

A new attachment trace of a verrucid barnacle on Pliocene bivalve shells, Santa Maria Island, Azores

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A new attachment trace belonging to the ichnogenus *Centrichnus* has been recognized on bivalve shells in a Pliocene coquina of the Pedra-que-Pica section in Santa Maria Island (Azores Archipelago). The new ichnospecies *Centrichnus dentatus* isp. nov. is characterized by an elliptical outline, bounded by a groove and/or a series of pits, and by having a more or less pronounced central to off-center depression surrounded by a flat area. Based on these new findings, the diagnosis of the ichnogenus *Centrichnus* is emended, as is the diagnosis of the ichnofamily Centrichnidae. The new trace fossil was produced by the barnacle *Verruca spengleri*, which was found in direct association with the trace. Some specimens of *Centrichnus dentatus* isp. nov. were found cross-cut by phoronid borings (*Talpina* isp.) or clionaid sponge borings (*Entobia* isp.), and they co-occur with polychaete borings (*Maeandropolydora* isp.) and bivalve borings (*Gastrochaenolites* isp.). The traces belong to the *Gnathichnus* ichnofacies, which refers to the early colonization of hard substrates taking place within months, even though the recorded ichnocoenoses suggest longer exposure and colonization by several generations of cirripeds, lasting several years rather than months.

Key words: Cirripedia, *Centrichnus*, bioerosion, ichnotaxonomy, etching trace, Azores, Portugal.

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