Prehistoric relations between island Southeast Asia and Oceania: recent archeological investigations in the Northern Moluccas

Geoffrey Irwin

Perter Bellwood

Gunadi Nitihaminoto

Daud Tanudirjo

Loko Siswanto
Archaeologists

Asia is the ultimate although by no means always the immediate origin of the myriad indigenous peoples of Oceania. Many current debates in Oceanic prehistory invoke hypothetical relations with Island Southeast Asia that require further investigation there. Obviously, there is also reason enough to study Island Southeast Asian prehistory in its own right. Nor can it be assumed that the two regions were distinct in cultural and other terms at different times in the past and that such boundaries could be identified between them. Indeed, in general, the further back in time the less this is true.

It was in this context that investigations in the northern Moluccas, which are strategically located between the Philippines, Sulawesi and New Guinea, were initiated by Bellwood and Irwin together with colleagues from the National Centre for Archaeology of Indonesia. There have been four periods of fieldwork since 1990 but only aspects of the first and last of these which took place during the (southern) summers of 1990-91 and 1995-96 are discussed here. Detailed reports on the entire project are in preparation.

In broad terms there were three main problems of interest.

1. The first concerned the Pleistocene colonisation and subsequent settlement of Island Southeast Asia, Australia and its neighbouring islands in Near Oceania; an episode

which currently dates from 40,000 bp by C14, but earlier by TL. In the Moluccas, sites of Pleistocene age have been discovered and investigated on the islands of Morotai and Gebe.

2. The second was concerned with issues currently under lively debate, including the spread of neolithic and ceramic sites in Island Southeast Asia (Bellwood 1985, Spriggs 1989) and the appearance by 1500 BC in the Bismarck Archipelago of sites attributed to a Lapita Cultural Complex (Green 1991). Recently a number of scholars have reaffirmed a close association of archaeological and linguistic evidence with reference to the spread of Austronesian languages (Bellwood 1996a, Kirch 1996, Spriggs 1996). Languages of southern Halmahera appear to relate to Oceanic languages more closely than any other Western Austronesian languages and have been suggested as a possible immediate source. A ceramic site of comparable age to early Lapita was excavated at Uattamdi on Kayoa Island and bears on these questions.

