

List of figures

Figure 1.1 The eastern portion of Island Southeast Asia (the Wallacean islands as here defined are shaded) with details of the Northern Moluccas.	2
Figure 2.1 Map of Gebe Island showing geological formations (as known in 1994) and site locations.	15
Figure 2.2 The Buwawansi narrow coastal flat from the south.	16
Figure 2.3 Plan of Golo Cave, showing excavation units and their component squares (each 1x1 m).	17
Figure 2.4 Golo Cave, from outside (above) and inside before excavation (below).	18
Figure 2.5 Section of the east walls of Squares M4 to M7, Golo Cave.	19
Figure 2.6 Field sketch plan of the Golo L6–M6 skeleton (not all bones recovered are shown).	21
Figure 2.7 Circular stone arrangements (circles 1 and 2) in Layer 2 at 115–135 cm, Golo Cave.	24
Figure 2.8 Golo stone circles 1 and 2 (photos not to same scale, and see Figure 2.7 for actual scale).	25
Figure 2.9 Possible stone arrangements in Layer 2 at c. 140–160 cm, Golo Cave.	26
Figure 2.10 Classified phytolith morphological groups, expressed as percentages of an identified total of 31, by 10 cm spit in Golo Cave.	28
Figure 2.11 Counts for phytoliths, starch grains, carbon particles recovered from soil samples during phytolith extraction, and cytoplasmic carbon inclusions in phytoliths, by 10 cm spit in Golo Cave.	29
Figure 2.12 Wetef rockshelter during excavation in 1996–97.	30
Figure 2.13 Plan of the Wetef rockshelter (grid is 1x1 m).	31
Figure 2.14 The Wetef excavation on completion in 1996 (the excavation is 2.4 m deep).	31
Figure 2.15 The Wetef section, east wall, 2 m across.	31
Figure 2.16 Histograms to illustrate the distribution of cultural remains in Wetef Squares K3 and K4.	33
Figure 2.17 Um Kapat Papo, exterior and interior views.	35
Figure 2.18 Plan and section of Um Kapat Papo.	36
Figure 2.19 The K9–L9 earth oven, Um Kapat Papo.	38
Figure 2.20 Plan of the archaeological complex at Buwawansi.	40
Figure 2.21 Plan and section of Buwawansi 1 rockshelter.	42
Figure 3.1 Map of Morotai, showing excavated sites.	46
Figure 3.2 Tanjung Pinang rockshelter.	47

Figure 3.3 Plan of the Tanjung Pinang Shelter, showing excavations in 1991 (F3 to G3) and 1994 (F2 to J2).	48
Figure 3.4 Conjoined section of Squares F2 to J2, west and north walls, Tanjung Pinang.	48
Figure 3.5 Daeo 2: plan and section.	54
Figure 3.6 Daeo 1: plan.	57
Figure 4.1 Map of the Weda region and location of Gua Siti Nafisah.	61
Figure 4.2 Gua Siti Nafisah: plan of the site.	62
Figure 4.3 Gua Siti Nafisah: main section, Squares F5 to F8, east wall.	62
Figure 4.4 Gua Siti Nafisah: J10 section, west and north walls.	64
Figure 5.1 Map of Kayoa.	67
Figure 5.2 Uattamdi 1 photos.	69
Figure 5.3 Uattamdi 1 site and excavation plan.	69
Figure 5.4 Uattamdi 1 section, Squares D4 to D9, east wall.	70
Figure 5.5 A Bayesian chronological model for Uattamdi produced using OxCal v.4.3 (Ramsey 2009).	71
Figure 5.6 Hearths over limestone roof fall in Uattamdi 1, Layer C.	72
Figure 5.7 Uattamdi 1: vertical distributions of cooking stones, food shell and animal bone, and pottery sherds (excluding the jar burial vessels shown in Fig. 7.5).	74
Figure 7.1 Rim sherds from Uattamdi 1 Layers C1 to D2.	84
Figure 7.2 Neolithic pottery from Leang Tuwo Mane'e.	89
Figure 7.3 Neolithic pottery from Bukit Tengkorak.	90
Figure 7.4 A comparison of rim forms from Taiwan to the Moluccas, 4200 to 2500 BP (here shown as 2200 to 500 BC).	90
Figure 7.5 Vessels associated with jar burial in Uattamdi 1, Layers A–B (Early Metal Phase).	92
Figure 7.6 Pottery from Um Kapat Papo, Gebe Island, labelled as in Table 7.4.	95
Figure 7.7 Pottery from Buwawansi 3, Gebe Island.	97
Figure 7.8 Pottery from Buwawansi 5 and 6, Gebe Island.	98
Figure 7.9 Pottery from Golo Cave (Gebe—upper vessel) and Gua Siti Nafisah Cave (eastern Halmahera—lower group).	100
Figure 7.10 Pottery from Tanjung Pinang, Morotai, c. 2000 BP.	102
Figure 7.11 Pottery from Sabatai Tua, Morotai.	103
Figure 7.12 Corrugated rims from Mitangeb and Anaro (Batanes), and Sembiran (Bali).	105
Figure 8.1 Lithics from Tanjung Pinang.	110
Figure 8.2 Flaked lithics struck from beach pebbles, a <i>Canarium</i> anvil and an obsidian flake from Tanjung Pinang.	111
Figure 8.3 Stone artefacts from Uattamdi 1.	114
Figure 8.4 Stone adze segments from Gua Siti Nafisah, Halmahera.	115

