Online Materials
Figure A. Nest of *Tetragonula iridipennis* (Yunnan, China) constructed in an empty hive of *Apis cerana*. 
Figure B. Internal and external nest entrance tubes built by *Scaptotrigona luteipennis* (Panama and Chiriqui Provinces, Panama).

Figure C. Cut-away view of the exposed nest of *Partamona pearsoni* (Amazonas, Brazil) showing the internal entrance ‘bottleneck’ and the empty external nest galleries with empty food storage pots (Camargo, from Camargo and Pedro, 2003).

Figure D. Resin balls on the former floor in the nest of *Melipona panamica* (Colon Province, Panama).
**Figure E.** (a) Nest entrance tube, removed from nest of *Trigona silvestriana* (Madre de Dios, Peru), showing internal resin lamellae; (b) nest entrance of *Scaptotrigona* sp., Yasuni National Park, Ecuador.

**Figure F.** (a) External nest entrance of *Lestrimelitta* (Panama, Panama), (b) external nest entrance of *L. nitiikib* (Quintana Roo, Mexico).
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Figure G. External nest entrance and resin deposits of *Tetragonula pagdenformis* (Trang, Thailand).

Figure H. Internal nest temperatures and CO$_2$ of *Plebeina hildebrandti* (formerly *T. denoiti*) and *Hypotrigona gribodoi* (Moritz and Crewe, 1988).
Figure I. Subterranean nest, showing entrance hole, tunnel and brood cells, and brood area, involucrua and food storage pots, of *Mourella caerulea* (Rio Grande do Sul, Brazil) (Camargo, from Camargo and Wittmann, 1989).
**Figure J.** Involucrum sheath (3 lamellae, on average) surrounding the brood area, with adjacent storage pots, of *Melipona panamica* (Colon, Panama).
Figure K. (a) Water (not from rain) ejected from the nest entrance by Melipona panamica (Colon, Panama); (b) a leiodid, Scotocryptus melitophylus, riding the hind leg of worker M. panamica; (c) resin deposit by internal nest entrance of M. panamica; (d) the exterior mud and resin construction made by M. panamica on hive edges.
Figure L. (a) Two external nest entrance tubes of *Meliponula ferruginea* (Bwindi Impenetrable Forest Reserve, Uganda; photograph provided by Kajobe). (b) External nest entrance tube of *Scaura latitarsis* (Amazonas, Brazil) and marauding ants (Camargo, from Camargo, 1984). (c) Nest entrance with ridge of fresh resin applied in ant defense by *Tetragonula collina* (Trang, Thailand). (d) Dual nest entrances of a single *Lepidotrigona ventralis* colony, with resin droplets along tubes (Trang, Thailand).