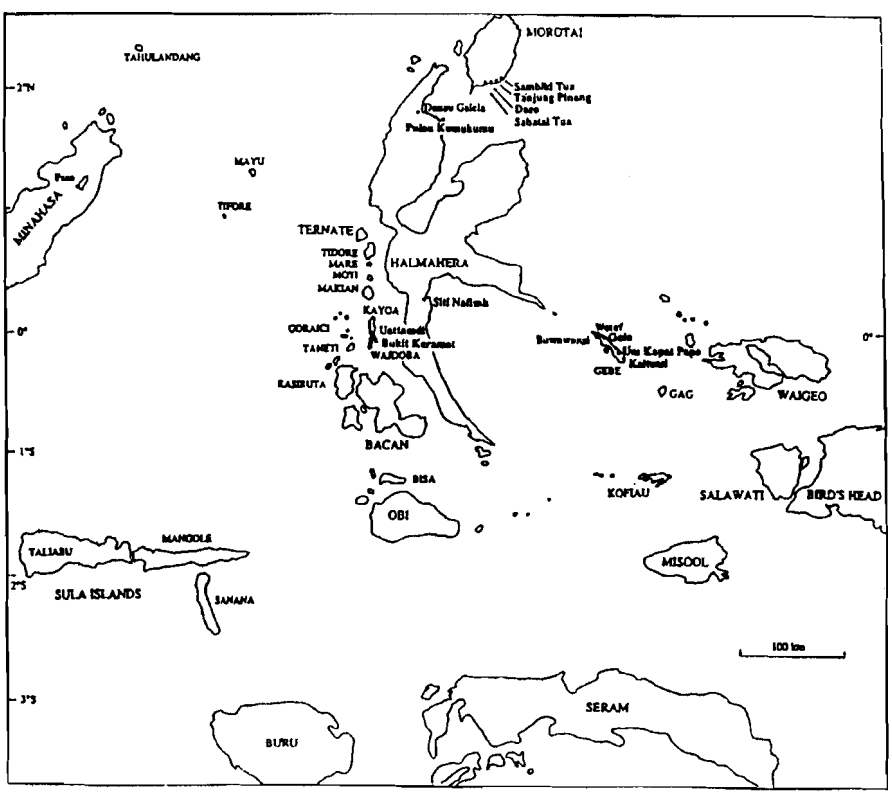

Figure 1
Location map of the northern Moluccas.

3. The Moluccas are the Spice Islands of the Middle Ages, and earlier, and traces of such connections have been found at Uattamdi dating within the last 2000 years BP.

Preceramic sites

The initial context for Pleistocene research was in terms of a voyaging corridor stretching from mainland Asia to the end of the Solomon Islands chain (Irwin 1992), linking Island Southeast Asia, Australia and the region we know as Near Oceania (Pawley and Green 1973). It is no surprise that the first known human colonisation by water occurred here as the circumstances experienced by early settlers were of large islands close together and often intervisible, and seasonal and predictable reversals of northwestly monsoon and southeastly trade winds and their attendant currents. Through this mosaic of islands there was continuity of coastal environment and of most marine and many plant resources (Golson 1971). The Wallacean separation of Island Southeast Asia from Greater Australia allowed independent development of placentals and marsupials; however the region was more a filter than a clean barrier between them given its penetration by animals from both sides by agency of geological events and various over-sea dispersals including some that were evidently humanly assisted. Eastwards along the corridor there was a reduction in terrestrial animal resources. The circumstances for early voyaging are clear but there is no direct knowledge of early boats or rafts; while initially unsophisticated they must have been substantial enough to carry viable founder populations. We might also expect there were continuing contacts that travelled two-way.

Until now, very few archaeological sites have been found in Wallacea to match the early evidence from Greater Australia and its Pleistocene neighbours in the Bismarcks and Solomons although they must, by default, have existed. Gebe was selected for survey because it lies on an intervisible route between Halmahera and islands near the Bird's Head of New Guinea (Irwin 1991). Gebe is a narrow island straddling the Equator some 45 km long and 6 km at the widest point (Fig. 2) located approximately 45 km southeast of Halmahera and 75 km to the west of Waigeo. The island is less than 400 m in elevation. Its western end is raised coral while the remainder has extensive nickel-rich deposits overlying volcanic and metamorphic rocks. Rainforest grows mainly on the raised limestone areas and along drainages but elsewhere is a maquis-like vegetation (Flannery and Boeadi 1995). The northern shore is exposed seasonally to the northwest monsoon and the southern to the southeast trade wind, but the latter offers more shelter and marine resources. There are two local villages on the island while the town of Kapaleo and an airstrip are associated with a nickel mine run by the Aneka Tambang Company.

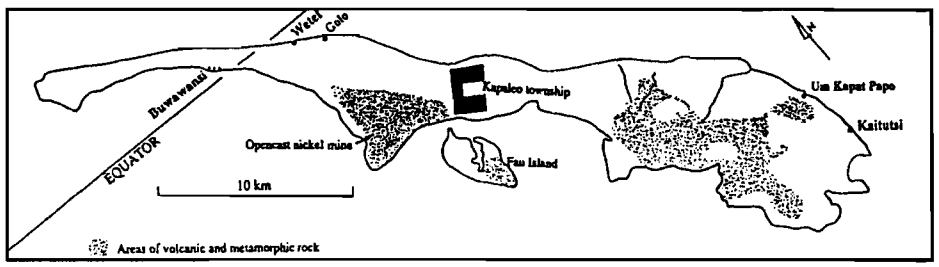

Figure 2
The island of Gebe showing archaeological site locations.

