

THE NEOLITHIC AND AUSTRONESIAN EXPANSION WITHIN ISLAND SOUTHEAST ASIA AND INTO THE PACIFIC

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INTRODUCTION

There has been an increasing pace of archaeological research in Island Southeast Asia in recent years and this is bringing some balance into the study of Neolithic/Austronesian expansion in the region, dominated until recently by research in the Pacific Islands. Pacific research was led earlier by a Fijian and West Polynesian geographic concentration in the 1960s and then subsequent to the 1985 ANU-National Geographic Society Lapita Homeland Project, by a focus on the proximate origins of the Lapita culture in the Bismarck Archipelago to the immediate east of the island of New Guinea (Summerhayes, this volume). Most recently, intermediate areas in Vanuatu and New Caledonia have come into their own as research destinations (Bedford, this volume; Sand 2000).

The pace of archaeological research in Island Southeast Asia has tended until recently to be much slower. Research on relevant sites has been somewhat fitful and often carried out in isolation from wider issues and newer methodologies. The usual funding problems of archaeological institutions in developing nations, and periods of political instability have contributed to this. Taiwan is clearly an exception to the situation, being at a further stage of development than other countries in the region, with very significant resources being devoted to the archaeology of its prehistoric past. The discipline is however now clearly maturing in the region, in part because of strategic partnerships between national institutions and overseas universities and research institutions that have enabled further capacity-building and improvement in research methods with exposure to international best practice. The result has been a much more extensive areal coverage of archaeological projects over the last decade or so, and much greater attention to detailed radiocarbon chronologies for the beginning of the Neolithic.

Island Southeast Asia has benefited greatly from the comprehensive archaeological syntheses by Peter Bellwood (1978, 1985, 1997), illuminated by his particular interests in and master narrative of Austronesian expansion. But problems remain with the often very localized and uneven archaeological coverage across the region, and the broad models employed may have rather tended to minimize questions of the details of chronology of Neolithic expansion. These are issues I take up here.



We are now in a much better position to understand the chronology and pace of Austronesian expansion than was the case when the latest edition of Bellwood's *Prehistory of the Indo-Malaysian Archipelago* was published in 1997. Since then, major research projects of relevance to these issues have been published or newly-undertaken. These include projects in Taiwan and the northern Philippines (see Liu and Tsang, this volume), at Niah Cave in Sarawak (Barker 2005; Barker *et al.* 2002), on Sumatra (Forestier *et al.* 2005; Simanjuntak and Forestier 2004), Java (Simanjuntak 2002), Northern Sulawesi and adjacent islands (Tanudirjo 2001), northern Maluku (Bellwood *et al.* 1998), the Aru Islands in southeast Maluku (O'Connor *et al.* 2005), and East Timor (O'Connor *et al.* 2002; O'Connor and Veth 2005; Spriggs *et al.* 2003). Presentations of detailed results bearing on the Neolithic levels of Liang Bua on Flores are eagerly awaited, following the spectacular results there concerning the Pleistocene sequence (Morwood *et al.* 2004; Morwood *et al.* 2005).

The major gap in our regional knowledge remains the island of New Guinea itself, unfortunately separating the regional research “hotspots” in Southeast Asia and Island Melanesia and the Western Pacific. Even here there is some movement. The first significant piece of research in the Indonesian province of Papua (formerly Irian Jaya) was recently published (Pasveer 2004; Pasveer *et al.* 2002), the importance of the New Guinea Highlands as an important independent center of early agricultural development has been greatly clarified (Denham *et al.* 2003; Denham *et al.* 2004), and ongoing work on the north coast of Papua New Guinea promises to clarify the contentious cultural sequences presented earlier from that locale (see Fairbairn and Swadling 2005 for an early result of such clarification).

Archaeology is of course not the only source for historical reconstruction in the region. Despite somewhat ill-informed criticisms by a few non-linguists of the linguistic reconstructions for the various phases of development of the Austronesian languages, the generally accepted sequence of linguistic spread and divergence remains much as it was first presented some decades ago (Pawley and Ross 1993; Pawley 2002). Genetics, however, has proved a fickle helpmate in examining regional population history. It is clearly not yet at a mature stage in terms of its areal coverage and modeling of time and process, despite claims to the contrary by some of its practitioners and apologists. The year 2005 — yet again — witnessed a major turnaround in the genetics field in terms of Island Southeast Asian population history (Cox 2005; Cox and Lahr 2006; Trejaut *et al.* 2005). Archaeologists had barely grasped the significance of the last major revision of genetic conclusions (as summarized in Hurler 2002; Hurler *et al.* 2002; Oppenheimer and Richards 2001) when this latest rewrite occurred. One suspects it will not be the last⁴.

From the late 1980s I have attempted to track the latest research as it affects our understanding of the timing of the Neolithic transition across the region (most recently in Spriggs 2003). Since then there have been, as is clear from the various projects noted above, new archaeological and genetic findings that need to be taken into account. This is not the place to present the detailed radiocarbon evidence site by site — this was undertaken in that earlier article — but I will attempt here to see how the latest results bear on our models of the timing of Neolithic expansion. I will begin, however, by briefly reviewing the definitions of Neolithic that are generally used in regional discourse and why the Neolithic expansion and the spread of Austronesian languages are linked by commentators such as Peter Bellwood and myself, as being expressions of the same social process.

ISLAND SOUTHEAST ASIAN “NEOLITHICS” AND THE AUSTRONESIAN LANGUAGES

In Island Southeast Asia and the Western Pacific it is the presence of pottery rather than direct evidence of agricultural crops and domestic animals that has been used to define the Neolithic until recently. The situation is now changing as research is beginning to look at starch residues, phytoliths, pollen and macrobotanical remains, and ancient DNA, and as AMS dating is applied to crop plant remains, domestic animal bones and diagnostic artifact types (Paz 2002, 2004). These studies have tended to



reinforce the earlier conclusions based on pottery, confirming an agricultural lifestyle for the early pottery-using communities. On the other hand they do not indicate that pre-pottery communities were necessarily non-agricultural in the region. The choice of pottery as a defining characteristic of the Neolithic may in fact turn out to have been an appropriate choice. As Julian Thomas has pointed out in discussion of the British Neolithic: “Material things did not *attend* the Neolithic, they *were* the Neolithic” (Thomas 1997: 59). Following Thomas’ line of thought, in foregrounding a novel set of artifacts such as — in our case — pottery and new kinds of shell ornaments, we can argue that: “Monuments and artifacts do not merely transform social and economic relations, they serve as a reminder that things have changed, through their continual presence in people’s everyday lives” (1997: 63, cf. Thomas 2001).

My point is that, at least provisionally, we should decouple the cultural changes we call “Neolithisation” from subsistence changes, which may have been happening at a different pace. Indeed the current evidence we have for plant domestication and spread could well be interpreted as showing an early spread of important domesticates from a New Guinea agricultural center westwards across parts of Island Southeast Asia prior to the period we are defining on artifactual grounds as the Neolithic. I raised this possibility in 1996 and Denham has since reiterated it on the basis of the recent results from the New Guinea Highlands (Denham 2004; Spriggs 1996: 335, 338). Such plants were an additional resource added to, or rather substituted for, an earlier agricultural package of millet and rice ultimately derived from China. The shift from cereals to tuber crops may have had an ecological basis as Neolithic groups moved out of the areas most suitable for the rice and millet varieties available to them at the time (Dewar 2003), and/or may have occurred as part of a major cultural realignment that took place in southern Wallacea (cf. Spriggs 2003: 65).

The spread of the Island Southeast Asian Neolithic and its eastward extension as the Lapita culture of the Western Pacific is closely mirrored in the direction of spread and the general distribution of Austronesian languages in the same region. If we work back from east to west, we find only Austronesian languages spoken in areas of the Western Pacific with no evidence of pre-Lapita human occupation such as Vanuatu, New Caledonia, Fiji and Western Polynesia. The early inhabitants of these areas were all speakers of a language stage close to that labelled Proto-Oceanic (POc) and believed on linguistic grounds to have been spoken in the Bismarck Archipelago immediately to the east of New Guinea. The Bismarcks are also the area of the earliest identified Lapita sites, dating only two or three hundred years earlier than those in Vanuatu and New Caledonia (Spriggs 2003). The conclusion that POc Austronesian was the language of the earliest Lapita culture bearers seems difficult to dispute.

Despite an unfortunate gap in archaeological information for the critical time period in areas along the north coast of New Guinea, when we get back to Maluku, Sulawesi and the Lesser Sunda Islands immediately to the west of New Guinea we pick up the Island Southeast Asian Neolithic trail again with dates a few centuries earlier than those of Lapita in the Bismarcks. Similarly if we trace back linguistically to the stage labeled Proto-Malayo-Polynesian (PMP), we find that it is not much different than POc, sharing about 88% common vocabulary. According to one linguist’s best guess this implies a period of perhaps 600 years between the two (Pawley 1999: 125, 2002: 262; drawing on work by Blust 1993). A similar period prior to the earliest Lapita sites in the Bismarcks would bring us back to about 4,050-3,900 BP, and — as discussed later in the paper — this is indeed at the earliest possible age range of the first Neolithic sites identified south of Taiwan, in the Batanes and northern Luzon in the Philippines. One might suggest that a separation more like 4-500 years between PMP and POc is perhaps a better estimate on the basis of the latest archaeological evidence from the initial Neolithic settlement of the northern Philippines to that of the Bismarck Archipelago — see below. It is also one possible reading of the evidence presented by Pawley (2002: 262) with a shared vocabulary between POc and Proto-Central Eastern Malayo Polynesian (PCEMP) of 93% that implies a separation of some 350 years, and a further level of shared vocabulary between PCEMP and PMP of 98% implying an additional 100 years of separation, for a total of 450 years ballpark estimate.



What is significant is that PMP is the ancestor of all Austronesian languages outside of Taiwan and so where it was spoken should also be the area of earliest Neolithic settlement in the region. As the other nine primary sub-groups of Austronesian were spoken on Taiwan, one would probably not be far wrong in suggesting that PMP developed as a colonizing group moved out of Taiwan and settled the Batanes and next major island to the south, Luzon in the northern Philippines. Given that most of the diversity of Austronesian languages is in Taiwan, any model linking the spread of that language family and the spread of Neolithic cultures would require that the dates for the beginning of the Neolithic in Taiwan should be substantially earlier than those in related areas to the south. They are indeed earlier by somewhere around 1,000 to perhaps 2,000 years. In a sentence: the diversity and pattern of sub-grouping of the Austronesian languages are exactly mirrored in the chronology and pattern of nearly all of the Island Southeast Asian and Western Pacific Neolithic early pottery-using cultures. The one tracks the pattern of the other. The only area investigated so far where this may not be the case is in the major part of Borneo, and there are both linguistic and archaeological clues (see below) which have been suggested in the past as showing some earlier involvement of this area in the spread of a second, independent Neolithic movement linked to the separate spread of the Austro-Asiatic languages down through the Malay Peninsula. Hence we may need to talk of Island Southeast Asian “Neolithics.”

The dating of the beginning of Neolithic occupation at individual sites is by no means straightforward, owing to a variety of conditions, including unrecognised site disturbance, unidentified charcoal samples and the “old wood” problem, inappropriate radiocarbon sample choice, laboratory error, insufficient pretreatment of samples, recrystallization of marine shell, excessive standard deviations in dated samples of small size, and other factors I have enumerated elsewhere in discussions of “chronometric hygiene” (see especially Spriggs and Anderson 1993; Spriggs 1989, 1999). Woodman has noted as well that the earliest claimed ages for any phenomenon, such as the beginning of the Neolithic, may represent a normal statistical tail that would be expected in any large batch of radiocarbon dates (Woodman 2000: 233). Such problems are not of course limited to our region, and a healthy skepticism of all individual radiocarbon dates needs to be maintained at all times wherever one works.

Researchers often seem to forget that extraordinary claims require extraordinary proof and they seem surprised or offended when their assertions about particularly early pottery, pigs or metal are not instantly acceded to by others. It is the overall pattern of dates that is the more reliable guide, and reliance on single dates much earlier than the norm for any particular area usually turns out to be very ill-advised. The clear trend over recent years in Island Southeast Asia and the Pacific Islands is that as an increasingly critical stance has been taken on chronology, the generally accepted dates for first Neolithic settlement have come down considerably rather than become extended. This seems true whether we are talking of the Marquesas and New Zealand in the Pacific (see discussion in Hogg *et al.* 2003; Spriggs and Anderson 1993), or Taiwan and the Philippines (compare Spriggs 1989 with Spriggs 2003 for instance).

Detailed justifications for the acceptance or rejection of any particular dated samples are given in earlier publications (in particular in Spriggs 2003), unless samples published more recently than my last update in 2003 are referred to. What follows is a brief overview of the current situation as it relates to Neolithic expansion beyond Taiwan. The situation in Taiwan itself where the Neolithic begins at about 6,000-5,500 BP and develops from a mainland Chinese source probably in the Pearl River Delta of Guangdong Province is discussed elsewhere in this volume by Liu and Tsang. Tsang has noted that red-slipped pottery and other material culture similar to the earliest Neolithic assemblages found in northern Luzon occur on the east coast of Taiwan from about 4,000 BP and not before, and this would therefore suggest a limiting date for Neolithic expansion beyond the Island.



THE PATTERN OF EVIDENCE

To compare the pattern of Neolithic expansion with that of the linguistic sequence we will look first at the Philippines, northeastern Borneo (Sabah), Sulawesi, the Lesser Sunda Islands, Maluku, New Guinea and the Bismarck Archipelago (Figure 1). The rest of Borneo (Sarawak and Kalimantan), Sumatra and Java will be considered separately as they present particular problems of interpretation. Despite their size and population, Sumatra and Java have so far produced very few radiocarbon dates pertinent to the beginning of the Neolithic and this means that the pattern of expansion, and expansion from which direction, is currently unclear for these islands.

