Chapter 10

Is the Neolithic Spread in Island Southeast Asia really as confusing as the Archaeologists (and some Linguists) Make it Seem?

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<H1>Abstract

Over the last decade in particular, there have been challenges to the orthodox archaeological and linguistic model of Neolithic expansion out of Taiwan, through the Philippines and Eastern Indonesia / Wallacea and out into the Pacific. There have been suggestions that Taiwan was not the origin but merely a backwater with the Neolithic developing independently within the Philippines-Indonesia and perhaps spreading back to Taiwan, or that its origin point was southern China or Vietnam direct to the Philippines. Strong agricultural influences from the New Guinea centre of agricultural development have also been claimed. Another suggestion is for two “Neolithics”, with one spreading down the Malay Peninsula and into Sumatra and parts of Java and Borneo at about the same time, or even before a Taiwan-derived spread. The paper discusses which of these many confusing suggestions have merit and whether it is possible to synthesize the picture emerging from the many new studies in the region into a general explanatory framework.

<H1>Introduction

When we talk of the spread of the Neolithic in Island Southeast Asia (ISEA) we have been stuck with a rather archaic definition based primarily on the presence of early pottery and — in an earlier formulation — polished stone adzes (Bellwood 1997). These have traditionally been seen as a proxy for the spread of an agricultural way of life in the region. More recently, palaeobotanical and archaeozoological evidence have been brought to bear on such models, but can hardly be said to provide strong support for them (Paz 2002; Oliveira 2008). Other widespread associated cultural elements including artifacts and burial practices, however, do increase the plausibility of the spread of pottery as representing more than an isolated diffusion.

The rapid spread of such cultural “packages” may well represent major lifestyle changes, whether or not directly associated with major agricultural developments. Indeed, they may often immediately precede them. More than a decade ago now, the British archaeologist Julian Thomas (1997, 2001) stressed the need to decouple what we may call “Neolithization” from subsistence changes that may be happening at a different pace, with his memorable phrase: “Material things did not attend the Neolithic, they were the Neolithic” (1997: 59). He continued: “Monuments and artifacts do not merely transform social and economic relations, they serve as a repeated reminder that things have changed, through their continual presence in people’s everyday lives” (Thomas 1997: 63). He was talking of Neolithic Britain but a similar phenomenon appears to be also the case in ISEA.

The conventional model of Neolithic spread in ISEA and the Pacific is a synthesis of the linguistic model of Austronesian (AN) language subgrouping by Robert Blust of the University of Hawaii, and the archaeological views of Peter Bellwood of The Australian National University (ANU), Canberra. It posits a direct link between the spread of the AN languages and the spread of an agricultural lifestyle from Taiwan, south through ISEA and out into the Pacific (Bellwood 1997; Blust 1999). Bellwood has more recently generalized the farming-language dispersal model as one of general applicability to explain the spread of many of the World’s major language families (Bellwood 2001, 2005a).

Although it does not preclude acculturation of indigenous ISEA and Melanesian groups to this new lifestyle and language, the dominant process of spread is an actual migration of farmers out of Taiwan. Taiwan is the origin on both linguistic and archaeological grounds. As shown in Figure 10.1A, there are ten primary subgroups of the AN languages. Nine of them are in Taiwan, here labeled as the “Formosan Language group”, and the tenth one includes all other AN languages, here labeled “Malayo-Polynesian”. The general principles would suggest Taiwan as the origin point. There is archaeological evidence of pottery and other elements of a Neolithic “package” in Taiwan from about 6000–5000 years ago

(Tsang 2007; elegantly restated by Bellwood 2011). Further south in ISEA, related cultures occur only from less than 4000 years ago (Spriggs 2007: 108–9). Again, the primacy of Taiwan is clear.

Fig. 10.1: A: Blust’s subgrouping of AN languages; B: A revised phylogeny (combined figure courtesy M. Donohue).

<H1>The Orthodoxy Challenged

There have, however, been several recent challenges to the conventional model of Blust and Bellwood. These ideas claim that:

1. Taiwan is merely a backwater, with the Neolithic developing independently within the Philippines-Indonesia region and then spreading back to Taiwan. This is the “Nusantao” hypothesis of Wilhelm G. Solheim II in its earliest iteration (1975, 1984–5), taken up by Stephen Oppenheimer (1998; Oppenheimer and Richards 2002) and others.
2. The origins of the ISEA Neolithic were in southwestern China-northern Vietnam and the culture subsequently spread directly to the Philippines (Solheim 2006).
3. There was a strong agricultural influence across ISEA from the east, originating from the early and independent centre of agricultural origins in New Guinea. This idea originated with Doug Yen (1992, 1995) but was later taken up by Tim Denham and others (Denham *et al.* 2003, 2004).
4. There were two ISEA “Neolithics”. The first group derived from Austroasiatic-speaking populations of the Malay Peninsula and spread to Sumatra, Java and Borneo. The second, AN-speaking, derived from Taiwan and spread down through the Philippines and Eastern Indonesia, to move out into the Western Pacific as the Lapita culture. Bellwood once subscribed to this idea (1997: 237–8) but later rejected it in favor of a

single AN-speaking Neolithic spread (2005b: 6; 2006: 63, fn. 2). His views on this have recently ameliorated and he now “leaves this option open”, citing the suggestive parallels between rice-chaff tempered pottery from sites such as An Son in southern Vietnam and sites in western Borneo such as Gua Sireh (Bellwood 2011).

5. The Neolithic spread from Taiwan to the northern Philippines, thence to the Mariana Islands in Micronesia about 3500 BP, and from there had a major effect (presumably via direct migration) on the genesis of the Lapita culture in the Bismarck Archipelago to the northeast of the island of New Guinea. Bellwood (2011) holds this view while admitting that the Marianas are only one of the sources for the Lapita culture, noting contacts between Lapita and ISEA demonstrated through the transport of Bismarck Archipelago obsidian to Bukit Tengkorak in Sabah about 3000 BP.

6. Denial there is any Neolithic cultural “package” which spread across ISEA at all. This idea has recently been argued by archaeologists such as David Bulbeck (2008), Tim Denham (2004) and Sue O’Connor (Szabo and O’Connor 2004; Connor 2006).

