided over by the centurion, and consisting of the captain (*kubernētē*),¹³ the *nauklērō*,¹⁴ and people such as Paul who could contribute from their experience (1898: 323–24; Casson 1971: 315–6; Hemer 1990: 138–9). Ramsay deemed the *nauklērō* to be the sailing master and the ship to be state-owned, but the consensus is that the *nauklērō* was the owner, who had chartered the ship to the government. In either case, the centurion was the most senior officer aboard.

Luke would not have been at the meeting and would have relied on Paul's report of it. Paul advocated staying at Fair Havens, while the sailors deemed the harbour to be unsuitable for a winter stay and wanted to move to Phoenix, another port on the south coast of Crete. There is no doubt about the location of Phoenix. It is Loutro, which has two harbours facing the southwest and southeast, and it has an archaeological site on the promontory between the harbours labelled by *Google Earth* to be *Phoinix* (see above Ogilvie 1958: 314). Smith acknowledged in a footnote that 'Lutro is still known by the name Phenice' (1880: 87 n.3). It is about 73 km west of Fair Havens and, when it was examined by Captain Spratt RN in 1853, it was deemed to be the only harbour west of Fair Havens on the south coast of Crete that was safe to shelter for the winter (Smith 1880: 91 nn.1 & 3). Luke describes Phoenix as having harbours facing the southwest and northwest. He appears to have been mistaken; after all he never saw the place. The centurion accepted the advice from the ship's sailing officers, and so they planned to sail on to Phoenix.

It is significant that the direction the harbours faced was important. Roman ships were not very manoeuvrable in windy conditions, and they had little opportunity to alter their time of arrival at a port. It was therefore important that they could enter the harbour almost directly with the prevailing wind behind them.

The storm

When a light wind (*hypopneusantos*)¹⁵ sprang up from the south presenting what appeared to be a good opportunity to sail westward toward Phoenix, they weighed anchor (*arantes*)¹⁶ and sailed along the coast (27: 13): 'they coasted along Crete, close in' (Bruce 1952: 458). They may not have reached Cape Malata, where the shoreline turns northward, when a violent wind (*typhōnikos*)¹⁷ cf. 'typhoon' rushed down on them from the mountains of Crete (27: 14). This strong wind is identified to have been a northeaster (*eurakulon*)¹⁸ (Rapske 1994: 36–40). The wind is also known as a *Gregale* (Greek wind) by



Figure 6: A recent image of the anchorage of Fair Havens, modern Kloi Limenes, on the south coast of Crete, looking to the southeast. It is still used as an anchorage, although there are no shore-based support facilities other than a load-out. Image: courtesy Google Earth, accessed 11/5/2025

the Maltese. The Royal Meteorological Society website, *MetLink*, describes several severe Mediterranean winds including the *Gregale* (or *Grigale*)/*Euroclydon*/*Euraquilo* wind encountered by Paul's ship:

A notorious wind of the western Mediterranean which also blows across central parts of the Mediterranean Sea. It is a strong and cold wind from the north-east and occurs mainly in winter. It is most pronounced on the island of Malta, where it sometimes reaches hurricane force and endangers shipping ... Paul experienced a gregale. As these winds normally last no more than four or five days, the storm he experienced appears to have been unusually persistent (<https://www.metlink.org/resource/local-winds/> accessed 15/5/2025).

The ship was caught (*sunarpasthentos*)¹⁹ and could not be turned into the wind (27: 15). It appears that turning head-to-wind was the preferred course of action in this situation, but furling (*brailing up*) the sail or part thereof could not be undertaken in time, so they ran before the wind with too much sail aloft, in what was a hazardous manoeuvre (*scudding*), until the sail area could be reduced. Indeed, Bruce translates, 'we scudded before it' (1952: 459). They sailed to the lee of the island of Cauda passing it on their right. Cauda is today called Gavdo and is about 36 km due south of Loutro; so sailing to Phoenix was then out of the question. The bearing from Cape Malata to the south side of Cauda is 256.5 degrees, which would indicate that the wind direction was between ENE and E, that is about East by North. Smith applies a few processes to conclude that the wind direction was ENE (1880: 100–103).

The ship's-boat (*skáphos*)²⁰ cf 'skiff', was being trailed in the manner seen in Figure 3. As the distance from Crete increased, so too did the wave height, which endangered the ship's-boat, necessitating it to be brought under control (*perikrateîs*)²¹ and then hoisted out of the water (27: 16). Bruce suggests that Luke's use of the first person may indicate that he assisted in the process and that his comment that it was 'difficult', may infer that it was not a fond memory (1880: 459).

To strengthen the hull, the crew undergirded it (*hupozōnnumi*)²² by securing ropes tightly around it (27: 17). Casson describes this practice, called 'frapping', as it was applied to ancient warships, and he states that on merchant ships there were cables 'for use in emergencies to secure planking that had loosened' (1971: 211 n.45; 91–2). Smith discusses the procedure in a nineteenth century context describing one instance of the practice (1880: 108–10).