All dates are reported as calibrated ages, calculated at two standard deviations (95% confidence), with ΔR set as 0 for marine samples. Full references for samples discussed and a detailed discussion of methods can be found in Spriggs (2003). Full details of the dates and bibliographic references for them are only given where they are not to be found in that earlier publication.

Philippines

The Batanes Islands form an important group of stepping stones between Taiwan and Luzon that seem to have been first settled at the beginning of the Neolithic period (Bellwood and Dizon 2005). The earliest dates come from the Torongan Cave site on Itbayat Island, where there are six dates representing an early phase of occupation with red-slipped pottery ranging from 4502(4254)4019 to 3316(3209)3108 BP (OZH 771, 3860±70 BP, food residue in pot; WK-14641, 3352±35 BP, *Turbo* shell). The context is from midden debris deposited directly within the cave, perhaps from occupation on bamboo platforms, mixed-in with a soil washed into the cave from above (Bellwood, pers comm. 2006). There are one or two date inversions within the sequence, as might be expected in such depositional circumstances, but the shells and the food residues on the pots — the sources of the dated samples — clearly represent humanly-deposited artefacts. The only question remains whether the food residues have been contaminated in some way, as discussed by Bellwood and Dizon (2005: 23). Those authors suggest not and conclude that, along with the slightly later Sunget site on Batan Island, the early Neolithic of the Batanes Islands represents the initial occupation of Austronesian speakers beyond Taiwan in the period 4,500-4,000 BP.

It should be noted, however, that this early age is based on a single determination, and the next oldest of the six dates from Torongan has an age range entirely in the post-4,000 BP period: 3954(3834)3716 BP (OZH-772, 3880±40 BP, *Tectarius* shell). I feel it would be safer to take this marine shell date as a firmer age of first occupation, given the controversy over food residue dates. Anderson (2005) is skeptical of both the residue and marine shell dates for the Batanes and prefers a much later Neolithic settlement date of about 2,750 BP, after settlement of Northern Luzon. I feel his verdict is too harsh in this case.

Directionality in settlement is shown by the pottery vessel forms at both Torongan and Sunget, a waisted hoe of Taiwanese type from Torongan, artefacts from Sunget of Taiwanese nephrite and slate, and biconical spindle whorls and notched stone sinkers from Sunget that again are of Taiwanese type (Bellwood and Dizon 2005: 31). The pottery is said to be closely comparable to that from Chaolaiqiao, near Taidong in Eastern Taiwan (Bellwood and Dizon 2005: 8) which has produced a date of 4235(4089)3930 BP (WK-17011, 3736±43 BP, charcoal).

A series of open midden sites has been investigated recently in the Cagayan Valley and its tributaries in northern Luzon by joint teams from the National Museum of the Philippines and Taiwanese and Japanese researchers. Of the sites investigated by the Philippines-Taiwan team, the beginning of



pottery use at Miguel Supnet and Leodivico Capiña has proved difficult to date because of likely site disturbance and lack of suitable charcoal samples. Only Nagsabaran is considered as providing firm dates for the beginning of pottery use at 3830(3692)3590 BP (NTU-3799, 3450±40 BP, charcoal) and 3977(3636)3359 BP (GX-28381, 3390±130 BP, charcoal), as discussed by Tsang in this volume. A jade ornament sourced to Taiwan from the base of the site establishes a direct link back to the presumed homeland, and the pottery is notable as including dentate-stamping from the beginning of the sequence, some of which exhibits what is often called “lime” or white clay infilling, possibly representing the remains of a generalized painting of the vessels (cf. Bedford 2006 for Lapita examples). If confirmed by further dating of the site, the simple dentate-stamped motifs would represent the earliest-dated application of this decorative technique in the region, with possible implications for the genesis of the Lapita design system (see Spriggs 1989, 2000 for detail on putatively pre-Lapita dentate stamping in Island Southeast Asia).

Much less information has yet been presented on the Philippines-Japan research at the Pamittan site in the Cagayan Valley but two charcoal dates associated with pottery seem comparable to those from Nagsabaran, albeit with unhelpfully-large standard deviations: 4827(4225-4155)3641 BP and 3889(3636)3391 BP (Gak-17967 and Gak-17968). Also comparable are an AMS date on rice from the Andarayan site of 3977(3675-3638)3364 BP and another pottery-associated date from there of 3837(3466)3076 BP (RIDDLE-? [no laboratory number given] and SFU-86). Probably comparable Neolithic dates from elsewhere in the Philippines are those from Bagumbayan on Masbate Island of 3722(3505)3325 BP and 3536(3379)3256 BP (Har-4805 and Har-4806), and a date from the Edjek site on Negros of 4414(3716-3700)3170 BP (Beta-1117), although again with an unhelpfully large age rangeⁱⁱ.

Northeastern Borneo (Sabah)

Here the major site is Bukit Tengkorak, excavated initially by Bellwood and later by Stephen Chia (Bellwood and Koon 1989; Chia 2001, 2003). It is notable for the presence of an elaborately decorated stamped-impressed vessel with a Lapita-like design from Bellwood’s original work, and obsidian from Bismarck Archipelago sources. The site was clearly in touch with that region and is contemporary with Lapita. It could be described as a Lapita “outlier” in terms of its cultural and subsistence evidence (cf. Ono 2003: 196,198). A date of 6291(6170-6004)5922 BP (Beta-83785) claimed as associated with pottery and obsidian is clearly a result of downward movement of these materials, and in fact less than 1.5% of pottery in the relevant squares came from levels equivalent to or below this earliest dated spit — some 177 out of 15,938 sherds in an extensive excavation (Chia 2001, 2003). The other Neolithic dates are much more believable, ranging from 4091(3630-3588)3084 BP (ANU-10958) to 3241(3154-3078)2948 BP (OZD-767) for early levels.

Talud and Sulawesi

Re-excavation by Daud Tanudirjo of the Leang Tuwo Mane’e site in the Talud Islands between the southern Philippines and the large island of Sulawesi has bracketed Neolithic occupation there as starting between 4901(4800)4557 BP and 3802(3602)3433 BP (ANU-10211 and ANU-10209). Bellwood’s original excavation had produced a Neolithic date of 4271(4059)3827 BP (ANU-1515) above an aceramic deposit dating to 5476(5213)4819 BP (ANU-1717), but there was evidence of disturbance and the early pottery may be intrusive (Spriggs 1999: 19). All of these dates are on marine shell and an area-specific calibration is not available. They might be subject to some revision by 100-200 years or so with further calibration data. As previously discussed (Spriggs 2003: 61), two dates of supposed Neolithic association from the site of Ulu Leang 1 on Sulawesi much older than 4,000 BP are very doubtful, and a minor downward displacement of pottery by less than 20 cm would explain them



away. Another Neolithic date from Ian Glover's excavation of the site of 4227(3833)3475 BP (PRL-230) seems more secure. Although not well-dated, notice should be taken here of the Kamassi site within the Kalumpang site complex in central Sulawesi, which contains many distinctive artifacts of Taiwanese type (Bulbeck and Nasruddin 2002: 86). Bulbeck and Nasruddin provisionally date Kamassi to "slightly earlier than 3,000 BP" (ibid.).

The Lesser Sunda Islands

Neolithic dates from the Lesser Sunda Islands are few and far between, except for East Timor. A single Neolithic date has so far been reported from Liang Bua on Flores of 4565(4232-4160)3869 BP (GrN-14304), but no details of context are yet available. Liang Bua is the subject of major ongoing research by a joint Indonesian-Australian team (Morwood *et al.* 2004; Morwood *et al.* 2005)ⁱⁱⁱ. On Sawu Island at the site of Lie Madira pottery occurred only in near-surface deposits above a date of 5281(4973)4805 BP (ANU-11008, 4750±90, *Trochus* shell, Mahirta 2003: 121). On Roti Island the two sherds found in the deposit at Lua Meko were judged by the excavator to be intrusive from the surface (Mahirta 2003: 98). Thus it seems likely there that pottery postdates significant use of the cave which has a sequence extending up to 5275(4946)4733 BP (ANU-10910, 4720±100 BP, *Turbo* shell, Mahirta 2003: 99).

On East Timor an Australian team has been active since 2000, following up on the work of Portuguese and Australian researchers from the 1960s. A series of preceramic coastal middens has been sampled which have produced dates up to 3837(3681)3542 BP (ANU-11629) at Kusu, 4418(4237)4058 BP (ANU-11403) at Tim 46 and 3640(3478)3361 BP (ANU-11396) at Tim 51. As I discussed in 2003, Glover's earlier dates with a putative Neolithic association from three sites are only very loosely associated with what may be intrusive Neolithic pottery in disturbed contexts. My own interpretation of his Lie Siri dates of 4151(3832-3784)3481 BP (ANU-172) and 4085(3829-3780)3575 BP (ANU-235) is that these do bracket the introduction of pottery to this site to sometime between 4,100 and 3,500 BP. Our own more recent work at Matjakuru 2 produced a date on dog bone from a burial of 3337(3160-3081)2952 BP (WK-10051). This of course firmly dates the Neolithic as dog is an introduced domestic animal in this region. Matjakuru 1 suffered from considerable disturbance but dates up to 3972(3807)3614 BP (ANU-11632) appeared to relate to preceramic levels.

Dates from a deep Neolithic sequence at Lene Hara Cave were anticipated in my 2003 paper and have recently been published (O'Connor and Veth 2005). An extensive and consistent series of dates sees the earliest pottery appear in Spit 17, with a date from Spit 16 above it of 3979(3815)3624 BP (ANU-12041, 3850±70 BP, marine shell). The excavators noted that the lowest pottery came from "laterally discontinuous thin beds of ashy deposits interbedded with fine gravel" and that small-scale disturbance at his level could not be excluded (O'Connor and Veth 2005: 250). This could mean that the true date of pottery introduction is slightly later than its apparent dated association. From preceramic levels in Spit 20 comes a date of 4722(4505)4341 BP (ANU-12042, 4370±70 BP, marine shell). By spit 10 pottery was well-established at 3594(3154)2716 BP (ANU-12136, 3305±190 BP, marine shell). Introduction of pottery to East Timor somewhere in the range 3,800-3,600 BP thus seems a reasonable estimate on current evidence, again very close to the likely range from the Philippines, northeastern Borneo and Sulawesi^{iv}.

Maluku

In northern Maluku the site of Uattamdi on Kayoa Island, just off Halmahera has produced a Neolithic assemblage on top of sterile beach deposits that is very similar to the Lapita sites in the Bismarcks. This site appears to have built up over a very short period with some minor attendant disturbance. As with all sites mentioned where shell dates form a large part of the radiocarbon corpus some minor



adjustments to calibration may well have to be made in the future. The underlying beach is dated to 3575(3399)3257 BP (ANU-9321) and there are then two charcoal dates from cultural layers: from 15-20 cm of 3339(2951)2749 BP (ANU-10957) and from 5-10 cm depth of 4073(3683-3640)3359 BP (ANU-10959). These do not quite overlap at two standard deviations. There is also a marine shell date from the 15-20 cm level of 3564(3325)3019 BP (ANU-7776). On Halmahera itself, the site of Siti Nafisah has aceramic levels continuing to 3436(3298)3094 BP (ANU-7786, marine shell), while on Morotai Island to the north, from the site of Tanjung Pinang there are aceramic levels dating up to 4345(4131)3922 BP (ANU-7779, marine shell) and a possibly Neolithic level dated to 3402(3258)3066 BP (ANU-7778, charcoal).

Further east, Gebe Island has produced an aceramic sequence to 3889(3465)2963 BP (ANU-9448, charcoal) at Golo Cave, while the site of Buwawansi 3B has an aceramic assemblage at 4239(3998)3815 BP (ANU-9453, marine shell) and at nearby Buwawansi 5A there is a Neolithic assemblage at 3130(2937)2779 BP (ANU-9770, marine shell). Sadly we lack relevant dates from much of Central and Southeast Maluku, but a notable exception is the site of PA1 on Pulau Ay in the Banda Group, excavated by Peter Lape, which yielded two dates on mammal bone (probably pig) associated with at least one dentate-stamped sherd and obsidian not yet attributed to source: 3827(3375-3363)2870 BP and 3208(2962)2848 BP (AA-33117 and AA-33116). No early Neolithic deposits were noted during our project in the Aru Islands in southeast Maluku. Indeed at Nabulei Lisa cave site pottery only occurred above a date of 2758(2713)2359 BP (OZF249, 2530±60 BP, cassowary eggshell, O'Connor *et al.* 2005: 129), perhaps suggesting that interior populations at this time had no access to pottery.

The impression from these dates is that there is somewhat of a pause between occupation of the Philippines, Sulawesi and the Lesser Sundas and of Maluku just to the east. We might estimate 3,500-3,300 BP in the Maluku case, which would fit with the beginnings of Lapita further east in the Bismarck Archipelago at about 3,300 BP (Spriggs 2003).

Northern New Guinea

Given the Maluku dates we would expect any trace of Neolithic population movement along the north coast of New Guinea to be essentially of the same age as in Maluku and the Bismarcks. As noted earlier, much of this area remains a blank and those areas that are not have produced contentious dates for pottery and other artifacts which are hopefully in the process of being sorted out by new work by an Australian and PNG team. The claims for pottery earlier than any outside of Taiwan have been debated elsewhere (Spriggs 1996, 2003) and I reject them here. This still leaves two (undated) Lapita sherds from near Aitape in West Sepik or Sandaun Province of PNG. They are as likely to represent traded items from the Bismarcks as they are markers of any earlier Lapita spread from the west. It does not seem that they represent the start of a continuous sequence of pottery use to the present in that area.

