TITLES AND ABSTRACTS, 8TH INTERNATIONAL LAPITA CONFERENCE, PORT VILA, VANUATU

(AS OF JUNE 29)
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SESSION ONE

WHO WERE THE LAPITA PEOPLES? BIOARCHAEOLOGICAL PERSPECTIVES ON AFFINITIES AND HEALTH

Contact Hallie Buckley (hallie.buckley@otago.ac.nz) and Frédérique Valentin (frederique.valentin@mae.u-paris10.fr)

The contribution of bioarchaeological research in the understanding of Lapita biology and culture has increased enormously in the last 10 years with the excavation and analysis of significant new human skeletal samples from both near and remote Oceania. Other projects in SE Asia and Micronesia have further added to our knowledge of the possible origins and relationships of Lapita peoples. This session will provide a synthesis of recent research findings on Lapita health. The biological relationships of Lapita will also be examined through the analysis of morphometrics and ancient DNA of humans and their commensal species.

1. THE ORIGINS OF THE METABOLIC SYNDROME IN THE PACIFIC: CONTRIBUTIONS OF LAPITA BIOARCHAEOLOGY TO MODERN HEALTH PROBLEMS

Hallie Buckley50

Modern Polynesians have the highest prevalence of metabolic syndrome related diseases in the world. A genetic predisposition for hyperinsulinaemia and hyperuricaemia contributes to this epidemiological pattern. Here we compare dietary isotope values with the presence of skeletal indicators of diffuse idiopathic skeletal hyperostosis (DISH) and gout in an early prehistoric Pacific Island skeletal assemblage to evaluate risk factors for the development of these conditions in the past, contributing to the understanding of the development of modern metabolic syndrome by considering its prehistoric analogue. Skeletons of thirty-five individuals from the 3000-year-old assemblage of Teouma, Vanuatu were assessed for skeletal evidence of DISH and gout. A statistically significant relationship was observed between the presence of DISH and gout. When sexes were considered separately this relationship was significant for males only. There was no difference in the mean carbon or nitrogen stable isotope values between individuals with and without DISH or gout. The presence of a positive relationship between DISH and gout and absence of a positive relationship with dietary isotopes suggests that while DISH and gout have a common causative factor, that factor is not individual access to dietary resources. Individual genetic factors probably interacted with the environmental conditions in place during the colonization process to produce a pattern of skeletal change that could be considered a prehistoric variant of the metabolic syndrome.

2. COLONISATION, SELECTION OR DRIFT? EVOLUTIONARY EXPLANATIONS FOR HIGH METABOLIC DISEASE BURDEN AMONG LAPITA-DESCENDENT POPULATIONS

Anna Gosling50, Tony Merriman50 and Lisa Matisoo-Smith50

Pacific populations and Polynesians in particular have high rates of metabolic disease including diabetes and gout. This has often been explained as being the result of selection for a “thrifty genotype” in Polynesian populations. We suggest several alternative explanations including ancient ancestry and selection for a hyperuricaemic phenotype in malarial environments that becomes maladaptive once people reach a malaria-free environment.

3. IS THE TAIL WAGGING THE DOG? ARCHAEOLOGICAL, LINGUISTIC AND GENETIC EVIDENCE FOR LAPITA HUMAN-ANIMAL INTERACTIONS AND DISPERSALS

Karen Greig50, Lisa Matisoo-Smith50 & Richard Walter50

The presence of dogs in the Lapita cultural complex is widely assumed and is supported by linguistics, although its presence in sites is currently not well documented. In contrast with scarcity of dog remains in Lapita sites, many Polynesian sites contain large numbers of dogs. Here we assess the archaeological, linguistic and genetic evidence for dog and other Lapita animal introductions and dispersals and the implications of these for understanding animal – human interactions in Pacific prehistory.
4. LAPITA PEOPLE, LAPITAPeoples AND POST LAPITA MIGRATIONS – HOW MIGHT WE IDENTIFY SERIAL SETTLEMENT OF REMOTE OCEANIA?

Lisa Matisoo-Smith

Over the years various theories have been presented to account for the phenotypic and genetic variation seen across the Pacific, particularly between Melanesian and Polynesian populations – from founder effect and drift to post-settlement contact to later migration events. While ancient DNA analyses of Pacific populations could allow us to identify serial settlement, recovery of Lapita associated sequences has to date been unsuccessful. Recent developments in DNA technology may allow us to use combined mitochondrial genome sequences and autosomal DNA from modern Pacific populations to identify a post-Lapita migration across the Pacific to Polynesia.

5. NAGSABARAN, NORTHERN LUZON AND TEOUMA, VANUATU: LINKED BY COMMON MORTUARY TRADITIONS?

Marc Oxenham, Anna Willis, Hsiao-Chun Hung, Hirofumi Matsumura and Ruth Page

We review aspects of the human biology and mortuary treatment of a series of primary burials and apparent cached crania recovered from the far northern Luzon shell midden site Nagsabaran, Philippines, over 4 seasons from 2000 to 2009. The significance of this small assemblage lies in the rarity of burials during the metal period in northern Luzon, the variability in mortuary treatment (including post burial retrieval of body parts) and the non-normative mortuary treatment of a physically disabled adult individual. We find that mortuary treatment was potentially mediated by biologically constructed age classes. Comparisons are made to mortuary traditions identified at the Lapita complex Teouma cemetery site on Efate Island, Vanuatu. We address what at face value would appear to be significant commonalities in what are otherwise quite unusual mortuary traditions. We conclude by suggesting that similarities seen in the mortuary traditions of Nagsabaran and Teouma (separated by some 6,500km) and potentially seen in Butuan, Mindanao and Pain Haka, Flores, Indonesia, could be traced to a common tradition of cranial removal and subsequent curation that arose in northern Luzon c. 2000 cal. BCE, if not earlier. The subsequent spread of this mortuary and/or cultic tradition seems to be associated with the movement of the Lapita culture complex through space and time.

6. POLYNESIAN CRANIOFACIAL SHAPE AMONG THE EARLY VANUATU POPULATION FROM TEOUMA: IMPLICATION FOR REMOTE OCEANIA SETTLEMENT

Frédérique Valentin, Florent Détroit, Matthew Spriggs, & Stuart Bedford

Large-scale excavations at the Teouma site (Efate, Vanuatu) have revealed a Lapita cemetery (c.3000-2800 BP) and 68 burial features. Adult inhumation was temporary and bones, including skulls and mandibles, were removed from burials post-decomposition, and re-deposited at the site but in a much smaller number than the incomplete inhumations. The uncovered cranial elements consist of seven skulls in secondary deposits, two partial skulls in a disturbed context (Quarry Area), single cranial fragments associated either with incomplete inhumation or secondary deposits, six mandibles and a fragment of a seventh, and 98 associated teeth. In the current study, we use five of the seven skulls that, after reconstruction, are almost complete and suitable for measurement recording. Biological affinities of the Teouma individuals were assessed using multivariate analysis and two selected data sets: a first including Late Pleistocene and Holocene individuals from the Sahul region, pre-Neolithic, individuals from Island Southeast Asia (ISEA) and immediately post-Lapita and more recent prehistoric individuals from Remote Oceania and a second representing five geographically distinct modern human populations from East Asia (China), Western Micronesia (Guam), Island Melanesia (mainly Tolais from New Britain), Australia and Eastern Polynesia. The results allow an approach of four aspects pertaining to the nature of the Lapita population: its Asian connection, its admixture degree, its connection with Polynesian population and the question of secondary population movements into Remote Oceania.
SESSION TWO

LAPITA ORIGINS AND DESTINATIONS: THE BISMARCKS AND POINTS WEST AND (FAR) EAST

(Contact Matthew Spriggs (Matthew.Spriggs@anu.edu.au) and Glenn Summerhayes (glenn.summerhayes@otago.ac.nz) Note: this will now be the second session, Monday afternoon, July 6th.

THERE ARE A LOT OF OPINIONS ABOUT THE ORIGINS OF LAPITA: MIGRATION FROM ISLAND SOUTHEAST ASIA, LOCAL DEVELOPMENT IN THE BISMARCKS, GREEN’S TRIPLE I MODEL AND SO ON. AT PRESENT THERE SEEMS TO BE A BIT OF AN IMPASSE IN THIS INVESTIGATION. THIS SESSION HOPES TO CONTRIBUTE TO THE BREAKING OF THAT IMPASSE THROUGH NEW EVIDENCE, NEW MODELS AND THEORY BUILDING. AT THE OTHER END OF THE LAPITA DISTRIBUTION, TO THE EAST IN FIJI, TONGA AND SAMOA, A QUESTION OF PERHAPS EQUIVALENT IMPORTANCE IS WHY DID THE LAPITA EXPANSION FINISH HERE. ARE THERE CLUES IN THE SITES THEMSELVES OR IN THE GENERAL GEOGRAPHY AS TO WHY LAPITA REACHED ITS GEOGRAPHICAL LIMITS IN THIS REGION?

