

## Biodiversity Record: Seashells embedded in the brick wall of a cemetery

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**Recommended citation.** Chan S-Y & Lau WL (2021) Biodiversity Record: Seashells embedded in the brick wall of a cemetery. *Nature in Singapore*, 14: e2021092. DOI: 10.26107/NIS-2021-0092

**Subjects:** *Ellobium* sp. (Mollusca: Gastropoda: Ellobiidae) (Fig. 3A, B);  
*Sermyla riquetii* (Mollusca: Gastropoda: Thiariidae) (Fig. 4A–C);  
Muricidae sp. (Mollusca: Gastropoda: Muricidae) (Fig. 5A–D);  
Radiated crassatella, *Bathytormus* cf. *radiatus* (Mollusca: Bivalvia: Crassatellidae) (Fig. 6A, B);  
Hooded oyster, *Saccostrea cucullata* (Mollusca: Bivalvia: Ostreidae) (Fig. 7A–C);  
Mud clam, *Geloina* sp. (Mollusca: Bivalvia: Cyrenidae) (Fig. 8A, B);  
Venus clams (Mollusca: Bivalvia: Veneridae) (Fig. 9A–D);  
Cockle, *Vasticardium* sp. (Mollusca: Bivalvia: Cardiidae) (Fig. 10A, B).

**Subjects identified by:** Chan Sow-Yan and Lau Wing Lup.

**Location, date and time:** Singapore Island, Jalan Kubor Muslim Cemetery; 24, 25 and 30 April 2021, and 1 May 2021.

**Habitat:** Urban parkland (Fig. 1).

**Observers:** Chan Sow-Yan and Lau Wing Lup.

**Observation:** Mollusc shells from eight families were observed embedded in the masonry of the cemetery perimeter wall. The remains of three families of gastropods (Figs. 3–5) and five families of bivalves (Figs. 6–10) were found together with fragments of coral (Fig. 12), a porcelain shard and a small metal brooch (Fig. 13). Shards of broken glass (Fig. 13) were embedded along the top of the wall.



Fig. 1. Boundary wall of Jalan Kubor Muslim Cemetery, as viewed from Victoria Street, Singapore. (Photograph by: Lau Wing Lup).



Fig. 2. Handmade bricks strewn on a grass patch below the cemetery wall, possibly dislodged due to weathering. Note their inconsistent shapes, sizes, textures and colours. (Photograph by: Lau Wing Lup).

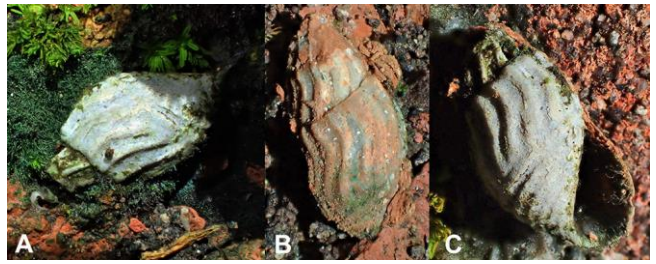
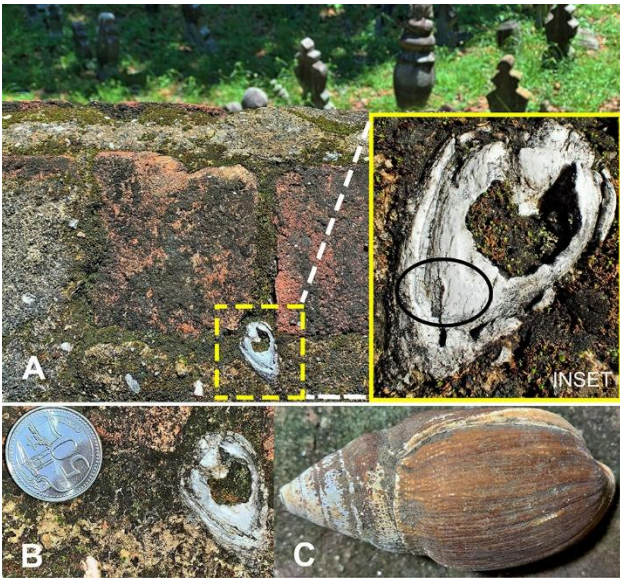


Fig. 4. Examples of *Sermyla riquetii* in brick wall. A: Weathered shell partially exposed within eroded brick. B: Side view of shell covered with reddish brick particles. C: Apertural view of shell without early whorls. (Photographs by: Lau Wing Lup).