There is also the problematic site of Wañelek in Madang Province, excavated by Susan Bulmer (1991). The site has never been fully published but some of the charcoal dates must surely relate to the real presence of pottery as early as anywhere in the New Guinea region. Allowing for pottery contemporary with Lapita to the east and Maluku to the west, then dates from Layers 4 to 6 may turn out to be reliable, with a date from Layer 7 of less likely primary association with pottery and putative associations in Layers 9 and 10 being probably the result of pottery intruding from upper levels. The Layer 4 to 6 dates range from 3240(2949)2760 BP to 4072(3465)2854 BP (I-6861 and GX-3227B), the Layer 7 date is 4150(3688-3644)3271 BP (GX-3326), and Layer 9 and 10 dates are 4823(4240)3724 BP and 6445(6281-6214)5951 BP (GX-3333B and I-6860). It is clear that full publication and further work at this site should be a priority for New Guinea archaeology.



Bismarck Archipelago

The evidence from the Bismarcks will be considered in detail in this volume by Summerhayes, and has previously been discussed by Spriggs (2003: 62, 63). My earlier paper broadly supported the ideas of Specht and Gosden (1997) for a beginning to the Lapita culture in the Bismarcks at about 3,300 BP. Kirch (2001) has argued for a somewhat earlier start based on five dates from the Mussau or St Matthias Islands, suggesting Lapita beginnings at 3,550-3,450 BP. The calibrated age range of all five dates continues post-3,300 BP, and this is really an argument around the margins unless it can be shown that the Mussau sites contain a distinctly earlier pottery assemblage on stylistic grounds associated with these determinations. We await further publication of these important sites. The Lapita culture expands beyond the Bismarcks from about 3,150-3,100 BP (Spriggs 1996; and see Bedford, this volume; Sand 1997).

WESTERN ISLAND SOUTHEAST ASIA

I will now return to the more western parts of Island Southeast Asia, which may bear witness to a second Neolithic spread, coming in this case from Peninsular Malaya, and only later merging with or being taken over by Taiwan-derived cultures.

Sarawak and Kalimantan

There are no early Neolithic dates from Palawan, an island stretching between the northern Philippines and Borneo, but current research by the National Museum of the Philippine may clarify the dates for and cultural connections of the Neolithic assemblages there (Szabo *et al.* 2004). Areas of Borneo to the south of Sabah, as indicated earlier, could have been participating in a different Neolithic than that spreading from Taiwan, at least during the earliest phase of the Neolithic. Pottery is cord-marked as opposed to the red-slip pottery derived from Taiwan. This might explain Neolithic dates from Gua Sireh in Sarawak that could potentially be considerably earlier than those in Luzon and eastern Borneo at 4956(4244)3569 BP (CAMS-725) from an AMS-dated rice grain, and 5046(4436-4422)3781 BP and 3893(3449)2949 BP on charcoal (ANU-7049 and ANU-7047). There is also a charcoal date from earlier research at the site which seems a bit of an outlier at 5451(5212-5050)4842 BP (A-283) but does overlap at two standard deviations with two of the more recent dates from there. Clarification of the dating of Neolithic levels at Niah Cave, also in Sarawak, is eagerly awaited from the major research project currently underway there (Barker 2005). At present the earliest acceptable published Neolithic date is that on charcoal from Jar Burial 159, of 3636(3382)3082 BP (GX-1428).

In Indonesian Borneo (Kalimantan), Arifin (2004) has recently reported on a series of cave sites in the Upper Birang River Valley in interior East Kalimantan. Two of these sites are particularly pertinent. From Kimanis Cave, Unit KMS/C4, there is a date in Spit 11 immediately below the first appearance of pottery of 5591(5444-5323)5049 BP (ANU-11148, 4650±90 BP, charcoal). From spit 8 within the pottery levels however came a date of only 1692(1231-1182)690 BP (ANU-11311, 1270±240 BP, charcoal) which might suggest that the pottery was deposited after a considerable period of abandonment of the site (Arifin 2004: 104). At the site of Lubang Puyau a date was obtained from Spit 6, the lowest spit where considerable amounts of pottery were found, of 5591(5315)4885 BP (ANU-11152, 4610±110 BP, charcoal). Potsherd numbers fall off from 77 in this spit to 6 in Spit 7 (Arifin 2004: 252). While the excavator considered that any pottery below Spit 8 was intrusive, it would seem likely that any below Spit 6 is intrusive. The Spit 6 date is itself questionable in that pottery could well have been deposited initially on an old surface where a minor amount of scuffage would mix old charcoal and younger pottery together. ANU-11152 is likely to be even older than the questionable



early date from Gua Sireh. Chazine (2003, 2005) has also worked on sites in East Kalimantan, and obtained a date of 3637(3242-3213)2769 BP (ANU-8570, 3030±180 BP, charcoal) in a fire hollow immediately beneath a cooking pot base at the site of Liang Kaung (Chazine 2003: 44) to the SW of the Upper Birang sites.

The early Neolithic cultural assemblages from Gua Sireh, Niah Cave and the Upper Birang River have in the past been suggested as having more in common with those of the Malay Peninsula and southern Thai Neolithic sites than the other sites in Island Southeast Asia discussed so far (Bellwood 1997: 236-241). In relation to this other Neolithic tradition Bellwood noted that the Malay Peninsula Neolithic was “a completely separate cultural entity from the islands” (Bellwood 1997: 219). The early Sarawak and Kalimantan sites contain cord or basketry-wrapped paddle impressed pottery, and the typically Island Southeast Asian red slip and/or incised wares are virtually absent. Later assemblages seem to fit much better the usual Island pattern, possibly suggesting a change in cultural and perhaps linguistic affiliation over time (cf. Chazine 2003: 49-50). Bellwood noted that there is a claimed Austroasiatic linguistic substratum in some Borneo languages and Austroasiatic influence is also suggested for Sumatra, but may be of much later date (Bellwood 1996: 483). These putative influences would of course provide a further link to Mainland Southeast Asia where languages of this family are found. More recently Bellwood has reconsidered his interpretation and now believes that the links of the earliest cord-marked pottery from Borneo are likely to be back to the Fine Corded Ware of Taiwan, a tradition that occurred in sites in Taiwan along with red-slipped pottery in its latest phases (Bellwood, pers. Comm. 2006). His research on this issue is ongoing.

Sumatra and Java

Despite their size and importance there are no published Neolithic dates for Sumatra, and there are very few for Java. Thus it is not yet clear which Neolithic they participated in during mid-Holocene times — that derived from Taiwan or another derived from the adjacent Malay Peninsula. A recent popular article on the Sumatran rockshelter of Pondok Selabe 1 notes that Neolithic levels there go back to 2,700 BP, with underlying aceramic deposits dating to between 3,000 and 4,500 BP (Simanjuntak *et al.* 2005). The Neolithic pottery included both plain red-slipped and cord-marked vessels, compared by the excavators to styles from Malaysia, Thailand and Vietnam. For the Gunung Sewu area of eastern Java, where red-slipped pottery assemblages typical of the rest of the region have been noted, two early Neolithic dates have been obtained on charcoal: 3810(3469)3215 BP at Song Keplek, and 3469(3318-3265)2952 BP from Braholo Cave (“P3G 1998” given as laboratory code in both cases – Simanjuntak 2004: 17-18). Simanjuntak and Forestier (2004: 107-108, 116) report on a date from an open site of Neolithic age at Purbalingga in Central Java of 4437(3865-3844)3364 BP (no laboratory number given, 3570±210 BP, charcoal).

THE MICRONESIAN WITNESS TO NEOLITHIC EXPANSION

The vast area of Micronesia to the east of Island Southeast Asia and to the north of New Guinea, Island Melanesia and Polynesia is a crucial part of our story. It was clearly settled from several different source areas over a considerable period. The earliest settlements on both archaeological and linguistic grounds are of the Mariana Islands and the Palau group. There is an extensive sequence of dates from the Marianas beginning about 3,500 BP (Amesbury *et al.* 1996; Butler 1994; Craib 1993), and the earliest acceptable dates from Palau begin at about 3,300-3,100 BP (Wright 2005: 52; see also Anderson *et al.* 2005; Liston 2005). This would place both of these island groups as having been settled as early as or, in the case of the Marianas, even a bit earlier than the Lapita sites in the Bismarck Archipelago. Separate migrations from the Island Southeast region are called for by their geographical



locations and linguistic heritage, and these would have been migrations unaffected by contact with pre-Lapita populations of the New Guinea and Island Melanesian region.

The archaeology of the early Marianas sites points to a source area for settlement in the Philippines or Sulawesi, and notable in this respect are the close parallels between early red-slipped Marianas pottery, some decorated with dentate-stamping, and that from Island Southeast Asia at sites such as Batungan 1 and 2 on Masbate in the Philippines (Solheim 1968; cf. Spriggs 2000: 65-66). A similarly detailed picture of the early Palauan assemblages is not yet available, but it is notable that both Chamorro in the Marianas and Palauan are languages of Western Malayo-Polynesian origin rather than being derived from Proto-Oceanic as are all other Micronesian languages. On linguistic as well as archaeological grounds the two cultures have a directly Southeast Asian source.

The linguistic evidence suggests separate origins for the migrants to the Marianas and to Palau from slightly different areas of Island Southeast Asia, or at slightly different times. But what is notable is how similar the Marianas cultural assemblages are to those found to make up the Lapita culture in the Bismarcks. They form a convincing argument against the sometimes-suggested indigenous origin of much of the Lapita culture, out of the pre-existing populations of the Bismarcks and New Guinea (see Spriggs 1997: chapter 4 for a discussion of these views).

There have been arguments for a long-existing “voyaging nursery” in the Bismarcks-New Guinea region giving rise to the advanced sailing techniques of subsequent Lapita colonists further out into the Pacific (Irwin 1992). These lose their force in the face of evidence of direct 1,800 km or so voyaging from the Philippines to the Marianas taking place some hundreds of years prior to that break-out of Lapita from the Bismarcks. These maritime skills are better explained as a legacy of Southeast Asian practices than of any special conditions nurtured over thousands of years in the Bismarck Archipelago. Lexical reconstructions of PMP show that the full outrigger canoe complex, with built-up hull, thwarts, rollers, sail, and cargo (and therefore platform) was already present soon after the colonizing move south out from Taiwan (Pawley and Pawley 1998). Arguments about Melanesian or southern Wallacean origins for various aspects of the Lapita culture that are also found in Marianas assemblages run up against the same problem. They may well be found at pre-Lapita dates in those areas but their origin *within* the Lapita culture can be equally argued as representing Island Southeast Asian ancestry, as intrusion rather than integration in Roger Green’s now-classic formulation (Green 2000).

DISCUSSION: ARCHAEOLOGICAL, LINGUISTIC AND GENETIC ANCESTORS

Recent research in Taiwan, the Batanes and northern Luzon has clarified the derivation of the Island Southeast Asian Neolithic as originating among the Neolithic societies of eastern Taiwan sometime after 4,000 BP. There would also now seem to be enough evidence for the technique of dentate-stamping and even perhaps some aspects of the Lapita design system as being present in Island Southeast Asia and the Marianas just prior to the likely earliest dates for the Lapita culture in the Bismarcks. The Neolithic expansion out of Taiwan to the Bismarck Archipelago may have taken only 500 years between 3,800 and 3,300 BP, suggesting that the “express train” model for its spread (Diamond 1988) is ever more appropriate. The spread of “Neolithisation” through the region appears to have been accomplished by a mixture of population movement from Taiwan, significant recruitment in southern Wallacea and through to the Bismarck Archipelago from populations already living in these areas, and explosive population growth during the expansion and during its eastward extension into previously uninhabited regions of the Pacific with initial Lapita settlement of Remote Oceania.

A major impetus to this expansion may have been the meeting between expanding northern populations with pig, dog and chicken as domesticates and populations to the west of New Guinea already in



possession of many of the domestic crops of New Guinea origin which were to become the staples found at European contact across the Pacific region. Rice and millet were dropped from the menu in southern Wallacea. It is at present unknown whether this was because of climatic constraints on their early varieties or because of lack of acceptance of them by the populations of the area, or both (cf. Dewar 2003; Paz 2002: 279-281).

There was clearly a major re-assortment of the subsistence base in southern Wallacea as the Neolithic expanded, and other additions to the cultural corpus in that area would seem to have included the local flake-blade stone tool complex and earth oven cooking technology (cf. Spriggs 2003: 65). A degree of cultural hybridity may well have occurred with the expansion in the region just to the west of New Guinea, but there is no evidence that it included any significant absorption of local non-Austronesian language inputs in the form of structure or vocabulary. As already mentioned, PMP and POc are extremely similar proto-languages and suggest that the culture that spread from the northern Philippines to the Bismarcks was one carried by monoglot Austronesian speakers whose linguistic roots were firmly placed in Taiwan.

Reconstructions of population history based on genetic studies of the populations resident in the area today are, as noted at the beginning of this paper, currently tentative and contentious. Only a few years ago, the southern Wallacean re-assortment in subsistence and material culture seemed matched by a major genetic input from the same area. This was the position I summarized in 2003 (Spriggs 2003: 64), based on the work of Richards *et al.* (1998) and Oppenheimer and Richards (2001). The coalescence estimates they calculated provided an age for the so-called “Polynesian motif” in mitochondrial DNA of about 17,000 years with a 95% confidence range of 5,500 to 34,500 years, therefore dating its development in Eastern Indonesia to a period prior to the Neolithic expansion. A Neolithic link to Taiwan therefore seemed disproved.