1. A PRE-LAPITA CULTURAL COMPLEX?

Mike T. Carson46 and Hsiao-chun Hung38

Following the notion of a Lapita Cultural Complex, we examine the possibility of an older such cultural complex, originating in Island Southeast Asia before appearing in Oceania. We examine the role of decorated pottery as part of a cultural assemblage, together with fishing gear, stone and shell tools, shell ornaments, housing structures, patterns of settlement and land-use, and ritual activities. The configuration of this ancient cultural complex of course has varied from place to place and from time to time, although certain core elements have been consistent. We consider the roles of continuity versus change, toward interpreting the overall trends and patterns.

2. WAS SĀMOA COLONIZED BY SMALL AND ISOLATED GROUPS, AND IF SO WHY?

Ethan Cochrane43

This paper presents the results of fieldwork on ‘Upolu’s southeast coast indicating that there was no coastal plain until about 1200 BP and this coastline was likely not inhabited until 600 BP. The human population on this coastline was also likely quite small or the area was infrequently used. These findings suggest that we should re-think some assumed characteristics of Sāmoa’s colonizing groups, the process of “demographic exhaustion”, and the evolution of post-Lapita populations. Concepts from population ecology will be useful in this re-thinking.

3. THE ORIGINS OF EARLY POTTERY EXCHANGE TO THE NEW GUINEA HIGHLANDS

Dylan Gaffney50, Glenn Summerhayes50, Anne Ford50, James Scott50, Bill Dickinson42, Tim Denham38 & Judith Field48

During the late-Holocene Papua New Guinea (PNG) was host to the arrival of new pottery making peoples from the west. The interaction between these migrant Austronesian speakers and the indigenous Papuan speakers is poorly understood. In the New Guinea Highlands, new technologies such as pottery were introduced via ancient trade networks. The extent to which this introduction represents a diffusion of ideas, a movement of material culture, or a movement of peoples is important to understanding the nature of interaction during this early colonising phase. As a proxy for prehistoric trade and social interaction, the study undertook ceramic compositional analysis of fifteen sherds from two Highland sites using a Scanning Electron Microscope (SEM) to determine number of distinct production centres, and possible locations of production. This paper will present the results of our work and the implications following.
4. EARLY LAPITA SETTLEMENT IN THE COLONISATION PROCESS

Alex Scahill

Pottery has been the artefact of choice for establishing prehistoric migrations in the West Pacific as demonstrated by the discovery in the 1960s that dentate-stamped pottery of the Lapita Cultural Complex had a distribution that spanned thousands of kilometres. The decorative attributes of pots are traditionally assessed to infer a cultural connection and establish the migration pattern. In this paper, ceramic technology results are presented that indicate significant variation among early potting groups who colonized different parts of Remote Oceania around 3000 years ago. Expanding the study of prehistoric ceramics beyond decoration and vessel form provides new insight to ancient potting traditions and challenges ideas about early migration that are based predominantly on pot decoration.

5. HOP-SCOTCH IN THE SOLOMON ISLANDS: AN UPDATE ON THE LEAP-FROG HYPOTHESIS

Peter Sheppard

Since the original Lapita Leap-Frog hypothesis was proposed by Sheppard and Walter (2006) for the movement of Lapita out of Near Oceania into the Southeast Solomon Islands data has continued to accumulate with which to evaluate that argument. In this paper I will review new linguistic, genetic and archaeological data from the Solomon Islands.

6. THINKING OUTSIDE THE LAPITA SQUARE: COMPARATIVE PERSPECTIVES ON WHAT HAPPENS WITH LAPITA

Matthew Spriggs

Over the years I've been impressed by seemingly consistent parallels between sequences of cultural change in the Lapita area and elsewhere, whether it be the later settlement of Eastern Polynesia or Neolithic to later sequences in northern Europe. If one subscribes to an evolutionary archaeology such parallels should hardly be surprising, but such an archaeology is still very much a set of theories in construction despite the usual exaggerated claims. In pursuing such an approach I have been most influenced by historical materialist theories – seen most recently in Earle and Spriggs (at time of writing in press in Current Anthropology), and more particularly by Scandinavian archaeological theorists such as Lotte Hedeager, Kristian Kristiansen and Helle Vandkilde; as shown in my ‘Leaving safe harbours’ paper in the Festschrift for Kristiansen, 2013 (eds S. Bergerbrant and S. Sabatini) and referred to in my 2011 paper in Antiquity. In this paper I will reflect further on ‘hot spots’ of rapid cultural change or ‘macroregional phases of conjuncture’ (Vandkilde’s term) such as Lapita and their implications for a wider evolutionary theory.

7. AN EARLY POTTERY SITE FROM KOIL ISLAND, EAST SEPIK, PNG

Glenn R. Summerhayes, Pei-hua Wu, Matthew Leavesley & Teppsy Beni

This paper will present the results of recent excavations from Koil Island off the north coast of PNG and will assess current models for the beginning of Lapita occupation in the Bismarck Archipelago in light of our recent discoveries.

8. POTS ON THE MOVE: CERAMIC PRODUCTION AND MOBILITY AT OPOSISI, PNG

Nicholas Sutton, Glenn Summerhayes & Anne Ford

The recent finds of mid-late Lapita pottery at Caution Bay near Port Moresby (McNiven et al. 2011) demand a fresh look at more than 40 years of intermittent archaeology along the south coast of Papua New Guinea. The relationship between this colonisation event, dated to c. 2900 cal. BP, and the previously known earliest ceramic horizon along the south coast, beginning c. 2000 cal. BP, and which is widely referred to as the Early Papuan Pottery (EPP) period (Summerhayes & Allen 2007) remains still to be fully resolved. Oposisi, on Yule Island, first excavated by Ron Vanderwal in 1969, is a key site for understanding the EPP period, and therefore the nature of this relationship. A re-excavation of Oposisi in 2007 produced a new sample of ceramics, in addition to seven new AMS radiocarbon dates all in good chronostratigraphic order, confirming an initial settlement of the site around 2000 cal. BP (Allen et al. 2011). This paper presents the preliminary
results of stylistic, chemical and fabric analyses of the new sample of Oposisi ceramics that is being undertaken as a Master of Arts project, expanding a Papuan pottery production study begun by Summerhayes and Allen (2007).

SESSION THREE

LAPITA SUBSISTENCE: WHAT DID THEY EAT?

(Contact Stuart Hawkins (stuart.hawkins@anu.edu.au) and Vincent Lebot (lebot@vanuatu.com.vu)

LAPITA SUBSISTENCE, BASED ON CURRENT ZOOARCHAEOLOGICAL, ISOTOPIC AND BOTANICAL EVIDENCE, APPEARS TO HAVE COMPRISED A MIXED STRATEGY OF SWIDDEN HORTICULTURE AND BROAD SPECTRUM FORAGING. THIS SESSION WILL ADDRESS HOW LAPITA SETTLERS ADAPTED THEIR DIETS TO DIFFERENT ISLAND CONDITIONS. ZOOARCHAEOLOGICAL, ISOTOPIC, BOTANICAL AND GENETIC APPROACHES WILL BE CANVASSED TO FURTHER ADVANCE THE DEBATE.

1. AGRICULTURAL PRODUCTION AND A LAPITA-AGE PLANTING PIT (?) AT THE NUKULEKA SITE, KINGDOM OF TONGA

David V. Burley & Mark Horrocks

Research at the Tongan Lapita site of Nukuleka in 2014 excavated a large (>7 m diameter), deep, pit feature with a 20 to 40 cm stratum of gleyed sediment in the bottom. A sizeable assemblage of earlier (western Lapita) and later (Eastern Lapita) ceramics was recovered from this matrix. A U/Th date of 2813 ± 6 cal. BP (2σ) on an associated acropora coral abrader is consistent with the earlier Lapita ceramics, and it ties the digging of this pit to first settlement or slightly thereafter. Microfossil analyses (pollen, phytolith and starch) of five samples from the bottom of the gleyed stratum has identified giant swamp taro (Cyrtosperma merkusii), taro (Colocasia esculenta), bread fruit (Artocarpus altillus) and banana (Musa sp.) among a range of other plants and tree species. Analysis of a sixth sample of gleyed material capped by and taken from the underside of a large in situ Lapita pot fragment incorporates an abundance of whole and fragmented calcium oxalate crystals consistent with aroid species. Feature associated data appear concomitant with its identification as a planting pit, adding new insight into the Lapita agricultural spectrum in Remote Oceania.