Golo and Wetef are two caves with late Pleistocene and Holocene deposits located just south of the Equator (Fig. 2). The caves were originally formed by underwater solution processes and are located in similar situations in raised coral cliffs less than 100 m inland from the current shoreline. The floors of both are no more than 10 m above sea level (MHWS). The base of Golo is coral rock but there is a deposit of culturally sterile coralline marine sand underlying the cultural deposit at Wetef which presumably dates from a time when the current coastal strip was formerly a reef flat and the caves were close to the sea. A 1 m test square was excavated at Golo in 1994 and a further 5,8 m2 in December-January 1995-6. A 2 m2 excavation was carried out at Wetef in the same 1995-6 period. Preliminary section drawings and radiocarbon estimations are shown in Figures 3 and 4 and a summary of the constituents of Wetef is presented in Table 1. Comparable data from Golo are reported in Bellwood (1996b). Detailed site reports are in preparation.

Both Wetef and Golo have substantial Holocene deposits. In neither case is the youngest part closely dated. While a handful of sherds has been trodden into the top of both sites, each is effectively preceramic. But that simply means no less than c.2000 BP which is the approximate age of the oldest-known pottery on Gebe, although elsewhere in the Halmahera group (Uattamdi site on Koyoa Island), it goes back some 3500 years. Golo has one C14 date inversion in the lower part of Layer 2 and the site ages rather abruptly at the very bottom. However, the age determination of a sample collected during the 1994 test excavation - ANU 9447, 31030 +/- 400 bp, is confirmed by a 1996 sample, Wk 4629 32210 +/- 320 bp. An apparently longer duration of bone in Wetef than Golo may suggest more continuity of use of the former and substantial layers of ash in Wetef (Fig. 3) ensure the deposits below two dates of c.7710 bp remain undisturbed. We have reason to believe basal deposits of the two sites are of comparable age. But whether they would prove to be the same in thermoluminescence terms as in radiocarbon is an open question.

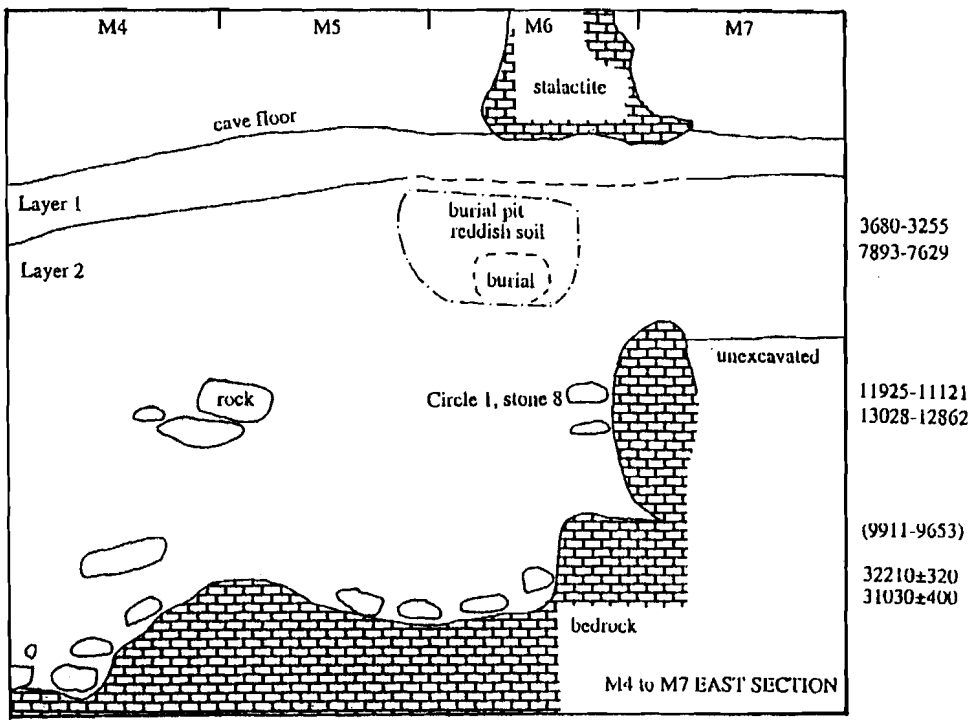

Figure 3
Schematic section drawing of Wetef Cave, Squares K3 and K4.

