Hendek Kale: a Late Roman multiple lever press site in western Asia Minor

Julian Bennett & Ben Claasz Coockson

Introduction

The role the olive played in the Roman economy has received increasing attention in recent years (e.g. Amouretti & Brun 1993). However, as Mitchell (2005: 83) has stressed, there has been virtually no research on olive production in Asia Minor and little to suggest that olive oil production there ever reached the semi-industrialised nature of second and third century AD Tripolitania, where some 750 olive oil 'factories', some with multiple presses, are

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known. This lacuna can now be corrected by the recognition of such a probable complex in Phrygia at Hendek Kale, Usak Province, Turkey (Figure 1).

The site

Hendek Kale ('the ditched castle') is located at 38.26.01 N, 29.40.10 E and at an elevation of about 990m asl. The site consists of a 2-3m high rectangular mound, 170m N-S, and 160m W-E, its existence first being reported in 1897, when it was identified as the lost town of '*Bria*' (Anderson 1897: 415-17). Subsequently re-located in c. 1950 by M. Ballance who observed an enclosing wall (Figure 2) and what he thought were the remains of projecting towers along one or more sides, the place was next investigated in 1990, when its shape and size were adjudged comparable to a Roman fort of early Imperial date (French 1991: 59-60). However, a visit to Hendek Kale in 2008 determined from the ceramic material visible there (mainly tiles and *pithos* sherds) that there was nothing of pre-second century AD date, while stone blocks on and around the site indicate that the making of either olive oil or wine or both commodities took place here.

(/projgall/bennett319/images/figure1big.jpg)
Figure 1. Hendek Kale in its Roman context. *Click to enlarge*.

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Figure 2. The wall.
Click to enlarge.

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(/projgall/bennett319/images/figure3big.jpg)
Figure 3. A Semana type counterweight.
Click to enlarge.

The stone blocks at Hendek Kale revealing that the site was involved in viticulture and/or oleiculture consist of 9 setting stones and 14 rectangular counterweight stones. The former (Figure 3) represent settings for the upright orthostats (*arbores*) of a classical period lever press; the latter are the blocks attached to the free-end of the press-beam to increase leverage and pressure on the olives or grapes in the press-bed (Mattingley & Hitchner 1993: 438-62). The counterweight stones are easily identified by the groves at their short ends, usually dovetailed in shape, which were cut for attaching a wooden framework that in turn was connected to a mechanism for raising and lowering the counterweight as pressing took place. Such counterweight stones come in two main types (Frankel 1999: 102-5 & 110), the Semana and Arginunta types. In the Semana type (Figure 4), the mortices on the short sides of the block and a rope or iron rod placed in a groove along the top and bottom originally secured a wooden frame connected to a windlass to raise and lower the weight. In the Arginunta type (Figure 5), the

mortices secure a wooden framework with a perforated horizontal board and a vertical screw fixed into the cross-beam, the lower screw-head rotating in a circular cavity in the top of the counterweight. Both types of counterweight are found in equal numbers at Hendek Kale, although most of those of the Arginunta type were clearly converted from blocks first used for a Semana-type press (e.g. Figure 5).

(/projgall/bennett319/images/figure4big.jpg)
Figure 4. A 'setting stone'.
Click to enlarge.

(/projgall/bennett319/images/figure5big.jpg)
Figure 5. An Arginunta type counterweight.
Click to enlarge.

Discussion

The 14 counterweights visible at Hendek Kale indicate that this site contained multiple lever-presses for the manufacture of wine or olive oil or both on an industrial-scale for surpa-regional consumption. The ceramic evidence indicates this activity took place no earlier than the second century AD. Without excavation it will not be possible to determine which commodity was produced at Hendek Kale: however, while small vineyards are visible within the immediate vicinity of the site, the site's location, on an open plain, would favour the olive. Mitchell (2005: 93-103) has emphasised how olive oil - considered to be mainly a food-stuff today - was a more versatile commodity in antiquity and has shown how olive oil production in Asia Minor may have been stimulated by the introduction of the military *annona* supply system in the late Roman period. The multiple presses and the apparent date of the Hendek Kale complex would fit the findings of this analysis.

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Authors

Note: Author information correct at time of publication

* Author for correspondence

- **Julian Bennett***
  Department of Archaeology and Art History, Bilkent University, Ankara, Turkey. (Email: Bennett@bilkent.edu.tr (mailto:Bennett@bilkent.edu.tr))
- **Ben Claasz Coockson**
  Department of Archaeology and Art History, Bilkent University, Ankara, Turkey. (Email: Coockson@bilkent.edu.tr (mailto:Coockson@bilkent.edu.tr))

Antiquity, Department of Archaeology

Durham University, South Road, Durham, DH1 3LE

e: assistant@antiquity.ac.uk (mailto:assistant@antiquity.ac.uk) | t: +44 (0)191 3341125