Fig. 3 (left). Remnants of a gastropod shell in mortar. A: Broken shell (yellow box) embedded with barely visible spiral row of weak granules (within black ellipse). B: With 50-cent coin for scale. The thick white shell, about 50 mm in height, with ellipsoid outline and weak granules, suggest a species of *Ellobium*. C: An *Ellobium aurismidae* shell for comparison. (Photographs by: Lau Wing Lup).

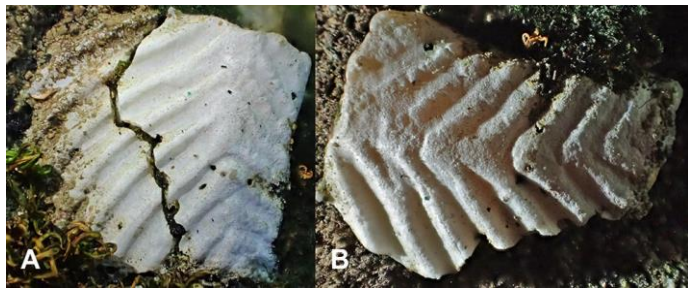


Fig. 6. *Bathytormus radiatus* in brick wall. A: Shell fragments. B: Close-up of the larger shell fragment. (Photographs by: Lau Wing Lup).

Fig. 5 (left). Murex shells in brick wall. A: Murex shell in situ (circled) within eroded mortar. B: Dorsal view of the same murex shell fragment (right) with a juvenile *Semiricinula muricoides* for comparison. C: Lateral view of the shell fragment. D: Ventral view of the shell fragment. (Photographs by: Lau Wing Lup).

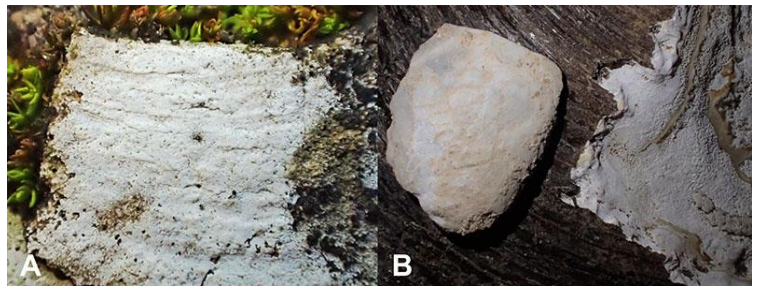
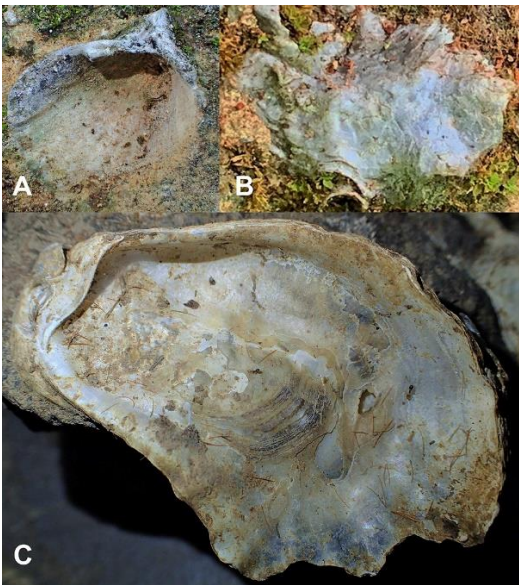


Fig. 8. Mud clams *Geloina* sp. in brick wall. A: Highly eroded shell. B: A detached shell fragment from mortar placed on the outer valve of a *Geloina* sp. for comparison. Note the somewhat similar degree of erosion and shell texture of both specimens. (Photographs by: Lau Wing Lup).