A complete extended burial was discovered in the upper part of Layer 2 at Golo and the distribution of associated red ochre indicates the probable burial pit, although this was not noticed during excavation. A sample has been submitted for direct dating. Two striking features found at a depth of 135 cm in Layer 2, which is of terminal Pleistocene age, were circular structures of large coral stones up to 20 cm high; one semi-circle measured 80 cm in internal diameter and a smaller complete circle approximately 30 cm (Bellwood 1996b).

A tentative comparison can be made of the Gebe cave site sequences with the series of cave sites in New Ireland excavated during the Lapita Homelands Project (Allen, Gosden and White 1989, Allen and Gosden 1991) which provide samples to the west and east of New Guinea respectively. In general there is no substantial abandonment of the Gebe sites during the preceramic Holocene which in New Ireland has been suggested as possibly indicative of a general shift in settlement supported by a more horticulturally-based economy.

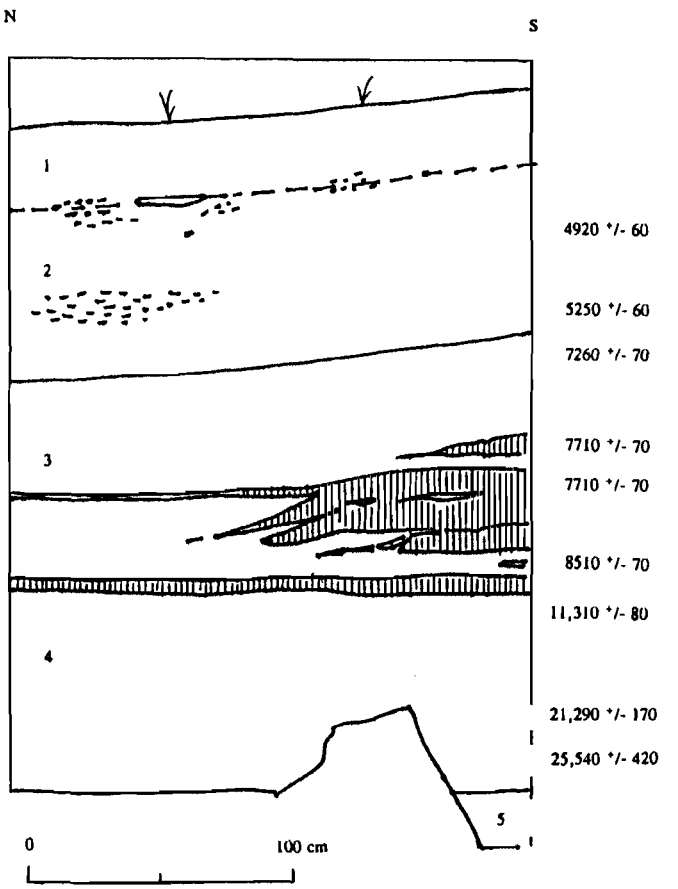

Figure 4
Section of
Golo
Cave.

Faunal remains

These consist of a wallaby, a cuscus and fish with smaller quantities of bat, turtle, snake and bird. In Wetef bone of all species drops out below approximately 200 cm depth which corresponds to a radiocarbon date of WK 4625, 11,310 +/- 80 bp. However, marine shell and crab continue closer to the bottom of the site. While the deposit is weakly alkaline and the bone does not appear to be more eroded with depth, its absence is tentatively ascribed by Irwin, the excavator of this site, to weathering and perhaps more moisture passing through the lower deposit.

Excluding the introduced pig and deer, *Rattus exulans* and *Sus scrofa*, the northern Moluccas have a rather sparse native fauna.