2. COSTLY SIGNALLING OR OPTIMALITY? PIG MANAGEMENT AT TEOUMA CA. 3000-2500 BP

Stuart Hawkins, Stuart Bedford & Matthew Spriggs

Patchy faunal evidence from Pacific archaeological sites has ensured continued debate about the timing of the introduction of domestic pigs (Sus scrofa) into the Pacific in relation to the Lapita expansion c. 3200-2750 BP. At the Teouma Lapita culture cemetery and settlement site on Efate Island, Vanuatu, dated c. 3000-2500 cal. BP there are no such taphonomic and sampling issues. Over 5000 well preserved pig bones, teeth and bone fragments have been identified, most of them associated with the Lapita cemetery and midden spatio-temporal units. This paper focuses on the close relationship between Lapita people and pigs at Teouma and how this changed over time. A Human Behavioural Ecology framework is used incorporating Optimal Foraging Models and Costly Signalling theory to interpret human/pig ecological and cultural interactions using a range of multi-proxy data. These include age at death mortality profiles, skeletal element representation, relative abundance, and butchery and breakage patterns. These data indicate that during the course of settlement at Teouma pig husbandry goals were varied, including both economic optimization and ritualized aspects of society, and these fluctuated over time.
3. GREEN DESERT OR "ALL YOU CAN EAT"? HOW DIVERSE AND EDIBLE WAS THE FLORA OF VANUATU BEFORE HUMAN INTRODUCTIONS?

Vincent Lebot & Channel Sami

The islands of Vanuatu are relatively young geologically having been formed through tectonic activity. They were colonized very early after their formation by plant species that have come from three main sources (northern Melanesia, New Caledonia and Fiji), carried by winds, ocean currents, birds and bats. When Lapita peoples arrived, they most likely found edible species there. This paper will attempt to understand how settlers could have diversified their diets with plants collected directly from the local flora. Although this flora is considered as rather poor, compared to the three main source regions, this paper will outline how these colonizing settlers could have foraged for local species whose leaves, fruits and tubers could have been eaten readily upon arrival, providing support for their subsistence during initial settlement. Different approaches will be considered to clarify the debate.

4. DID GEOMORPHOLOGIC EVOLUTION DRIVE POST-LAPITA SUBSISTENCE PATTERNS? A CASE STUDY FROM TAVUA ISLAND, MAMANUCA GROUP, FIJI.

Alex E. Morrison, Ethan E. Cochrane, Timothy Rieth & Darby Filimoehala

The geomorphological history of an archaeological site provides important context for understanding a variety of aspects related to human behavior including subsistence, settlement patterns, and interaction frequency. In this presentation we integrate archaeological and geomorphological data to investigate the coastal evolution of the Tavua Beach site, Tavua Island, Mamanuca Group, Fiji. Tavua Island was originally colonized as early as 2997-2784 cal. BP during the Lapita Period and is one of the regions oldest archaeological sites. We combine dating of archaeological and geological samples with digital elevation models in order to understand the effect of Late-Holocene sea level retreat on Tavua Island geomorphology. We also integrate Bayesian models of the sites geochronology and archaeological chronology with spatio-temporal landscape simulations. These combined model results are then used to address a number of key questions regarding paleoshoreline change and the relationship between geomorphological evolution and the nature of Post-Lapita subsistence patterns on Tavua Island.

5. LAPITA FISH USE AND DEVELOPMENT OF FISHING TECHNOLOGY: A VIEW FROM NORTHERN VANUATU

Rintaro Ono, Stuart Hawkins & Stuart Bedford

The past three decades of archaeological investigation and zoo-archaeological analyses of fish remains from Lapita sites have revealed that Lapita fishing was mainly practiced in inshore and coral-reef environments, especially during the first era of migration about 3500 to 2500 BP (cf. Butler 1988, 1994; Green 1979, 1986; Kirch 1988, 1997, 2000; Kirch and Dye 1979; Kirch and Yen 1982). Yet Lapita people also exploited near-shore or off-shore marine environments using a variety of fishing methods, including angling and trolling (Butler 1994; Green 1986; Kirch 1997, 2000; Walter 1989). Fish hooks, lures, and possible net sinkers have been excavated from some Lapita sites (cf. Butler 1994; Kirch 1997, 2000; Kirch and Dye 1979; Summerhayes 2007; Szabo and Summerhayes 2002), while Walter (1989: 138) attempted to elucidate the Lapita fishing strategies through an examination of linguistic evidence and suggested that angling techniques were one of major methods used by early Oceanic speakers, including Lapita people. Thus, both archaeological and linguistic evidence support the use of angling, netting and trolling by Lapita people. Based on such understanding, we firstly review the Vanuatu case as focusing on some major sites (Arapus, Mangaasi, Malekula, Ponama, Vao, Vilavi) where produced numbers of fish remains or possible fishing tools, and further discuss the possible development of fishing technologies and strategies by Lapita people by comparing with the archaeological data from other Lapita sites.
6. THE RELATIONSHIP BETWEEN LAPITA PEOPLE AND PLANTS ACCORDING TO DENTAL CALCULUS

Monica Tromp56, Hallie Buckley57, Lisa Matisoo-Smith59, Stuart Bedford58,59 and Matthew Spriggs38,58

The idea of a Lapita subsistence economy that included commensal species such as pigs, chickens and rats is fairly well established in Pacific prehistoric research. Plant foods have also been inferred as part of this subsistence economy through the analysis of language, microfossils extracted from food preparation equipment, sedimentary microfossils and stable isotope analyses of bone from human and animal skeletal material. Understanding the plant component of the Lapita diet has been more difficult to assess than the protein due to the scarcity of plant macro remains and the lack of specificity of stable isotopes. One direct way to glean at least a portion of the plant diet is to look at microfossils trapped within dental calculus. This presentation examines the plants that some of the earliest settlers of Remote Oceania were eating by looking at phytoliths and starch grains extracted from human dental calculus from the Lapita site of Teouma, on Efate Island in Vanuatu as well as Late Lapita and Post Lapita individuals from Vao and Uripiv islands off the coast of northeast Malakula, Vanuatu.

7. NEW PIECES TO ADD TO THE PUZZLE: MICRO- AND MACRO-BOTANICAL EVIDENCE FOR LATE AND POST-LAPITA SUBSISTENCE IN THE TONGAN ARCHIPELAGO

Ella Ussher38

To date, there is currently no direct archaeological evidence for agriculture in Tongan prehistory. Indirect evidence such as linguistic data indicates a Proto-Oceanic lexicon containing the basic suite of Oceanic cultigens, which would have been transported throughout Western Polynesia by the Eastern Lapita cultural complex. Thus it is inferred that the Lapita colonisers had an economy within which agriculture played some continued role. Ethnographic and historic observations have been made of mixed species cropping using intensive dryland field systems suited to the high limestone islands and lack of streams for irrigation. Although some prehistoric agricultural field systems have been mapped on the outer islands, such as Niutatoputapu, no radiocarbon dates have yet been associated with these features. It has therefore been assumed that the changing environment, population increase and subsequently reduced food returns forced the post-Lapita Tongan population to rely more heavily on horticulturally produced food, eventually manifesting in a more hierarchical society. Archaeobotanical data from three sites on Tongatapu, representing three different time periods in Tongan prehistory, is beginning to fill this gap in the archaeological record. Macro-botanical (charred parenchyma and endocarp), and micro-botanical (starch) remains were extracted from these sites using flotation, wet-sieving and bulk stratigraphic sampling and compared to a comprehensive reference collection using a combination of SEM and light microscopy. Sampled cultural deposits at Talasiu TO-Mu-2 (2600-2400BP), Langi leka J17 (1300-1000BP) and Heketa TO-Nr-2 (800-600BP) present new insights into the role of economic and supplementary plant taxa within late-Lapita transitioning into Ancestral Polynesian Society, the Formative period, and early stages of the classic Tu’i Tonga chieftdom.

8. WHAT WAS ON THE MENU: AVIAN TIDBITS AMID TURTLES AND FISH AT TEOUMU, EFATE, VANUATU

Trevor H. Worthy38, Stuart Hawkins38, Stuart Bedford38,58 & Matthew Spriggs38,58

The avifauna of the Teouma archaeological site on Efate in Vanuatu is described. It derives from the Lapita levels (3000-2800 ybp) and immediately overlying middens extending to ~2500 ybp. The large sample includes 1714 identified specimens that reveal a total of 30 bird species. Twelve species that are new records for the island combine with previously known taxa to indicate that minimally 39 landbirds exclusive of passerines were in the original avifauna. Three quarters of the 12 newly recorded species appear to have become extinct by the end of Lapita times 2800 ybp. The avifauna is unusual by being dominated by eight species of columbids (47.5% MNI) including a large extinct tooth-billed pigeon Didunculus sp. cf. D. placopedetes from Tonga and a giant Ducula sp. cf. D. goliath from New Caledonia. Seabirds, in contrast, are rare despite the coastal location of the site. Fowl are important components of the Teouma avifauna with the human-introduced Red Junglefowl Gallus gallus accounting for 15% MNI and present in all sampled layers. There are two species of megapodes (~10% of MNI) with the extant Vanuatu Megapode Megapodius layardi most abundant and represented at all levels in the deposits. A substantially larger extinct megapode, Mwalau walterlini, is present only in the
Lapita midden area, was relatively rare. It was larger than all extant megapodes, but smaller than the extinct Progura gallinacea from Australia, but was not flightless having proportions most similar to those of the Brush Turkey Alectura lathamii. The remaining significant faunal component is rails with four species present, of which Porphyrio melanotus was the most abundant. Rare but notable records include an undescribed large rail, a parrot Eclectus sp. cf. E. infectus, a hornbill Rhyticeros sp. cf. R. plicatus, and a coucal Centropus sp. indet., all conservatively considered likely to be conspecific with known taxa elsewhere in Melanesia.