Subsequently, and with additional data, Cox (2005) has refined the coalescence time to 12,000 years, with a 95% confidence range stretching from 1,000 to 23,500 years. This could quite easily mean that this mutation arose during the period of Neolithic expansion and Taiwan ancestry is thus not excluded after all, although Cox's main point is only to show how sensitive such calculations are to sample size. Trejaut *et al.* (2005) also suggest the recent origin of probably Taiwan-derived mtDNA types found in the Western Pacific region. In the same vein but with Y-chromosome data, Cox and Lahr (2006) see evidence of a significant recent Taiwanese genetic input into the populations that expanded into the Pacific. We have doubtless not heard the last word on this southern Wallacea versus Taiwan genetic origins debate. This is because, as noted by Trejaut *et al.* (2005: 6-7), “many populations from island Southeast Asia are still poorly covered.” As well as sample coverage, sample size is also a sometimes-unacknowledged problem. Friedlaender *et al.* (2005: 1514) point out that “reliable coalescence estimates depend on adequate sample sizes as well as clear expansion signatures...especially when analyzing more expanded, older networks, very large samples are required.”

Pawley (2002: 261-262, 268-269) suggests that Proto-Malayo-Polynesian (PMP) was a dialect chain incorporating coastal areas of the Philippines, Borneo and Sulawesi. It broke up into the languages that became Western Malayo-Polynesian (WMP) on the one hand, and Proto-Central-Eastern Malayo-Polynesian (PCEMP) on the other. It is now generally considered that WMP — unlike CEMP — is not a valid sub-group but merely a residual category of unclassified Malayo-Polynesian languages (Blust 1999: 68). As PCEMP and PMP share 98% common vocabulary, the postulated move out of the PMP homeland cannot have been that significant a break — on glottochronological estimates suggested to be 100 years. The earliest Neolithic dates in the Philippines, northern Borneo and Sulawesi may all lie within the period between about 3,800-3,600 BP on the interpretation offered here.



The linguistic split is said to have occurred when a group moved out from Sulawesi to Maluku and then round to the west to reach Timor and the Lesser Sunda Islands. Although PCEMP may have formed a dialect chain which came to embrace this area, on current evidence East Timor was settled by early Neolithic populations before north and central Maluku, and within the same 3,800-3,600 BP period. This would imply an expansion southwards from Sulawesi, continuing the dominant direction of spread out of Taiwan at this time, and then an expansion which reached northern Maluku about 3,500 BP and continued to the east to Cenderawasih Bay in Indonesian Papua, leading to a further split between Proto-Eastern Malayo-Polynesian (PEMP) and Proto-Central Malayo-Polynesian (PCMP). PEMP soon split up when one group moved further east again to develop as Proto-Oceanic (POc) in the Bismarck Archipelago, the Lapita homeland. Subsequent movements out into Remote Oceania at 3,200-3,100 BP represent the latest time for the break-up of POc (Pawley 2003).

It is notable that outside the Philippines-northeast Borneo-Sulawesi axis of initial linguistic spread, areas of WMP-languages provide Neolithic dates starting around 3,500 BP at the earliest and perhaps represent a somewhat later stage of Austronesian dispersal than might be implied by the position of WMP on the Austronesian family tree: Sumatra, east Java, the Marianas and Palau are examples. Other languages of the WMP group such as those on the mainland of Southeast Asia and Malagasy off the coast of Africa represent even later migrations in a westerly direction. Given Bellwood's retraction of his earlier arguments for a link between some Borneo Neolithic assemblages and those of the Malay Peninsula, the status of this area — and by extension Sumatra and parts of Java — in terms of Neolithic and earlier linguistic ancestry is at present unclear and requires further research.

CONCLUSIONS

New data available since 2003 have led me to revise my estimates for the beginning of “Neolithisation” outside of Taiwan, with the possible exception of the Batanes Islands, from 4,000 BP to around 3,800-3,600 BP over an area embracing the Philippines, northeastern Borneo, Sulawesi and East Timor. The area to the immediate east in Maluku, clearly the jumping-off place for the next move to the Bismarck Archipelago, presents dates slightly later at about 3,500-3,300 BP — as do the Marianas and Palau in Micronesia whose initial occupation is derived from the same area as the Neolithic of Maluku, and possibly Java as well to the west. The eastward manifestation of this Island Southeast Asian Neolithic spread is the Lapita culture in the Bismarck Archipelago, probably beginning around 3,300 BP and spreading over a period of some 300 years from the Bismarcks to Tonga and Samoa.

Also since 2003 there appears to be more consonance between the linguistic and genetic modeling of population and languages movements that accompanied this spread. The central importance of crops of New Guinea region origin has been confirmed by recent work. This points to investigations of pre-Neolithic Island Southeast Asian cultures in areas immediately west of New Guinea as being critical in evaluating their agricultural status and their potential pre-adaptation to rapid “Neolithisation” with the addition of a suite of intrusive domestic animals from further north.

Over recent years I have moved away from a simple demographic-subsistence model (Renfrew 1989, 1992) to explain the rapid spread of the Neolithic across this vast region. In 2003 I suggested that another of Renfrew's models might be more appropriately considered, that of elite dominance. While I am sure this is part of the picture, I would now see a more-embracing model of ethnic identity formation as necessary for this expansion. This can be particularly clearly seen in the development of Lapita with its highly-decorated pottery having an important role in the ritual performance of group identity, creating — like the Germanic animal-style in another context — a “universe of shared experience” (Hedeager 2000: 51). This identity was clearly forged throughout the region around the new prestige languages of the Austronesian family, which came to be spoken by people of widespread



geographical and genetic origins. The new languages were used to encode powerful origin myths to unite these disparate populations, and new forms of material culture and technologies — such as pottery — were also significant in creating novel identities.

As we come to appreciate that the spread of the Neolithic in this region was much more a cultural phenomenon than simply a demographic and/or agricultural expansion, there will be much to be gained from an examination of the comparative literature on ethnic identity formation, “the invention of tradition” (Hobsbawm and Ranger 1983; Otto and Pedersen 2005) and “imagined communities” (Anderson 1983). Lapita is an “imagined community” today, brought into being since the 1950s by archaeologists and now of wider salience to communities in the Pacific (Sand 2003). The remains we recognize as this short-lived, extremely homogenous culture that spread rapidly to regions where people had never before lived must surely have represented the invention of a tradition and the creation of an imagined community by its bearers as well. Subsequently that identity fragmented to become the many distinct societies found in the region today.

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NOTES

- i. I realize of course that geneticists may well feel that the same sorts of criticisms can be leveled at archaeologists as well!
- ii. All other dates listed by Spriggs (2003) of claimed early age have problems suggesting them as unreliable, not least excessive standard deviations that sometimes give calibrated age ranges spanning more than 2,000 years!
- iii. Most recently Roberts *et al.* (2005: 310) report that they have “recovered two small pottery fragments from a level dated by ABOX-SC 14C to 6,400 years ago — at least 2,000 years earlier than anticipated under the conventional model of Austronesian dispersal.” Although their text is somewhat open to misinterpretation they do not seem to be suggesting this as representing anything other than post-depositional disturbance and the point of their paper is to call for wider use of luminescence dating directly on pottery fabrics to give more direct dates on pottery introduction to particular sites. One can only concur.
- iv. In the article by O’Connor and Veth (2005; cf. Szabo and O’Connor 2004) much is made of the presence of *Trochus* shell fishhooks in undeniably preceramic contexts and dated directly by AMS. While noting that blanks for making fishhooks have been claimed from sites in the Bismarck Archipelago in early Holocene and Pleistocene contexts (and they could have added Guadalcanal in the Solomons as well: Roe 1993), they are somewhat sceptical of the interpretations in the absence of finished hooks such as they clearly have. This leads them to claim: “This technology may have its origins in early Holocene or even Pleistocene contexts in the rich marine environs of Wallacea” (O’Connor and Veth 2005:



255) and spread from there ultimately to be taken up by the Lapita culture. This would seem a somewhat strong claim given the distribution of what may well turn out to be hook blanks over a wide area of Island Melanesia — why must we assume an origin at the western end of our distributions all the time? It also meets the problem that such hooks are found in the earliest Neolithic of Taiwan, and were presumably in that case derived from the Neolithic of southern China rather than Wallacea (Bellwood 1997: 235). As I argued in 1996 in relation to a range of artifacts which occur in widely-separated areas and cultures, it is not possible to be firm about the source in later cultures such as Lapita, given that aspects of the Island Southeast Asian Neolithic derived from Taiwan are at the core of the Lapita culture in the Bismarcks (Spriggs 1996). Such artifacts may be integrated into the Lapita culture from the pre-Neolithic cultures of the region, or even picked up in Wallacea, but they may equally on current evidence have been intrusive and ultimately from the original Taiwan homeland.

- v. It has always seemed strange to me that geneticists have been able to argue broad patterns from extremely small samples of a few individuals, while the rest of us are always being told to beware of conclusions based on inadequate sample size. Now it seems that the geneticists are not so different to the rest of us after all!

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FIGURE 1



Neolithic sites in Island Southeast Asia mentioned in the text

文中提及在島嶼東南亞地區的新石器遺址分佈圖

新石器時代南島語族

在島嶼東南亞以及進入大洋洲的擴展

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引言

早期關於南島語族擴散的研究，大多以大洋洲諸島為主。近年來開始轉向島嶼東南亞的考古研究，使這個議題的研究重心稍獲平衡。關於大洋洲的研究，從早期六〇年代專注於斐濟（*Fiji*）和西玻里尼西亞（*West Polynesia*），到西元一九八五年由澳洲國家大學國家地理協會所執行的Lapita文化原鄉計畫，轉為著重於在緊鄰於新幾內亞群島（*island of New Guinea*）東邊之俾斯麥群島（*Bismarck Archipelago*）找出Lapita文化的起源的議題（見本論文集集中 Summerhayes專文）。近幾年來，萬那度（*Vanuatu*）和新喀里多尼亞（*New Caledonia*）的中部區域開始成為研究目標（另見本論文集集中Bedford專文及Sand 2000）。

有關島嶼東南亞考古研究的步伐直到最近一直處於發展較為緩慢的局面。在此區域相關的遺址所做的研究，不論是針對廣泛的問題範疇，或是尋找更新穎的研究方法，通常是斷斷續續且單獨進行。造成這種情況的主因是發展中國家政局並不穩定，而且考古研究單位經費經常不足。相較於這類情況，臺灣（*Taiwan*）對考古研究則投注相當多的心力與資源，比起同區域中的其他任何一個國家，臺灣具有較成熟的研究發展。目前島嶼東南亞區域考古學明顯的日趨成熟，一方面國家機關藉著和國外大學、研究機構之間的互相合作，提升在國際上曝光的機會，另一方面也藉此提升研究能力和改善研究方法。國際合作研究的結果，使得過去十年左右考古發掘計畫所涵蓋的地區更加廣泛，並投注更多心力於新石器時代初期的詳細碳十四定年。

島嶼東南亞的考古學研究，大大地受惠於 Peter Bellwood 關於南島語族擴展所做的考古學綜論（1978，1985，1997）。然而 Bellwood 論述中的範圍，若不是極具地方性就是分布不均，且其所採用的模型傾向將有關新石器時代擴展先後的細節問題縮到最小。這些正是本文所要討論的。



目前我們對於南島語族擴散先後及速度的瞭解，比 Bellwood 於西元一九九七年所出版的「印度—馬來西亞群島史前史」（*Prehistory of the Indo-Malaysian Archipelago*）時還要更進一步。自該書出版後，陸續有新的文章發表及開始新的研究計畫，著手進行相關議題的研究。包括臺灣和北菲律賓（*northern Philippines*）（參見論文集集中劉益昌和臧振華的專文）、沙勞越（*Sarawak*）的 Niah Cave（Barker 2005；Barker *et al.* 2002）、蘇門答臘（*Sumatra*）（Forestier *et al.* 2005；Simanjuntak and Forestier 2004）、爪哇（*Java*）（Simanjuntak 2002）、印尼蘇拉威西北部（*Northern Sulawesi*）和相鄰海島（Tanudirjo 2001）、印尼北馬魯古（*Maluku*）（Bellwood *et al.* 1998）、東南馬魯古的雅如群島（*Aru Islands*）（O'Connor *et al.* 2005），以及東帝汶（*East Timor*）（O'Connor *et al.* 2002；O'Connor and Veth 2005；Spriggs *et al.* 2003）。在關於更新世年代順序重大結果出現之後，我們也迫切期待關於弗洛瑞斯（*Flores*）的梁布亞島（*Liang Bua*）新石器時代層位方面的研究，能有更詳細的結果報告出現（Morwood *et al.* 2004；Morwood *et al.* 2005）。

至今對新幾內亞群島的研究仍舊缺乏，是我們了解這區域的最大阻礙。儘管有些研究計畫正在進行，很不幸地這區域仍孤立於東南亞、美拉尼西亞及西大洋洲諸島等「熱門遺址」的區域性研究之外。最近，首篇關於巴布亞省（*Papua*）（之前的印尼伊里安查亞[Irian Jaya]省）的重大研究終於發表（Pasveer 2004；Pasveer *et al.* 2002），大大闡明了新幾內亞高地身為早期農業發展階段上重要的自主中心，並說明該高地在考古學上的重要性（Denham *et al.* 2003；Denham *et al.* 2004）。而在巴布新幾內亞（*Papua New Guinea*）北海岸持續進行的研究，亦有助於釐清當地早期文化的先後順序（說明參見 Fairbairn 和 Swadling 2005）。

