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Lapita People: an Introductory Context for Skeletal Materials Associated with Pottery of this Cultural Complex

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ABSTRACT. Various theoretical statements in the 1970's and 1980's by Howells, Bellwood, Pietrusewsky, Brace & Hinton, Terrell, and Houghton on the likely biological origins and affinities of populations which settled the geographic areas of Melanesia and Polynesia are outlined. They serve to highlight some of the background issues involved in a set of papers assembled here that constitutes the first thorough examination of human burials associated with the Lapita cultural complex. These are the only skeletal materials recovered so far from the Oceanic area to bear directly on the nature of the biological populations present in Island Melanesia and Western Polynesia 3,500 to 2,100 years ago and as such allow limited assessment of the different theories which to date have largely been derived from the analysis of either fairly recent palaeobiological evidence or from the study of still living populations.

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The discussion of the biological origins and affinities of the populations resident in Oceania at the time of European contact has a long history. It began with types called Melanesians, Micronesians and Polynesians, and it is in some ways unfortunate that those categories still remain with us today in many discussions of this topic. Certainly the concept of Polynesians as a reasonably homogeneous biological entity continues to have some utility (Howells, 1973:49, 228–233; 1979:282; Friedlaender, 1987:355–356) as it does culturally, linguistically and historically (Green, 1987; Kirch & Green, 1987). But this is emphatically not the case with the terms Melanesian and Micronesian, at least not in their original sense of separate and unified entities with a status similar to the situation in Polynesia (Terrell, 1986a: 15–41; Thomas, 1989; Green, 1989). In fact, as most researchers now recognise, the peoples of Melanesia in particular (i.e. those populations within the geographic area

of New Guinea and Island Melanesia) are "...markedly heterogeneous in languages, customs and biology..." (Terrell, 1986b:195).

Above all, what has been evident from the time of Howells' surveys (1943:42; 1973:48) to the most recent compilation of biological data (whether of blood polymorphisms, anthropometrics, dermatoglyphics, odontometrics or other biological variables), "...is the extraordinary amount of biological diversity..." which characterises smaller areas within Melanesia (Rhoads & Friedlaender, 1987:125), as well as Melanesia itself. For this reason the phylogenetic relationships between the human populations of Melanesia, and those of Micronesia and Polynesia have been the subject of numerous formulations, none of them entirely satisfactory, and often not particularly congruent with those developed by the linguists and archaeologists for the peopling of this area.

This introductory essay focuses on some of the recent theories influencing these topics, especially in the field of anthropometrics and odontometrics, which serve as background to the set of papers assembled here, papers which constitute the first thorough examination of human burials associated with the Lapita cultural complex (Fig. 1). It is hoped the papers of this volume will provide some limited assessment of those theories and perhaps suggest new views that can be evaluated in conjunction with those developed for the linguistic and archaeological evidence.

Linguists (Pawley, 1972; Clark, 1979) have now very systematically related the languages of Polynesia to a widespread Oceanic subgroup of the Austronesian (AN) language family in Melanesia and eastern Micronesia, which is but one family group among a total of some 60 odd unrelated language *families* (NAN) in that region (Foley, 1986:3). And archaeologists have convincingly traced the origins of the Polynesians and at least some later cultures in Melanesia and Eastern Micronesia back to an ancestral Lapita cultural complex widespread throughout Island Melanesia and Western Polynesia between 3,500 and 2,100 years ago. Yet similar results consistent with these views have not been an outcome of various endeavours in the area of biological anthropology. When the current views on the immediate origins of the Polynesians were first being developed, Green (1967:232), after reviewing some of the biological evidence, optimistically stated that "...it seems likely that populations once existed in more than one area of Eastern Melanesia from which one could derive both the Polynesians and a wide variety of populations that occur within Melanesia". But only a few years later Howells (1973:228), after a far more extensive review of all the biological evidence arrived at a quite different conclusion that "...the Polynesians – and the Fijians by and large are near them in body form – are simply too different from anything in Melanesia to be derived therefrom in a few thousand years". In his view they "...simply could not

have emerged from any eastern Melanesian populations; they are just too different genetically..." (1973:234).