SESSION FOUR

ANALYSIS OF THE LAPITA DESIGN SYSTEM

(Contact Scarlett Chiu (chius@gate.sinica.edu.tw) and Arnaud Noury (noury.arnaud@gmail.com))

STUDIES OF LAPITA DESIGNS HAVE GREATLY EVOLVED SINCE PIONEERING ANALYSES IN THE LATE 1960S TO NOW ADDRESS ISSUES INVOLVING SOCIAL RELATEDNESS AMONG LAPITA PEOPLES. WHAT IS THE STATE OF RESEARCH NOW? WHICH METHODS CAN BE EXPLORED FURTHER? WHAT EVOLUTIONS, TRANSFORMATIONS, OR DIFFERENCES, WERE THERE WITHIN THE LAPITA DESIGN SYSTEM ITSELF, AND HOW MAY WE ACCESS THEM?

NEW TECHNOLOGIES, ESPECIALLY INFORMATIC TOOLS SUCH AS ONLINE DATABASES AND OTHER COMPUTERIZED IMAGE PROCESSING METHODS, HAVE IMPROVED RECORDING PROCESSES AND OUR ABILITY TO SHARE DATA BETWEEN RESEARCHERS. NOVEL APPROACHES ARE LEADING TO MORE SUITABLE STATISTICAL ANALYSIS AND NEW UNDERSTANDING ABOUT THE RULES AND THE MEANINGS OF THE LAPITA DESIGN SYSTEM. IN THIS SESSION WE WOULD LIKE TO ADDRESS THESE COMPLEMENTARY ISSUES.

1. FROM PLAITED FIBRE TO LAPITA CERAMIC ORNAMENTATION: OR BACK TO BASICS IN LOOKING AT LAPITA ORNAMENTATION

Wal Ambrose

Oceanic art styles are often seen as having their origin in the detailed and remarkably executed ornamentation of Lapita pottery, apparently unheralded in the Bismarck Archipelago until around 3,300 years ago from where it spread to later settlements in Vanuatu, New Caledonia, Fiji, Tonga and Samoa. The distinctive Lapita vessels include platters, plates, bowls and pedestal stands bearing designs notable for their formal arrangement of repeating units within panels arranged in horizontal bands. Later archaeological research produced whole vessels with complete design fields giving a clearer expression of the wealth and range of Lapita originality in the ornamentation of these ceramics. Ethnographically recorded Oceanic tattoo, tapa and wood carving designs are often thought to have received their inspiration from ancient Lapita pottery decoration. This paper argues conversely that the transfer of designs is to Lapita ceramics from textiles as the dominant, more fundamental, enduring and geographically extensive influence, with implications for later ceramic production and changing social organization in Polynesia.

2. IDENTIFYING LAPITA MOTIFS BASED ON PATTERN RECOGNITION TECHNOLOGY: PRELIMINARY RESULTS

Man-Fong Cheng, Chao-Lung Ting, Ray-I Chang, Yu Jyun Wang, Lin Shu-Yu, Jan-Ming Ho, Yu-Yin Su & Scarlett Chiu

The analysis of decorative motifs upon Lapita ceramics has been a central research focus since the beginning of Lapita archaeology, and continues to be so in the current phase of research into the Lapita Cultural Complex. This research aims to develop a computer program that targets a number of inherent difficulties in the process of motif analysis, primarily the time consuming nature of the analysis and the large amount of labor input required, while additionally seeking to increase the accuracy of motif identifications, and reduce the impact of human error.

The program that is currently being developed is designed to recognize Lapita design elements that have been transformed into a line drawing, and to automatically match these elements to motifs present in the Lapita Pottery Online
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Database (LPOD) based at Academia Sinica, before ranking the motifs that most closely match the original line drawing. Finally, following human confirmation the program will automatically upload this information into the database.

Recognition and identification of motifs is achieved via the use of a series of pattern recognition and optimization algorithms, which based upon a test dataset of 34 images, currently has an F1 accuracy measure of 54%. The accuracy and performance of this process will be further enhanced in the near future by the introduction of the Hough transform technique. The continued identification of motifs through this process will, over time, see a steady increase in the accuracy of motif identification as the program undergoes future development, and which, in combination with advances in computer science, may eventually allow the program to process motifs present upon sherd photograph.

3. MEASURING SOCIAL DISTANCE WITH SHARED MOTIFS: CURRENT RESULTS AND CHALLENGES
Scarlett Chiu

This paper presents the current stage of the Lapita Pottery Online Database (LPOD), discussing its updated design and future functions. It will also discuss the preliminary results of a motif comparison generated from the data collected in this database, and interprets what these results may hint about future research directions for the study of Lapita motifs.

Based upon presence/absence data of 4995 motifs identified from 57 Lapita sites, I will demonstrate that some motifs and their alloforms (referred to as “motif themes”) might have acted differently throughout the Lapita realm when compared to other motif themes. I will also discuss issues and difficulties one will have to face while pursuing the meaning of these decorative motifs in various social contexts. Finally, I will finish by presenting the preliminary results of a study featuring the cross-regional comparison of motif sequences, to ascertain the potential for archaeologists to identify changes in motif organization through time and space.

4. LAPITA CLASSIFICATION SYSTEMS FOR THE FUTURE
Ethan Cochrane

We use classifications to arrange phenomena into groups and the meaning of these groups derives from an explanatory process of interest to us. Classifications of Lapita ceramics typically include groups called, for example, motifs, alloforms, or friezes, and the meaning of these groups derives from processes of cultural transmission, sharing, learning, interaction and the like. Over the last 40 years different Lapita classifications have been successfully used to identify variation in cultural transmission across Lapita populations. In this paper I analyse these classifications and demonstrate their fundamentally similar structure. I then propose a new focus for Lapita ceramic classification that exploits the quantitative potential of Lapita datasets to address important questions of cultural transmission.

5. LAPITA STYLES AND OCCUPATION HISTORY: THE MAKUE LAPITA DESIGN ASSEMBLAGE AND ITS AFFINITIES
Jean-Christophe Galipaud & Scarlett Chiu

The Lapita site of Makué in the island of Aore has a number of particularities which support the claim for its antiquity: New Britain obsidian, early design styles, early dates. During excavation in 2005, some remnants of possibly two distinct Lapita occupations layers were excavated. A preliminary analysis of the decorated material is here attempted to verify the hypothesis of multiple occupations, suggest its timing and propose potential affinities for this Lapita assemblage.

6. THE CERAMIC SEQUENCE OF TALEPAKEMALAI, MUSSAU: FIVE CENTURIES OF POTTERY PRODUCTION AND USE
Patrick V. Kirch

The Talepakemalai site (ECA) on Eloaua Island in the Mussau (St. Matthias) Islands of Papua New Guinea is the most extensive Lapita village site known in the Bismarck Archipelago. Excavated over three field seasons from 1985-88, the site
yielded a ceramic collection of more than 50,000 potsherds, of which some 6,829 exhibit diagnostic features. More than 100 vessels have been reconstructed from re-fitted sherds. Based on a detailed, on-going analysis of this ceramic corpus, this paper will summarize the ceramic sequence at Talepakemalai, which spans a period from ca. 1350–800 cal. B.C. Particular attention will be paid to changes in ceramic production (fabric, temper), vessel forms, decorative techniques, and inferred functions.

7. A STRUCTURAL APPROACH TO LAPITA DESIGN ANALYSIS: A CASE STUDY OF THE EASTERN LAPITA PROVINCE

Kathleen Leblanc

In order to quantify the structural application of Lapita design, a new approach is developed and applied to a data set of Lapita archaeological ceramics from West Fiji, East Fiji, and Tonga. A Leica MZ6 stereomicroscope and the Olympus LEXT 4000 laser scanning confocal microscope are used to identify and measure several structural aspects of design including the shape, density, and overall layout of design elements and motifs onto a vessel surface. Structural attributes are then compared to results garnered from an element/motif approach. Results indicate that although element/motif frequency does not differ significantly between island groups, structural attributes do, with East Fiji sharing more structural attributes in common with Tonga than with West Fiji. This suggests that relying solely on an element/motif approach conceals underlying patterns of interaction. This new method allows for the inclusivity of small ceramic sherds and provides an additional lens through which to view interaction patterns in the Eastern Lapita Province.