7. What might be termed the “It’s not about agriculture (stupid)!” school which, following the ideas of Julian Thomas adumbrated above for the Neolithic of Britain, suggest that “Neolithization” — the spread of a cultural complex or “package” — can be usefully decoupled from a discussion of the spread of agriculture in the region (Spriggs 2003, 2011).

<H1>Problems of Forging a New Consensus

It has proved very difficult to judge between these very different views. Almost everyone involved would agree there are major problems with the conventional model, however, there is no consensus on what will replace it. The problems in reaching such a consensus include:

1. Many of the alternatives are based on a very-outmoded argument between migrationism and diffusionism as explanatory theories, the latter now more acceptably glossed as general “interaction”. There is a need to develop more sophisticated models.
2. At an early stage of archaeological research anywhere, interpretations are likely to be fluid and underdetermined by the data at hand.

3. A lot of early interpretations were based on cave and rockshelter excavations. These were not primary Neolithic habitation sites and so may not provide the data we want. Unrecognized stratigraphic disturbance has also created major problems of interpretation at many sites. The Neolithic transition in these caves cannot usually be closely dated.
4. Linked to this problem, and perhaps the most crucial of the lacunae that we face, is the general lack of open Neolithic village sites in ISEA, except in inland sectors of major river valleys. Where such sites have been found, they are usually not well-dated. If we compare the situation with that of the equivalent Lapita culture in the Western Pacific we find that there are less than 20 dated Early Neolithic open sites in ISEA outside of Taiwan (listed in Spriggs 2011), and these belong to a thousand year span of history from about 3800 to 2800 BP. There are an equivalent number of cave and rockshelter sites, meaning that this latter site type constitutes over 50% of dated sites of the period in ISEA. In contrast, in Remote Oceania (the region beyond the main Solomons Chain where Lapita represents first human settlement) there are about 120 Lapita open settlement sites occupied in the 2–300 years between about 3000 and 2800 / 2700 BP (Anderson *et al.* 2001; Bedford and Sand 2007: 9–10). Village sites constitute over 90% of known Lapita sites across its entire range in Near and Remote Oceania.
5. There are enormous problems in getting reliable associations between artifact types and radiocarbon dates. All radiocarbon dates prior to the 1970s need to be treated with suspicion. Early attempts at dating human and animal bone prior to the late 1990s need to be rejected because of inadequate pretreatment protocols (Petchey 1997). Many charcoal determinations have until recently still been run on bulk samples of unidentified species with unknown inbuilt age. Early series dates from the Gakushuin Laboratory in Japan prior to about Gak-5000 need to be rejected as inaccurate, perhaps to do with use of an unstable modern standard (Spriggs and Anderson 1993: 207). The main problem, however, is one alluded to before: unrecognized site disturbance provides false associations between early radiocarbon dates and the materials they are being used to date: pigs and other domestic animals, plants such as rice, pottery as proxy for Neolithic spread, and the beginnings of metal use in the region (Spriggs 2001, 2003).

6. Until recently, there has been little work on identifying plant remains and domestic fauna in ISEA Neolithic sites, so any discussion of the nature of the agricultural system and its spread has been unable to progress beyond what is essentially informed speculation based on putative crop origin locations. Bellwood (2011) has also noted problems in the preservation of particular key plant remains such as rice; phytoliths are found but macro-remains often do not seem to survive in tropical conditions.

<H1>Promising New Developments

Several recent developments suggest that we may be able to advance beyond the current general confusion:

1. *A shift in linguistic models.* Beyond Taiwan, Blust's model of AN dispersal [Fig. 10.1A] started with the first non-Taiwanese AN language subgroup: Proto Malayo-Polynesian (PMP). He had a simple split of PMP into Central / Eastern Malayo-Polynesian (CEMP) and Western Malayo-Polynesian (WMP) — the latter accepted long ago as not a subgroup as such but, rather, a residual category of languages that don't belong to the other defined subgroups (Blust 1999). CEMP split into Central Malayo-Polynesian (CMP) — now seen as another residual category rather than an innovation-defined subgroup (Ross 2008: 176) — and Eastern Malayo-Polynesian (EMP), with EMP then splitting into South Halmahera-West New Guinea (SHWNG) and Oceanic (Oc), these last two being well-established innovation-defined subgroups. The development of Oc was the result of a movement east along the north coast of New Guinea to the Bismarck Archipelago.

Blust's model reigned almost supreme during the 1970s to 1990s, but has come under increasing attack in the new millennium (Donohue and Grimes 2008; Klamer *et al.* 2008; Donohue and Denham 2010). Figure 10.1B presents Mark Donohue's current view.

Archaeologists have something to contribute here; they have used the spread of the ISEA Neolithic as a proxy for AN language spread, justified at length by Andrew Pawley (2002) and Malcolm Ross (2008). When the archaeological lens is used to compare the now-contrasting linguistic models, it is very hard to see from the archaeology any pauses to

allow subgroup development between PMP and EMP at all. It would seem that movements out of Taiwan were rapid after about 4000 BP, and by 3800 BP, dialects of PMP were spoken everywhere from the Philippines to eastern Borneo, Sulawesi and south to East Timor, spreading with the first pottery-using cultures in those areas. Currently the dates for the EMP area in northern Maluku do seem to reflect a later time of spread, at about 3500 BP, as with Palau and the Marianas and Java. This may have been a pause related to a shift from rice and millet to predominately New Guinea-derived root crops, as I have recently argued (Spriggs 2011).

Ross regards CEMP as “an innovation-defined subgroup, but only just [...] Proto CEMP speakers spent only a short period as a unified speech community” (2008: 176). He goes on to state that if there ever was a Proto-EMP speech community, “its existence was even more fleeting than that of Proto CEMP” (ibid.). Under such circumstances any distinctive archaeological signature is likely to be similarly ephemeral. Russell Gray *et al.* (2009) used Bayesian phylogenetic analyses based on lexical data to examine AN subgrouping. They detected no support for WMP or CMP, only weak support for EMP (0.58) but stronger support for CEMP (0.85). Their study detected an expansion pulse with no pause between the initial movement beyond Taiwan and the settlement of Western Polynesia.