As the linguistic and archaeological evidence for the relatedness of ancestors of the Polynesians with groups in the Melanesian area grew stronger, Howells was inclined to modify his position as to the route of entry (see below). Nevertheless he still maintained that the biological pattern of his pre-Polynesians "...in external features – but above all in the cranium, is too positive to leave any reasonable suspicion of an ancestral connection with Melanesians, and in fact demands that the pre-Polynesians [whom he correlates with Lapita populations] had no important gene exchange with Melanesians before or enroute to their colonization of Polynesia proper..." (1979:283–284). His conclusion was that it was still possible to draw hypothetical arrows in too many directions; among the things required to limit the possibilities were Lapita skeletons, to resolve what was described as "...something of a dilemma...". Meeting this need with appropriate skeletal evidence and achieving its proper analysis has taken another decade, and even now the sample is extremely limited. However, further developments in the biological anthropology of Melanesia as well as this first small sample of skeletal materials bearing directly on the anthropometric and odontometric nature of one group (Watom) and three separate individuals representing biological populations present in Island Melanesia and Western Polynesia 3,500 to 2,100 years ago allow some evaluation of the previous theories and the potential for development of new ones that better accommodate the various lines of evidence.

Melanesians as a Basic Population

A common position among many biological anthropologists in the Pacific has been that "...Melanesians

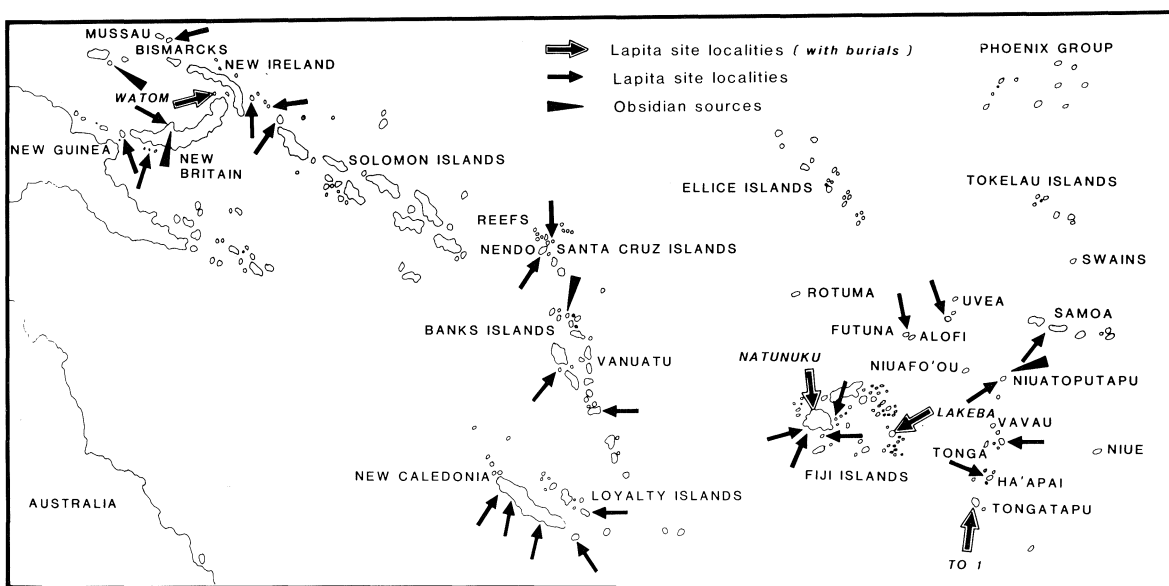


Fig.1. Distribution of Lapita sites in Oceania indicating those with burials.