Gebe is described as having some 15 species, which show affinities to both New Guinea and to other islands of the Halmahera group. Some predominently New Guinea species which reach their northwestern limit on Gebe include *Rattus praetor*, *Pteropsus neohibernicus* and *Syconycteris australis* (Flannery and Boeadi 1995). The Gebe cuscus *Phalanger alexandrae* has been newly described as an endemic with clear affinities to *Phalanger ornatus* which is found elsewhere in the Halmahera group and which evidently has a long history there (Flannery and Boeadi 1995). It is of considerable interest that the most numerous animal represented in the Wetef midden was a new species of wallaby already extinct for the last few thousands of years of prehistory. It turns out to be a new species of *Dorcopsis* (Flannery in press), a genus consisting of four previously described species all restricted to New Guinea and islands formally land-bridged to it. In addition, fragments of bone from a similarly extirpated species of bandicoot with affinities to the New Guinea genus *Echymipera* have been found in archaeological deposits on Halmahera although not on Gebe or Morotai. We note that these Halmahera extinctions, while not yet precisely dated, occurred in the same general time range as the introduction of dogs to the Halmahera group and perhaps in association with other changes in economy.

The occurrence of wallaby and cuscus on Gebe is intriguing given reports of human translocation of *Phalanger orientalis* to New Ireland at some time after approximately 19,000 BP while the wallaby *Thylogale brunii* was apparently similarly established there by c.7000 BP (Flannery and White 1991). *Echymipera kalubu* appears archaeologically in the Admiralties c.12,000 BP (Williams 1996). It is also claimed that *P. orientalis* was transported to Timor c.4000-5000 (Glover 1986) and to the Solomons perhaps between 2000-6000 BP (Flannery and White 1991). However, little can be inferred from the absence of cuscus and wallaby in Wetef Cave prior to c.10,000 BP because bone of all species is absent. And it is noted that both animals in question are described as endemics.

A solution provided by geology may hold the answer. R Hall (1996) describes how the Philippine Sea Plate rotated following its collision with the Australian continent some 25 mya. During the Miocene several fragments of continental crust were sliced from the Bird's Head and transported west. This accounts for the islands of Seram, Buru, Sula and the Tukan Busi platform which collided with eastern Sulawesi. However, the Halmahera islands had a different origin. Situated on the Molucca Sea Plate, which was partially coupled with the Philippine Sea Plate in its rotation, this group moved from east to west during the Miocene in fairly close proximity to what is now the north coast of New Guinea, but to the north of the Sorong fault system (Hall 1996). In short the marsupials may have taken an accidental voyage by land. However, we note that Flannery and Boeadi (1995) do not exclude the possibility of over-water dispersal subsequently. At all events, human intervention does not seem to be required. This may be another point of dissimilarity with the caves of New Ireland.

Artifacts

Shell adzes

A number of complete and broken adzes made from the lip of the Helmet Shell Cassis cornuta were found at depths between 40-90 cm in Wetef Cave (Table 1) and some 14 examples between 0-70 cm in Golo, all of identical style and similar size. Adzes of Cassis lip are known from parts of Micronesia, Melanesia and Polynesia including the Outliers. A suggestion for Golo (Bellwood 1996b) is that they may have been cached in the site and are therefore of younger age than the deposits in which they were found. If so, this could correspond with the younger age of the various examples found in Oceania. Alternatively, they may prove to be the same age as associated deposits - approaching 5000 bp in Wetef - in which case they would be older than those further east. Direct dates on these shell adzes are awaited.

Lower down in Golo a number of adzes made of giant *Tridacna or Hippopus* were found at levels dating between approximately 8000-12,000 BP (Bellwood 1996). These are similar to those excavated at Pamwak Shelter on Manus in the Admiralty Islands and also dated to the terminal Pleistocene-early Holocene (Frederickson *et al* 1993). A further example was found at a rock shelter site of Buwawansi also excavated on Gebe and in association with a C14 date WK 4628, 8550 +/- 70 bp.