Figure 8.5 Ground ochre tablets from the Golo Cave burial fill.	116
Figure 8.6 A <i>Cassis</i> shell adze from Wetef.	117
Figure 8.7 <i>Tridacna</i> shell adzes (photographed from both sides) from Golo M4 135–140 cm (top) and Pamwak Cave (Square 2, spit 4), Manus, Admiralty Islands (bottom).	118
Figure 8.8 Monochrome glass beads (a–c), two stone beads (d), and shell beads (e) from Uattamdi 1.	119
Figure 9.1 Worked <i>Turbo marmoratus</i> operculum fragments from Golo Cave.	125
Figure 9.2 <i>Scutellastra flexuosa</i> modified tool from Golo Cave.	125
Figure 9.3 Reduced <i>Turbo marmoratus</i> shell from Golo Cave, Squares L6–M6 195–200 cm.	126
Figure 9.4 Giant clam adzes from Golo Cave.	127
Figure 9.5 <i>Cassis cornuta</i> adzes from Golo Cave.	127
Figure 9.6 Modified <i>Conus</i> sp. spires from Golo Cave, Square M5 40–45 cm.	128
Figure 9.7 Formal shell artefacts from Uattamdi 1.	129
Figure 9.8 Informal and expedient artefacts from Uattamdi 1.	131
Figure 9.9 Shell artefacts from Buwawansi.	132
Figure 9.10 Worked shell from Gua Siti Nafisah and Tanjung Tulang.	132
Figure 10.1 <i>Dorcopsis</i> mandible from Golo H5, 40–45 cm, with stage 5 weathering and calcium carbonate concretion.	137
Figure 10.2 Phalanger humerus fragment from Gua Siti Nafisah (F6, sink area against cave wall) with cut mark on the medial margin of the distal end.	139
Figure 10.3 Three <i>Dorcopsis</i> mandibles from Golo displaying different stages of tooth eruption.	142
Figure 10.4 A left <i>Dorcopsis</i> mandible from Golo H5, 40–45 cm, displaying tooth wear stages on four molars (M1–6, M2–6, M3–3 and M4–2).	142
Figure 10.5 Three tests of Discriminant Function Analysis for the molar measurements (max. length, anterior and posterior breadths) for the Golo and Um Kapat Papo samples and those of four extant species of <i>Dorcopsis</i> .	144
Figure 10.6 A murid rodent right mandible and left maxilla from Daeo Cave 2, E4–E6, 10–15 cm.	145
Figure 10.7 Cranial elements of <i>Hipposideros</i> (A), <i>Rhinolophus euryotis</i> (B), and <i>Miniopterus</i> (C) from Gua Siti Nafisah.	146
Figure 10.8 Pig distal humerus (right) exhibiting cut marks on the lateral margin, from Gua Siti Nafisah, J10, Layer C2.	146
Figure 10.9 A <i>Sus scrofa</i> right mandible recovered from Layer C6 in Uattamdi, directly C14 dated from tooth enamel to 3144–2964 BP (S-ANU 60005, Table 1.1 and Chapter 5).	147
Figure 10.10 A canid vertebra (left) from Uattamdi (E7 A3) compared to a modern comparative <i>Canis lupus familiaris</i> vertebra (right) from the School of Archaeology and Anthropology, ANU.	147

Figure 10.11 Pie chart of identified fish families from Uattamdi, all layers combined.	148
Figure 10.12 Scaridae (left) and Lethrinidae (<i>Monotaxis grandoculis</i> , right) premaxillae from Uattamdi and Daeo Cave 2 respectively.	148
Figure 10.13 Graph to show the relative representation of shell midden (by weight) across spits in Golo Square M4 and M5.	157
Figure 10.14 Graph to show total abundances (MNI) of marine and terrestrial molluscs per spit for Golo Square M4.	159
Figure 10.15 Relative abundances (MNI) of the four major molluscan species represented within the Golo Square M4 sample.	163
Figure 11.1 Reconstructed limb bone fragments from Golo LMN Squares.	173
Figure 11.2 Golo extended burial after reconstruction (excluding the right pelvis, sacrificed for direct radiocarbon dating).	173
Figure 11.3 Left lateral view of the cranium from the Golo extended burial.	174
Figure 11.4 Superior view of the mandible from the Golo extended burial.	176
Figure 11.5 Mandibular metrical analysis, two-dimensional plot of PC 2 and 3.	177
Figure 11.6 Mean mandibular measurements for clusters 1 to 6 identified by <i>k</i> -means analysis.	178
Figure 11.7 Graphical representation of metrical comparison of Golo with six Oriental-Pacific male groups.	180
Figure 11.8 Uattamdi 1 cranial bones illustrating their thickness and porotic hyperostosis.	185
Figure 11.9 Fragments assigned to the Tanjung Tulang 2 adolescent.	187
Figure 12.1 Mild porous lesions indicative of porotic hyperostosis to posterior parietal and superior occipital of Tanjung Pinang 6.	205
Figure 13.1 Present-day Austronesian and Papuan language groupings in the Northern Moluccas.	217
Figure 13.2 The likely migration directions of early speakers of Malayo-Polynesian languages.	218

This text is taken from *The Spice Islands in Prehistory: Archaeology in the Northern Moluccas, Indonesia*, edited by Peter Bellwood, published 2019 by ANU Press, The Australian National University, Canberra, Australia.