are a single basic population rather than a composite, but a population of great genetic diversity..." (Howells, 1973:48). Swindler (1962:50) for example, following his study of some of the populations in Melanesia, found that they were sufficiently homogeneous to be regarded as a single geographical breeding unit. As Green observed this simply means that "...the various populations within this geographically delineated area have been exchanging genetic materials for a sufficient length of time to be more like each other than they are like groups outside this geographic area. It does not really help in establishing the origins of the basic populations which have contributed to its present makeup, for these may be the result of a long and complex history, nor does the fact that Melanesians are now somewhat like mean that the populations which now compose that unit were always so like..." (1967:230).

Given Howells' position of the Melanesians as a single basic population, and one that could not be in any significant way genetically related to Polynesians, it was necessary to devise an alternative formulation for the peopling of Polynesia. Initially this took the form of what I term a Melanesian avoidance theory, and involves getting ancestors of the Polynesians from Indonesia out to that area via a Micronesian route, with entry in this case via Eastern Island Melanesia and Fiji (Howells, 1973:252–260 and Figs 14a,b,c,d). Variations of this theory had been presented previously by Te Rangi Hiroa (Buck, 1944: 473, 520) and Duff (1959: 126–127; 1970:16). When the linguistic and archaeological evidence for a Melanesian origin and route became sufficient to discredit the Micronesian option, Howells had to suppose that somehow his pre-Polynesians "...reached the far end of the Lapita line (Samoa), however they entered it, without becoming physically Melanesianized to any significant extent along the way..." (1979: 284). This view is further developed in his introduction to the Solomon Islands Project volume (Howells, 1987:10).

Papers by others in that volume seriously challenge the view that all Melanesians constitute a single basic population, rather than a composite developed by a series of inputs, some major, some minor, extending over at least 40,000 years. Human colonisation of all of Ancient Near Oceania, comprising Sahulland or Greater Australia, plus the island groups of Wallacea, of the Bismarcks and the Solomon Islands chain, is now firmly established for the 30,000 to 40,000 year time range (Allen, 1989; Green, in press). Yet within that vast area, it is only from parts of the Australian zone that there is any fossil evidence which bears directly on what the initial *Homo sapiens* colonists may have looked like. Once Australia's indigenous populations were thought to have exhibited differences sufficient to talk of their multiple or "trihybrid" origins (Birdsell, 1949; 1967). Then, as the early skeletal evidence grew, opinion switched to the notion of two separate late Pleistocene groups, one gracile and perhaps from Asia, and the other robust and perhaps from Indonesia (Thorne, 1977; Wolpoff *et al.*, 1984:446) or more generally just from Sundaland (Howells, 1977). Other commentators, both in the past (Abbie, 1968) and recently, have failed to see in either the modern or fossil evidence really strong support

for postulating more than a single founding biological population (Brown, 1987:62; Stringer & Andrews, 1988:1267). Howells, (1973:177) even went so far as to lump together all human populations over this entire area and extending into a source in Island Southeast Asia as "Old Melanesians", for which grouping Bellwood (1978:26; 1985:70, see also Fig. 3.12) has consistently used Coon's term "Australoids", while Oliver (1989:58) has recently referred to them as "Sundanoids".

In contrast to the implied homogeneity among Australia's aboriginal populations, those of Melanesia are consistently seen as much more heterogeneous and, while perhaps in some ways related to those of Australia, sufficiently distinctive to be separated from them. Detailed studies employing a wide range of observations across discrete biological systems suggest that populations in the Solomon Islands chain, and especially those on the island of Bougainville, consist of a number of quite separate biological populations. Thus for Bougainville, variation in blood polymorphisms and anthropometric measurements attest to two distinctive biological groups of "Papuan" or non-Austronesian speakers, one in the north of the island and another in the south (Rhoads & Friedlaender, 1987:153; Rhoads, 1987:168). More importantly in relation to our concerns, on a wider comparative canvass from New Guinea to the eastern Solomons, these data, together with odontometric and fingerprint comparisons (Froehlich, 1987:203; Harris & Bailit, 1987:257–258), separate the Melanesian Austronesian speakers from the non-Austronesians.