當然，考古研究不是重建這個區域史前史的唯一資料來源。儘管有些非語言學家依據不正確的消息來源提出批評，語言學家重建的南島語族語言發展階段、語言擴散及傳播的順序，與幾十年前所闡述的內容差不多（Pawley and Ross 1993；Pawley 2002）。然而可以確定的是，目前用來驗證地區人口史的方法上，遺傳學仍是個結論善變的研究。儘管開拓遺傳學領域的先鋒和擁護者並不這麼認為，但就所涵蓋的區域、成型時間以及過程所建構的模式看來，很明顯地遺傳學仍處於尚未發展成熟的階段。西元二〇〇五年我們再一次目擊遺傳學在島嶼東南亞人口史的看法上發生重大逆轉（Cox 2005；Cox and Lahr 2006；Trejaut *et al.* 2005），但這些最新的改寫出現時，考古學家很難掌握這項關於基因研究最新修訂版結論的重要性為何（如在 Hurler 2002；Hurler *et al.* 2002；Oppenheimer and Richards 2001所概述的），令人懷疑它根本不是最終版本¹。

我自八〇年代起便蒐集當前最新的研究，期盼有助於我們對這個區域新石器時代時間轉折點有更深入的理解（Spriggs 2003）。誠如上述各項計畫所指出的，這個區域新的考古證據及遺傳學研究結果都必須列入考慮之內。本文的目的並不是要提出各個遺址的詳細碳十四證據——相關內容筆者已在之前的文章中著墨過——而是試圖討論最新的研究結果和新石器時代擴展時間的模式之間關聯為何。我將簡要的回顧一般在區域相關研究中對新石器時代的定義，以及為什麼 Peter Bellwood 和我會認為新石器時代的擴展和南島語族語言傳播是同樣的社會過程。

新石器時期的島嶼東南亞及南島語族語言

島嶼東南亞和西大洋洲諸島界定新石器時代一向以陶器的出現為主，後轉以農業和家畜等遺留為直接證據。最近的研究趨勢又開始轉向對澱粉殘留、植物化石、花粉和微生物遺骸、古



代 DNA，以及對農作物遺留、家畜骨遺留和物質文化遺留進行 AMS 定年（Paz 2002，2004）分析比較。這些研究傾向支持先前根據陶器所得的結論，證實早期使用陶器的聚落過著農耕的生活。不過，這並不代表這個地區的聚落在開始使用陶器之前沒有農耕行為。也許選擇用陶器作為定義新石器時代的特色會是一個適當的選擇，如同 Julian Thomas 在他關於英國新石器時代的討論中指出：「並非人工製品在新石器時代出現，而是它們自己本身構成了新石器時代」（1997：59）。按照 Thomas 的思路，我們對於一系列新出土的物質文化遺留，譬如陶器和新貝飾等的解釋便會是：「經由它們在日常生活中持續的出現與存在，物質文化遺留不僅轉換社會及經濟的關係，同時也提醒我們事物已經有所改變了」（同上：63；參照 Thomas 2001）。

我的重點是，至少就目前而言，我們應該將「生計型態改變」和從之而來的「新石器時代化」文化改變這兩件事分開來看，因為它們極有可能是以不同的步調進行。的確，就我們當前所掌握到關於植物耕種以及農業傳播的證據來說，從新幾內亞農業中心向西穿越島嶼東南亞的傳播，時間上出現在用物質層面所定義的新石器時代之前。西元一九九六年筆者根據最新的新幾內亞高地研究結果，提出了此一可能性之後，Denham 根據最近在新幾內亞高地的研究結果，也覆議支持（Denham 2004；Spriggs 1996：335，338）。根莖類作物是稻穀類植物之外另一種重要食物來源，甚至取代了從中國傳來種植小米、大米的整套種植技術。從生態學的角度來看，從穀物到根莖類作物的農業轉移，有可能是因為新石器時代人群搬離最適合栽種多種稻米和小米的地理區域所帶來的改變（Dewar 2003），或是受到南華萊士區（*southern Wallacea*）主要文化重整等因素的影響（參考 Spriggs 2003：65）。

島嶼東南亞的新石器時期以及它向東發展成為西大洋洲的 Lapita 文化，與同一區域範圍內南島語族的語言傳播方向相對應。如果我們倒過來，從東向西來看，會發現南島語族語言僅出現於沒有前 Lapita 文化聚居證據出現的西大洋洲地區，如萬那杜、新喀里多尼亞、斐濟和西玻里尼西亞等地。這些地區的早期居民使用接近於原大洋洲語（POc）階段的語言，就語言學而言，這種語言也曾出現在緊鄰新幾內亞東邊的俾斯麥群島上。就我們所知，俾斯麥群島是最早發現 Lapita 文化遺址的地區，年代比萬那杜和新喀里多尼亞出現的 Lapita 遺址只早了二或三百年（Spriggs 2003）。要推翻「原大洋洲語是最早的 Lapita 文化語言」此一推論並不容易。

姑且不論新幾內亞北部沿岸在年代關鍵點上缺乏考古證據這件事，當我們回到新幾內亞西邊的馬魯古、蘇拉威西和小巽它群島（*Lesser Sunda Islands*）等海島時，我們可以再次追溯年代比俾斯麥群島的 Lapita 文化還早數百年的島嶼東南亞新石器時代足跡。同樣，如果我們就語言學層面來追溯原馬來—玻里尼西亞語（PMP），我們也會發現它與原大洋洲語並沒有太大的差異，且共享高達百分之八十八的字彙。根據語言學家所能作最為恰當的推測，此一相似度顯示這兩種語言之間的年代，間隔大約六百年（Pawley 1999：125，2002：262；基於 Blust 1993 的作品）。在俾斯麥群島 Lapita 文化遺址出現之前，若是也有一段類似的時期，那麼我們將得到距今約四二零五十年至三千九百年前這樣的年代。如下文所示，這個年代確實是落在臺灣南部、菲律賓巴丹島（*the Batanes*），及呂宋島（*Luzon*）新石器時代遺址年代的範圍內。根據最新從北菲律賓最早期新石器時代至俾斯麥群島聚居的考古學證據，或許有人會建議，原始馬來—玻里尼西亞語和原始大洋洲語之間的時間應是四百至五百年，會是一個更為恰當的估計（參見下述）。根據 Pawley（2002：262）提出的證據，原始大洋洲語和原始中央東部馬來—玻里尼西亞語（PCEMP）之間共有的詞彙量達百分之九十三，這代表了三百五十年左右的間隔，而原始中央東部馬來—玻里尼西亞語和原始馬來—玻里尼西亞語之間共有的詞彙量達百分之九十八，代表有一百年的間隔，二者加起來為四百五十年左右。



有一個較受矚目的論點：原始馬來—玻里尼西亞語是除了臺灣南島語之外，所有南島語言的祖先。因此，它應該是新石器時代最早在這個區域的聚落所使用的語言。基於在臺灣的南島語族使用其他九個主要原始南島語亞群語言，一般認為，原始馬來—玻里尼西亞語是一群移出臺灣後，定居在菲律賓巴丹島，之後再往南到菲律賓北部呂宋島的殖民群所發展出來的，而這樣的假設應該不至於偏離事實太遠。有鑒於南島語族中語言最分歧的地方在臺灣，那麼任何一個牽涉到南島語系及新石器時代文化傳播的模式，都必須能說明臺灣最早出現的新石器時期應該遠早於在臺灣以南的其他地區，而事實上也的確早了大約一千年或兩千年左右。換句話說，南島語分支的分歧性和模式，完全反映在島嶼東南亞和西大洋洲陶器文化前的新石器時期年代順序和模式上，一個模式循著另外一個。到目前為止，唯一經調查後發現實際情形並非如此的地區只有婆羅洲（*Borneo*），根據語言學和考古學的證據（見下文），這個地區在更早的時候出現了另一波獨自發展的新石器時代人口移動，其與南亞語系通過馬來半島的分歧傳播有關。因此我們可能有必要討論島嶼東南亞的「多個新石器時期」。

想藉由鑑定新石器時期各個遺址來取得人類活動的開始年代，絕不是那麼容易的一件事。遺址受到擾亂、出土層位混淆的木炭標本、「古木材」的問題、不適當的碳十四標本選擇、實驗室所造成的誤差、化驗前標本處理的不足、海貝遺留的再結晶作用、少量標本在定年時使用過度的標準差，以及我在其他討論「精密年代測定法」的文章中所列舉出的種種因素，都會造成誤差（參見 Spriggs and Anderson 1993；Spriggs 1989，1999）。Woodman 也提到，任何聲稱為「最早的年代」，譬如新石器時代的起始點之類的，有可能只是呈現出一批碳十四年代中的離群值，而非正確的年代（Woodman 2000：233）。這樣的問題顯示出，無論是對哪個遺址進行年代測定，對每一個碳十四年代都應保持謹慎、懷疑的態度。

研究者似乎常常忽略一個重點：提出例外的理論時，需要支持例外的證據來支持。當大家沒有立即接受他們對於年代特別早的陶器、豬骨或金屬遺留所下的斷言時，他們就覺得不可思議或被冒犯。仰賴已成通則的定年是較可靠的，不管在任何地區，仰賴比通則還早的年代，通常到後來都被認為是非常草率的作法。近年來，在島嶼東南亞及大洋洲諸島年代順序這個議題上，明顯地出現精益求精的現象（相關討論請參見 Hogg *et al.* 2003；Spriggs and Anderson 1003），公認最早的新石器時代的臺灣和菲律賓（比如說將 Spriggs 1989 與 Spriggs 2003 做比較）看來好像都是這樣。

在我之前所發表的幾篇文章中，除了是在二〇〇三年的那篇文章之後才取得數據的標本之外，曾為如何判定個別的定年標本——無論是採納或反駁——作出詳細的辯證（特別是在 Spriggs 2003）。接下來，我要討論的是當前的形勢，因為這有關於新石器時期在臺灣及其之外地區的擴展。臺灣新石器時期的開端大約距今六千至五千五百年前，可能主要源自中國大陸廣東省的珠江三角洲一帶（*the Pearl River Delta of Guangdong Province*），相關討論請參考本論文集劉益昌先生和臧振華先生的專論。臧振華先生提到，在臺灣東海岸所出現的素面紅陶以及其他考古材料，與在呂宋島北部發現的史前遺留很相似，距今大約四千年前而且不會更早，我們因此可藉這些資料論證新石器時期文化在臺灣以外擴展年代的上限。

由證據中所呈現出來的模式

我們首先來看菲律賓、婆羅洲東北部（沙巴島 [*Sabah*]）、蘇拉威西、小巽它群島、馬魯古、新幾內亞和俾斯麥群島在新石器時代的擴展模式，並就語言學上的演變順序作比較。其餘如婆羅洲群島（馬來西亞的沙勞越以及印尼的卡里曼丹 [*Kalimantan*]）、蘇門答臘和爪哇（圖



一)，由於截至目前為止，若不將地理面積大小和人口數列入考慮的話，能夠證明新石器時代開端的碳十四年代測定出土非常少，這也意味著這些海島擴展的模式方向仍不明，因此要詮釋它們也特別的困難，我們暫時先分開考慮。

以下所有報告的年代皆以兩倍標準偏差（百分之九十五的信賴區間）做校正，並將海洋性生物標本 ΔR 標準值設為 0。關於標本較完整的文獻與方法的討論，請參考 Spriggs（2003）發表的論文，本文中關於年代和相關的出版品詳述的部份僅限於以前文獻未曾提及的標本。

菲律賓

巴丹群島在新石器時期早期扮演著初代移民自臺灣移至呂宋島之間的墊腳石（Bellwood and Dizon 2005）。我們從位於伊特巴亞特島（*Itbayat*）上的 Tarongan 洞穴遺址獲得了六個代表最早期殖民階段、素面紅陶出現的年代：4502（4254）4019 cal BP 到 3316（3209）3108 cal BP（OZH 771，3860 \pm 70 BP，陶罐內食物殘滓；WK-14641，3352 \pm 35 BP，螺殼遺留）。其出土之文化內涵是洞內貝塚遺留；又或許陶罐是放置在竹棚上，和上層層位沖刷入洞的土壤混合後產生的（Bellwood, pers. comm. 2006）。可以想見，這樣的堆積狀態必然會有一、兩個年代在順序上呈現相反的情形，不過，貝類標本和陶罐內食物殘滓等定年標本證據，清楚地告訴我們這些物質文化遺留是人為造成的堆積。Bellwood 和 Dizon（2005：23）認為，仍需要注意食物殘留是否曾經或多或少遭受到污染。就這一點而言，他們認為沒有，他們並且認為若將巴丹島島上較晚期的 Sunget 遺址也納入一同來看的話，新石器時代早期的巴丹島會是南島語族在距今四千五百年到四千年前，臺灣之外最早的殖民地。

不過，這仍只是根據一個年代證據所下的判斷。另外，六個年代中次早的年代則晚於距今四千年前：校正後年代為 3954（3834）3716 BP（OZH-772，3880 \pm 40 BP，玉黍螺科 [*Tectarius*] 貝殼遺留）。由於從食物殘留所測得的年代頗受爭議，我認為更準切的初代殖民年代需以海貝遺留年代為主會比較保險一點。Anderson（2005）對於從巴丹島出土的食物殘留和海貝遺留所測定的年代則抱持著懷疑的態度，他認為新石器時代移民的日期是要更晚，近到距今兩千七百五十年左右，要比北呂宋島的遷移更晚。在這個案例裡，我認為他的預測有點過於嚴苛。

殖民聚居的方向可以從 Tarongan 遺址和 Sunget 遺址出土的陶器形式、Tarongan 遺址出土的臺灣型腰狀石鋤、Sunget 遺址出土的臺灣軟玉和板岩製品，以及 Sunget 遺址出土的臺灣型雙凹面紡輪和凹口石網墜（Bellwood and Dizon 2005：31）等考古材料上看出。一般認為，這批陶器可以與位於臺東地區、年代校定後為 4235（4089）3930 BP（WK-17011，3736 \pm 43 BP，木炭遺留）的 Chaolaiqiao 遺址出土陶器作比較（Bellwood and Dizon 2005：8）。