Blust (2009) has vigorously defended the details of his subgrouping model in response to the Donohue and Charles Grimes (2008) paper, but Antoinette Schapper (2011) has in turn recently criticized one of the key underpinnings of his Proto CEMP stage. Clearly the debate over the details of AN subgrouping is by no means over, but one thing does seem clear: if Blust’s model weathers the criticisms being leveled at it, then the postulated stages between PMP and POc must be largely irrelevant to the culture history of the region as revealed by archaeology, albeit undoubtedly interesting to linguists. This is because of the near-contemporaneous Neolithic spread across much of Island Southeast Asia. Linguists may be able to detect stages within the associated spread of AN languages, but archaeological dating is too coarse-grained to be able to pick up on culture historical implications of such changes — if indeed there are any.

2. *Tightening of the dating of neolithic spread in ISEA.* Despite the problems with dates for this period listed above, there have been important recent advances, not least the use of Accelerator Mass Spectrometer (AMS) radiocarbon dating. The fact that very small samples are now needed means that much greater selectivity in what is being dated can be undertaken, and developments in the pretreatment of bone and other samples mean that direct dates on animal bones, carbonized crop remains, and individual shell artifacts can now be routinely assayed. On the one hand, claims for early betel nut (an Asian domesticate) in New Guinea have been refuted by direct dating of the specimen in question (Fairbairn and Swadling 2005). But on the other hand, claims for pre-Neolithic shell fishhooks and particular shell bead types have been confirmed by direct dating (O'Connor 2010). The earliest reliable Neolithic dates beyond Taiwan are from about 3800–3600 BP across much of ISEA from the Philippines south to Sulawesi and Timor. Dates in Java, north and central Maluku and the Marianas are slightly later again at about 3500 BP, and for the eastward extension of the ISEA Neolithic as Lapita at about 3350–3300 BP (Spriggs 2007).

3. *Developments in palaeobotany, faunal analysis and modern genetic surveys of domestic animals and plants.* The lack of development of systematic faunal and floral analysis as part of archaeological research projects in the region has already been mentioned. There were always, of course, a few notable exceptions such as the efforts of Ian Glover in Sulawesi and East Timor (Glover 1979, 1986). The torch has more recently been taken up by younger scholars such as Victor Paz and Phil Piper in the Philippines (Paz 2002; Piper *et al.* 2009) and Nuno Oliveira in East Timor (Oliveira 2008). Wide-ranging genetic surveys of modern pig samples have led to the identification of a distinctive “Pacific Clade” of pigs, arising probably in mainland Southeast Asia and moving along a route through the Lesser Sundas to then spread out into the Pacific with Lapita (Larson *et al.* 2007). Using morphometric rather than genetic analyses, Piper *et al.* (2009) identified that the earliest Neolithic pigs in the northern Philippines were not of this clade, but derived directly from Taiwan. There are ongoing genetic surveys of dogs and chickens in the region, along with the commensal Polynesian rat (Matisoo-Smith 2007; Matisoo-Smith and Robins 2009; Storey *et al.* 2010).

4. *Increasing appreciation of the taphonomy of cave and open sites.* A new study goes a long way in laying to rest the claims for early pottery and early pigs in New Guinea (O'Connor *et al.* 2011). It shows that they resulted from unappreciated cave disturbance and bioturbation of deposits. Other recent contributions in this area have come from extensive study of the taphonomy of Lene Hara Cave in East Timor (O'Connor *et al.* 2010), and from micromorphology of cave sediments in the Philippines (Mijares and Lewis 2009).

5. *More open Neolithic habitation sites are being found and / or reinvestigated.* There are major projects investigating sites in the Cagayan Valley of northern Luzon such as Nagsabaran, and a variety of sites in the Karama Valley of Sulawesi (Hung Hsiao-Chun 2005, 2008; Truman Simanjuntak *et al.* 2008). The only problem, however, is that most of such sites are inland along river valleys, and we still lack an appropriate sample of truly-coastal village sites (Spriggs 2011).

6. *Application of advanced geochemical characterization studies to examine inter-island transport of materials.* An early and spectacular result of the use of such techniques was reported by Bellwood and Peter Koon (1989) where obsidian from Neolithic levels at Bukit Tengkorak in Sabah, Borneo was sourced to West New Britain in the Bismarck Archipelago some 3500 km away, contemporary with Lapita sites in the latter area. Later work by Robert Tykot and Stephen Chia (1997) at Bukit Tengkorak also demonstrated the presence of obsidian in a late Neolithic context from another Bismarcks' source, Lou Island in the Admiralty group. A wide-ranging study of ISEA obsidians has extended the distribution of West New Britain to include Cebu, originating from a probably-Neolithic open hilltop site on that Philippine island (Reepmeyer *et al.* 2011; cf. Spriggs *et al.* 2011 for earlier results). The application of geochemical analyses to ISEA jade artifacts has produced equally significant results (Hung Hsiao-Chun *et al.* 2007). This included the identification of Taiwanese nephrite in Neolithic sites in the Philippines, the first direct and incontrovertible links between these two island groups.

7. An increasing pace of research and mass of new data. Archaeological research is now getting beyond the pioneering stage in Taiwan, northern Luzon, some parts of Malaysia and Indonesia, and more certainly in the Western Pacific — Island Melanesia, Polynesia and the Marianas in particular. The status of New Guinea as one of the rare early independent centres of crop domestication has been confirmed (Denham *et al.* 2004), with implications for a range of crops found in ISEA such as sugarcane, bananas and several root crops. The sheer mass of new data bearing on a range of previously intractable issues is also impressive. Dentate-stamping as a pottery decoration technique can now be established as earlier in ISEA than in the Lapita culture, associated too with the vessel forms and some elements of the decorative motif system later found in Lapita. There is a plausible “trail” of distribution of dentate-stamping and / or early decorative motifs from northern Luzon, through Sabah and Sulawesi, and the Banda group out to the Bismarck Archipelago (Spriggs 2011). Lapita pottery now has some convincing ISEA ancestors in terms of decorative technique, vessel forms and some motifs.

The dates for settlement of the Mariana Islands in western Micronesia, just before Lapita, and with increasingly clear links to northern Luzon early Neolithic assemblages, make them a prime witness to what the early ISEA Neolithic may have been like before it was affected by Eastern Indonesian and New Guinea cultures, with their root and tree crop complex spreading westwards (Hung Hsiao-Chun 2008; Clark *et al.* 2010; Hung Hsiao-Chun *et al.* 2011). This is relevant to question of how much the Lapita culture could have represented a local Melanesian development as some have claimed (Terrell and Welsch 1997; Terrell *et al.* 2001), rather than being an intrusive ISEA one.