With the hull strengthened and the ship's boat secure, it was then necessary to consider its direction of travel. They did not want to be driven into the *Syrtes*, two large areas of shallow water, reefs, and sandbanks in the 900 km wide Gulf of Sidra. Syrtis Major is on the eastern side of the gulf, near Benghazi, and Syrtis Minor is on the westside toward Tunis (Carthage). Captain Smyth's comments about these hazards are quoted by John Purdy:

All the world knows that the two Syrtes are the great gulfs on the northern coast of Africa, between Carthage and Cyrene, and that they were the terror of the ancient mariners: I did not find it a coast desolate, melancholy, and without

form, but we saw distinctly how the waves, which are perpetually breaking against the shore, wash and leave the rocks uncovered which abound on this coast, and which are also strewn with the remains of many wrecks ... but it is necessary to reflect that vessels should not enter into this gulf when chased by tempests which it is impossible for them to resist; for, in rough weather, the sea rises here to a prodigious height (1841: 273).

The main danger was the sea state created by the shallow water; as the water depth decreases, the waves increase in steepness and height until they break, battering everything in their path. The shell construction of the hulls of Roman ships meant that they were vulnerable. The gale blowing from the East to ENE was likely to drive them into one of the Syrtes where it would be ‘impossible for them to resist’. They needed to travel on a more northerly bearing of about 277 degrees. How this was achieved has been the subject of much speculation.

Luke says that, to sail the course to avoid the Syrtes, they lowered the *skeũos*.²³ Some modern versions translate *skeũos* as ‘sea-anchor’, however, this meaning is not found in ancient literature. Modern sea-anchors are like undersea parachutes, but can be anything bulky, that may be dragged behind a ship to keep it progressing directly away from the wind. In this case, that would have meant drifting toward the Syrtes and disaster. A sea-anchor could not change the direction of drift in the manner required.

In nautical contexts, *skeũos* normally refers to a ship’s gear, that is the running rigging, yards and sails but not the standing rigging, such as masts and stays. The Authorised Version uses an archaic term that they ‘strake sail’, meaning that they lowered the yard and the sail to the deck. When sails were furled on square-rigged ships, it was normal to lower some of the yards, to bring down the ship’s centre of gravity and reduce its propensity to roll. Smith (1880: 111, n. 2) quotes Richard Gower’s 1796 *Treatise on Seamanship* on preparing for a gale:

Let the top-gallant yards and masts, mizen-topsail yard, mizen yard, and cross-jack yard, be got down on deck, that the ship may be made as snug as possible.

Smith agrees that they lowered the yards and sails to the deck, although, in his view, having them aloft was important if they were to bypass the Syrtes (1880: 110–16). He maintains that they then hoisted some storm sails to ‘lie-to’ or heave-to, on the starboard tack so that they would drift in a more northerly direction but Luke makes no mention of the hoisting of storm sails at this point, which puts his suggestion into question. It is possible that a heave-to configuration was formed by using the steering oars to manoeuvre the ship to starboard while the spritsail (*artemon*), the small sail on the bowsprit, was set to steer the ship to port.

There is no evidence for this practice, but it is feasible and does seem to be the best interpretation. After lowering the

yard and sail to the deck to make the ship ‘snug’ and less likely to roll, the steering oars turned the ship to starboard, while the spritsail was adjusted to make the ship move forward slowly without broaching (turning uncontrollably into the wind). Luke does not mention this happening, possibly because manoeuvring the ship with the steering oars and operating the spritsail was nothing out of the ordinary. Lowering the yard and sail would have made the ship easier to steer in the rough seas, which may explain why it was linked by Luke to the endeavour to avoid the Syrtes. Smith does not consider this approach, possibly because the sailors who advised him were more familiar with the use of jibs, rather than spritsails, and they had no experience of steering oars, single-masted large ships with long yards, and double-ended hulls, having bow-shapes fore and aft.

Luke says that, after lowering the gear, they *epheronto* (27: 17), which is often translated here to have been ‘driven’ (AV, NIV, NRSV etc). It took about fourteen days to reach Malta, which implies a speed of about 1.5 knots, and is more like drifting than being driven. In this case, ‘carried along’ seems a better translation of the passive voice of the verb ‘to carry’. It gives the sense of travelling with limited command rather than being driven, or drifting, out of control.

The partially cross-wave course that the ship followed meant that they were *sphodrōs dē cheimazomēnōn*²⁴ ‘tossed’, ‘pounded’, or ‘battered’ (27: 18). If they were drifting directly away from the wind, they would have been pitching and not being battered to the same extent because the bow-shaped stern would have ridden the waves more comfortably. When ships were in danger of foundering, they needed to be lightened by throwing superfluous objects overboard. The stresses rough seas can induce may cause hulls to leak and as the ship lowers into the water, more water starts coming over the sides. This situation would have been exacerbated by the oblique course across the waves that they followed. They jettisoned cargo, and on the third day they threw the gear (*skeũos*) overboard, which seems to have included the yard and sail (27: 19). Tossing the prime means of propulsion overboard would have seemed final and increased the sense of hopelessness. Paul stepped into this situation to provide encouragement (27: 21–26). As someone who had been shipwrecked three times and spent a night and a day adrift in the sea (2 Cor 11:25), he had some experience to draw upon.

Approaching a shore

The sailing of the ship seems to have been carried out professionally, and the crew must have operated the ship industriously to bypass the Syrtes and cross the Adriatic Sea. They were alert on the fourteenth night when they sensed that land was near (27: 27); they may have been aware of a change in sea state or may have seen or heard the breaking of waves ahead or on the portside.