最近由菲律賓國家博物館、臺灣和日本研究員所組成的國際研究團隊，在北呂宋島卡加煙（*Cagayan*）河谷及其週邊，展開一連串針對露天貝塚遺址的調查工作。由於菲律賓—臺灣研究團隊一同合作調查的遺址可能遭受到擾亂，且缺乏適合用來測定年代的木炭標本，因此在測定 Miguel Supnet 和 Leodivico Capiña 開始出現陶器的年代上有點困難。誠如臧振華先生在本論文集集中所提到的，目前大概只有 Nagsabaran 遺址能夠提供較確切的年代，校正後為 3830（3692）3590 BP（NTU-3799，3450 \pm 40 BP，木炭遺留），以及 3977（3636）3359 BP（GX-28381，3390 \pm 130 BP，木炭遺留）。自遺址的底部出土的、來自臺灣的玉



飾，直接將呂宋島與假設的原鄉連接起來。值得注意的是，在各層位出現的陶片中含有帶梳點壓印紋、且部份帶有一般稱為「石灰或是白黏土填入」裝飾技術的陶片，這可能代表了其中有描繪裝飾的陶器（參見 Bedford 2006 關於 Lapita 陶器的論述）。若是能對該遺址作進一步的定年，並加上釐清 Lapita 紋飾設計系統起源可能代表的意涵為何，簡單的梳點壓印紋母題將可說明這個地區的陶匠開始應用這類裝飾技術的最早年代（關於島嶼東南亞的前 Lapita 陶器梳點壓印紋飾的細節討論，參見 Spriggs 1989, 2000）。

另一方面，菲律賓－日本團隊在卡加煙河谷 Pamittan 遺址的調查結果，目前為止已經發表的資料仍然相當稀少，但知有兩件與陶器一同出土的木炭標本，其年代看似相當於 Nagsabaranu 遺址的年代，儘管年代採用的標準差範圍太大，所測得的結果並不夠嚴謹：4827 (4225-4155) 3641 BP (Gak-17967) 和 3889 (3636) 3391 BP (Gak-17968)。此外，對自 Andarayan 遺址出土的稻米遺留進行 AMS 定年，獲得年代為 3977 (3675-3638) 3364 BP (RIDDLE-? 無實驗室號碼)；以及另一件與陶器一同出土的標本所獲得的年代為 3837 (3466) 3076 BP (SFU-86)。其他與新石器時期年代較相近的遺址，例如馬斯貝特 (*Masbate*) 島的 Bagumbaya 遺址，年代為 3722 (3505) 3325 BP (Har-4805) 以及 3536 (3379) 3256 BP (Har-4806)，而在 Negros 島的 Edjek 遺址，年代為 4414 (3716-3700) 3170 BP (Beta-1117)。不過這些年代採用的標準差範圍還是太大，精確度仍有待研究ⁱⁱ。

婆羅洲東北部 (沙巴島)

婆羅洲東北部的的主要遺址為 Bukit Tengkorak 遺址，最初由 Bellwood 進行發掘，後由 Stephen Chia 接續發掘工作 (Bellwood and Koon 1989; Chia 2001, 2003)。對於這個遺址特別需要注意的是，Bellwood 曾發掘出一件製作精細且飾以類似 Lapita 紋飾的梳點壓印紋陶器，另還有來自俾斯麥群島的黑曜石。我們能夠清楚的看出，這個遺址和俾斯麥群島曾經有接觸往來，並且與 Lapita 文化同年代。根據它的文化和生計遺留，可將它稱為 Lapita 文化的「邊陲地帶」（參見 Ono 2003: 196, 198）。出土陶器和黑曜石層位的年代為 6291 (6170-6004) 5922 BP (Beta-83785)，然而這些遺留有明顯向下方層位移動的跡象，相較於同層位或更早的層位中所出現的一萬五千九百三十八件陶片標本，這個層位只出土了一百七十七件，連百分之一點五都不到 (Chia 2001, 2003)。其他新石器時代的年代可信度比較高，早期層位的年代範圍為 4091 (3630-3588) 3084 BP (ANU-10958) 到 3241 (3154-3078) 2948 BP (OZD-767)。

塔勞德 (*Talud*) 和蘇拉威西

Leang Tuwo Mane'e 遺址位於南菲律賓和蘇拉威西大島嶼之間塔勞德島上，由 Daud Tanudirjo 重新進行發掘，將該遺址的新石器時期聚落年代定在 4901 (4800) 4557 BP (ANU-10211) 到 3802 (3602) 3433 BP (ANU-10209)。Bellwood 在原先屬於新石器時期之前的文化層，年代為 5476 (5213) 4819 BP (ANU-1717) 的堆積上方層位，測得年代為 4271 (4059) 3827 BP (ANU-1515)，然而證據顯示該層位曾遭到擾亂，因此早期陶片遺留有可能是因擾亂落入該層位 (Spriggs 1999: 19)，而不是該層位中原本的堆積。這些年代都是從海貝遺留所測得，因此缺乏特定的區域校正值可供對照。這些年代數據可能必須對應到更進一步約一到兩百年上下的定標數據後的校正值。我在之前發表的文章中 (Spriggs 2003: 61) 曾提到，從蘇拉威西的 Ulu Leang 1 遺址獲得的那兩個與新石器時代有關的假設年代——早於距今四千年前——可信度很低，陶片些微向下位移將近二十公分可為此提出



合理的解釋。而 Ian Glover 取得的新石器時期的遺址年代為 4227 (3833) 3475 BP (PRL-230)，看起來似乎比較可靠。雖然並非是經過恰當定年的遺址，我們仍須注意在蘇拉威西中部 Kalumpang 的 Kamassi 遺址遺留，包含了許多特殊臺灣型的物質文化遺留 (Bulbeck and Nasruddin 2002: 86)。Bulbeck 和 Nasruddin 將 Kamassi 遺址年代暫時定為「距今三千多年前」(同上)。

小巽它群島

除了東帝汶之外，小巽它群島上所能提供的新石器時期年代相當稀少。到目前為止，只有 Flores 島的 Liang Bua 遺址提供一個新石器時期的年代，約 4565 (4232-4160) 3869 BP (GrN-14304)，但尚無可利用的出土文化內涵細節內容。Liang Bua 遺址是一項主要由印尼—澳大利亞跨國研究團隊進行中的研究主題 (Morwood *et al.* 2004; Morwood *et al.* 2005)ⁱⁱⁱ。在 Sawu 島的 Lie Madira 遺址中，僅在接近地表、校正後年代為 5281 (4973) 4805 BP 的層位中，有出現陶片遺留 (ANU-11008, 4750 ± 90 BP, 鐘螺科 [*Trochus*] 貝類遺留; Mahirta 2003: 121)。在 Roti 島的 Lua Meko 遺址中發現兩件陶片標本，但經發掘者判斷是自地表擾入 (Mahirta 2003: 98)。如此看來，陶器的使用是在校正後的洞穴遺址年代——最早可追溯至 5275 (4946) 4733 BP ——之後才發生的 (ANU-10910, 4720 ± 100 BP, 鐘螺科 [*Trochus*] 貝類遺留; Mahirta 2003: 99)。

自西元兩千年以來，澳大利亞研究團隊接續從六〇年代起，由葡萄牙和澳大利亞研究員在東帝汶進行的研究工作，這個研究工作仍繼續進行。對一系列屬於新石器時期之前的沿海貝塚遺址文化層進行抽樣調查，目前獲得 Kusu 遺址的年代為 3837 (3681) 3542 BP (ANU-11629)、Tim 46 遺址年代為 4418 (4237) 4058 BP (ANU-11403)，以及 Tim 51 的遺址年代為 3640 (3478) 3361 BP (ANU-11396)。我曾在二〇〇三年提出，Glover 早期推測出的年代並不嚴謹，因為他所採用的三個新石器時期遺址，其層位皆已受到擾亂；而對於他所提出 Lie Siri 遺址年代為 4151 (3832-3784) 3481 BP (ANU-172) 和 4085 (3829-3780) 3575 BP (ANU-235) 的說法，就我看來，其年代範圍支持此遺址的陶器引進時間大約是距今約四千一百年到三千五百年前之間。而最近我們在 Matjakuru 2 遺址的墓葬中出現犬骨遺留，進行測年後獲得年代為 3337 (3160-3081) 2952 BP (WK-10051)。可以確定這個年代是新石器時期的年代，因為狗在這個地區是屬於引進的家畜。Matjakuru 1 遺址遭受相當嚴重的干擾，但年代仍可追溯至 3972 (3807) 3614 BP (ANU-11632)，可以很明顯的看出是屬於新石器時期之前的文化層位。

自 Lene Hara 岩洞遺址所獲得的新石器時期晚期年代順序，在我西元二〇〇三年的論文中曾提及，並在最近正式發表 (O'Connor and Veth 2005)。大量且連續的年代順序顯示，最早的陶器出現在第十七層，藉由上層第十六層所測得的年代為 3979 (3815) 3624 BP (ANU-12041, 3850 ± 70 BP, 海貝遺留)，我們可以推算出大概的年代。由於發掘人員曾提到，最底層出土的陶器來自「不同的細沙礫層之間、橫向不連續且稀薄的灰燼堆積層」，且該層位還曾遭受小規模的擾亂也必須列入考量之中 (O'Connor and Veth 2005: 250)，這意味著陶器引進的確切年代，比相關遺留所提供的年代再稍微晚一點。在屬於先陶時期的第二十層所測得的年代為 4722 (4505) 4341 BP (ANU-12042, 4370 ± 70 BP, 海貝遺留)。就第十層而言，陶器年代在 3594 (3154) 2716 BP，這是目前大家所能接受的年代 (ANU-12136, 3305 ± 190 BP, 海貝遺留)。陶器在距今三千八百年至三千六百年前左右被引進東帝汶，這個年代的判斷似乎是合理的，這也和菲律賓、東婆羅洲到蘇拉威西等可能的年代範圍非常接近^{iv}。



馬魯古

Uattamdi 遺址是位在離北馬魯古哈馬赫拉 (*Halmahera*) 島外海不遠的Kayoa島上，其文化層位於原始砂層的上方，類似曾出現在俾斯麥群島 Lapita 文化遺址的新石器時期遺留。這個遺址形成的時間看起來並不長，且伴隨著小部份的擾亂。和之前提到自貝類遺留所取得的碳十四年代資料庫遺址一樣，此地一些定年標準也會在將來進行些微的調整。底層的海沙層年代為3575 (3399) 3257 BP (ANU-9321)，而兩件自文化層出土的木炭標本，其年代測定為：層位深度十五至二十公分的年代是 3339 (2951) 2749 BP (ANU-10957)、層位深度五至十公分的年代是 4073 (3683-3640) 3359 BP (ANU-10959)。這些年代數據以兩倍標準偏差校正後並不完全重疊，在深度十五至二十公分層位中發現年代 3564 (3325) 3019 BP 的海貝遺留 (ANU-7776)。哈馬赫拉島的 Siti Nafisah 遺址一直到 3436 (3298) 3094 BP (ANU-7786，海貝遺留)，都還是屬於新石器時期之前的文化；而在摩洛泰島 (*Morotai*) 以北的 Tanjung Pinang 遺址中，屬於新石器時期之前的文化層年代為 4345 (4131) 3922 BP (ANU-7779，海貝遺留)，另一個可能是新石器時期的文化層年代則為 3402 (3258) 3066 BP (ANU-7778，木炭遺留)。

再往東一點是 Gebe 島，在島上的 Golo 岩洞中發現一個屬於新石器時代之前的文化層，年代為 3889 (3465) 2963 BP (ANU-9448，木炭遺留)；另外在 Buwawansi 3B 遺址也發現了一個年代為 4289 (3998) 3815 BP (ANU-9453，海貝遺留)、新石器時期之前文化的考古材料；而附近的 Buwawansi 5A 遺址則出現了一個年代為 3130 (2937) 2779 BP (ANU-9770，海貝遺留)、屬於新石器時期的考古材料。可惜的是，我們仍然缺乏大部份中部和東南部馬魯古相關遺址年代，唯一的例外是 Peter Lape 在班達 (*Banda*) 島群 Pulau Ay 島發掘出的 PA1 遺址，在此遺址有可能是豬的哺乳動物遺留，伴隨著至少一片梳點壓印紋陶片以及尚未認定來源的黑曜石一起出土。對哺乳動物骨骼遺留進行年代測定後獲得兩個年代，分別是：3827 (3375-3363) 2870 BP，以及3208 (2962) 2848 BP (AA-33117 和 AA-33116)。我們在位於東南馬魯古的雅如群島進行研究計劃期間，並沒有發現任何新石器時代早期的堆積。事實上，在 Nabulei Lisa 洞穴遺址中出現的陶器年代皆比 2758 (2713) 2359 cal BP 還晚 (OZF249, 2530 ± 60 BP, 食火雞蛋殼遺留, O'Connor *et al.* 2005: 129)，這可能表示此時該島上內陸地區的人口尚未有機會接觸到陶器。

將這些年代彙整後所得到的結果是，在菲律賓、蘇拉威西、小巽它群島和馬魯古以東部之間的殖民聚居有部份中斷的跡象。就馬魯古的例子看來，我們估計中斷年代大約在距今三千五百年至三千三百年前，此一時間點與約距今三千三百年前出現的、更東部的俾斯麥群島 Lapita 文化起點相符合 (Spriggs 2003)。

