

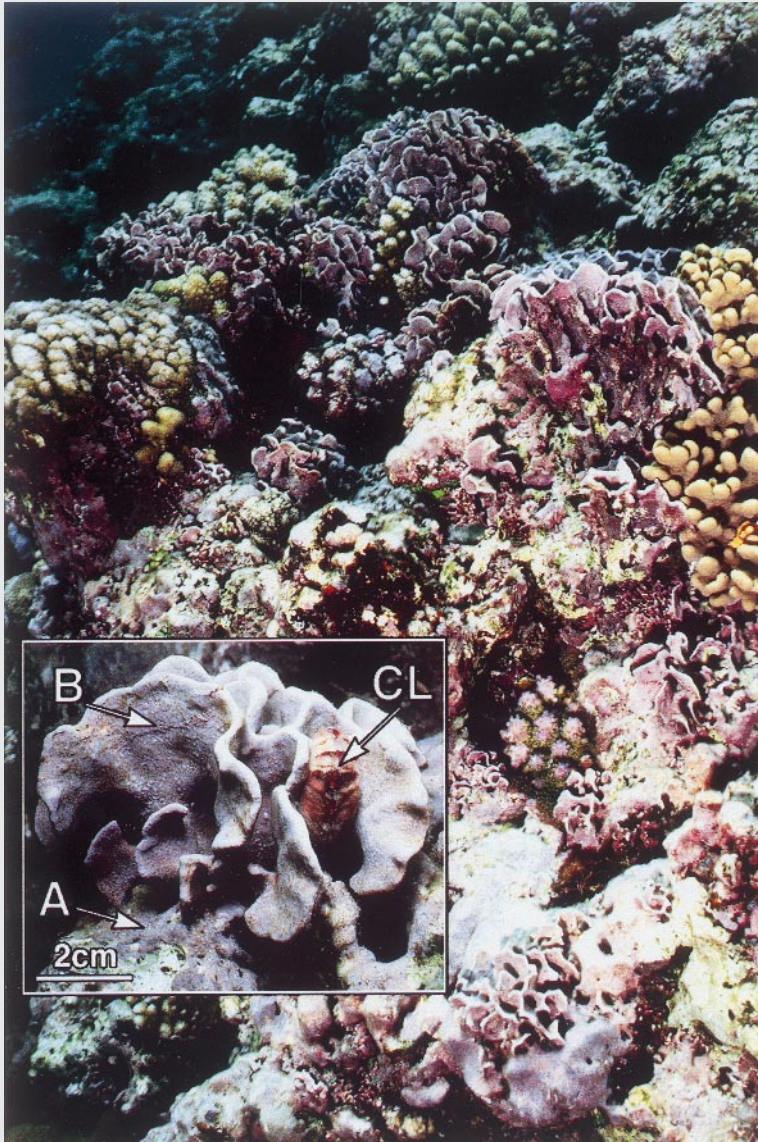


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Castles built by a chiton from the Great Astrolabe Reef, Fiji

Castle-like, pink, coralline-algal structures occur abundantly above 20 m in depth on the outer Great Astrolabe Reef and throughout Fijian waters. The herbivorous chiton *Cryptoplax larvaeformis* (Tyron 1887) (Inset, CL), by its mode of radular scraping, alters the meristematic growth of its principal prey, the normally two-dimensional crustose-coralline alga *Porolithon (Hydrolithon) oncodes* (Heydrich) Foslie (Inset, A), to produce remarkable three-dimensional honeycombed heads (Inset, B). This phenomenon greatly increases the biomass, surface area and volume of the prey plant and, consequently, is unique in the marine realm.

Chitons have a long and notorious record for their negative impacts as erosive grazers in tropical coastal regions, where they contribute to substantial long-term shoreline degradation (reviewed by Rasmussen and Frankenberg 1990). However, we have observed at least three different chiton/coralline reef-building associations in the tropical Pacific, in addition to the mutualism previously documented (Littler et al. 1995) for the tropical Western Atlantic. Such associations, hypothetically, play a positive role in enhancing primary production as well as increasing structural carbonate accretion on coral reefs.

Acknowledgments We sincerely appreciate the laboratory and diving assistance provided by Barrett Brooks and Joan Koven. Funding was provided by MARPAT Foundation, the National Museum of Natural History Research Opportunities Fund and the Department of Botany, Smithsonian Institution. Smithsonian Marine Station Contr. No. 461 and Harbor Branch Oceanographic Institution Contr. No. 1266.

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