Mediterranean coastlines are notoriously rocky and threatening and Malta, in particular, is mostly surrounded

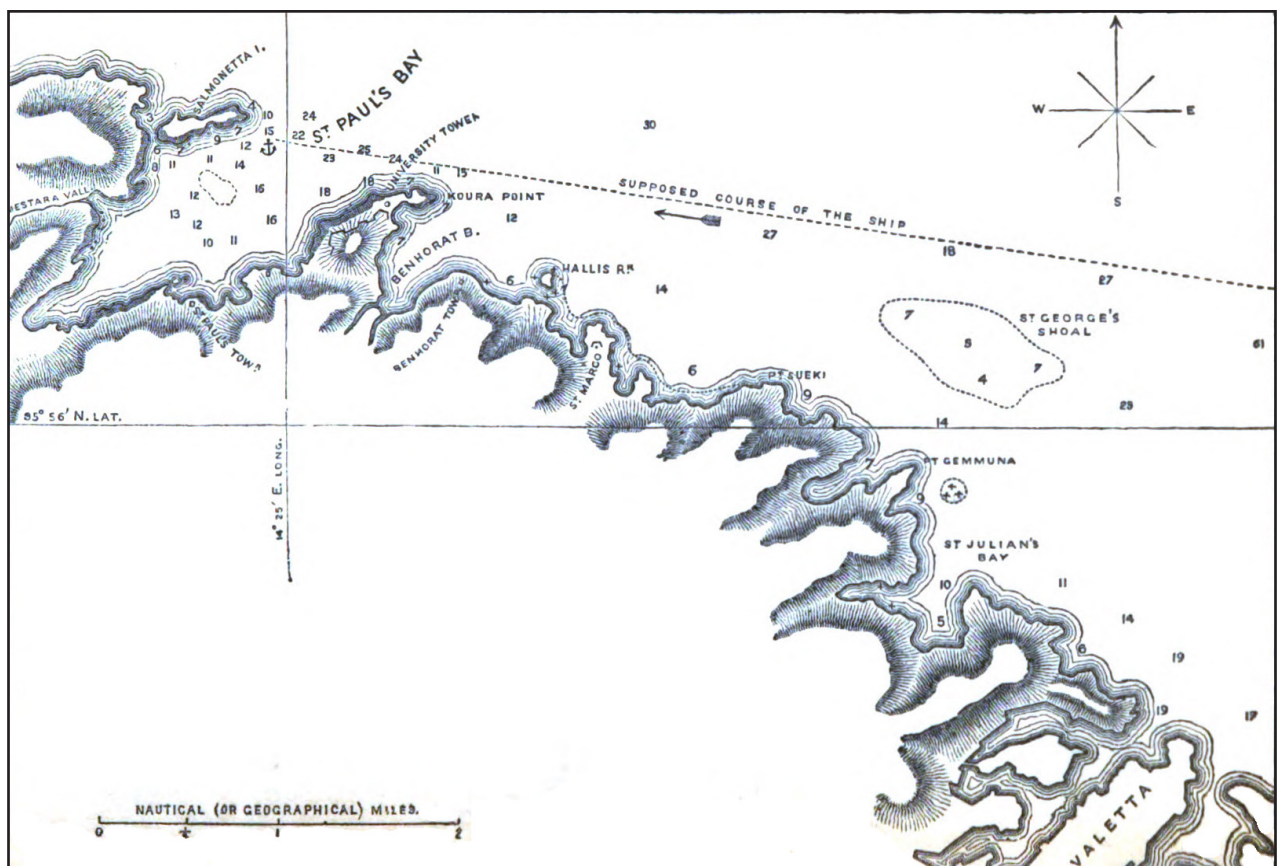


Figure 7: A suggested approach of St Paul's ship to Malta travelling at a bearing of about 280 degrees from Crete and anchoring at the entrance of St Pauls Bay, in about 15 fathoms of water (from Smith 1856: opp 124).

by vertical cliffs. The eastern shoreline is not so severe, and there are a few bays: Marsaxlokk Bay, St Thomas Bay, Valetta Harbour, Mellieha Bay, about half a dozen small bays or coves and, St Paul's Bay, the traditional site of the shipwreck. Figure 7 illustrates a plausible approach to the Bay from Crete. Sea levels today are a few metres higher than they were in Roman times, so the bay that they fortuitously arrived at may not be known with certainty. The sailors did not recognise the area, so it was not in the immediate vicinity of Valetta, where ships would normally have docked (27: 39). All we know is that in the bay there was a cove that had a beach, and that the water depth near the entrance was about 15 fathoms. St Paul's Bay does satisfy these conditions. Smith was comfortable that the geography of St Paul's Bay, and the experience of contemporary sailors who anchored there, made it the most likely location of the shipwreck (1880: 130–133).

To confirm the proximity of the shore, the sailors (*nautai*)²⁵ 'threw the lead' (*bolisantes*),²⁶ that is, took a sounding and found that the water depth was twenty fathoms (*orguias*).²⁷ A fathom is the distance between two outstretched arms, about 6 feet, (1.85m), giving a depth of 120 feet (36.6m) (27: 28). A second sounding a little later indicated that the depth was five fathoms less, confirming that they were approaching a shore. Lead sounding weights are some of the few imperishable items aboard ships and have been discovered in many shipwrecks (Oleson 2008). They then

lowered four anchors (*agkura*)²⁸ from the stern (*prunes*)²⁹ to halt the ship's progress toward the land (27: 29).