As a result of the fingerprint comparisons Froehlich (1987:204) concludes that "...from a broader perspective, the Melanesian evidence for an intrusive AN migration is unmistakable...". Other such comparisons suggest that "...biological similarities between New Guinea and Australia may reflect initial human colonization of Oceania...", while "...the distinctiveness of the Bougainville NAN populations may represent a subsequent migration..." (1987:207). Harris & Bailit (1987:259) also find that the odontometric patterns show "...that the NAN-speaking peoples of Bougainville Island have an origin and history in Oceania significantly different from that of more recent AN-speakers...". Friedlaender (1987:254–255) in his final overview on these matters, noted that on many biological characteristics the people of Bougainville are sufficiently set off from the populations of both Australia and New Guinea to indicate that the pre-Austronesian settlements in Island Melanesia are very old, a deduction now demonstrated to be true by recent archaeology. He added to this the prospect that they are also quite possibly the result of a number of separate migrations with subsequent differentiation *in situ* of a lesser magnitude. Taken together with his observation (Friedlaender, 1987:355) that the more recent "...Austronesian-speaking populations in Melanesia tend to show biological similarities in spite of their strong resemblances to immediately neighbouring groups...", an observation well supported by the most recent work on the gammaglobulin (Gm) distribution by Kelly (1988), it would appear that a number of reasonably distinct biological populations in fact occur in the Near Oceanic region of

Melanesia.

The question is, what are the relationships of these human populations to any fossil material that may be found in this region or those in the distant island groups of Remote Oceania. So far, unlike Australia, appropriate skeletal materials from the late Pleistocene are entirely lacking for Near Oceania (New Guinea, the Bismarcks and the Solomons) and not to be expected in Remote Oceania (the regions to the east of the Solomons settled only some 3,000 to 3,500 years ago). Thus the very limited set of Lapita skeletons assembled for study here, dating to between 3,500 and 2,100 years ago, are the first to cast any light on former populations in Melanesia and Polynesia at that time. Not surprisingly, various authors continue to interpret them in the context of present day populations, recent museum based skeletal collections and several of the more current theoretical positions used to explain such data.

Moving the Polynesian Ancestors through Melanesia

As indicated above, once archaeology and language made it evident that the Polynesians had their cultural and linguistic origins in Melanesia, this implied the same was probably true for their biological origins. New perspectives were required to accommodate this viewpoint. Avoidance theories now changed from postulating settlement routes that skirted Melanesia, to those which emphasised avoidance within Near Oceania of "Australoid" or "Old Melanesian" populations presumed to have been already long established residents. Thus Bellwood (1978:49) emphasised that the "...Polynesians and eastern Micronesians may have spread through Melanesia as a series of non-exogamous, sea-colonising groups, and that they did not come into very intensive genetic contact with the Melanesian populations...". Those who settled Polynesia and Micronesia retained much of their ancestral phenotype; those who remained in Melanesia became partially but not entirely absorbed.

Brace & Hinton (1981), working from the data of Oceanic tooth size variation, put forward a scheme very similar to that of Bellwood. They have an early large-toothed (megadont) pre-agricultural people whose eastern extent in the Pacific coincides with that for the settlement of Ancient Near Oceania (1981:fig.5). This is followed by a small-toothed population of Austronesian speakers, whose sophisticated sea-going technology enabled them to bypass the settled lands of South Asia and skirt much of New Guinea, the Bismarcks and the Solomons, but settle the previously unoccupied small islands of Remote Oceania, especially those of Micronesia and Polynesia (Brace & Hinton, 1981:557). On the way they inevitably met and mingled with the descendants of the earlier settlers of the large islands of Near Oceania. Some of these mixed populations later migrated into Remote Oceania as far as Fiji, Vanuatu, and New Caledonia.