Stone flakes

Numbers of stone flakes and hammerstones are not large but they persist through the layers of Golo and Wetef. They are generally unifacial and technologically nondescript and made on a range of volcanic, metamorphic and chert-like rocks. The central and eastern parts of Gebe are geologically varied and it is possible that sources were located there. Only one flake of obsidian was found in the entire survey and that in the top layer of the Tanjung Pinang site on the south coast of Mototai (Bellwood 1996b). Thus, another point of contrast with late Pleistocene cave sites of New Ireland is the absence of imported rock and specifically of obsidian. However, it might be premature to conclude from this that the northern Moluccas were more isolated from outside at the time in question. Firecracked rocks which evidently had been used as cookstones were found throughout Golo and Wetef and in situ fireplaces were found. Fire-stained limestone was in evidence also.

Depth cms	Animal bone gms	Shell K4 only gms	Shell adzes no	Bonepoints no	Flaked stone no	Flaked stone gms	Volcanic Cookstones no	Volcanic Cookstones gms	Potsherds no	C14 date bp
0-10		145							2	
10-20	13.5	260		1	1	8.3	1	10	2	
20-30	7.8	200		2					2	
30-40	165.7	265					3	50	1	
40-50	1150.9	580	1 Cassis		5	54.7	10	80		
50-60	802.0	610	1 Cassis	3			3	240		4920±60
60-70	474.1	1100	2 Cassis	7			6	310		
70-80	507.8	1300	2 Cassis	2			1	40		
80-90	408.0	640	2 Cassis	4						5250±60
90-100	264.2	470		1			3	140		
100-110	45.5	380								7260±70
110-120	17.9	320					9	570		6560±60
120-130	44.2	510					21	850		
130-140	37.7	380		1			1	20		
140-150	42.9	460					5	460		7710±70
150-160	70.4	260		2	1	5.5	13	1010		7710±70
160-170	86.6	440		1	3	96.9	33	1160		
170-180	82.6	320		1			18	660		8510±70
180-190	3.6	210					14	310		
190-200	14.7	490		1	5	62.5	7	290		
200-210	4.7	370			3	160.2	11	370		11,310±80
210-220	0.1	410			3	30.9	3	140		
220-230		310					3	70		
230-240		200			1	15.3	13	200		
240-250		40					19	400		21,290±170
250-260							6	60		25,540±420
260-270							2	20		

Table 1
Distribution of cultural remains by depth in Wetef Cave.

Bone points

Among the bones were many small bipolar points (Table 1) which persisted for a considerable time. These will be described elsewhere.

Ceramic period sites

The earliest pottery is found at the Uattamdi rock shelter on the western coast of Koyoa (Fig. 1) where it dates from approximately 3300 to 2500 BP. Layers C and D contained

a red-slipped pottery which was almost entirely plain apart from a few incised sherds and some notching and scalloping of lips. Preliminary analysis suggests two major vessel forms are simple restricted pots with everted rims and unrestricted bowls with direct rims. Some of the latter have stands but apparently there are no tripod feet or carinations. Coral sand and volcanic sand tempers occur and both are available locally and on adjacent islands. There is a range of rim forms and the closest affinities of the ceramic inventory are thought to be the approximately contemporary assemblages at Bukit Tengkorak and Madai Cave in Sabah and Leang Tuwo Mane'e in the Talaud Islands (Bellwood 1976, 1988, 1996b). More distant affinities are with Sulawesi and the undecorated vessels in Lapita.

Associated with this ware in Uattamdi layers C and D are shell beads and armbands, a *Tridacna* adze, a polished lenticular-sectioned adze, stone flakes including adze chips, together with bones of pig, dog and cuscus (*Phalanger ornatus*). Some of these items are seen by a number of prehistorians as part of a package of introductions related to the dispersal of Austronesian languages and this issue is of considerable current interest.

The later pottery in Layers A and B at Uattamdi which dates after approximately 2000 BP is sometimes carinated, footed and is decorated with incision, impression and sometimes red-slipping. Other sites with similar pottery have been located in Morotai, Halmahera and Gebe and there are widespread affinities with other parts of Indonesia and the Philippines.