Fig. 7 (left). Hooded oyster *Saccostrea cucullata* in brick wall. A: Lower valve embedded in wall. B: Upper valve (right valve) in situ. C: Left lower valve of *Saccostrea cucullata* for comparison. Note the distinctively thick umbones, wavy shell edge, similar colour and texture. (Photographs by: Lau Wing Lup).

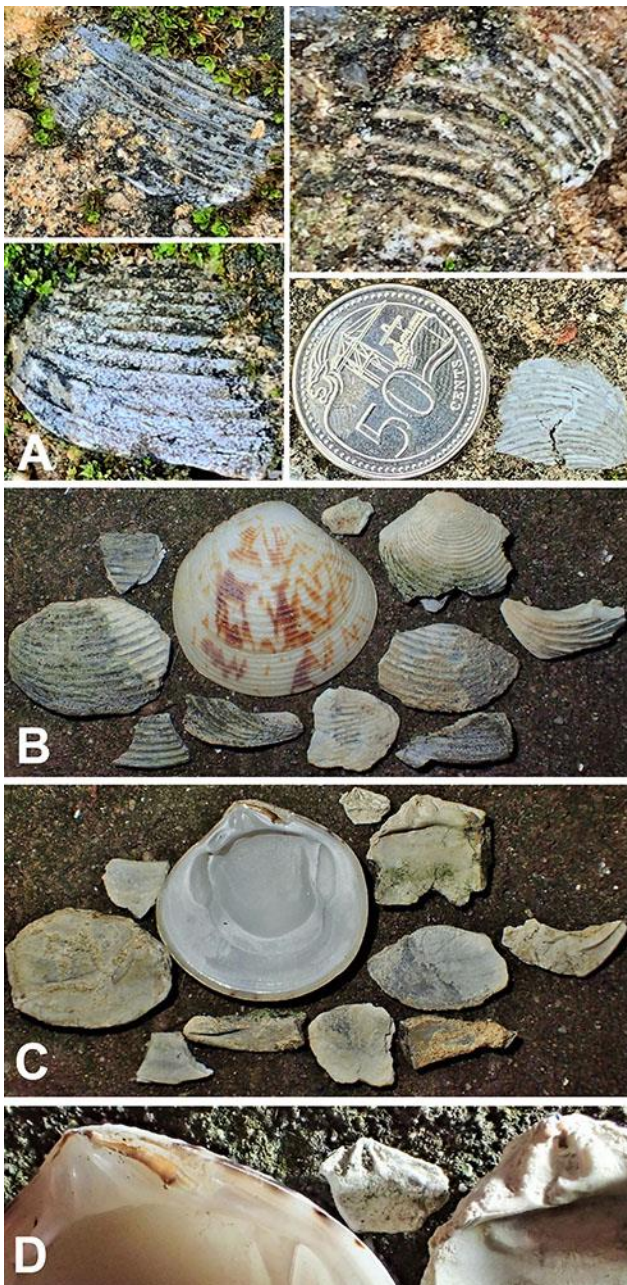


Fig. 9. Venerid shells in brick wall. A: Composite of partially exposed venerid shells. B: Outer valve of a dead *Circe undatina* juxtaposed with venerid shell fragments found within the masonry. C: Inner valve of the same *Circe undatina* shell and venerid shell fragments. Note the similar greyish white interior and shape of both umbones. D: Inner valve of a *Circe undatina* shell (left) in comparison with broken shell fragments. Note the similarity in their cardinal teeth. (Photographs by: Lau Wing Lup).