Commentators have queried the anchoring of the ship from the stern and Smith was uncertain about it (1880: 133–135); however, it is a common practice aboard double-ended ships such as Viking longboats and most ancient Mediterranean ships. Getting underway was easier when a ship was anchored from the stern rather than the bow. The ship depicted in Figure 3 shows lugs protruding from the gunwales near the bow and the stern; these are called *timberheads* and were used to secure mooring and anchor ropes. When approaching the shore without the mainsail hoisted, it was difficult to turn the ship into the wind. The pretext for the sailors to put out anchors from the bow using the ship's boat was clearly a ruse to escape (27: 30). The soldiers' decision to cut the rope (*schoinia*)³⁰ and set the ship's boat adrift limited the ship's options and may indicate that they had decided that a shipwreck was inevitable. Bruce suggests that the soldiers misunderstood Paul's advice (1952: 464).

Luke does not mention that at the time of anchoring they lifted the steering oars out of the water and secure them with lashings (Smith 1880: 135). They may have been damaged had they been left in the water with a following sea. The ship in Figure 3 has one steering oar lifted out of the water in this fashion.

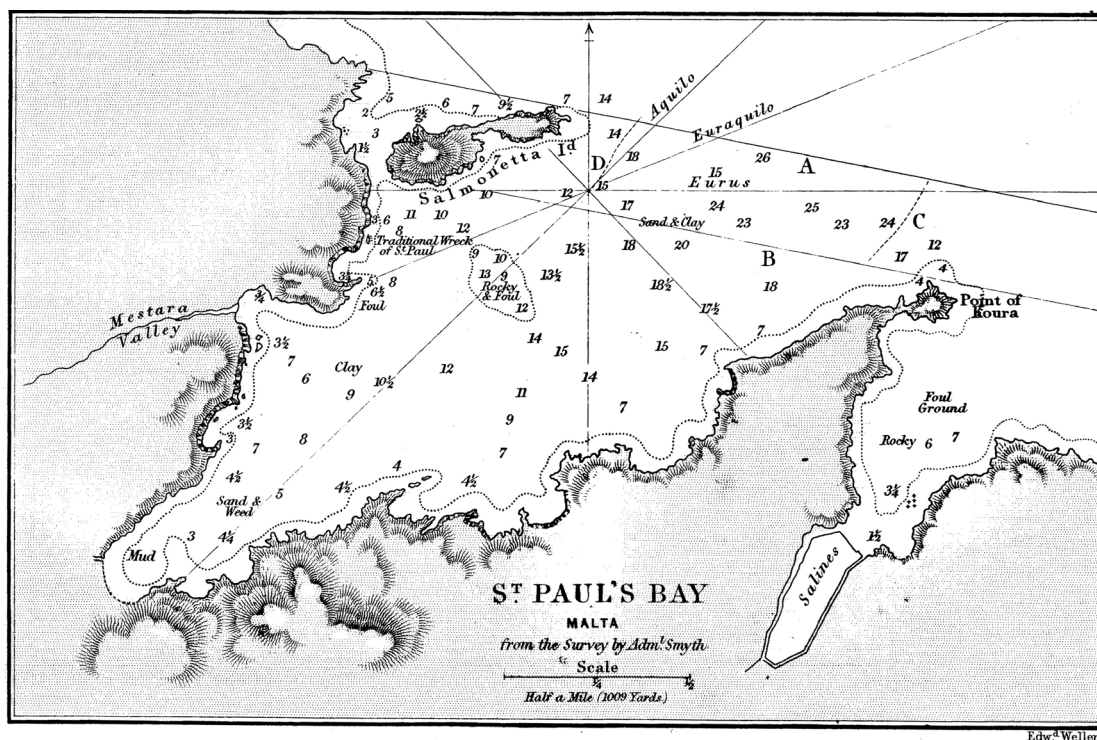


Figure 8: A chart of St Paul's Bay completed by Admiral William Henry Smyth (1788–1865) in about 1825. The possible location of the shipwreck is marked. From Smith (1880: opp. 129).

Prior to the dawn, Paul encouraged everyone to have something to eat (27: 33–35). The rough weather would have limited the options for food preparation and many people do not like eating in turbulent and stressful circumstances. It is at this point that Luke reports that there were two hundred and seventy-six souls (*psuchai*) on board. Codex Vaticanus says that there were seventy-six people aboard and the *Revised Version* follows it. However, Bruce (1952: 466) and most versions follow the majority of old Greek manuscripts and accept the larger number.

The shipwreck

When daylight came, they found themselves anchored to the south of Salmonetta Island (Figure 8). From there the sailors saw a *kolpon*,³¹ which is sometimes translated as 'bosom' or a 'fold' in a garment, but here means an indent in the shoreline or a 'cove' (27: 39). In the cove there was a beach (*aigialov*) where it was decided to run the ship aground (*exōsai*).³² To do this the sailors: released or slipped the four anchors, leaving them and their hawsers (ropes) in the sea; untied the lashings (*zeuktērias*)³³ to lower the steering oars (*pēdalion*)³⁴ cf. 'paddles'; and hoisted the spritsail (*artemōna*)³⁵ to the wind, which is a round-about way of saying that 'they set the spritsail' (27: 40). This is the only mention of this sail-name in extant Greek literature. As already discussed, spritsails can be seen at the bows of most sea-going ships at that time (Figures 3 & 4), and functioned as an effective means of directional control, but in this instance, it was used to power the ship toward the shore.