Spice Trade

The Moluccas were the Spice Islands of the Middle Ages and earlier. Cloves were known in Rome nearly 2000 years ago. Indian pottery of much the same age has been found as far east as Bali (Ardika and Bellwood 1991) and may indicate some connections. Most, if not all, of the world's cloves are said to have come from a string of five islands from Ternate south to Kayoa on the western side of Halmahera (Fig. 1). The European Age of Discovery finally brought Europeans into direct contact with the Spice Islands. When the Portugese first arrived in the Moluccas early in the 16 th century they encountered powerful Muslim sultanates on both Ternate and Tidore which had by then emerged as central places which administered production and trade. Located close to the south of them, the island of Mare had developed into a single specialised regional centre of production and distribution of trade pottery (Mahirta 1996). Evidently there had been a period of substantial regional interaction, integration and associated cultural transformation and it may be a measure of this that the Muslim towns of Ternate and Tidore were Non-Austronesian speaking at Western contact as was wider northern Halmahera. European elements were added to this landscape and are most conspicuous in the many Dutch forts of the 17 th and 18 th centuries.

The site of Uattamdi is on Koyoa, one of the clove islands, and its upper layers preserve traces of the trade. More than 100 glass beads likely to be of Indian origin may extend

over a period of 2000 years. Fragments of copper, bronze and iron may go back 1000 years. These include two Chinese coins. These items are also associated with burial jars of a widespread Southeast Asian tradition. The northern Moluccas were ultimately connected to the Silk Road and to early sea routes to the Mediterranean. Among the more recent connections with New Guinea was the trade in bird of paradise feathers during recent centuries as documented recently by Swadling (1996).

Acknowledgements

This research was funded by the National Geographic Society, The Australian Research Council and University of Auckland Research Committee.

Bibliographie

ALLEN (J.), GOSDEN (C.), 1991 — *Report of the Lapita Homelands Project.* Canberra, Australian National University. Occasional Papers in Prehistory, 30.

ALLEN (J.), GOSDEN (C.), WHITE (J.P.), 1989 — Human Pleistocene adaptations in the tropical island Pacific: recent evidence from New Ireland, a greater Australian outlier. *Antiquity* 63: 548-561.

AMBROSE (W.), 1988 — An early bronze artifact from Papua New Guinea. *Antiquity* 62: 483-491.

ANADAYA (L.), 1993 — *The World of Maluku.* Honolulu, University of Hawaii Press.

ARDIKA (I.W.), BELLWOOD (P. S.), 1991 — Sembiran: the beginnings of Indian contact with Bali. *Antiquity* 65: 221-232.

BELLWOOD (P. S.), 1976 — Archaeological research in Minahasa and the Talaud Islands, northeastern Indonesia. *Asian Perspectives* 19: 240-288.

BELLWOOD (P. S.), 1985 — *Prehistory of the Indo-Malayan Archipelago.* Sydney, Academic Press.

BELLWOOD (P.S.), 1988 — *Archaeological Research in South-Eastern Sabah.* Kota Kinabalu, Sabah Museum Monograph 2.

BELLWOOD (P.S.), 1996a. — "Early agriculture and the dispersal of the southern Mongoloids". *In* Akazawa (T.), Szathmary (E.J.E.) eds: *Prehistoric Mongoloid dispersals.* Oxford, Oxford University Press: 287-302.

BELLWOOD (P.S.), 1996b. — *The northern Moluccas as a crossroads between Indonesia and the Pacific.* Paper presented at the International conference on linguistic and culture relations in East Indonesia, New Guinea and Australia. Gadjah Mada University, Yogyakarta, June 1996.

BELLWOOD (P.S.), KOON (P.), 1989 — Lapita colonists leave boats unburned! The question of Lapita links with Island Southeast Asia. *Antiquity* 63: 613-622.