Increasing evidence of Lapita connections to ISEA can also be found in the excavation of jar burials at the early Lapita cemetery of Teouma in central Vanuatu (Bedford and Spriggs 2007). Jar burial and associated practices are widespread features in ISEA and in Taiwan certainly occur earlier than in Lapita; they are also earlier or contemporary on Borneo and in the Philippines (Bellwood 1997; Lloyd-Smith and Cole 2010).

8. The increasing professionalization of ISEA archaeology. Better training opportunities

both within and outside the region have allowed the younger generation of ISEA archaeologists to participate more decisively in creating the archaeology of their region, a process intellectually dominated, until a few years ago, by outsiders, usually American, Australian or European. Increased networking with scholars internationally has accompanied a generational change in the last few years from scholars trained in the very different political and social milieux of the 1950s and 1960s. New voices have thus joined the debates, promoted through organizations such as the *Indo-Pacific Prehistory Association* and the *World Archaeological Congress*.

<H1>The Package Changes as It Moves

There is an increasing recognition of the complexity of Neolithic spread in ISEA, and a complex situation requires complex models. There is a need to get away from earlier conceptions of a simple monolithic and *monothetic* (to use David Clarke's 1968 term) Neolithic "package" where all artifact types are expected to occur at all sites. We should in fact expect a distinctively *polythetic* (Clarke's term again) set of artifacts and practices, as a colonizing group moves through varied environments with changing resources, and encounters a variety of *in situ* or indigenous culture with their own effective local adaptations. This is a point well made by the Indonesian scholar Daud Tanudirjo (2006).

Robert Dewar (2003) has pointed out that rice agriculture — part of the agricultural complement carried out of Taiwan — would have been increasingly difficult agronomically as people moved from the more Temperate environments of Taiwan, best suited to propagation of the crop south, through the Philippines to the Equatorial wet tropics. The adoption of root and tree crops ultimately of New Guinea origin is thus not surprising in Eastern ISEA.

The lack of easy access to marine shells for artifact manufacture in inland areas of Luzon and Sulawesi means we do not find such items in sites there; substitutes in clay and stone are known from the Cagayan Valley on Luzon (Hung Hsiao-Chun 2008). But shell technologies continued to spread in coastal areas. *Tridacna* shell adzes of Neolithic type re-appear in Bukit Tengkorak in Sabah and in East Timor, and then further east in the

Lapita sites of Island Melanesia. Distinctive shell ornaments such as *Conus* rings have been found in Leta Leta Cave on Palawan, at Krai near Surakarta on Java, at Uattamdi just off Halmahera in northern Maluku and in the earliest Marianas and Lapita sites (references in Spriggs 2011: 517).

Mobile maritime-based Neolithic groups could have re-adopted dropped elements of any cultural package as they leapfrogged across the region, while maintaining links to previous “homelands”. Any putative AN design system could move on and off various media, perhaps on house posts or cloth here, on pottery there, or in rock art. Only some of these media can be expected to survive, giving a palimpsest of perhaps once more-widespread patterns. Thus the double-face motif found on Lapita pottery, with a more naturalistic face above and a more mask-like or schematic face below (Spriggs 1990), is not known from Neolithic archaeological assemblages in ISEA, although it is widespread on ethnographic objects there and is found on Metal Age ceremonial axes from Roti about 2000 years old (Newton 1988). It is seen earlier, however, carved on jade objects of the Liang-Chu Culture along the southern Chinese coast that suggest an ancestral form (see Jiao 2007). If it did indeed have Neolithic manifestations in between, they must have been on more perishable media. Scholars of comparative ethnography have also detected trails of connection in stories across the AN-speaking world and beyond, back into China (Dunis 2009).

The status of many artifact types as being part of any Neolithic package is likely to remain unclear. Yes, there are pre-Neolithic fishhooks in East Timor (O’Connor and Veth 2005). But can we say they are the direct ancestors of Neolithic fishhooks elsewhere in ISEA and the Lapita culture? No, not really, since Neolithic fishhooks occur in Taiwan, northern Luzon and the Marianas in early contexts (Hung Hsiao-Chun 2008), presumably unaffected by any developments on Timor. Lapita fishhooks could have derived from these more northerly sources as well. Pre-Neolithic shell ornaments have similarly been made much of but only three out of ten shell ornament types found in Lapita sites are known from Pre-Neolithic contexts in ISEA. Two of the three represent shell bead types

that are themselves highly variable in ISEA and were generally made on different species of shells than in Lapita (Spriggs 2011: 515).

Roger Green's (1991, 2000) "Triple I" model was formulated to account for the mixed origins of the Lapita assemblage as *intrusive* from ISEA, *integrated* from pre-Lapita assemblages in the Melanesian area, and *innovated* within the culture itself. As I have noted (Spriggs 2011), there is no reason why it cannot be applied within ISEA itself to identify Neolithic elements that arrived from South China and / or Taiwan as *intrusions*, those that were *integrations* from Pre-Neolithic cultures as the culture spread through ISEA or elements representing *innovations* of that culture. In different areas of the region, the mix would be expected to change.

<H1>Discussion and Conclusions

If we return to the many recent challenges to the orthodox Blust-Bellwood model in the light of recent developments in ISEA archaeology, we can now see that there are different degrees of merit in each one. The evidence of recent comparisons of early pottery styles between Taiwan, the Philippines and Marianas, and their relative dating show clear connections. Taiwan-sourced jade is found in early Neolithic Philippines sites. So any ideas of Taiwan as a backwater seem misplaced. It really does have primacy in relation to many aspects of the Neolithic package (Bellwood 2011). The related idea of an origin of the ISEA Neolithic in Southern China or Vietnam, by passing Taiwan and going straight to the Philippines, is refuted by the same evidence. It is based on a selective and superficial reading of extremely problematic and poorly-dated material.

