PUNIC ECHINODERM REMAINS
Excavated from Tas-Silg, Malta

C. Savona-Ventura

Report submitted to the Department of Archaeology,
University of Malta,
1999

The Tas-Silg Punic site is situated at an elevation of about 125 feet above sea level. This situation, together with the significant distance from the shore (circa 700 metres), makes it highly unlikely that marine animal remains excavated from the site represent shore wash. There are more likely to have been brought to the site by man. There is evidence to believe that since prehistoric and possibly classical times, the southeastern coast of Malta has gradually tilted towards the sea. The evidence for sinking during the classical period may be inferred by the presence of cart-ruts which cease suddenly at the edge of the water at Birzebbugia (St. George's Bay) and cart-ruts which together with artificial caldrons occur beneath the water at Marsaxlokk. [1] This means that the Tas-Silg site was probably even higher above sea-level during the classical period than at present.

Echinoderm remains were excavated in plentiful amounts from the site. The amount of fragments obtained from the site further suggests that these represent intentional transportation to the site by the action of man. Accidental transportation is unlikely to have accounted for large quantities of this marine animal.

Two small fragments were obtained from the Tas-Silg Punic site on 22nd July 1998. The fragments represent 3 fused and one separate inter-ambulacral plates. The spine pattern of each inter-ambulacral plate is diagrammatically represented below. The spine pattern was characterised by large spines surrounded by a satellite series of smaller spines. While specimens of the spines were not available for detailed study, these were examined on site. The colour of the plate fragments was overall a dirty green.

Diagrammatic view of inter-ambulacral plate

[1] H.P.T. Hyde: *Geology of the Maltese Islands*. Lux Press, Malta, 1955, p.103

These fragments are immediately recognisable as belonging to the class ECHINOIDEA: subclass REGULARIA: order DIADEMATOIDEA.

The order DIADEMOTOIDEA in the Maltese Islands has been reported to be represented by eight species, namely: *Centrostephanus longispinus, Arbacia lixula, Arbaciella elegans, Sphaerechinus granularis, Echinus acutus, Echinus melo, Psammechinus microtuberculatus,* and *Paracentrous lividus (Schembri, 1978).* [2] The species commonly encountered around Maltese shores are *Arbacia lixula, Sphaerechinus granularis* and *Paracentrous lividus.*[3] *Arbacia lixula* and *Paracentrous lividus* are two very common species found in shallow waters to 40 m depth. *Sphaerechinus granularis* is less frequently encountered since it lives in relatively deep waters up to about 100 m. The most likely and easily encountered species are thus *Arbacia lixula* and *Paracentrous lividus.*

Comparison of the available inter-ambularcral plate pattern with present day echinoid tests photographs/diagrams suggest the fragments to definitely not belong to the two *Echinus sp.* since the pattern in these is distinctly different. [4] Comparison with test photographs of the species *Sphaerechinus granularis* also suggest that the available fragments belonged to a different echinoid species. In addition the spines of this latter species are invariably violet with white tips. These are characteristically very different from the spines found at Tas-Silg which were of a uniform colour. *Sphaerechinus granularis* is a frequent edible species which lives in relatively deep waters up to about 100 m. [5]

The two common relatively shallow water echinoderm species - *Paracentrous lividus* and *Arbacia lixula* were collected to enable comparison with the available Punic fragments. These comparisons confirm that the fragments definitely do not pertain to the species *Arbacia lixula.* The spine pattern of the fragments, composed by a series of large spines surrounded by a satellite series of smaller ones, is identical to that found in *Paracentrous lividus.* The colour characteristics of the echinoid spines collected from the Tas-Silg site were characteristically similar to those of either *Paracentrous* or *Arbacia.* It can thus be concluded that the "Punic" inter-ambularcral plates studied belong to the species *Paracentrous lividus* which was a very common edible species on rocks from shallow water to depths of about 30 m.

The antiquity of *Paracentrotus* species is not in doubt since fossil specimens have been recorded from circum-Mediterranean Miocene - Pleistocene deposits. It has at present a very wide distribution occupying the Mediterranean and NE Atlantic from Ireland and Scotland to the Gold Coast, Canary Islands, Madera, and Azores. This

---

[2] P.J. Schembri: Recent echinoids (Echinodermata: Echinoidea) from the Maltese Islands and surrounding waters. *Animalia*, 1978, 5(1/3):p.123-132

[3] P.J.Schembri: Ekinodermi. In: J. Sultana, V. Falzon (eds.): *Flora u Fawna ta' Malta*. Environmental Division, Malta, 1995, p.307-308

[4] E. Tortonese: *Fauna d'Italia - Echinodermata*. Calderini, Bologna, 1965, p.330, fig.157; R. Koehler: *Faune de France - Echinodermes.* Libraire de la Faculte des Sciences, Paris, 1969. Only two fragments of the inter-ambulacral plates were available for study. Fragments of the ambulacral plate are more more useful to identify the species since one can distinguish the genera *Arbacia, Psammechinus, Echinus, Arbaciella* and *Centrostephanus* from the genera *Sphaerechinus* and *Paracentrotus* on the basis of the number tube feet pores (3 pairs of pores for the former group of three species; 4-5 pairs of pores for *Sphaerechinus* and 5 pairs rarely 4-6 pairs in *Paracentrotus).*

[5] E. Tortonese, 1965: *ibid*, p.337-341

echinoid is a well regarded edible marine species. It is the prime sea-urchin being sold in various Mediterranean markets. In many places, the fishermen erroneously believe the *Paracentrotus* to be the female of the *Arbacia*. [6] This belief was current in Malta - the latter being referred to as "*Il-patri*". [7] The latter as a general rule is not considered to be edible.

It can be reliably concluded that the echinoderm species excavated from the Tas-Silg Punic site belonged to the edible Mediterranean species *Paracentrous lividus*. An estimate of the number of specimens represented on the site can be worked out by obtaining the total weight of the collected spines. The average weight of spines per sea-urchin has been estimated as 8.26 g.

[6] E. Tortonese, 1965: *ibid*, p.337-341
[7] P.J.Schembri, 1995: *op. cit.*, p.308