No two translations of the shipwreck described in verse 41 are the same. It literally reads: but unfortunately coming upon (*peripesontes*)³⁶ a place between the two seas (*dithalasson*)³⁷ the ship (*naus*)³⁸ ran aground (*epekeilan*)³⁹ and the bow (*prōra*)⁴⁰ became stuck (*ereisasa*)⁴¹ and it remained immovable (*asaleutos*),⁴² but the stern (*prumna*)⁴³ was being broken up by the force (of the waves). Most of the words are archaic and would have been recognised by the first readers because they were used in Homer's *Odyssey*; Bruce says that the language is poetic (1952: 467). Luke imbued the narrative with a sense of grandeur by channelling the *Odyssey*. If the scene was in a modern movie, the Jupiter 'theme' from Gustav Holst's *Planet Suite* would no doubt be the soundtrack to give the same sense of gravitas.

The elaborate language does shroud some of the meaning. Clearly, there was no reef, in fact the ship ran aground on a sand or clay bank, but the 'place between the two seas' is mysterious (Figure 8). Smith (1880: 142-3) describes the shipwreck in the context of St Paul's Bay and suggests that the second sea was through the narrow channel between Salmonetta Island and the mainland (Figure 9). The channel is only about 100m wide and at the time of the shipwreck would have been even narrower, so the physical effects of the channel were negligible. Luke appears to be alluding to Homer, where Odysseus had to sail through of the Strait of Messina, the 'place between two seas', the Adriatic and the Tyrrhenian, on a course between Scylla, thought to have been a rock shoal, but described as a six-headed sea monster on the



Figure 9: St Paul's Bay looking northwest from the southern shore. The traditional location of the shipwreck is near the break in the far shore of the bay above the white post on the right.
Image: courtesy of Google Earth, accessed 1/7/2025.

Calabrian side of the strait, and Charybdis, a whirlpool off the coast of Sicily. He was advised to pass nearer to Scylla and risk losing a few sailors, rather than sail near the whirlpool and risk the loss of the entire ship. The myth gives rise to idioms such as, 'between a rock and a hard place,' 'to choose the lesser of two evils,' 'on the horns of a dilemma,' 'making the best of a bad lot,' and 'between the devil and the deep blue sea'. In this instance, rather than striking a reef or rocky shoreline, where the ship would have disintegrated rapidly and the people would have been overwhelmed by the tempestuous sea, the ship was stuck fast in the clay sea floor not far from a beach where there was time to arrange for people to go ashore. To achieve this, the centurion exercised his authority by sparing the lives of the prisoners, and ordering those who could swim to make their way to the beach, where they would be able to assist the people following who would be clinging to planks (*sanisin*)⁴⁴ or anything else from the ship that would help them stay afloat.

On Malta

As Paul had foreshadowed, everyone survived. During their sojourn in Malta, Paul continued to improve the circumstances of the people he encountered, starting by collecting firewood, and later, he cured people by the laying on of hands (28: 1–10).

Three months later, at the beginning of February, Paul's party joined another Alexandrian grain ship that had spent the winter (*parakeheimakoti*)⁴⁵ at Malta. The ship had a nameplate (*parasema*)⁴⁶ on the side with the name of the

twin brothers (*Dioskouroi*),⁴⁷ the sons of Zeus, *Castor and Pollux*. The ship depicted in Figure 3 had its name, *Europa*, on such a nameplate on the ship's side. It is interesting that the name of Paul's ship was not mentioned by Luke. If it was state-owned, as Ramsay suggested, it may not have had a nameplate. Casson notes that in fact we know very few merchant ship names, and those that we do know, derive from the names of Egyptian, Greek or Roman deities (1971: 359).

The strategy of the owner of *Castor and Pollux* appears to have been astute. The prevailing north-westerly summer winds were yet to commence and there was a chance of favourable southerly winds that would expedite the voyage from Malta to Rome. They may then be the first ship for the season to arrive in Rome where there would be little competition for stevedores, the demand for grain would be at its greatest, and prices would be at their highest. They would get a rapid turnaround, and be back in Alexandria by the end of March, to take on a second consignment of wheat for the season. All being well, they would be returning from Alexandria with a third consignment at the end of the season, when they may again winter in Malta, or Crete (cf. Casson 1971: 297–9).

The *Castor and Pollux*, put in at Syracuse for three days, maybe to replenish supplies that were depleted during the winter in Malta. At the next port of call, Rhegium, a south wind sprang up prompting an immediate departure. The northward voyage from Rhegium to Puteoli took a little over a day at an average speed of 5 knots and is often

referenced in studies discussing Roman period sailing passage times (Casson 1971: 284; Whitewright 2011: 4; Beresford 2013: 102). Beresford points out that for much of the year, winds in the Tyrrhenian Sea were from the northwest and, that early in the year southerlies may occur, giving ships a fast passage to Puteoli. At that time, it was normal for passengers to disembark at Puteoli and to travel overland to Rome. The new port, Portus, was to be commissioned about four years later (Keay 2012), so until then, cargoes were discharged at Ostia.