8. AN EXAMPLE OF POLARIZATION OF LAPITA DESIGNS: WHAT IT TEACHES US ABOUT THE LAPITA CULTURAL COMPLEX

Arnaud Noury

In previous work, I have tried to show the organization of Lapita decorations by defining the different types of designs and rules of decoration that were followed by potters. Furthermore I proposed the hypothesis of the existence of "groups" defined by a class of similar (but not identical) designs, an idea that has also been proposed by S. Chiu. The continuation of this research leads me to propose a new set of rules that allows the division of Lapita designs into two distinct sets. As a result it is now possible to distinguish, for a vast majority of designs, precisely to which set and which "group" they belonged.

The implications of these results are numerous: they confirm the existence of several dozen small groups of potters, each of them exclusively using a given corpus. It can also assign with some confidence each decorated sherd to a given group, including to single sites. This method of identification and attribution can track these groups in the Pacific, including their interactions, over time. Examples will be given briefly, including the distribution of Fijian designs, and the surprising origin of designs recently discovered on the south coast of New Guinea.

[FRENCH]

UN EXEMPLE DE POLARISATION DES DÉCORS LAPITA : QU'EST QUE CELA NOUS APPREND AU SUJET DU COMPLEXE CULTUREL LAPITA

Dans de précédents travaux, j’ai tenté de montrer l’organisation des décors lapita en définissant les différents types de décors et les règles de décoration suivies par les potiers. Par ailleurs je proposais l’hypothèse de l’existence de « groupes » définis par une catégorie de motifs proche de celle qui a également été proposée par S. Chiu cette dernière décennie.

La poursuite de ces recherches m’amène à proposer un nouveau type de règle qui permet de scinder les décors lapita en deux ensembles distincts. Par voie de conséquence il est désormais possible de distinguer, pour une très grande majorité des motifs, à quel ensemble ils appartenaient, ainsi qu’à quel « groupe » précisément.

Les conséquences de ces résultats sont multiples : ils confirment l’existence de plusieurs dizaine de petits groupes de potiers, utilisant exclusivement un corpus donné. D’autre part, cela permet d’identifier avec une certaine confiance chaque tesson décoré à un groupe donné, y compris sur un même site. Cette méthode d’identification et d’attribution permet de
suivre ces groupes dans le Pacifique et au cours du temps, ainsi que leurs interactions. Quelques exemples seront pris brièvement, comme la répartition des décors fidjiens, ou bien encore l'origine surprenante des décors découverts récemment sur la côte sud de la Nouvelle-Guinée.

9. THE HAT MAKES THE MAN: MASKS, HEADDRESSES AND SKULLCAPS IN LAPITA ICONOGRAPHY

Matthew Spriggs

At the first Lapita conference in 1988 I introduced the idea that many of the depictions on Lapita pots were of human faces, even if depicted in very abstract mode. I defined the single and double face motifs and attempted to define a sequence of transformations in face designs. Later research by a range of scholars has cast doubt on the reality of such transformations; it may well be that the more abstract face designs were there from the beginning rather than being later in a putatively chronological sequence. After the Teouma cemetery excavations I also realised that instead of faces, the depictions were most likely those of human heads, clearly a focus of the burial rites at Teouma. In the paper I develop this idea further to identify a range of headgear depicted on or with the Lapita heads. The so-called "double face" is now interpreted as a head plus a mask. A variety of other headgear also seems to be depicted, including skullcaps and feathered headdresses, as are commonly worn in ceremonies in the Pacific to this day. It is worth noting, however, that the use of masks appears to be an entirely male prerogative everywhere in the Western Pacific. Is the Lapita head then canonically masculine?

SESSION FIVE

CHRONOLOGY FOR LAPITA AND ITS PROXIES: NEW APPROACHES

(Contact Fiona Petchev (fipetchey@waikato.ac.nz) and Jim Specht (jspecht@bigpond.com))

1. SESSION INTRODUCTION BY PETCHEV & SPECHT

RELIABLE DATING OF ARCHAEOLOGICAL SITES IS ESSENTIAL. THIS IS PARTICULARLY SO FOR LAPITA SITES, AND SUBSEQUENT REGIONAL ADAPTATIONS, WHICH SPREAD RAPIDLY OUT FROM A PRESUMED ‘HOMELAND’ IN THE BISMARCK ARCHIPELAGO INTO REMOTE OCEANIA. IN SUCH A SITUATION ‘OLD’ PRACTICES OF DATING A SITE USING A FEW UNIDENTIFIED CHARCOAL OR MARINE SHELL SAMPLES CANNOT IDENTIFY LOCAL SPECIFICITIES. INSTEAD A HOLISTIC APPROACH TO RELIABLE DATING IS REQUIRED, WHERE BOTH ACCURACY AND PRECISION IN EXCAVATION AND DATING TECHNIQUES IS ESSENTIAL AS WELL AS THE USE OF CULTURALLY SIGNIFICANT MATERIALS THAT ARE SENSITIVE TO THE TIMING AND MODE OF THESE CHANGES. CONSEQUENTLY, IN RECENT YEARS THERE HAS BEEN AN INCREASING EMPHASIS ON RADIOCARBON DATING MATERIALS SUCH AS HUMAN REMAINS, MARINE SAMPLES, POLLEN, INSECT AND ANIMAL REMAINS AS WELL AS THE ADAPTATION OF TECHNIQUES SUCH AS U/TH FOR DATING CORAL. THESE APPROACHES COMBINED WITH THE AVAILABILITY OF VARIOUS STATISTICAL METHODS FOR INTERPRETING DATE SERIES PROMISE TO CHANGE OUR INTERPRETATIONS OF LAPITA ARCHAEOLOGY. PAPERS ADDRESSING THE ABOVE ISSUES AND APPROACHES ARE INVITED FOR THIS SESSION, PARTICULARLY THOSE WITH A PROBLEM-SOLVING APPROACH.

2. WHEN DID LAPITA POTTERY START IN THE NEW GUINEA ISLANDS?

Robin Torrence & Jim Specht

Since Pat Kirch and Terry Hunt (1988) suggested a starting date of 3550-3450 cal. BP for Lapita pottery in the New Guinea islands, various authors have offered alternative views. Currently proposals offer ‘late’ 3300-3200 cal. BP (Summerhayes 2010) versus ‘early’ 3470-3250 cal. BP start dates, apart from the Mussau sites, which might be slightly older (Denham et al. 2012). Both options fall within the results of a Bayesian analysis of dates bracketing the W-K2 volcanic eruption in northern New Britain between 3480-3150 cal. BP (Petrie and Torrence 2008). The additional finding that re-occupation of
New Britain accompanied by Lapita pottery of an early style occurred around 3175-3160 cal. BP, slightly younger than the 'late' option, challenges both proposals. Based on other recent dates and the analysis of a broad range of evidence, we propose a younger starting date for Lapita pottery in the New Guinea islands.

3. RE-DATING SE-SZ-8 (NANGGU, SANTA CRUZ) AND THE SETTLEMENT OF REMOTE OCEANIA

Peter Sheppard63, Scarlett Chiu15 & Richard Walter50

In 2012 we re-visited the Nanggu Lapita site on the south coast of Nendō (Santa Cruz) in Temotu Province of the Southeast Solomon Islands. Our new excavations have for the first time provided some charcoal dates for that site and matching samples allow us to provide better marine shell correction for the older shell and for a series of new shell dates. This paper reports on those results and looks at a comparative Bayesian analysis of dates from early Lapita sites in Remote Oceania.

4. RADIOCARBON DATING THE TEOUMA LAPITA CEMETERY, EFATE, VANUATU

Fiona Petchey65, Matthew Spriggs38,50, Stuart Bedford38,50, Frédérique Valentin4 & Hallie Buckley50

A number of radiocarbon dates have been obtained from archaeological deposits across the Teouma site on the island of Efate in Vanuatu. These are on a range of materials from the midden and associated nearby cemetery including charcoal (13) and shell (7) as well as a number of relatively novel ¹⁴C sample types including bone from two terrestrial giant tortoises (?Melolania damelipi), eight pigs (Sus scrofa), two chickens (Gallus gallus) as well as thirty-six human bone collagen dates and 5 Conus sp. shell ring artefacts from the cemetery context. In this presentation, we evaluate the radiocarbon data according to observed contextual associations and established understandings of ¹⁴C offsets, and collate all available information in a Bayesian framework to establish the age and duration of the settlement at Teouma.

