## GLASS HAND GRENADES FROM SHKODRA: ARCHAEOLOGICAL EVIDENCE OF A CITY UNDER SIEGE?

The 86 spheroid glass vessels found in Shkodra can be identified as hand grenades in use during the Ottoman siege of the castle in 1478. They are 13–14 cm high, 12 cm in diameter, black (deep green), opaque red or marbled in colour. The glass is 0.8–2.0 cm thick. The vessels are fragmentary, but the shape can be reconstructed as either spherical or ovoid. Close to 29 rims are recognizable rims; they are biconical or a low ring-shaped mouth, the opening being between 1.5 and 2 cm [Figs. 1–2]. Traces of pontil marks on the surface are proof that these vessels were made by blowing.

The fragments were all found in demolition layers inside the castle, especially in US 1805 in trench 19 [Fig. 3]. This layer and the one below it is made up mostly of waste from the destruction of castle buildings. Cannonballs and iron fragments in the same layer suggest that these vessels came from a military installation. Concerning their chronology, the material associated with the spheroid glass vessels points to the fifteenth–nineteenth centuries with some residual ceramics from the Hellenistic and early medieval periods.

The function of vessels of this type has long been debated: containers for precious liquids, perfumes or medicine, stick-a-light vessels,<sup>1</sup> fire extinguishers assuming it was water that they contained.<sup>2</sup> The hypothesis that they had been used as hand grenades<sup>3</sup> has recently been confirmed by the discovery of about a hundred intact glass vessels of this type in the castle of Mytilene. Examination of the vessels revealed the presence of an organic explosive mixture inside them, corroborating their use for the purposes of the artillery. They were stored with light ammunition and gun powder in a fifteenth-century silos in the internal court of the Mytilene castle which was originally built in the early Byzantine period, occupied by the Genoese in the 1355, repaired and reinforced by the Gattilusi during the fifteenth century and finally occupied by the Ottomans<sup>4</sup> [Fig. 4].

- 1 Ettinghausen 1965.
- 2 Kalokerinos, Mitsotaki, Tzedaki-Apostolaki (eds.) 2013, p. 14; Bonovas, Tzitzibassi (eds.) 2011, p. 62.
- 3 Triantafyllidis 2016, p. 298.
- WILLIAMS 1996, pp. 49-58.