In contrast to Brace & Hinton, Harris & Bailit (1987:242–243) find that megadont or large-toothed samples

do not seem to extend east of New Guinea and that the Solomon Islands' populations they examined are seen to have small to medium dentitions with the NAN and AN speaking groups indistinguishable on this index. They (1987:258) conclude that "...except in extreme cases, size does little to disentangle the web of relationships, either just within the Solomons or in Oceania generally...". To them it appears that proportionality (shape), especially for individual tooth types, is probably a more indicative measure of a group's relationship than generalised size (Harris, 1981:559; see also Harris & Bailit, 1987:256).

Pietrusewsky (1977) examined crania from 17 separate populations in Oceania, (eight from Polynesia, seven from Melanesia and two from western Micronesia). Like Howells, he (1977:92) found a major distinction between groups in Melanesia and those of Polynesia, showing Fiji grouping with Melanesia on metrical traits and with the Polynesian, especially Tongan, samples on non-metrical traits (1977:94). Some affinities between the two western Micronesian samples and those of Melanesia were also noted, although cranio-metric results placed them within a Polynesian division (1977:94). Since this paper was published, as Pietrusewsky (1989) notes in the summary to his study of the Natunuku Lapita skeleton a long list of additional papers, both by himself and others (based on a wealth of evidence covering anthropometric data, cranial variation, genetic data, and dentitions of numerous Pacific populations), have all identified the Polynesians as genetically uniform and unrelated to the Melanesians. His cautious reconsiderations here, based the sample of 11 Lapita specimens which lead him to reopen that question, deserve careful appraisal.

Deriving Polynesians from Palaeopopulations in Melanesia

The position that it was biologically impossible to derive Polynesians from Melanesians, or that there were *no* populations, now or in the past, in Melanesia which could be ancestral to both Polynesians and some of the diverse populations in Melanesia was never one to which either Houghton or Terrell were attracted. Houghton (1980:73) simply saw the first Polynesians as "...a canoe-load of closely-related people cast upon the then uninhabited Fiji, not at all typical of the populations from which they sprang...plucked by drift of genes and canoes out of the populations inhabiting island Melanesia some four thousand years ago". For him, the answers lay in the ground, and what was required was human skeletal material in association with Lapita pottery (1980:71). At that time he had studied only one such specimen, from Lakeba in the Lau Group of Fiji, which he assessed as a person fully Polynesian in physical form. Now the samples Houghton has examined also include a specimen from Tonga, and the eight from Watom. The model within which he works is not all that different from the one originally proposed, namely that the dominant settlement of Polynesia was by a small group drawn from one of the varied populations of Island

Melanesia.

Such a model was given a fuller and more theoretical treatment by Terrell (1986b). He too envisages the departure of a small, genealogically-biased sample of people from a genetically heterogeneous prehistoric Melanesian source population comprised of numerous local entities. This population then undergoes immigrant selection for large body size and other characteristics, including those that favour survival on long sea journeys, resulting in colonisation of previously uninhabited island groups. This is followed by population growth, settlement expansion and local differentiation, plus periodic immigration from the original Melanesian source population. The result is numerous geographically differentiated local populations in the region comprising the Fiji, Tonga and Samoan triangle. According to Terrell (1986b:196) the processes involved are lineal fission, immigrant selection, and isolation-by-density. These are invoked to explain how biologically homogeneous Polynesians emerged from more diverse palaeopopulations located somewhere in Melanesia. What was lacking, of course, were suitable skeletal remains from Lapita and early Polynesian sites that might lend support to this particular model.

Other Issues

Diet. In addition to the various assessments of biological affinities, several authors in this volume comment on health and dietary conditions exhibited by these skeletons or their teeth. The open question in respect of diet for Lapita has been the degree to which horticultural or land based resources, versus those of marine origin, were important in the economy. Several separate studies, not included here, have addressed these questions in respect of some of the human remains under examination in this volume.