5. TONGAN LAPITA CHRONOLOGY AND ITS IMPLICATIONS FOR SETTLEMENT IN WEST POLYNESIA

David V. Burley35

The archaeological chronology for first Lapita settlement in Tonga has been reanalyzed using Bayesian analysis and newly acquired U/Th dates. We are now able to model this event with generation level precision as it relates to first landfall and population expansion throughout the archipelago. This chronology also provides succinct temporal intervals for the manufacture of decorated Lapita wares for each of Tongatapu, Ha’apai and Vava’u island groups. The revised chronology is presented with discussion of its implications for demography, anthropogenic impacts on environment, Lapita ceramic design, the abandonment of decorated Lapita ceramics in Tonga and broader issues for understanding early settlement elsewhere in western Polynesia and the Lau islands of Fiji.

6. RADIOCARBON CHRONOLOGY IN SAMOA: NEW EVIDENCE FROM FIRST MILLENNIUM SITES ON OFU ISLAND, AMERICAN SAMOA

Jeffrey T Clark28 & Seth Quintus41

Sites found in American Samoa have been argued to be among the earliest in the Samoan Archipelago, with early settlement in the archipelago long thought to be contemporaneous with the Lapita colonization of Tonga and possibly Fiji approximately 3,000 years ago. While Lapita ceramics have not been identified at sites in Samoa other than Mulifanua on ‘Upolu, first-millennium sites with Plainware ceramics throughout the archipelago have often been viewed as also reflecting Lapita expansion. Recent re-analyses of radiocarbon dates from key sites in American Samoa based on an application of chronometric hygiene protocols have questioned the validity of early chronologies and suggest instead a limited Lapita colonization, as at Mulifanua, followed by a second colonization by Plainware groups ~2400 cal. BP. In this
paper we will provide a test of the conventional (early) and new (late) chronologies for Samoa through the presentation of over 30 new dates from three locations on Ofu Island. This radiocarbon corpus includes dates on charcoal from both unidentified and identified short-lived samples, analyzed with a Bayesian model to isolate outliers and produce a more accurate and precise chronology for island colonization. Results of this analysis suggest colonization at 600-700 BC, which is between the early and late models. This analysis demonstrates that some unidentified charcoal samples were outliers, with the most likely explanation being an old wood effect. However, simply excluding all previous dates on unidentified charcoal is ill-advised given consistency of some samples with short-lived determinations. The implications of these dates for understanding the initial settlement of the entire archipelago will be explored, including the contemporaneity of some Tongan Lapita sites and Samoan Plainware sites.

7. QUANTIFYING THE NUMBER OF $^{14}$C DETERMINATIONS REQUIRED TO IMPROVE DATING ACCURACY FOR LAPITA DEPOSITS

Timothy M. Rieth17, Derek Hamilton45 & Ethan Cochrane42

Although recognized by archaeologists as an essential component of research, the use of radiocarbon dating to calculate the dates of Lapita deposits remains largely a single step, ad hoc procedure. Samples may be selected in the field or laboratory based on stratigraphic context, artifact associations, and sample material, and more often than not the results are taken at face value as providing an accurate and precise date for the cultural deposit under investigation. The accuracy of these results can be greatly improved through Bayesian modeling, a technique that continues to gain in popularity in the Pacific. Even with Bayesian modeling, however, the accuracy of modeled calendar dates depends on several factors: 1) the number of radiocarbon determinations; 2) distribution of radiocarbon determinations in a stratigraphic sequence; and 3) the shape of the calibration curve for the period under study. But how many dates are required, how might they best be distributed across a stratigraphic sequence, and how should the number of dates vary relative to particular portions of the calibration curve? To answer these questions, we used OxCal 4.2 to simulate, through the process of back-calibration, radiocarbon determinations that we could expect to receive as measurements on a series of samples of “known” Lapita dates in Remote Oceania. We then ran a series of Bayesian models in which the number of radiocarbon determinations was incrementally increased, stratigraphy altered, and temporal parameters varied (i.e., changing the start, end, and duration of the dated activity) to investigate the impact these changes have on the overall model results. Because the radiocarbon determinations are based on “known” calendar dates we were able to evaluate when a particular Bayesian model provided results that were accurate and precise and at what point the addition of further age determinations did not affect the results. Our analyses demonstrate that dating of Lapita deposits must be approached as an iterative process, requiring a sampling strategy that allows for an assessment of redundancy in results that is indicative of a high degree of accuracy in the calibrated dates. This approach necessitates a far greater number of radiocarbon determinations than are currently obtained for most Lapita deposits, and researchers should budget accordingly.

8. HOLOCENE VEGETATION CHANGE, VOLCANISM, FIRE AND MEGAFANA UNA ON ESPIRITU SANTO, VANUATU

M. Prebble38, M. Beileiten38, S. Cronin38, S. Hawkins38, S. Fallon38, S. Bedford38,58

Few pollen records are available which reveal the environmental impact of Lapita colonisation on previously unoccupied islands. Resolute records are available from Grand Terre (New Caledonia), Viti Levu, Vanua Levu and Taveuni (Fiji), and Vava’u and Ha’apai (Tonga). Most of these sites are either coastal, with sea-level influence potentially distorting anthropogenic pollen signatures, or, are at high elevation and high rainfall areas (Tagamaucia) that are remote from where humans may have concentrated their activities. We present a high resolution Holocene pollen record for Vanuatu, from Lepikatnat, near Sara in northeast Santo. Lepikatnat mire is located on an uplifted Pleistocene reef complex at ~290 m asl remote from coastal influences. The mire holds organic sediments radiocarbon dated with high precision, using Portulaca cf. grandiflora seeds, to the late glacial period. We explore three aspects of Lapita colonisation using the pollen record including the pre-human and post colonisation vegetation change, volcanism, fire regime change and faunal impacts. The early Holocene mire, then dominated by a Bischofia and Cyathea spp. tree fern forest fringe with a Portulaca, grass and fern ground cover, responded to a ~9000 cal. BP volcanic ash-fall event, presumably from Ambrym. At ~7000 cal. BP a high magnitude localised fire event occurred, resulting in the decline in Bischofia and Cyathea forest and an increase in secondary Euphorbiaceae forest. At ~3000 cal. BP, regional fires increased dramatically with the first appearance of a
number of anthropogenic taxa including Casuarina, Homalanthus and Hibiscus tiliaceus. Oxidisation of organic sediments is evident from high pollen and spore concentrations from the mid-Holocene until ~3000 cal. BP. We hypothesise that this oxidising environment was maintained in Portulaca, grass and non-pyrogenic fern ground cover by meiolanid tortoise grazing, until their extinction soon after human colonisation when pyrogenic ferns colonised Lepikatnat. Non-pollen palynomorphs as potential proxies for tortoises are discussed in reference to recent research on the Galápagos Archipelago.

SESSION SIX

LAPITA AT THE GATEWAY OF REMOTE OCEANIA: THE REEFS-SANTA CRUZ, VANUATU AND NEW CALEDONIA

(Contact Stuart Bedford (Stuart.Bedford@anu.edu.au) and Christophe Sand (christophe.sand@iancp.nc)

STEPPING BEYOND THE NEAR OCEANIA BOUNDARY PRESENTED A WHOLE SERIES OF NEW CHALLENGES BUT ALSO NEW OPPORTUNITIES FOR LAPITA PEOPLES. THERE HAS BEEN A VASTLY INCREASED INVESTMENT IN LAPITA RESEARCH ACROSS THESE ARCHIPELAGOES SINCE THE PIONEERING WORK OF THE 1970S WHICH HAS TRANSFORMED OUR UNDERSTANDING OF THE REGION. THE RESEARCH HAS PROVIDED FURTHER INSIGHT INTO LAPITA EXPANSION TO THE EAST AND REFLECTION BACK UPON THE ‘HOMELAND’ IN THE WEST. PAPERS DISCUSSING NEW DISCOVERIES AND/OR INTERPRETATIONS IN THIS GATEWAY REGION ARE ENCOURAGED.

1. LAPITA POTTERY FROM THE SMALL ISLANDS OF NORTHEAST MALAKULA, VANUATU: A SHORT SUMMARY

Stuart Bedford

A series of very-well preserved Lapita sites were first identified on the small islands of Uripiv, Wala, Atchin and Vao in northern Vanuatu in 2001-2002. Further excavation on Vao and particularly Uripiv continued until 2011. The pottery demonstrates the standard similarities with Lapita pottery generally but also demonstrates the development of very distinctive regional and even island specific variation in form and motif design during the Lapita period. It suggests very rapid change soon after initial colonization of the archipelago, an aspect largely masked by the radiocarbon chronology, and confirms that regional diversification is well underway during the Lapita period itself. This may relate both to the potential that these communities came from different origin points further west and that within only several generations a range of factors encouraged localization.