The idea that there was a strong influence on ISEA of root and tree crops coming out of the New Guinea agriculture centre seems likely, not least on the basis of the need to replace a rice-based economy because of climatic constraints as the culture spread into eastern ISEA. Further palaeobotanical research should establish the timing and early reach of such crops. It is likely that the spread began in what we conventionally call the Pre-Neolithic of ISEA. How far it progressed towards the northern Philippines is clearly important for questions of intrusion or integration in the spread of the Neolithic in this

region. If it did involve a westwards migration of Melanesian agricultural populations into ISEA, this may be what the steep Asian-Melanesian ancestry cline in eastern Indonesia represents (Cox *et al.* 2010). It could also mark the border between two expanding mid-Holocene cultural and economic systems, one Papuan-speaking and patrilocal, the other Austronesian and matrilineal (Cox *et al.* 2010: 1594)

It is highly likely that two Neolithics, one derived proximately from the Malay Peninsula and the other from Taiwan, are complicating the picture in ISEA; indeed, as noted above, we need to add a third: that deriving from New Guinea. The Neolithic of Sumatra and Western Java is not as yet well-dated but the dominance of paddle-impressed pottery in many assemblages certainly makes it look as if it derives from Mainland Southeast Asia. The assemblages from western Borneo at sites such as Niah and Gua Sireh have an equally mainland feel to them (Bellwood 1997). That the origin of the Pacific clade of pigs is different from early pigs in the Philippines and suggests a mainland ISEA source, perhaps spreading via Sumatra and Java, provides suggestive new evidence in this regard (Larson *et al.* 2007).

A Neolithic spread from northern Luzon to the Marianas seems well-established, but a further spread from the latter archipelago directly to the initial Lapita sites in the Bismarck Archipelago seems geographically most unlikely in the absence of a trail across Micronesia, and is contradicted by what looks to be a more convincing trail of Lapita motifs and decorative technique down through Sulawesi and central Maluku (Spriggs 2011). In terms of the distribution of domesticated animals, largely lacking in the Marianas throughout its cultural sequence but present in the earliest Lapita sites, a Marianas origin for Lapita seems equally unlikely. It is not at all clear how it can be justified linguistically either as the linguistic trail follows a similar route to that of the artifacts. The only evidence provided in support of this route is a putative similarity in pottery decoration (Bellwood 2011: fig. 3). But this is surely better explained by the fact that the decorative systems of the Marianas and Lapita both derive ancestrally from that of northern Luzon.

The denial that there is any such thing as a Neolithic package in ISEA seems to stem from unrealistic expectations that such a package should contain all the artifacts at all the sites, and leads to an ill-conceived refutation of its existence when these unrealistic expectations are not met at every site. It also comes from a lack of theorization of the processes involved in this Neolithic expansion, clearly part colonization and part local recruitment. We would expect the package to change as it spread, with leapfrogging colonization creating continual local variation, and back-migration or connections to homelands sometimes smoothing over differences that arose. Decorative motifs are equally “slippery”, moving from media to media as new demands and challenges arose: the Lapita “double face”, discussed above, is a prime example.

The idea that the spread of the ISEA Neolithic is not primarily about agriculture is one that I believe is worthy of further consideration. The New Guinea suite of root and tree crops may have spread into eastern ISEA considerably before the Neolithic cultural package spread. The extent to which early, very mobile ISEA Neolithic populations spreading south and eastwards along the coasts were agriculturally-focused in their subsistence practices is also open to question. That they knew of agricultural crops and that they carried domestic pigs, dogs and chickens with them seems clear. The extent to which pre-Neolithic populations across ISEA were agricultural is at present unknown. But what we do know is that a package of new technologies and new artifact types spread along with AN languages across the region and out into the Pacific very rapidly during the 2nd millennium BC. As Julian Thomas (1997) has argued that for Britain, that package **was** the Neolithic rather than any putative agricultural spread that may or may have accompanied it. Agriculture may well be a necessary but not a sufficient condition to explain the spread of Neolithic culture through the region, not least because the pace of spread is so rapid.

Yes, there was migration out of Taiwan, the genetic signal of which is clearly present. Yes, there was mass recruitment of people from populations already present in ISEA and Near Oceania as the Neolithic expanded. Yes, artifacts and practices were integrated from

already-resident groups, and others were discarded. New ideas were brought into being as unexpected human and environmental situations were encountered.

A very useful concept, Helle Vandkilde's (2007) idea of "macro-regional phases of conjuncture". can be borrowed from recent discussions of the archaeology of northern and central Europe. "" She explains the concept thus: "By macro-regional I mean that the phenomenon is geographically widespread and by phases of conjuncture I mean a concurrence of very special circumstances within a short time frame. It is a question of particularly dramatic phases that transpire through material culture changing radically in a short time period across widespread areas and then appearing with a homogeneous new style" (2007: 16). She suggests that such phases: "[...] are related to changing social identities: transitory horizons in which new forms of trans-cultural things, ideas, knowledge and people spread across extensive areas and cause the societies involved to fundamentally change. The social climate appears 'extra hot', foreign impulses are actively and creatively incorporated, and identities rapidly and profoundly change" (2007: 16–7). As I have suggested elsewhere (Spriggs 2011), such an approach within a broader evolutionary archaeology framework (Shennan 2004) seems to be a useful way to get us beyond the somewhat simplistic binary oppositions — migration versus diffusion, New Guinea versus ISEA origins for Lapita, and so on — that we have been arguing about hitherto in the region.

This is why attempts to "unpack" the ISEA Neolithic package (O'Connor 2006), for example, by taking out an artifact type here, a crop there, and so on, simply miss the point. This is why talking of the process as if it were just "the spread of Lapita pottery" (Torrence and Swadling 2008: 600), or some kind of "culturally unaccompanied baggage" in Jean Kennedy's memorable phrase (1983: 120), is an unconvincing denial of the world-changing significance of what occurred at that time.