Concluding comments

The narrative of the voyage deals with circumstances not encountered elsewhere in the NT and so it includes words and concepts that are not common. Translating it has always been a challenge and some of the recent versions still need some revision. It is suggested that:

- σκευός/*skeiōs* (27: 17) is the ‘sailing gear’, referring to the running rigging including the mainsail and yard, so ‘sail and yard’ is also correct, but it is certainly not a ‘sea anchor’.
- ἐφέροντο/*epheronto* (27: 17) is ‘carried along’ rather than ‘driven’.
- ἀρτέμωνα/*artemōna* (27: 40) is a ‘spritsail’, not a ‘foresail’ or a ‘dolon’, and certainly not a ‘mainsail’ (AV).
- παρασήμω/*parasema* (28: 11) should be ‘nameplate’, not ‘figurehead’.

The application of research associated with the spritsail has facilitated an understanding of the operational capacity and limitations of grain ships sailing from Alexandria to Rome against the prevailing summer winds. Little was written at the time about Roman seamanship, so Luke’s description provides valuable information about first century maritime practices. The shipwreck was not reckless and accidental, but planned in the light of limited alternatives.

The account portrays Paul as a confident figure in the marine environment. He had no intention of escaping, and he used the connection with his captor to influence the course of events to help secure the safety of all aboard. Luke’s use of nautical terms adds credibility to the narrative, which reinforces his perspective that while some of the disciples would appear to have forsaken Paul, he still had a vital role in the development of the Christian community.

At the beginning, it was mentioned that some scholars have been sceptical about the narrative of Paul’s shipwreck. They seek organised theological constructions behind the text, but as Hemer has explained, ‘The locations of insignificant places in Crete, the frustrated plans of the ship’s company, the nautical manoeuvres and the topography of the Maltese shore are not only theologically irrelevant, but hard to explain except as vivid experience recalled before the details could blur or be merged in a longer perspective of reflection’ (1990: 389).

This is the last action narrative in the Book of the Acts of the Apostles and should be its high point, but some modern readers have been let down by the way the story seems to peter out. The book is about acts, not theology. Paul’s life of travel was being contrasted with that of his fellow apostles who were safely dwelling in Jerusalem where they would appear to have forgotten nearly everything that Jesus had told them and had given tacit approval to the views of exclusive Judaistic nationalists, who had sought to assassinate Paul. Instead, Paul was risking his life to introduce people to this new universal faith and to demonstrate how to practise that faith. He was aboard a ship, the size of which would not be common again for another seventeen hundred years, that was supplying the capital of the empire with essential provisions, when he found himself in the thick of a major disaster involving the most sophisticated technology and maritime traditions of the time. Even though he was under arrest, he was composed in the confusion, he was not overwhelmed by the life-threatening circumstances, and was able to act with integrity and compassion to make a positive contribution to the situation.

Luke draws on his own Classical Greek education to cast Paul’s challenging voyage into the shadow of the *Odyssey* by using Homeric language to describe the ship’s demise. This embedded the narrative in the cultural world and experience of the first readers of the book. The nationalistic themes of the Old Testament, such as the Exodus and the activities of ancient Israel, were not then known to most people, and in any case, were not relevant to them, as they made the best of life’s daily struggles and challenges as citizens of the Empire. By including this voyage narrative as the penultimate record of the New Testament, Luke was suggesting that the followers of this new monotheistic faith could expect to prevail over the uncertainties of daily life. Rather than placating idols and adopting formulaic rituals, or pursuing exclusive utopian nationalisms, the followers of the faith were committed to a compassionate and constructive way of life, whatever the cost and inconvenience. It is hard to imagine a more fitting climax to the Book of the Acts.

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Bibliography

- Aly, Samuel, 2017 The Gracchi and the Era of Grain Reform in Ancient Rome, *Tenor of Our Times* 6, 10–22.
- Basch, Lucien, 1987 *Le Musée imaginaire de la marine antique*, Athènes: Institut hellénique pour la préservation de la tradition nautique.