2. LAPITA SETTLERS AND THE USE OF GREYWACKE IN NEW CALEDONIA. RECENT THOUGHTS ON THE ARCHIPELAGO’S MATERIAL CULTURE

Louis Lagarde and Christophe Sand

Lithic artefacts of the Lapita period have not generally been studied in detail. This state of affairs is due to several factors, one of which is the often poorly preserved nature of many Lapita sites, where the recovery rate of a whole range of materials is poor and provenance can be uncertain, or a scarcity of lithic materials on islands where there is a geological absence of flakeable rocks which led to a preference for shell artefacts and tools. New Caledonia is somewhat of an exception where lithic assemblages (Forestier 1994, 1996, 1999, Lagarde 2004, Sand 2010, Lagarde and Sand 2013) have been studied, from both geological and technological points of view.

In this presentation, we aim to discuss the use of a previously unaccounted raw material in New Caledonia: greywacke. Recently identified in the collection of artefacts held by the IANCP (Baranger 2011), we have come to realize a series of interesting facts about the use of this natural resource. Firstly, geological occurrence is restricted to inland environments, showing evidence of intensive exploration of the hinterlands since the beginning of the Lapita sequence. This implies extended geological prospection at the time, even though settlements were still located in coastal environments. Furthermore, the use of greywacke, thanks to contextual stratigraphical dates, appears to last longer than the initial Lapita
phase, underlying that changes in pottery types in general (and fallout of Lapita production in particular) aren’t necessarily connected with changes in other forms of material culture. Last, indigenous lithic artefacts known as “pics à gorge” have been discovered or collected throughout the archipelago over the past 150 years. Their curious shape has puzzled archaeologists for decades and linking them with a particular phase of New Caledonia’s material sequence has proved a difficult task. Always made of greywacke, we here suggest that they belong to the first phase of the island’s history, as this raw material seems to be the best choice of its inhabitants at that period in time.

3. THE PRODUCTION OF CERAMIC IN THE EARLY DAYS OF THE HUMAN OCCUPATION ON EFATE: CONTRIBUTIONS FROM TEOUMA AND MANGAASI COLLECTIONS

Mathieu Leclerc

This presentation addresses the results from the chemical analysis of 70 different ceramic vessels from Teouma and Mangaasi sites located on Efate, Vanuatu. Wasters and soil samples from various locations on the island have also been analysed. Results obtained are compared with ceramic data in an effort to identify areas with corresponding compositions that could indicate manufacture locations or raw material procurement zones. The chemical variability of the ceramic collections will also be described and put in relation with petrographic observations. Overall, it will be demonstrated that various temper types can be discriminated by chemical analysis.

4. PRESERVING LAPITA COLLECTIONS IN NEW CALEDONIA

Sandra Maillot-Winnemou & Christophe Sand

This paper will present the process of restoration and conservation put in place by the conservation role of the Institute of Archaeology of New Caledonia and the Pacific for the Lapita collections extracted from archaeological sites. After a short introduction detailing the main procedures, the paper will outline the process of preventive conservation, from excavation to the storage on-site, before addressing the specific storage-procedures of the Lapita collections (RH and temperature). The management of the collections and the treatment of the information through a database for future scientific and cultural studies will close the presentation.

5. SPATIAL PATTERNS OF POTTERY AT THE TEOUMA LAPITA SITE, EFATE, VANUATU

Mads Ravn, Stuart Bedford, Matthew Spriggs, Stuart Hawkins & Frédérique Valentin

In this paper, we will present preliminary results on the spatial distribution of Lapita pottery recovered from the Teouma cemetery site on Efate Island in Vanuatu. Based on reassembling of pots over the last 10 years at the Vanuatu Culture Centre and GIS recording we argue that this excavation offers a possibility to discuss the spatial distribution of pottery and aspects of ritual burial patterns of the Lapita Culture 3000 years ago. Lapita pottery at the site reveals aspects of contemporaneity between grave groups, behavioural and technical choices in the use of pots and aspects of spatial activity patterns in the burial ritual.

6. SPATIAL DISTRIBUTION OF OBSIDIAN ARTEFACTS FROM A LAPITA CEMETERY SHEDS LIGHT ON ITS VALUE TO PAST SOCIETIES

Christian Reepmeyer, Anne Constantine, Stuart Bedford, Matthew Spriggs & Mads Ravn

The presentation reports on the spatial distribution of obsidian artefacts at the Teouma site in Vanuatu. The site is unique in the Pacific as it enables us to analyse an archaeological assemblage in relation to discrete activity areas of burial and settlement at the time of initial settlement of the archipelago. Geochemical sourcing of obsidian in combination with a basic technological analysis help to understand whether differences exist between burial zones and settlement middens.

The results show that the distribution of obsidian was not directly associated with individual burials and does not correlate with specific activity areas unambiguously; therefore tentatively refuting the hypothesis that obsidian transportation was linked to the increase of status of individuals. It is argued that the evidence adds further weight to
those models that interpret the function of obsidian as being associated with past social transactions or relationships rather than having any enduring or intrinsic value as a wealth-enhancing commodity.

7. VAVOUTO: EXAMPLE OF A SMALL SCALE LAPITA SITE OF NEW CALEDONIA

Christophe Sand14 & Stephanie Domergue14

Although most of the nearly 300 Lapita sites identified to date have been characterized as small settlements, archaeologists have focused the study and understanding of the Lapita Cultural Complex mainly on the analysis of a number of large-scale sites in Near and Remote Oceania. They have taken for granted that these sites have the ability to encompass most of the important characteristics of this central period of the history of the Western Pacific. In so doing, we often neglect the data that can be retrieved from small or short-lived Lapita occupations. This paper proposes to focus on one of these sites, on the peninsula of Vavouto on the West Coast of New Caledonia’s Grande Terre, about 30km north of the eponymous site 13. The excavations done on the site have allowed us to identify a well-preserved archaeological layer, enclosing a rich array of Lapita-period material. A number of features expand our knowledge of Lapita settlement patterns and a series of 14C dates allow to discuss the first settlement chronology of Southern Melanesia. All these data can be compared to long-term occupation sites of the Southern Lapita Province and bring detailed information useful in the present debates about chronology and regional interconnectivity in Remote Oceania.

8. A NEW ASSESSMENT OF SITE WKO013A OF XAAPETA (LAPITA), NEW CALEDONIA

Christophe Sand14, Stephanie Domergue14, André-John Ouetcho14 & Jacques Bole14

The eponymous “site 13” of Lapita on the West Coast of New Caledonia’s Grande Terre, has a unique historical importance in the study of the Lapita Cultural Complex, being the first archaeological locality with dentate stamped sherds to have been dated. It has also shown its richness, especially with the discovery of a series of complete pots, burial pits as well as preserved habitation features in the original sandy matrix. This paper proposes in a first part a review of the different phases of archaeological study that have been made on the site since over one century, highlighting the major destructions witnessed over the past decades. The second part of the paper will present a set of new data retrieved in early 2015, during the first phase of a CRM project, as part of a road extension that will ultimately lead to the destruction of about 2500 square meters of the original Lapita occupation. A better understanding of the overall stratigraphic diversity of the site, the presentation of a new set of 14C dates and of the main archaeological remains recovered, will allow us to highlight the spatial complexity of site WKO013A and begin to expand on the large spatial excavation to be conducted at the end of the year.

9. LATEST FINDS ON THE LAST (INHABITED) ISLAND–LAPITA ON ANEITYUM, SOUTHERN VANUATU

Richard Shing58, Stuart Bedford38,58 & Matthew Spriggs38,58

This paper presents the results on the recent fieldwork conducted on the island of Aneityum from 2011 to 2014. Archaeologists have been working on Aneityum for the last 50 years and so the community has been involved with archaeologists since that time. In many respects it was this long association made it easy to recommence work there in 2011. The word went out that we were looking for pottery and an initial tour of the whole island uncovered many historic ceramics that people had found in their gardens. In 2012 two sherds were sent to the VCC from Anelcauhat village on the SE coast. These sherds ultimately led to the discovery of the first Lapita site on the island later on in the same year. Community involvement and enthusiasm has been significant during the course of this research.
SESSION SEVEN

LAPITA AND THEN WHAT? PATTERNS, ISSUES AND CULTURE HISTORY ACROSS THE OCEANIC EXPANSE IN THE LAPITA/POST-LAPITA TRANSITION

(Contact David Burley (burley@sfu.ca) and Geoff Clark (Geoffrey.Clark@anu.edu.au)


1. DOES CAUTION BAY LAPITA LEAD TO EPP?

Jim Allen

The discovery of simple dentate decorated sherds at Caution Bay on the Papuan south coast dated to 2900-2600 BP calls into question the status of the tradition known as Early Papuan Pottery (EPP), previously seen to be the earliest pottery-making communities along this coast, arriving as a coast-long migration c. 2000 BP. Two explanations of the data present themselves. The first, favoured by the Caution Bay archaeologists, is that their sites are at least in part the antecedent sites to EPP, although 'something that requires particular explanation happened around 2000 BP' (Bruno David pers. comm.). The alternative is that the Lapita incursion failed and that EPP, although not the first, was a separate pottery colonisation of the coast as previously argued. Data can be mustered to support both scenarios. This paper briefly synthesises the arguments for both sides in order to open discussion on this important phase of Papuan prehistory.