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<H1>References

- Anderson, A., Bedford, S., Clark, G., Lilley, I., Sand, C., Summerhayes, G. and Torrence, R. An inventory of Lapita sites containing dentate-stamped pottery. In *The Archaeology of Lapita Dispersal in Oceania. Terra Australis* 17, ed. G. R. Clark, A. J. Anderson and T. Vunidilo. Canberra: Pandanus Books, 2001, pp. 1–13.
- Bedford, S. and Sand, C. Lapita and Western Pacific settlement: progress, prospects and persistent problems. In *Oceanic Explorations: Lapita and Western Pacific Settlement. Terra Australis* 26, ed. S. Bedford, C. Sand and S. P. Connaughton. Canberra: ANU E Press, 2007, pp. 1–15.
- Bedford, S. and Spriggs, M. Birds on the rim: a Unique Lapita carinated vessel in its wider context. *Archaeology in Oceania* 42, 1 (2007): 12–21.
- Bellwood, P. *Prehistory of the Indo-Malaysian Archipelago*, 2nd ed. Honolulu: University of Hawaii Press, 1997.
- . Early agriculturalist population diasporas? Farming, language and genes. *Annual Review of Anthropology* 30 (2001): 181–207.
- . *First Farmers*. Oxford: Blackwell, 2005a.
- . Coastal South China, Taiwan, and the prehistory of the Austronesians. In *The Archaeology of Southeast Coastal Islands of China Conference*, ed. Chen Chung-yu and Pan Jian-guo. Taipei: Executive Yuan, Council for Cultural Affairs, 2005b, pp. 1–22.

- . The early movements of Austronesian-speaking peoples in the Indonesian region. In *Austronesian Diaspora and the Ethnogenesis of People in Indonesian Archipelago*, ed. Truman Simanjuntak, I.H.E. Pojoh and Mohammad Hisyam. Jakarta: LIPI Press, 2006, pp. 61–82.
- . Holocene population history in the Pacific region as a model for worldwide food producer dispersals. *Current Anthropology* 52, number S4. DOI (2011): 10.1086 / 658181.
- Bellwood, P. and Koon, P. ‘Lapita colonists leave boats unburned!’ The question of Lapita links with Island Southeast Asia. *Antiquity* 63 (1989): 613–22.
- Blust, R. Subgrouping, circularity and extinction: some issues in Austronesian comparative linguistics. In *Selected Papers from the 8th International Conference on Austronesian Linguistics*, ed. E. Zeitoun and P. Jen-kuei Li. Taipei: Institute of Linguistics, Academia Sinica, 1999, pp. 31–94.
- . The position of the languages of Eastern Indonesia: a reply to Donohue and Grimes. *Oceanic Linguistics* 48, 1 (2009): 36–77.
- Bulbeck, F. D. An integrated perspective on the Austronesian diaspora: the switch from cereal agriculture to maritime foraging in the colonization of Island Southeast Asia. *Australian Archaeology* 67 (2008): 31–51.
- Clark, G., Petchey, F., Winter, O., Carson, M. and O’Day, P. New radiocarbon dates from the Bapot-1 site in Saipan and Neolithic dispersal by stratified diffusion. *Journal of Pacific Archaeology* 1, 1 (2010): 21–35.
- Clarke, D. *Analytical Archaeology*. London: Methuen. 1968..
- Cox, M., Karafet, T., Lansing, J. S., Herawati Sudoyo and Hammer, M. Autosomal and X-linked single nucleotide polymorphisms reveal a steep Asian-Melanesian ancestry cline in eastern Indonesia. *Proceedings of the Royal Society B* 277 (2010): 1589–96.
- Daud Tanudirjo. The dispersal of Austronesian-speaking people and the ethnogenesis of Indonesian People. In *Austronesian Diaspora and the Ethnogenesis of People in Indonesian Archipelago*, ed. Truman Simanjuntak, I.H.E. Pojoh and Mohammad Hisyam. Jakarta: LIPI Press, 2006, pp. 83–98.

- Denham, T. The roots of agriculture and arboriculture in New Guinea: looking beyond Austronesian expansion, Neolithic packages and indigenous origins. *World Archaeology* 36, 4 (2004): 610–20.
- Denham, T., Haberle, S. and Lentfer, C. New evidence and revised interpretations of early agriculture in Highland New Guinea. *Antiquity* 78 (2004): 839–57.
- Denham, T., Haberle, S.G., Lentfer, C., Fullagar, R., Field, J., Therin, M., Porch, N. and Winsborough, B. Origins of agriculture at Kuk Swamp in the highlands of New Guinea. *Science* 301 (2003): 189–93.
- Dewar, R. Rainfall variability and subsistence systems in Southeast Asia and the western Pacific. *Current Anthropology* 44 (2003): 369–88.
- Donohue, M. and Denham, T. Farming and language in Island Southeast Asia. *Current Anthropology* 51, 2 (2010): 223–56.
- Donohue, M. and Grimes, C. E. Yet more on the position of the languages of eastern Indonesia and East Timor. *Oceanic Linguistics* 47, 1 (2008): 115–58.
- Dunis, S. *Pacific Mythology, Thy Name is Woman*. Papeete: Haere Po, 2009.
- Fairbairn, A. and Swadling, P. Re-dating Mid-Holocene betelnut (*Areca catechu* L.) and other plant use at Dongan, Papua New Guinea. *Radiocarbon* 47, 3 (2005): 377–82.
- Glover, I. C. Prehistoric plant remains from archaeological sites in Southeast Asia, with special reference to rice. In *South Asian Archaeology 1977*, ed. M. Taddei. Naples: Universitario Istituto Orientale, 1979, pp. 7–37.
- . *Archaeology in Eastern Timor*. *Terra Australis* 11. Canberra: Department of Prehistory, Research School of Pacific Studies, The Australian National University, 1986.
- Gray, R.D., Drummond, A.J. and Greenhill, S.J. Language phylogenies reveal expansion pulses and pauses in Pacific settlement. *Science* 323 (2009): 479–83.
- Green, R.C. The Lapita Cultural Complex: current evidence and proposed models. *Bulletin of the Indo-Pacific Prehistory Association* 11 (1991): 295–305.
- . Lapita and the cultural model for intrusion, integration and innovation. In *Australian Archaeologist: Collected Papers in Honour of Jim Allen*, ed. A. Anderson and T. Murray. Canberra: Coombs Academic Publishing, ANU, 2000, pp. 372–92.