北新幾內亞

有了馬魯古遺址年代後，我們便可以預期新石器時期沿著新幾內亞北海岸移動的人口變遷，在時間上來說，馬魯古和俾斯麥群島是一樣的。誠如上述，這個區域大部份仍缺乏考古證據，在沒有出現過具爭議性的陶器或其他物質文化遺留年代遺址，目前則期望澳大利亞和巴布亞新幾內亞的研究團隊能在新的研究工作過程中，將正確的年代整理並釐清出來。之前有幾篇論文主張某些地區的陶器出現年代早於臺灣 (Spriggs 1996, 2003)，我並不贊成。不過即使如此，仍有兩件 Lapita 陶片出土自 PNG 西部的 Aitape 遺址和 Sandaun 省的 Sepik 遺址



（尚未定年）。而它們若不是自西部傳播而來的早期Lapita文化標誌，便有可能是與俾斯麥群島的居民進行交易時所取得的物品，它們並不能算是在該地區使用陶器延續至今的開始年代。

另一個有問題的遺址是 Susan Bulmer (1991) 在馬當 (Madang) 省的 Wañelek 所進行發掘的遺址。這個遺址從未有完整詳細的內容發表，但幾個已知的年代，必定與新幾內亞地區陶器真正出現的時間有關。若將此地的陶器與以東的 Lapita 陶器和以西的馬魯古陶器視為同時期的話，則可證明第四層到第六層的年代是可靠的，加上第七層中出土一件與陶器關聯較不明確的一件標本，在第九層、第十層中推測出與陶器有關的遺留也可能是陶器從上層陷入的結果。第四層到第六層的年代範圍從 3240 (2949) 2760 BP (I-6861) 到 4072 (3465) 2854BP (GX-3227B) 之間、第七層的年代為 4150 (3688-3644) 3271BP (GX-3326)，第九層和第十層的年代為 4823 (4240) 3724 BP (GX-3333B) 和 6445 (6281-6214) 5951 BP (I-6860)。對於新幾內亞考古學來說，當務之急是儘速發表清楚完整的報告，以及在這個遺址上進行更進一步的研究工作。

俾斯麥群島

關於俾斯麥群島的考古證據在本論文中將會由 Summerhayes 詳加敘述，亦可參見我先前所作的討論 (2003: 62, 63)。我早期發表的論文支持 Specht 和 Gosden (1997) 的看法，認為俾斯麥群島的 Lapita 文化起始點約在距今三千三百年前。Kirch (2001) 根據從 Mussau 或聖馬提亞島 (St. Matthias) 所獲得的五個年代，認為應有一個更早的起始點，提議將 Lapita 文化起點設在距今三千五百五十年至三千四百五十年前，校定後的年代範圍為從距今三千三百年前開始往後算起。不過，除非能夠證明自穆埭遺址出土中導致這種判斷的陶器，就風格上來說是明顯屬於更早時期的陶器，並且與這些定年標本確切相關，否則這也不過是個討論邊際值的爭辯罷了。我們期待在未來能有更多關於這些重要遺址更進一步的研究結果發表。Lapita 文化在俾斯麥群島之外的擴展從大約距今三千一百五十年至三千一百年前開始 (Spriggs 1996; 見本論文中 Bedford 專文; Sand 1997)。

西部島嶼東南亞

現在我們回來討論島嶼東南亞較西部的地區，這個地區可能見證了第二波新石器時期的傳播，我們以馬來半島為例，並討論後來與臺灣文化的融合或被取代。

沙勞越和卡里曼丹

我們並沒有在北菲律賓和婆羅洲之間舒展排列開來的巴拉望島 (Palawan) 上發現新石器時期早期的年代，不過菲律賓國家博物館最近在當地所進行的研究，或許能將新石器時期的考古資料與該地文化年代之間的關聯解開來 (Szabo *et al.* 2004)。依照先前述，婆羅洲到沙巴島南部等地區，至少在新石器時期最早階段期間，似乎參與了另一波並非來自臺灣新石器時期的傳播。此地發掘的陶器為繩紋陶，而非臺灣的素面紅陶，這或許能解釋為什麼沙勞越 Gua Sireh 遺址所提供的新石器時期年代，比呂宋島和東婆羅洲出土的稻米、五穀遺留 (CAMS-725, AMS定年年代為 4956 [4244] 3569 BP)、木炭遺留 (ANU-7049, 5046 [4436-4422] 3781 BP 及 ANU-7047, 3893 [3449] 2949 BP) 等年代還要早。此外，早期對該遺址所進行的研究中，還有從木炭遺留所測得的年代 —— 5451 (5212-5050)



4842 BP (A-283)，這個數據看起來有點異常，但若以兩倍標準差校正後，則與另兩個最近自同一遺址獲得的年代重疊。我們正迫切地等候當前在 Niah 岩洞遺址及沙勞越地區進行的研究計劃 (Barker 2005)，對這些遺址的新石器時期年代層位作出闡明。隨著第一百五十九號甕棺出土的木炭遺留，測得年代為 3636 (3382) 3082 BP (GX-1428)，這是目前為止可接受最早的新石器時期年代。

Arifin (2004) 最近發表了關於他在印尼婆羅洲 (卡里曼丹) 東部碧壤 (Birang) 河谷一連串岩洞遺址所進行的研究報告。其中有兩個遺址特別具相關性。在 Kimanis 岩洞遺址的 KMS/C4 區緊接在最早出現的陶器文化層之下的第十一層中，所出土的木炭標本獲得校正後年代為 5591 (5444-5323) 5049 BP (ANU-11148, 4650±90 BP, 木炭遺留)，而從陶片文化層第八層中測得的年代，校正後僅為 1692 (1231-1182) 690 BP (ANU-11311, 1270±240 BP, 木炭遺留)，這結果可能意味著陶片堆積是在該遺址被棄置不用一段頗長時間後才形成的 (Arifin 2004: 104)；另外，在 Lubang Puyau 遺址探坑的第六層中發現數量相當可觀的陶器，校正後年代為 5591 (5315) 4885 BP (ANU-11152, 4610±110 BP, 木炭遺留)。陶片數量從第六層的七十七片到第七層後減少為六片 (Arifin 2004: 252)。雖然發掘者認為在第八層之後出現的陶片皆是擾亂侵入所造成，不過，看起來在第六層之後出現的陶片就已經是侵入擾亂而產生的。第六層本身的年代就有問題，可能陶片一開始是堆積在舊地表上，隨著少數擾動而將年代較早的木炭遺留和年代較晚的陶片混在一起，隨著偶爾在該地表上的行走磨擦而將年代較早的木炭遺留和年代較晚的陶片混在一起。ANU-11152 號木炭標本的年代應該比 Gua Sireh 的問題遺址年代還早。Chazine (2003, 2005) 也在卡里曼丹東部進行考古研究，對位處 Upper Birang 遺址西南方的 Liang Kaung 遺址 (Chazine 2003: 44) 中烹煮器的火塘下的木炭遺留作年代測定，獲得校正後年代為 3637 (3242-3213) 2769 BP (ANU-8570, 3030±180 BP, 木炭遺留)。

Gua Sireh、Niah 岩洞和碧壤河上游遺址所出土的新石器時期早期考古材料，再過去一直被認為與上述島嶼東南亞的馬來半島以及泰國南部新石器時期遺址 (*southern Thai Neolithic sites*) 所出土的結果有許多雷同之處 (Bellwood 1997: 236-241)。對於這個另類新石器時期文化傳統，Bellwood 認為，馬來半島新石器時期文化是「與諸島完全分開的文化個體」(Bellwood 1997: 219)。沙勞越和卡里曼丹的早期遺址出土帶有繩紋或拍籃紋的陶片，而島嶼東南亞典型的素面紅陶或者帶刻劃紋的陶片則全然不見。晚期遺址出土的考古材料似乎比較符合島嶼東南亞的傳統形式，被視為可能是文化及語言上隨著時間變遷而產生了變化 (參見 Chazine 2003: 49-50)。Bellwood 也提到，有一派說法認為部份婆羅洲語言呈現出南亞語亞系分支的現象，而蘇門答臘使用的語言則也有可能受到早期南亞語的影響 (Bellwood 1996: 483)。這些論點必然能更進一步地與同樣是這個語族的東南亞大陸相連結。最近 Bellwood 重新審視他的論點，轉為支持出現在婆羅洲最早的繩紋紅陶與臺灣細繩紋陶有關 (在細繩紋陶最晚期則出現了素面紅陶) (Bellwood, pers. comm. 2006)。相關研究仍在進行中。

蘇門答臘和爪哇

在此一地區中，儘管佔地非常遼闊，在東南亞島嶼群中位居重要交通往來要衝，自古以來便是交易頻繁之地，蘇門答臘和爪哇都非常缺乏早期新石器時代的考古資料。它們在全新世時期的中期究竟是參與了源自臺灣的新石器時期階段？還是參與了源自馬來半島的新石器時期階段？目前尚未獲得釐清。最近發表的一篇關於蘇門答臘 Pondok Selabe 1 洞穴遺址的文章中提到，當地的新石器時期文化層年代為距今兩千七百年前，對自該文化層下所發掘出的先



陶時期遺留進行年代測定，取得年代為距今三千年至距今四千五百年之間（Simanjuntak *et al.* 2005）。當地新石器時代的陶器特色以素面紅陶以及繩紋紅陶為主，與馬來西亞、泰國以及越南等地出土的陶器型制風格類似。值得一提的是在東爪哇的 Gunung Sewu 出現了素面紅陶，對其木炭遺留進行年代測定後，獲得兩個新石器時期早期的遺址年代：一個是 Song Keplek 遺址，年代為 3810 (3469) 3215 BP；另一個是 Braholo 岩洞遺址，年代為 3469 (3318-3265) 2952 BP（在這兩個遺址標本的實驗室標本編號為“P3G 1998”，Simanjuntak 2004：17-18）。Simanjuntak 和 Forestier（2004：107-108，116）的報告提供了爪哇中部新石器時期露天遺址——Purbalingga 遺址的年代，校正後為 4437 (3865-3844) 3364 BP（無實驗室號碼，3570±210 BP，木炭遺留）。

密克羅尼西亞（*Micronesia*）目擊新石器時期的擴展

位於島嶼東南亞以東、新幾內亞、美拉尼西亞群島，以及玻里尼西亞以北的整個廣大密克羅尼西亞是我們故事內容的關鍵場景，我們可以很清楚地看出來自不同地區的人群曾在此定居過一段相當長的期間。就考古學和語言學層面而言，最早的聚落出現在馬里亞納群島（*the Marianas*）和帛琉（*Palau*）群島。馬里亞納群島的年代順序大約自距今三千五百年前開始（Amesbury *et al.* 1996；Butler 1994；Craib 1993），而帛琉群島目前可接受最早的年代大約始於距今三千三百年至三千一百年前（Wright 2005：52；Anderson *et al.* 2005；Liston 2005）。這些年代將這兩個群島的殖民聚居年代向前推進，馬里亞納群島的聚居年代甚至比俾斯麥群島的 Lapita 文化遺址年代還要早一點。就它們的地理位置及語言遺傳而論，自島嶼東南亞的移民應當是分別來到此二地區。這兩個地區的移民應該都沒有因為與新幾內亞、美拉尼西亞群島地區 Lapita 文化出現之前的居民接觸而受到影響。馬里亞納早期遺址的考古證據將其起源指向菲律賓或蘇拉威西地區，而值得注意的是，馬里亞納早期的素面紅陶，其中有一部份帶有梳點壓印紋裝飾，其與島嶼東南亞如菲律賓馬斯貝特島的 Batungan 1、2 等遺址中的考古遺留同時期（Solheim 1968；Spriggs 2000：65-66）。目前雖然尚未取得與帛琉遺址早期內容細節部份的考古材料，以致於無法對其全貌詳加描繪，不過馬里亞納和帛琉所使用的查莫洛語是源自西部馬來—玻里尼西亞語，而不是像其他密克羅尼西亞語是從先大洋洲語演變而來，就語言學層面看來，這兩個地區的史前文化是直接源自於東南亞地區。

語言證據顯示，移民到馬里亞納和帛琉的人群分別來自島嶼東南亞不同的區域，或不同的時間，不過這些地點與時間之間的差異並不大。比較特別的是，馬里亞納出土的考古材料和在俾斯麥群島形成 Lapita 文化的考古材料非常相似。它們形成一個頗具說服力、反對時常將 Lapita 文化認作是當地起源的觀點——此觀點認為 Lapita 文化應當起源於原本就住在俾斯麥群島和新幾內亞的居民（相關討論請參見 Spriggs 1997：第四章）。

某些學者提出，在俾斯麥群島—新幾內亞這個地區的海域自更新世以來便可被視為一個「遠洋航行培訓場」，對於之後 Lapita 文化人群在前進殖民大洋洲時的航行技術有極大的幫助（Irwin 1992）。但這個說法忽略在俾斯麥群島 Lapita 文化出現的數百年之前，從菲律賓航行到馬里亞納群島必須要征服一千八百公里遠的海洋才到得了。把這些航海技術解釋為東南亞地區長久磨練出來的文化遺產，會比解釋成俾斯麥群島地區經數千年時間孕育出來的特殊條件來得合理。原馬來—玻里尼西亞語（PMP）的語料重新建構顯示了有弦外浮槳的獨木舟，由組裝式船殼、橫坐板、滾輪、船帆和貨物（包含平台）所組成，在從台灣往南出發的拓殖後不久就已經出現（Pawley and Pawley 1998）。將馬里亞納出土的考古材料中部份與 Lapita 文化相似的層面，都歸因於兩者都是起源於美拉尼西亞或南華萊士區的說法也同樣充滿矛



盾。它們的年代有些或許比這些地區的 Lapita 文化出現還早，但它們在 Lapita 文化中的發展，同樣應該被認為是代表島嶼東南亞祖源，引用目前已成為經典的 Roger Green 的擴散模式公式，這樣的文化發展應該是傳入，而非整合（Green 2000）。