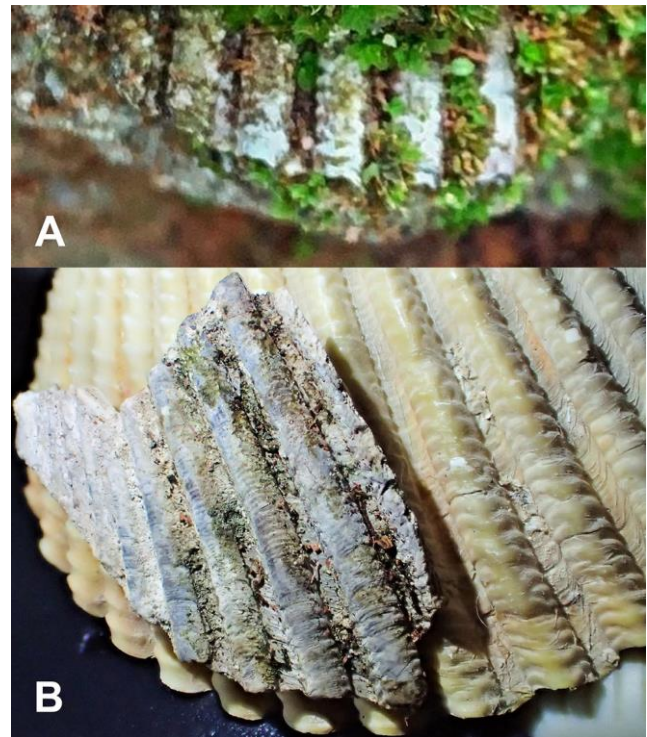


Fig. 10. Cockle shell in brick masonry. A: Shell in matrix covered by algae. B: Shell fragment with *Vasticardium subrugosum* shell for comparison. (Photographs by: Lau Wing Lup).

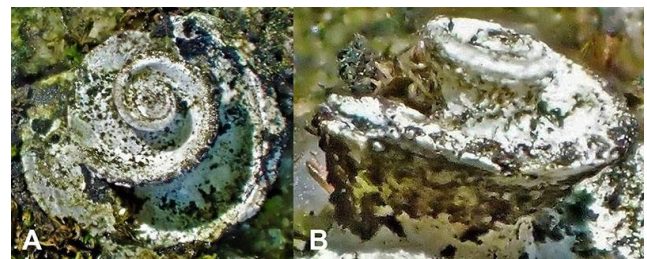


Fig. 11. Unidentified gastropod shell. A: Apical view. B: Lateral view. (Photographs by: Lau Wing Lup).



Fig. 12. Hard coral fragments found exposed within mortar. (Photographs by: Lau Wing Lup).



Fig. 13. Miscellaneous man-made items found within brick masonry, including shards of glass (top left), a shard of porcelain (top right) and metal brooch (bottom). (Photographs by: Lau Wing Lup).

**Remarks:** Jalan Kubor Muslim Cemetery is the oldest Muslim burial ground in Singapore, dating back to the 19th century (Zaccheus, 2014). Singapore's earliest brick kilns were located in the Jalan Besar area in the 1830s (Woo, 2011), but it is unknown if the bricks were used to construct the cemetery's wall. The inconsistent texture, shape, size and colour suggest that these bricks were handmade (Fig. 2). The sole *Sermyla riquetii* was noted to have a thin layer of reddish coating on its shell (Fig. 4B), and could have been among the clay used for making bricks.

The find of seashells and corals in the old cemetery wall is interesting and does not seem to have been previously reported. However, it remains unknown if the items were incidentally or deliberately included, or if they serve a practical purpose. More research is needed to determine if similar items could be found in old walls elsewhere and whether there is possibly any significance behind this.

Based on personal observations, the taxa found in the wall are still extant in Singapore today.

**Literature cited:**

- Woo PL (2011) Jalan Besar – from mangrove swampland to charming district. *Skyline Magazine*, 21: 18–21.  
Zaccheus M (2014) Uncovering secrets of 19th century Singapore. *The Straits Times*, 5 September 2014. <https://www.straitstimes.com/singapore/uncovering-secrets-of-19th-century-singapore> (Accessed 16 September 2021).