FLANNERY (T.F.), in press — *A new species of Dorcopsis (Macropodidae: Marsupiala) from Holocene archaeological deposits on Gebe and Halmahera Islands,* Maluku Utara, Indonesia.

FLANNERY (T.F.), BOEADI 1995 — Systematic revision within the Phalanger ornatus complex (Phalangeridae: Marsupalia), with description of a new

species and subspecies. *Australian Mammalogy* 18: 35-44.

FLANNERY (T.F.), WHITE (J.P.), 1991 — Animal translocations: zoogeography of New Ireland mammals. *National Geographic Research and Exploration* 7: 96-113.

FREDERICKSEN (C.), SPRIGGS (M.), AMBROSE (W.), 1991 — "Pamwak Rockshelter: a Pleistocene site on Manus Island". *In* Smith (M.), Spriggs (M.), Fankhauser (B.) eds: *Sahul in review: late Pleistocene archaeology in Australia, New Guinea and Island Melanesia.* Canberra, Australian National University. Occasional Papers in Prehistory 23.

GLOVER (I.), 1986 — *Archaeology in eastern Timor, 1966-67.* Canberra, Australian National University. Terra Australis 11.

GOLSON (J.), 1971 — "Australian Aboriginal food plants: some ecological and culture-historical implications". *In* Mulvaney (D. J.), Golson (J.) eds: *Aboriginal Man and Environment in Australia. Canberra,* Australian National University Press: 196-238.

GREEN (R.C.), 1991 — The Lapita Cultural Complex: current evidence and proposed models. *Bulletin of the Indo-Pacific Prehistory Association* 11: 295-305.

HALL (R.), 1996 — "Reconstructing Cenozoic SE Asia". *In* Hall (R.), Blundell (D.) eds: *Tectonic evolution of Southeast Asia.* London, Geological Society Publication 106: 153-84.

IRWIN (G.J.), 1991 — "Pleistocene voyaging and the settlement of Greater Australia and its Near Oceanic neighbours". *In* Allen (J.), Gosden (C.) eds: *Report of the Lapita Homeland Project.* Canberra, Australian National University. Occasional Papers in Prehistory, 20: 9-19

IRWIN (G. J.), 1992 — *The prehistoric exploration and colonisation of the Pacific.* Cambridge, Cambridge University Press.

KIRCH (P.V.), 1996 — *The Lapita Peoples: ancestors of the Oceanic world.* Oxford, Blackwell.

MAHIRTA 1996 — *The development of Mare pottery in the northern Moluccas context and its recent trading network.* MA thesis, Department of Archaeology and Anthropology, Australian National University.

PAVLIDES (C.), (C.), GOSDEN (C.), 1994 — 35,000-year-old sites in the rainforests of West New Britain, Papua New Guinea. *Antiquity* 68: 604-610.

PAWLEY (A.K.), GREEN (R.C.), 1973 — Dating the dispersal of the Oceanic languages. *Oceanic Linguistics* 12: 1-67.

SOLHEIM (W.G.), II, 1964 — *Archaeology of the Central Philippines.* Manilla, Bureau of Printing.

SPRIGGS (M.), 1989 — The dating of the Island Southeast Asian Neolithic: an attempt at chronometric hygeine and linguistic correlation. *Antiquity* 63: 587-613.

SPRIGGS (M.J.T.), 1996 — "What is Southeast Asian about Lapita?" *In* Akazawa (T.), Szathmary (E.J.E.) eds: *Prehistoric Mongoloid dispersals.* Oxford, Oxford University Press 324-348.

SWADLING (P.), 1996 — *Plumes from Paradise.* Brisbane, Robert Brown.

VOORHOEVE, (C.L.), 1988 — *The languages of the North Halmahera Stock.* Canberra, Australian National University Papers in New Guinea Linguistics, 26: 181-209.

WILLIAMS (C.), 1995 — *Faunal composition of Pamwak Site, Manus Island, PNG.* This Volume. Paper presented to the Lapita Conference, Port Vila, Vanuatu, July 31-August 6 1996.