- Hung, Hsiao-Chun. Neolithic interaction between Taiwan and northern Luzon. *Journal of Austronesian Studies* 1. 1 (2005): 109–33.
- . Migration and Cultural Interaction in Southern Coastal China, Taiwan and the Northern Philippines 3000BC to AD1: The Early History of the Austronesian-speaking Populations. Thesis (PhD), The Australian National University, Canberra, 2008.
- Hung, Hsiao-Chun, Yoshiyuki Izuka, Bellwood, P., Kim Dung Nguyen, Bellina, B., Praon Silapanth, Dizon, E., Santiago, R., Ipoi Datan and Manton, J. Ancient jades map 3000 years of prehistoric exchange in Southeast Asia. *Proceedings of the National Academy of Sciences, USA* 104, 50 (2007): 19745–50.
- Hung, Hsiao-Chun, Carson, M.T., Bellwood, P., Campos, F.Z., Piper, P.J., Dizon, E., Bolunia, M.J.L.A., Oxenham, M. and Chi, Zhang. The first settlement of Remote Oceania: the Philippines to the Marianas. *Antiquity* 85 (2011): 909–26.
- Jiao, Tianlong, ed. *Lost Maritime Cultures: China and the Pacific*. Honolulu: Bishop Museum Press, 2007.
- Kennedy, J. On the prehistory of Western Melanesia: the significance of new data from the Admiralty Islands. *Australian Archaeology* 16 (1983): 115–22.
- Klamer, M., Reesink, G. and Staden, M. van. East Nusantara as a linguistic area. In *From Linguistic Areas to Areal Linguistics*, ed. P. Muysken. Amsterdam: Benjamins, 2008, pp. 95–149.
- Larson, G., Cucchi, T., Fujita, M., Matisoo-Smith, E., Robins, J., Anderson, A., Rolett, B., Spriggs, M., Dolman, G., Tae-Hun Kim, Nguyen Thi Dieu Thuy, Randi, E., Doherty, M., Due, R. A., Bolt, R., Djubiantono, T., Griffin, B., Michiko Intoh, Keane, E., Kirch, P., Kuang-Ti Li, Morwood, M., Pedrina, L. M., Piper, P. J., Rabett, R. J., Shooter, P., Bergh, G. van den, West, E., Wickler, S., Jing Yuan, Cooper, A. and Dobney, K. Phylogeny and Ancient DNA of *Sus* provides new insights into Neolithic Expansion in Island Southeast Asia and Oceania. *Proceedings of the National Academy of Sciences, USA* 104, 12 (2007): 4834–9.
- Lloyd-Smith, L. and Cole, F. The jar-burial tradition in the West Mouth of Niah Cave, Sarawak: Burial histories, social identities, and changing perceptions of pottery and death. In *Fifty Years of Archaeology in Southeast Asia: Essays in honour of Ian Glover*,

- ed. B. Bellina, E. A. Bacus, T. O. Pryce and J. Wisseman Christie. Bangkok: River Books, 2010, pp. 115–27.
- Matisoo-Smith, E. Animal translocations, genetic variation, and the human settlement of the Pacific. In *Genes, Language and Culture History in the Southwest Pacific*, ed. J. S. Friedlaender. Oxford: Oxford University Press, 2007, pp. 157–70.
- Matisoo-Smith, E. and Robins, J. Mitochondrial DNA evidence for the spread of Pacific rats through Oceania. *Biological Invasions* 11 (2009): 1521–7.
- Mijares, A. S. and Lewis, H. Cave sites in North-eastern Luzon, Philippines. Preliminary soil micromorphology study. *Asian Perspectives* 48, 1 (2009): 98–118.
- Newton, D. Reflections in bronze: Lapita and Dong Son art in the Western Pacific. In *Islands and Ancestors: Indigenous Styles of Southeast Asia*, ed. J.P. Barbier and D. Newton. Oxford: Prestel, 1988, pp. 10–23.
- O'Connor, S. Unpacking the Island Southeast Asian Neolithic cultural package, and finding local complexity. In *Uncovering Southeast Asia's Past: Selected Papers from the 10th International Conference of the European Association of Southeast Asian Archaeologists*, The British Museum, London, 14 to 17 September 2004, ed. E.A. Bacus, I.C. Glover and V.C. Piggott. Singapore: NUS Press, 2006, pp. 74–87.
- . Continuity in shell artefact production in Holocene East Timor. In *Fifty Years of Archaeology in Southeast Asia: Essays in honour of Ian Glover*, ed. B. Bellina, E. A. Bacus, T. O. Pryce and J. Wisseman Christie. Bangkok: River Books, 2010, pp. 219–33.
- O'Connor, S. and Veth, P. Early Holocene shell fish hooks from Lene Hara Cave, East Timor, establish complex fishing technology was in use in Island Southeast Asia five thousand years before Austronesian settlement. *Antiquity* 79 (2005): 249–56.
- O'Connor, S., Barham, A., Spriggs, M., Veth, P., Aplin, K. and St Pierre, E. Cave archaeology and sampling issues in the Tropics: A case study from Lene Hara Cave, a 42,000 year old occupation site in East Timor. *Australian Archaeology* 71 (2010): 29–40.
- O'Connor, S., Barham, A., Aplin, K., Dobney, K., Fairbairn, A. and Richards, M. The power of paradigms: Examining the evidential basis for early to mid-Holocene pigs and pottery in Melanesia. *Journal of Pacific Archaeology* 2, 2 (2011): 1–25.
- Oliveira, N. V. Subsistence Archaeobotany: Food Production and the Agricultural Transition in East Timor. Thesis (PhD), The Australian National University, Canberra, 2008.