- Benoît, Fernand, 1961 *Fouilles sous-marines: l'épave du Grand Congloué à Marseille*, Paris: Centre national de la recherche scientifique.
- Beresford, James, 2013 *The ancient sailing season*, Leiden Boston: Brill.
- Bruce, Frederick F., 1952 *The Acts of the Apostles: The Greek text with introduction and commentary*, 2nd ed., London: Tyndale Press.
- Cariolou, G.A., 1997 Kyrenia II: The return from Cyprus to Greece of the replica of a Hellenic merchant ship, in S. Swiny, R. Hohlfelder & H. Swiny eds, *Res Maritimae, Cyprus and the eastern Mediterranean from prehistory to late antiquity, Proceedings of the second international symposium 'cities on the sea'*, Atlanta, GA: Scholars Press, 83–97.
- Casson, Lionel, 1950 The Isis and Her Voyage, *Transactions and Proceedings of the American Philological Association* 81, 43–56.
- Casson, Lionel, 1971 *Ships and seamanship in the ancient world*, Princeton, NJ: Princeton University Press.
- Casson, Lionel, 1991 *The Ancient Mariners: Seafarers and Sea Fighters of the Mediterranean in Ancient Times*, 2nd ed., Princeton, NJ: Princeton University Press.
- Davey, Christopher J., 2015 Sailing to windward in Roman times: the sprit-sail legacy, *Buried History* 51, 31–44.
- Davey, Christopher J., 2016 Large merchant ships in Roman times: the Spritsail legacy, Part II, *Buried History* 52, 35–44.
- Davey, Christopher J., 2018 The Roman merchant ship sail plan, *Buried History* 54, 23–32.
- Erdkamp, Paul, 2009 *The Grain Market in the Roman Empire: A Social, Political and Economic Study*, Cambridge: Cambridge University Press.
- Graham, Daryn, 2024 Imperial responses to the food crisis that began under Claudius, *Mouseion: Journal of the Classical Association of Canada* 20 (1), 23–56.
- Hastings, James, 1947 *A Dictionary of the Bible, dealing with the Language, Literature and Contents, including the Biblical Theology*, Edinburgh: T&T Clark.
- Hemer, Colin J., 1990 *The Book of the Acts in the Setting of Hellenistic History*, Winona Lake, IN: Eisenbrauns.
- Hemer, Colin J., 1985 First person narrative in Acts 27–28, *Tyndale Bulletin* 36, 79–109.
- Hoff, Michael C. & Rhys F. Townsend, 2013 *Rough Cilicia: New Historical and Archaeological Approaches*, Oxford: Oxbow Books.
- Holtzmann, Heinrich Julius, 1892 *Hand-Commentar zum Neuen Testament*, Freiburg: J.C.B. Mohr.
- Houston, George W., 1987 Lucian's Navigium and the Dimensions of the Isis, *The American Journal of Philology* 108 (3), 444–50.
- Jal, Auguste, 1840 *Archéologie navale*, Paris: Arthus Bertrand.
- Keay, Simon ed., 2012 *Rome, Portus and the Mediterranean*, London: British School at Rome.
- Ogilvie, Robert M., 1958 Phoenix, *Journal of Theological Studies* 9 (2), 308–14, <https://doi.org/10.1093/jts/IX.2.308>.
- Oleson, John Peter, 2008 Testing the Waters: The Role of Sounding Weights in Ancient Mediterranean Navigation, *Memoirs of the American Academy in Rome Supplement* 6, 119–76.
- Pollucis, Iulii, 1824 *Onomasticon: cum annotationibus interpretum*, Leipzig: Libraria Kuehniana.
- Purdy, John, 1841 *Sailing directions for the Strait of Gibraltar and the Mediterranean Sea*, London: R.H. Laurie.
- Ramsay, William Mitchell, Sir, 1898 *St. Paul the Traveller and the Roman Citizen*, 3rd ed., London: Hodder and Stoughton. <http://www.archive.org/details/paulthetraveller00ramsuoft>.
- Rapske, Brian M., 1994 Acts, Travel and Shipwreck, in D.W.J. Gill & C. Gempf eds, *The Book of Acts in Its Graeco-Roman Setting*, The Book of Acts in its First Century Setting vol. 2, Grand Rapids, MI: William B Eerdmans, 1–47.
- Rauh, N.K., 1998 Who were the Cilician pirates?, in S. Swiny, R. Hohlfelder & H. Swiny eds, *Res Maritimae, Cyprus and the eastern Mediterranean from prehistory to late antiquity, Proceedings of the second international symposium 'cities on the sea'*, Atlanta, GA: Scholars Press, 263–83.
- Rauh, N.K., R. Townsend, M. Hoff & L. Wandsnider, 2000 Pirates in the Bay of Pamphylia: An archaeological inquiry, in G.J. Oliver, R. Brock, T.J. Cornell & S. Hodkinson eds, *The sea of antiquity*, 899 ed., Oxford: BAR Publishing, 151–80.
- Rickman, Geoffrey E., 1980a The Grain Trade under the Roman Empire, in John H. D'Arms & E. Christian Kopff eds, *The Seaborne Commerce of Ancient Rome: Studies in Archaeology and History*, Memoirs of the American Academy in Rome, 36, Rome: American Academy in Rome, 261–75.
- Rickman, Geoffrey E., 1980b *The Corn Supply of Ancient Rome*, Oxford: Clarendon Press.
- Rushmer, Tonya, 2025 Who Counts as the Roman People? Caesar's recensus and Discriminatory Populism, in F.J. Vervaeke, D. Rafferty & C.J. Dart eds, *How Republics Die: Creeping Authoritarianism in Ancient Rome and Beyond*, Berlin: de Gruyter, 363–388.
- Sherwin-White, A.N., 1963 *Roman society and Roman law in the New Testament*, Oxford: Clarendon Press.

