

Was the *Tempestatas* of 62 at Ostia actually a Tsunami?

The brief mention by Tacitus (*Ann.* 15.18.2) of the unprecedented destruction of 200 ships in the harbor of Ostia by a violent storm in 62 has generated questions and chains of conclusions (Meiggs 1973, Boyce 1966). Scholars conclude that the harbor must have been unfinished (after 20 years of construction) for such damage to occur, or that the storm demonstrates the flawed design of Claudius' harbor, or that the harbor's flaws shown by this destruction contributed to Trajan's decision to build a new, inner harbor.

All of this supposes that the storm was so destructive because of a failing of the harbor by design or incomplete construction. This may not have been the case. It could, instead, have been so destructive because the completed harbor operated as expected and the *tempestatas* was of a type that the Romans could not predict or overcome with engineering: a tsunami. A sudden thunderstorm seems unlikely to be responsible, and there is no other account from antiquity of such an event taking place (Huxley 1952). A tsunami, however, is uniquely capable of destroying ships in a harbor; the name means literally 'harbor wave.' The waves of a tsunami concentrated by the confining space of a harbor routinely smash ships against docks, moorings, and, in especially violent cases, lift them completely out of the water and deposit them on land (Strabo 1.3.20).

A tsunami requires an earthquake, the precipitating event. There was such an earthquake in 62. Centered on the Bay of Naples, an earthquake perhaps registering 6 on the Richter scale hit on 5 February 62 (De Carolis, Patricelli 2003). As described by Seneca (*Quaestiones Naturales* 6), it caused massive destruction at Pompeii and lesser devastation across the region. The 200-km distance from the Bay of Naples to Portus Claudii at Ostia is not a barrier for damage such as Tacitus reports. An earthquake in 365, recorded by Ammianus Marcellinus (*Res*

Gestae 26.10.15-19), off Crete caused a tsunami that destroyed huge ships in Alexandria's harbor over 700 kilometers away (Stiros 2010).

Why would Tacitus refer to this as a *violentia tempestatis* and not a tsunami? Latin had no word for tsunami as Pliny makes clear in his letter describing one to Tacitus himself (*Ep.* 6.20). The violence of a tsunami, however, was a defining characteristic commented on by Pliny and by Thucydides (3.89). We know of very few tsunamis from antiquity because few eyewitness accounts are detailed enough for us to recognize the characteristic destruction. Without those witnesses, the effect of a tsunami could easily be classified, as Tacitus does, as coming from a violent storm.

If this hypothesis is correct, it not only adds a tsunami to the list of those attested in the ancient Mediterranean (Kelly 2004, Smid 1970). It more significantly requires us to reconsider the conclusions reached about the Claudian harbor based on Tacitus' account. The harbor may not have had any design failings and it was almost certainly completed by 62, which explains the silence of the historical and documentary sources on any Neronian contribution to its construction (Keay et al. 2005). In fact, a completed harbor may have naturally created a more devastating tsunami event than one that was incomplete and would not concentrate the waves so destructively.

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