Evans (1987, in press) has addressed the incidence of dental caries and diet in a number of prehistoric Oceanic populations, including those of Watom and Lakeba. In both the latter cases the number of teeth, 24 and 22 respectively, are few, and the incidence carious 0.000% and 31.82±16.8% quite markedly different. Given the bias possible from the effects of sample size they are not easily interpreted in respect to diet.

More useful is the work of Horwood (1988, 1989) on trace element analysis of human bone from several prehistoric Pacific Island skeletal assemblages including Watom. Her conclusion (1988:138) was that the low zinc values combined with the high normalised strontium value can be interpreted as an indication that these people were consuming proportionally more vegetable than meat foods in their diet. The focus of the diet was predominantly terrestrial, rather than marine (Horwood, 1988:153).

Work underway by Quinn (Appendix 4 in Horwood, 1988; see also tables 1 to 3 in Leach *et al.*, in press), uses nitrogen, carbon, and sulphur isotope analysis to bear on this problem. Again the Watom sample is found to have a mixed terrestrial and marine diet, with the terrestrial component being of greater significance than would be

expected for “strandloopers”. The nitrogen values indicate a marine component derived mainly from a reef environment. Results for the To.1 skeleton are not too different from those of Watom (Leach *et al.*, in press).

Differences in measurements between three authors. It will be apparent to the careful reader that in some observations common to two or, with respect to teeth, three of the authors, that not only are differing points of view expressed after examining the same evidence, but observer differences also occur in the records for various of the measurements obtained. Some of the inter-observer variation may well be due to the poor state of the skeletal remains themselves, but in addition it raises the problem of the degree of standardisation achieved in measurement procedures. It also poses the question of the degree to which these differences might effect the various analyses employed. Still, it is important to recognise that the various articles in this volume present for the first time a great deal of detailed biological data on the known though limited range of Lapita skeletal material which has been recovered. Future studies will doubtless address some of the observational and analytical problems that they raise and examine such data in new frameworks.

Dating and context. A small and miscellaneous collection of fragmented skeletal and often isolated dental remains from Lapita sites in the Mussau Islands has recently been published (Kirch *et al.*, 1989) which allows some very preliminary observations to be drawn about early Lapita people in that region. They suggest these people had slightly closer affinities with Indonesian than with Melanesian populations. In this context the Watom skeletal collection of eight individuals becomes an important sample as it is rather more representative of a single population and provides somewhat fuller data on their skeletal and dental characteristics. However, in relation to its chronological position, it is located towards the end of the Lapita sequence, some 40 generations (or 1,000 years) after the Lapita cultural complex first appeared in the Bismarck Archipelago 3,500 years ago. In contrast the three individual skeletons from Natunuku in Fiji, from Lakeba in Fiji's Lau Group, and from To.1 in Tonga, reflect the earlier and middle part of the Eastern Lapita sequence. Here it is thought Lapita people were the first inhabitants, whereas in the islands of the Bismarck Archipelago, people of uncertain affinity had been resident for 35,000 years or more, and the Watom and Mussau samples and their different dates requires that situation also to be taken into account.

Conclusion

No concluding essay appears after the last of the papers presented in this volume. Rather, authors of each of the articles arrive at separate, sometimes contrastive, and usually tentative results. Sample sizes are still too small for it to be otherwise. Moreover, the several theoretical and

analytical frameworks within which this first assemblage of detailed biological data on Lapita skeletal material is interpreted are not such as to warrant drawing firm summary conclusions. Instead, what one hopes is accomplished is that some of the present conceptual frameworks in which the peopling of this part of the Pacific have been formulated will now be re-examined and in due course replaced by new propositions that accommodate better the ever increasing body of new biological evidence.

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