- Smith, James of Jordan Hill, 1856 *The Voyage and Shipwreck of St. Paul: with dissertations on the sources of the writings of St. Luke, and the ships and navigation of the antients* Second edition, London: Longman, Brown, Green, Longmans, & Roberts.
- Smith, James of Jordan Hill & Walter Edward Smith, 1880 *The Voyage and Shipwreck of St. Paul: with dissertations on the sources of the writings of St. Luke, and the ships and navigation of the antients*, Fourth edition, revised and corrected by Walter E. Smith. With a preface by the ... Bishop of Carlisle [H. Goodwin]. ed., London: Longmans & Co.
- Smith R.N., Captain Edward, 1840 *Sailing Directions for the Coast of Syria*, London: W. Eden & Co.
- Steffy, J. Richard, 1994 *Wooden ship building and the interpretation of shipwrecks*, College Station TX: Texas A & M University Press.
- Steinby, Christa. M., 2020 The Role of Ostia and Portus in Roman Seafaring – The Literary Evidence, in A. Karivieri ed. *Life and death in a multicultural harbour city: Ostia antica from the Republic through late Antiquity*, Roma: Institutum Romanum Finlandiae, 29–39.
- Tchernia, André, P. Pomey & A. Hesnard, 1978 *L'épave romaine de la Madrague de Giens, Var: campagnes 1972-1975*, Paris: Centre national de la recherche scientifique.
- Torr, Cecil, 1895 *Ancient Ships, Illustrated*, Cambridge: University Press.
- Vegetius Renuat, Flavius, ed. and trans. Leo F. Stelten, 1990 *Epitoma rei militari*, American university studies series XVII, New York: P. Lang.
- Vervaeke, Frederik J., 2020 No Grain of Salt: Casting a New Light on Pompeius' Cura Annonae, *Hermes* 148.2, 149–172.
- Whitewright, Julian, 2011 The Potential Performance of Ancient Mediterranean Sailing Rigs, *International Journal of Nautical Archaeology* 40 (1), 2–17, 10.1111/j.1095-9270.2010.00276.x.

Endnotes

- 1 Pliny the Elder, *Natural Histories* 19: 3–4.
- 2 Velocity-made-good measures the rate of advance along the achieved course and when beating (sailing a zig-zag course toward the wind), it allows for the leeway of the ship and currents of the sea.
- 3 A Phoenician princess who in Greek Mythology was abducted to Crete by Zeus.
- 4 Modern recreational sailing boats normally can sail at 45 degrees to the wind.
- 5 Maritime archaeologists tend to consider that a deep wine-glass hull shape was important for windward

- sailing. However, most sailing ships during the Age of Sail had flat bottoms and could be sailed to windward satisfactorily in a fair wind. All sailors know that sailing boats to windward requires a balanced sail-plan, effective command, and good seamanship.
- 6 ἀνάγω, only used by Luke in the NT, six times Lk 8: 22; Ac 16: 11; Ac 20: 3; Ac 21: 1; Ac 27: 2. Luke also uses the word five times in an active voice meaning 'to lead'. The AV is incorrect to translate 'to launch'.
 - 7 Κατάγω, in the passive voice 21: 3, 27: 3 and 28: 12. The *New International Version*, for example translates 'we landed', which has a different implication.
 - 8 <https://www.merriam-webster.com/dictionary/put%20in>
 - 9 ὑποπλέω, only used here and in verse 7 in the NT.
 - 10 Διαπλεύσαντες, only occurrence in the NT.
 - 11 βραδυπλοοῦντες, only occurrence in the NT.
 - 12 πλοῦς, only used in the NT here, 27: 10 and 21: 7.
 - 13 κυβερνήτη, used only here and Rev 18: 17.
 - 14 ναυκλήριον, only occurrence in the NT.
 - 15 ὕποπνευσαντος, only occurrence in the NT.
 - 16 ἄραντες, only use of this word with this meaning in the NT.
 - 17 τυφωνικός, only occurrence in the NT.
 - 18 Εὐρακύλων, a *hapax legomena* referring to a well-known wind.
 - 19 Συναρπασθέντος, only occurrence in the NT.
 - 20 Σκάφης, only used here in the NT and verses 30 and 32.
 - 21 περικρατεῖς, only occurrence in the NT.
 - 22 ὑποζώννυμι, only occurrence in the NT.
 - 23 σκεῦος, most of the 22 other occurrences refer to containers, jars etc.
 - 24 Χειμαζομένων, only occurrence in the NT.
 - 25 Ναύτης, only four occurrences in the NT.
 - 26 Βολίσαντες, the only two occurrences in the NT.
 - 27 ὀργυῖας, only two occurrences in the NT.
 - 28 ἀγκύρας, only four occurrences in the NT.
 - 29 Πρύμνης, only three occurrences in the NT.
 - 30 Σχοινία, only two occurrences in the NT.
 - 31 Κόλπον, AV 'creek' is not very convincing.
 - 32 ἐξῶσαι, used once elsewhere in the NT to mean 'drive out' Acts 7: 45.
 - 33 Ζευκτηρίας, only occurrence in the NT.
 - 34 Πηδάλιον, used twice in the NT, see James 3: 4.
 - 35 ἀρτέμων, a *hapax legomena*, known from Latin *artemo*. The AV 'mainsail' is incorrect.
 - 36 Περιπεσόντες, used once elsewhere in Lk 10: 30 where a man fell among thieves.
 - 37 Διθάλασσον, only occurrence in the NT.
 - 38 ναῦν, only occurrence in the NT.
 - 39 ἐπέκειλαν, only occurrence in the NT. Homer: *Odyssey* 9: 148.
 - 40 πρῶρα, only occurrence in the NT.
 - 41 ἐρείσασα, only occurrence in the NT.
 - 42 ἀσάλευτος, used once elsewhere Hb 12: 28 where it is the kingdom of God that is unshakeable.
 - 43 Πρύμνα, used once elsewhere in Mk 4: 38.
 - 44 Σανίσιν, only occurrence in the NT.
 - 45 Παρακεχειμακότη, only occurrence in the NT.
 - 46 παρασήμω, only occurrence in the NT. 'Figurehead' (NIV, NRSV, etc) is an incorrect translation.
 - 47 Διοσκούροις, only occurrence in the NT.