討論：考古學、語言學和基因學上的遠祖

最近在臺灣、巴丹島和呂宋島北部所進行的研究結果，證實了島嶼東南亞的新石器時期文化是源自東臺灣距今四千年前左右的新石器時期社會。目前確實有足夠的證據證明梳點壓印紋的製作技術，以及一部份 Lapita 紋飾設計系統，在島嶼東南亞和馬里亞納等地出現的年代比俾斯麥群島最早期的 Lapita 文化還早。距今三千八百年至三千三百年前之間，新石器時期的文化從臺灣向外擴展至俾斯麥群島可能只花了五百年的時間，以「快車模式」（Diamond 1988）來說明這種速度的傳播再貼切不過了。穿越這個地區的「新石器時代化」生計轉型傳播，其人口遷移看起來是由臺灣開始，加入自南華萊士區前來的新成員，經過已有原住民居住的俾斯麥群島地區，在向東航行的過程中人口開始爆增，再向東延伸至尚無人居的大洋洲新天地期間，進而共同完成 Lapita 人群在遠大洋洲地區的首次殖民聚居等人類遷移活動。

促進這樣擴展的主要動力可能是從北而來的人群帶著豬、犬、雞等家禽家畜，與新幾內亞以西已開始栽種各種新幾內亞品種作物——這些作物後來在歐洲人航海大發現時成為橫跨大洋洲地區的主食——這二者之間的交會所造成。稻米和小米這兩類作物從南華萊士區的飲食清單中消失，我們目前尚未能得知這些早期品種是否因為受限於當地氣候，或是當地居民沒有接納所造成，又或著兩者皆是原因（參閱 Dewar 2003；Paz 2002：279-281）。

在新石器時期擴展開始後，南華萊士區的主要生計內容明顯重新分門別類，且還增加了許多其他的文化內容，包括石片器刀具和使用土灶的烹煮技術等（參閱 Spriggs 2003：65）。也許擴展至新幾內亞以西的區域時會出現某種程度的文化混雜，但是就語法結構或字彙等方面來看，並沒有證據能證明他們曾對當地非南島語族有任何的吸收合併。如同上文提及，原馬來—玻里尼西亞語和原大洋洲語是兩個極為相似的原生語言，這暗示著僅使用一種語言的南島語族將文化自菲律賓北部向俾斯麥群島傳播，而他們使用的字根則牢牢地留在臺灣。

現今根據當地居民的基因來重建人口歷史的研究，誠如筆者在本文開頭就提到的，仍處於試探且具爭議的階段。筆者在幾年前（Spriggs 2003：64）基於 Richards 等人（1998）以及 Oppenheimer 和 Richards（2001）的研究工作做出歸納後認為，華萊士區南部的生業模式、物質文化的重新分類似乎與從同地區人口的大量加雜有所關聯。將他們計算的聚結時間，獲得所謂「波里尼西亞主體」的線粒體 DNA 年代為約一萬七千年，以百分之九十五的信賴區間來估計，得到的信賴區間範圍在五千五百年到三萬四千五百年之間，因此認為東印尼的發展年代比新石器時期擴展還早，看似推翻了新石器時期與臺灣之間的聯結。

後來 Cox（2005）配合其他的考古證據，精確地算出了共祖聚結時間為一萬兩千年，以百分之九十五的信賴區間來估計，得到的信賴區間範圍自一千年到兩萬三千五百年之間。此一年代表示，這個變化是在新石器時代的擴展期間出現，臺灣祖源因此不應當被排除。不過，Cox 的研究重點一開始是想強調這類的計算對樣本多寡有多麼敏感。另外，Trejaut 等人（2005）則在西大洋洲地區發現了可能源自臺灣 mtDNA 類型的晚近起源。從同一理論陣線的 Y 染色體資料來看，Cox 和 Lahr（2006）發現了晚近臺灣基因型傳入擴展至大洋洲人群的明顯證據。至今似乎仍沒有任何關於南華萊士區或是臺灣基因型為大洋洲民族起源的最後結



論出現。根據Trejaut等人（2005：6-7）的說法，這是因為研究「至今仍然尚未涵蓋大多數島嶼東南亞的人群」。就像標本所涵蓋的區域範圍一樣，有時候標本數量的大小也是一個容易被輕忽的問題；Friedlaender 等人（2005：1514）則指出：「可靠的聚結時間估計取決於充分的標本數量，以及明顯的擴展特徵…，尤其當我們對範圍更廣、年代更早的聯結網絡進行分析時，需要非常大的標本量」^v。

Pawley（2002：261-262，268-269）認為原馬來—玻里尼西亞語是菲律賓語、婆羅洲和蘇拉威西沿海地區的方言鏈，之後分裂成西馬來—玻里尼西亞語以及原中、東部馬來—玻里尼西亞語。現在學界一般認為西馬來—玻里尼西亞與是馬來—玻里尼西亞語位分類前的殘餘範疇（residual category），而非亞系語言（Blust 1999：68）。基於原中、東部馬來—玻里尼西亞語和原馬來—玻里尼西亞語共享了百分之九十八的通用字彙，根據以這兩種相關語言分歧時期的分析方法所獲得的年代只有一百年的時間來看，就算假設是原馬來—玻里尼西亞語原鄉外移，也無法在短時間之內就產生這麼明顯的語言分歧。據此而論，在菲律賓、北婆羅洲以及蘇拉威西等地，最早的新石器時代的年代因而落在距今約三千八百年至三千六百年前。

一般認為，語言分歧是在人群從東南蘇拉威西遷移至馬魯古、再向西繞達帝汶和小巽它群島時所產生。即使原中、東部馬來—玻里尼西亞語有可能形成環繞這個區域的方言鏈，但就最近的證據看來，東帝汶新石器時期早期的聚落在距今三千八百年至三千六百年前期間出現，比北、中部馬魯古的聚落形成時間還早。這表示延續當時自臺灣擴散出來的主要傳播方向，人群從蘇拉威西繼續向南方擴展，然後在大約距今三千五百年前擴展至馬魯古北部，之後又繼續向東前進，抵達位於印尼巴布亞島的紳得拉哇士（Cenderawasih）海灣，造成原東部馬來—玻里尼西亞語（PEMP）以及原中央馬來—玻里尼西亞語之間（PCMP）進一步的分歧。接著，另一小群人又再進一步向東移動，原中央馬來—玻里尼西亞語很快地便產生分歧，在Lapita文化原鄉——俾斯麥群島上發展出原大洋洲語（POc），原大洋洲語的分歧最晚在距今三千兩百年至三千一百年前人群遷移至遠大洋洲後便開始了（Pawley 2003）。

我們可以明顯的看出，出了菲律賓—北婆羅洲—蘇拉威西這條最早的語言傳播軸線之後，使用西部馬來—玻里尼西亞語地區所出土的最早遺址年代為距今三千五百年前左右，這有可能代表較晚期南島語族擴散的證據而非由南島語系世系圖上所顯示那麼早，蘇拉威西、東爪哇、馬里亞納群島和帛琉都是其中的例子。其他屬於西馬來—玻里尼西亞語群的語言，例如在東南亞大陸以及非洲外海的馬達加斯加島等，則代表更晚期才向西遷移的移民。就Bellwood推翻其早期所提出關於新石器時其部份婆羅洲與馬來半島所出土的考古遺留之間關連性的論點來看，從這個地區開始一直延伸到蘇門答臘以及爪哇島部份地區的現況，至今我們仍不清楚誰才是他們在新石器時期及更早之前的語言演化先祖，且尚待未來更進一步的研究。

結論

從西元二〇〇三年後新出版的年代資料中，我重新審視之前推測在離開臺灣後，除巴丹島之外，在距今四千年前到距今大約三千八百年至三千六百年前向外傳播，範圍涵蓋菲律賓、婆羅洲東北部、蘇拉威西和東帝汶的「新石器時代」起點年代。位於馬魯古東邊、明顯成為向俾斯麥群島移動新起點的地區，年代較晚，大約距今三千五百年到三千三百年前；像密克羅尼西亞地區馬里亞納島和帛琉群島的首次殖民，皆源自於相同的地區，即新石器時代的馬魯古或以西的爪哇。島嶼東南亞新石器時代向東的傳播顯示出，Lapita文化在距今大約三千三



百年前開始出現在俾斯麥群島，而從俾斯麥群島到東加（*Tonga*）和薩摩亞（*Samoa*）大概延續最少三百年的時間。

此外，自西元二〇〇三年以來，研究人口和語言演變的語言學與基因學傳播模式之間越趨和諧。最近研究才奠定了新幾內亞地區土生農作物在大洋洲農業發展上的重要性，在評估緊鄰著新幾內亞西邊的島嶼東南亞新石器時代之前的文化當時的農業狀態，如何經由引進北方品種的家畜而快速地由半農業狀態進展到「新石器時代化」的過程所具有的關鍵地位。

最近幾年，筆者已不再只用簡易人口生計模式（Renfrew 1989, 1992）來解釋新石器時期迅速橫跨廣大地區的傳播過程。筆者在西元二〇〇三年的文章中曾提到，或許 Renfrew 提出的另一個模型更適合且更具優勢。雖然筆者也肯定這是擴散圖像的一部份，但是對於人口擴展而言，民族認同的發展是必須的，因此現在筆者認為更加包羅萬有的模式是必要的。這一點在 Lapita 文化的發展中更為明顯可見：高度裝飾的陶器在禮俗中擔綱整個團體身分的識別與創作——如同其他文章中所談論到的德國洞穴動物繪畫等禮俗表現——是為「全世界共有的經驗」（Hedeager 2000: 51）。這個身分辨識特徵清楚地由整個地區中的說著新主流語言（南島語）的人群所掌握，而各地不同基因起源的人群逐漸加入他們的行列之中。這個新語言被用來創造強大的起源神話，將這些不同的群體聯合在一起。另外，新形式和技術所製作的物質文化，譬如陶器，對於創新身分辨識特質也很重要。

比起只是簡單的人口或農業擴展，我們若是將新石器時代在這個區域傳播上視為一種文化現象，那麼由類似「被發明的傳統」（Hobsbawm and Ranger 1983; Otto and Pedersen 2005）以及「假想出來的社群」（Anderson 1983）等與民族身分認同形成過程相關的文獻所提出的論點，將會提供我們更多的觀點。今天我們所知道的 Lapita 文化其實是「假想出來的社群」，自五〇年代由考古學家提出後至今，卻成為大洋洲社群普遍的特點（Sand 2003）。這些我們認為曾短暫出現、極度同源、迅速傳播於未曾有人居住過的地區的文化所留下來的物質文化遺留，對支持這些論點的人來說，必定代表了某種被發明出來的傳統以及假想出來的社群。而隨後這個文化本體分裂，轉變成我們現今所看到許多各具地域特色的小社群。

鳴謝

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註解

- i. 當然，我了解遺傳學家也可能以同樣的評判方法來評論考古學家！
- ii. 其他由 Spriggs (2003) 所提出的更早的年代數據採用的標準差範圍還是太大，有些時候甚至進行校正後還是差了兩千年，精確度有待商榷。
- iii. Roberts 與其研究團隊 (2005: 310) 最近的研究報告指出，「他們自 (以 ABOX-SC 14C 所測得的) 年代為距今六千四百年前的層位發掘出兩件陶器殘件，比眾所皆知的南島語族遷徙年代還早了兩千年。」雖然他們文章的闡述有可能會造成誤解，他們其實認為這可能是後來的地層擾亂所造成的結果。且該篇文章的目的是提出對於獲得陶器在何時引進哪一個島群的確切時間，學界有對陶器結構直接進行螢光定年 (luminescence dating) 的需要。我不能不同意他們的看法。
- iv. O'Connor 和 Veth 在西元二〇〇五年所發表的論文 (2005; 參考 Szabo and O'Connor 2004)，著重討論鐘螺科 (*Trochus*) 貝製魚鈎的發現。對其進行 AMS 定年後，證明是屬於新石器時期之前的文化層。在該文提及魚鈎普遍地在俾斯麥群島遺址全新世早期與更新紀層位出土的同時 (他們其實也應當將所羅門群島的 Gaudalcana I 遺址一並計算在內: Roe 1993)，他們對於當前用以解釋為何在此地區當中缺少魚鈎成品的說法不以為然，因為他們確實找著了這樣的證據。因此他們認為：「魚鈎製作技術可能起源於全新世早期，甚至更新紀時期，擁有豐富海洋性環境條件的華萊士區」(O'Connor and Veth 2005: 255)，從那裡傳播出去，最後被納入 Lapita 文化中。就整個廣泛的馬來西亞群島都出現魚鈎證據這點看來，這種說法有點過度詮釋——況且，為什麼我們非得一直假定西方端點是魚鈎製作技術的起源不可？另一個問題是，這種魚鈎出現在臺灣新石器時代的最早期，據推測來自新石器時期的華南地區，而不是來自於南華萊士區 (Bellwood 1997: 235)。誠如我在西元一九九六年所談到的，在範圍廣闊且距離遙遠的區域間所出土的物質文化遺留，我們無法確認它們彼此之間的關聯是否是彼此承接的，後期文化的起源到底位於何方。就以 Lapita 文化的起源來說，源自臺灣的島嶼東南亞新石器時期文化的要素成為俾斯麥群島 Lapita 文化的核心 (Spriggs 1996)。Lapita 文化的物質文化有可能是來自於該地區新石器時期之前的文化併入之後的 Lapita 文化，甚至源自於華萊士區，但就當前的證據而言，它們也許同樣都是外來的，都來自臺灣原鄉。
- v. 當我們總是被警告，不要根據不充分的樣本大小來作出結論時，遺傳學家卻能用超少量的抽樣樣本來討論廣泛的模式，這一點就筆者而言總是覺得不可思議。現在照這樣看來，跟我們其他人相比，遺傳學家不過是五十步笑百步！