

Reef sites

Prehistoric Pacific Island kings entombed in truncated coral pyramids

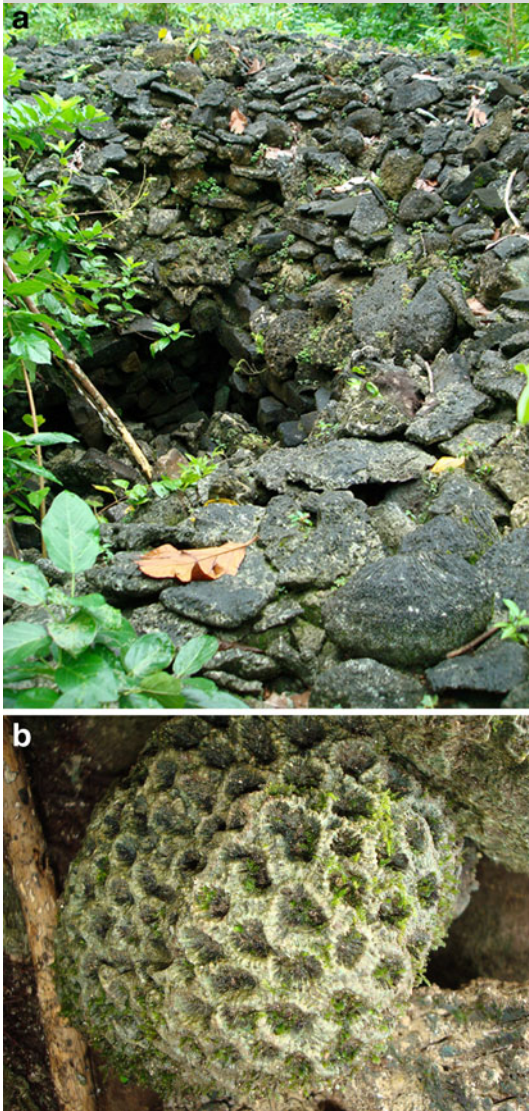


Fig. 1 a A truncated pyramid (*Saru*) where Kosraen kings were entombed b After approximately 600 years, corals such as this *Favia* sp. were not heavily abraded suggesting they were collected live

On the Central Pacific island of Kosrae (5°19'56"N, 163°01'30"E), coral was used extensively in construction of the ancient capital of Leluh (A.D. 1250–1850). Corals were used to build roads, terraces, canals, and compound walls, for cultural and spiritual practices, and most notably, in the burial of royalty (Fig. 1a). Following death, Kosraen kings were anointed with coconut oil, bound in mats, and temporarily buried in truncated pyramids of coral and prismatic basalt (called *Saru*). After 3 months, the royal bones were exhumed, cleaned, tied together, and secondarily interred in a specific hole on the reef (Morgan 1989).

We investigated the corals used to construct the sacred *Inсарu* pyramids. Fourteen genera were recorded among the 512 corals examined in nine replicate 1 m² quadrats. *Acropora* (60%), *Porites* (19%), and *Platygyra* (13%) were the most common genera. *Favia*, *Favites*, *Cyphastrea*, *Goniastrea*, *Tubipora*, *Hydnophora*, *Oulophyllia*, *Galaxea*, *Isopora*, and *Heliopora* were also recorded. Most corals were between 10 and 60 cm in length (longest axis). Underwater surveys suggest corals were preferentially selected because at least ten genera common in the contemporary community were not recorded within *Inсарu*. It is probable that these genera were not used because they were not present 600 years ago, not suitable, used in other ways (e.g., artifacts, landfill), or too large to dislodge and/or transport.

Many of the corals had delicate skeletal structures intact (Fig. 1b), and the lack of surface abrasion supports historic accounts that corals were collected live. We conservatively estimate over 12,000 corals were used to build *Inсарu*. This equates to over two acres of continuous coral reef (70 cm² average colony size) being removed to build *Inсарu*; however, many times this was used to construct the entire city. The removal of live coral would have degraded local reef habitat and led to decreases in other resources (e.g., fish, Jones et al. 2004). The extensive use of live coral in the construction of Leluh presents a unique opportunity to study historic ecology and paleoclimatology.

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References

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