- Oppenheimer, S. *Eden in the East: The Drowned Continent of Sundaland*. London: Phoenix, 1998.
- Oppenheimer, S. and Richards, M. Polynesians: devolved Taiwanese rice farmers or Wallacean maritime traders with fishing, foraging and horticultural skills. In.) *Examining the Farming / Language Dispersal Hypothesis*, ed. P. Bellwood and C. Renfrew. Cambridge: McDonald Institute, 2002, pp. 287–98.
- Pawley, A. The Austronesian dispersal: Languages, technologies and people. In *Examining the Farming / Language Dispersal Hypothesis*, ed. P. Bellwood and C. Renfrew. McDonald Institute Monographs. Cambridge: McDonald Institute, 2002, pp. 251–73.
- Paz, V. Island Southeast Asia: spread or friction zone? In *Examining the Farming / Language Dispersal Hypothesis*, ed. P. Bellwood and C. Renfrew. Cambridge: McDonald Institute, 2002, pp. 275–85.
- Petchey, F. New Zealand bone dating revisited: A radiocarbon discard protocol for bone. *New Zealand Journal of Archaeology* 19 (1997): 81–124.
- Piper, P.J., Hsiao-Chun Hung, Campos, F.Z., Bellwood, P. and Santiago, R. A 4000 year-old introduction of domestic pigs into the Philippine Archipelago: implications for understanding routes of human migration through Island Southeast Asia and Wallacea. *Antiquity* 83 (2009): 687–95.
- Reepmeyer, C., Spriggs, M., Anggraeni, Lape, P., Lee Neri, Ronquillo, W. P., Truman Simanjuntak, Summerhayes, G., Daud Tanudirjo and Archie Tiauzon. Obsidian sources and distribution systems in Island Southeast Asia: New results and implications from geochemical research using LA-ICPMS. *Journal of Archaeological Science* 38, 1 (2011): 2995–3005.
- Ross, M. The integrity of the Austronesian language family: from Taiwan to Oceania. In *Past Human Migrations in East Asia: Matching Archaeology, Linguistics and Genetics*, ed. A. Sanchez-Mazas, R. Blench, M. D. Ross, I. Peiros and M. Lin. Routledge: London / New York, 2008, pp. 161–81.
- Schapper, A. Phalanger facts: notes on Blust's marsupial reconstructions. *Oceanic Linguistics* 50, 1 (2011): 258–72.
- Shennan, S. Analytical Archaeology. In *A Companion to Archaeology*, ed. J. Bintliff. Oxford: Blackwell, 2004, pp. 3–20.

- Truman Simanjuntak, T., Morwood, M.J., Intan, F.S., Mahmud, I., Grant, K., Somba, N., Akw, B. and Utomo, D.W. Minanga Sipakko and the Neolithic of the Karama River. In *Austronesian in Sulawesi*, ed. Truman Simanjuntak. Depok: Center for Prehistoric and Austronesian Studies, 2008, pp. 57–75.
- Solheim, W.G. II. The Nusantara and South China. *Journal of the Hong Kong Archaeological Society* 6 (1975): 108–15.
- . The Nusantara hypothesis: The origin and spread of Austronesian speakers. *Asian Perspectives* 26 (1984–85): 77–88.
- . *Archaeology and Culture in Southeast Asia: Unveiling the Nusantara*. Quezon City: University of Philippines Press, 2006.
- Spriggs, M. The changing face of Lapita: Transformation of a design. In *Lapita Design, Form and Composition. Occasional Papers in Prehistory* 19, ed. M. Spriggs. Canberra: Department of Prehistory, RSPacS, Australian National University, 1990, pp. 83–122.
- . Who cares what time it is? The importance of chronology in Pacific archaeology. In *'Histories of Old Ages: Essays in Honour of Rhys Jones*, ed. A. Anderson, I. Lilley and S. O'Connor. Canberra: Pandanus Books, ANU, 2001, pp. 237–49.
- . Chronology of the Neolithic transition in Island Southeast Asia and the Western Pacific: A view from 2003. *The Review of Archaeology* 24, 2 (2003): 57–80.
- . The Neolithic and Austronesian expansion within Island Southeast Asia and into the Pacific. In *From Southeast Asia to the Pacific: Archaeological Perspectives on the Austronesian Expansion and the Lapita Cultural Complex*, ed. S. Chiu and C. Sand. Taipei: Academia Sinica, 2007, pp. 104–125.
- . Archaeology and the Austronesian expansion: Where are we now? *Antiquity* 85 (2011): 510–28.
- Spriggs, M. and Anderson, A. Late colonization of East Polynesia. *Antiquity* 67 (1993): 200–17.
- Spriggs, M., Reepmeyer, C., Anggraeni, Lape, P., Neri, L., Ronquillo, W.P., Truman Simanjuntak, Summerhayes, G., Daud Tanudirjo and Archie Tiauzon. Obsidian sources and distribution systems in Island Southeast Asia: A review of previous research. *Journal of Archaeological Science* 38, 1 (2011): 2873–881.

- Storey, A.A., Spriggs, M., Bedford, S., Hawkins, S.C., Robins, J.H., Huynen, L. and Matisoo-Smith, E. Mitochondrial DNA from 3000-year old chickens at the Teouma site, Vanuatu. *Journal of Archaeological Science* 37 (2010): 2459–68.
- Szabo, K. and O'Connor, S. Migration and complexity in Holocene Island Southeast Asia. *World Archaeology* 36, 4 (2004): 621–8.
- Terrell, J. and Welsch, R. Lapita and the temporal geography of prehistory. *Antiquity* 71 (1997): 548–72.
- Terrell, J., Kelly, K. and Rainbird, P. Foregone conclusions? In search of 'Papuan' and 'Austronesians'. *Current Anthropology* 42, 1 (2001): 97–124.
- Thomas, J. The materiality of the Mesolithic-Neolithic transition in Britain. *Analecta Praehistorica Leidensia* 29 (1997): 57–64.
- . *Understanding the Neolithic*. London: Routledge, 2001.
- Torrence, R. and Swadling, P. Social networks and the spread of Lapita. *Antiquity* 82 (2008): 600–15.
- Tsang, C.H. Recent archaeological discoveries in Taiwan and Northern Luzon. In *From Southeast Asia to the Pacific: Archaeological Perspectives on the Austronesian Expansion and the Lapita Cultural Complex*, ed. S. Chiu and C. Sand. Taipei: Academia Sinica, 2007, pp. 75–94.
- Tykot, R. and Chia, S. Long-distance obsidian trade in Indonesia. *Materials Research Society Symposium Proceedings* 462 (1997): 175–80.
- Vandkilde, H. Archaeology, anthropology and globalization. In *Globalization, Battlegrounds and Economics: Three Inaugural Lectures in Archaeology*, ed. H. Vandkilde. Moesgaard: Aarhus University Press, 2007, pp. 7–27 (also available at: <http://aal.au.dk/global/nyheder/papers/> [accessed 21 May 2010]).
- Yen, D.E. Polynesian cultigens and cultivars: The questions of origin. In *Islands, Plants and Polynesians: An Introduction to Pacific Ethnobotany*, ed. P.A. Cox and S. A. Banack. Portland: Dioscorides Press, 1992, pp. 67–95.
- . The development of Sahul agriculture with Australia as bystander. In *'Transitions: Pleistocene to Holocene in Australia and Papua New Guinea*, ed. J. Allen and J. O'Connell. *Antiquity* 69 (1995): 831–47.