2. REVISITING THE INCISED AND APPLIED RELIEF TRADITION ONCE AGAIN FROM A VANUATU PERSPECTIVE

Stuart Bedford

It is now some 15 years since Bedford and Clark challenged the then long-held concept of a widespread, homogeneous and recognisable "incised and applied relief tradition" that could be found in the archaeological record across the southwest Pacific. It was said to represent new populations entering the region immediately Post-Lapita and was a major driver in transforming the physical and cultural makeup of the eastern Melanesian region. We argued that most post-Lapita ceramic sequences were in fact poorly defined and that the perceived similarity was generated primarily by the fact that all non-dentate stamped sherds were lumped into an all-encompassing category that demonstrated limited regard for vessel form, design motifs or chronology.

Many researchers now accept this argument and have, with more refined definition of post-Lapita sequences, demonstrated similar regional diversification in other regions. Some don’t agree and some don’t care either way. This paper briefly summarises research that has been carried out in the north of Vanuatu over the last decade which has further emphasised the very distinctive and localised ceramic sequences that developed across the archipelago after the demise of dentate-stamping.
3. TRANSITIONAL FARE AND THE PURLOINED PIG AND DOG

Stephanie J. Cath-Garling

In this paper I argue that the rightful place of importance of two of the Pacific’s most important commensals—the pig and the dog—lies at the post-Lapita ‘transition’ and not within the Lapita period (or more specifically the Late Lapita). It is during the ‘transition’ that there is a clear increase in pig remains at a number of key sites across Island Melanesia and the incidence of dogs becomes more common in the west of the region. This coincides with dramatic changes in the composition and style of pottery, the procurement of obsidian, and the efflorescence of rock-art traditions, each representing different but overlapping ‘transitional’ spheres of interaction of different scales and likely cultural significance, and in some cases signalling revitalised contacts with Island Southeast Asia. Contemporary Melanesian anthropology could provide a clue that the ‘something bigger going on’ at this time may have been an intensification of exchange in social reproduction, with pigs and perhaps dogs taking on new ceremonial and symbolic roles within emerging networks of social relations. Could pigs—not (incised and applied relief) pots—in fact provide the best markers of interaction and exchange at the ‘transition’?

4. RECENT INVESTIGATIONS AT THE TALASIU SITE IN THE KINGDOM OF TONGA

Geoffrey Clark, Frédérique Valentin, Christian Reepmeyer, Elle Grono & Ella Ussher

The Talasiu site on Tongatapu Island consists of an extensive marine shell midden that was occupied during the terminal Lapita and early Polynesian Plainware Phase (c. 2650 cal. BP). It is one of many early sites that was located on the northern palaeoshoreline to take advantage of the abundant marine resources in a near-coastal zone that Dickinson (2007:184) suggests may have held ‘one of the densest Lapita populations in the ancient Pacific world’. Investigations at the site recovered faunal and floral remains, stone artefacts and human remains from the oldest known cemetery in West Polynesia that are used to examine three issues. First is the validity of Groube’s (1971) hypothesis that the first people in Tonga had a restricted maritime ‘strandlooper’ economy, and the significance of sea-level fall and human predation in reducing the rich marine resources. Second, is evidence for an early communally that spanned east Fiji and Tongatapu indicated in historical linguistics. Third, is the funerary behaviour and affinities of the Talasiu people. We conclude with a discussion of the Talasiu site and the concept of Ancestral Polynesian Society.

5. WESTERN SOLOMON ISLANDS FOUNDATION CERAMIC SEQUENCE, 1ST MILLENNIUM BC, FROM INTERTIDAL AND SHALLOW POTTERY WATER COLLECTIONS

Matthew Felgate, Peter Sheppard & Glenn Summerhayes

The western province of Solomon Islands are a key area for understanding archaeological and anthropological issues such as the origins and history of some of the most linguistically diverse societies on earth. For the near-Oceania portion of Solomon Islands, prior to 1996, when the Roviana Archaeological survey commenced, undated pottery thought to be derived from the Lapita Cultural Complex of Oceania was known principally from a single intertidal scatter of pottery and stone tools. Additions to the corpus of recorded intertidal and shallow water ceramic scatters from further research on Vellalavella, Kolombangara and North New Georgia now permit an updated ceramic series synthesizing current knowledge. Analysis of ceramics from 19 sites has allowed the refinement of an analytical framework for understanding variation in pottery decoration and form, providing the basis for a new more detailed attribute seriation. 14C dates indicate at least 160 years of occupation. The presence of materials from the late Lapita horizon dating to circa 800BC extended this chronology to a minimum span of approximately four centuries indicating that substantial chronological variation can be expected, but when working with the record from the sea, chronological analysis has to deal with remarkably small samples considering this occupation span, explicable only through understanding the severity of the taphonomic processes degrading the remains of occupation sites for inter-tidal and shallow water ceramic deposition. Our primary conclusion is that the Correspondence Analysis provides an ordination of decorative attributes that provides a systematic basis for (a) querying the occupation spans of sites and production spans of attributes and (b) situates the series in relation to the Lapita horizon and the two available 14C dates. Occupation commences circa 800BC, production evolved to a thinner ware in the mid sequence (circa 600BC?) 390BC (as evidenced by the Paniavile 14C date). There was an evolution to thinner one-piece pots with short rims, heavily everted by the end of the series, and with a concurrent series of changes.
in decoration that comprised a series of overlapping production spans of decorative attributes. Slab construction was lost early in the series, and it is possible that the series documents the evolution of thinner pottery with better heat conductivity, requiring changes in rim form to make these thinner vessels less fragile. Changes in cuisine and food serving practices may also have attended such changes in vessel form. Demographic infill of the landscape is inferred through the mid-sequence after Lapita.

6. POST-LAPITA ECONOMICS IN THE CENTRAL LAU GROUP OF FIJI

Sharyn Jones

In this paper I explore culture history and change in the post-Lapita period of the central Lau Group, Fiji. I present a range of archaeological data including faunal, isotopic, AMS radiocarbon, sub-surface features, and architectural information to examine economic and household shifts over time. The data are derived from excavations on the island of Nayau, Aiwa Levu, and Aiwa Lailai. Across the sites archaeological features including earth ovens, or lovo, have provided a wealth of information about foodways and household domestic practices; these sub-surface features are also reliable sources for understanding site chronologies. Particular attention is given to evidence of marine resource exploitation and temporal variations in these patterns. In addition, I compare and contrast economic data from sites on the three islands and explore similarities and differences to Simon Best’s well-known work on nearby Lakeba.

7. REVISITING SAMOAN SETTLEMENT PATTERNS DURING THE POST-LAPITA PERIOD

Alex E. Morrison, Timothy Rieth, Robert Dinapoli and Ethan E. Cochrane

Since the pioneering archaeological surveys and excavations by Roger C. Green, Janet Davidson, and colleagues during the 1960’s, settlement pattern archaeology has been the dominant approach to conducting archaeological research in Samoa. While early investigations were confined to the islands of Savaii and Upolu, in subsequent decades archaeologists would examine nearly every island in the archipelago. In American Samoa, substantial numbers of these archaeological studies were funded by government contracts and often the results have never been widely distributed in easily accessible publications. In this paper we synthesize over fifty years of archaeological research incorporating hundreds of archaeological sites and radiocarbon dates spanning the entire Samoan archipelago. We develop a temporal and spatial geodatabase to explore regional patterns in land use from the initial presence of people during the Lapita period to the historic era. The geodatabase is used to investigate a number of important aspects of Samoan archaeology: 1) migration and expansion during the immediate post-Lapita period, 2) the cessation of ceramic use, 3) population growth, 4) evidence for agricultural intensification and upland use, and 5) trends in faunal exploitation. Our results highlight areas for further research and refinement.

8. REVISITING THE MOBILITY OF EARLY PAPUAN POTTERY DURING THE CERAMIC HICCUSP ON THE SOUTH COAST OF PAPUA NEW GUINEA

Gabriel Vilgalys and Glenn Summerhayes

Archaeological research along the Papuan south coast has a history of over fifty years with major advances made over the last few years in our understanding of the colonization in this area. Indeed, there is still much that is not understood. One such issue is known as the “ceramic hiccup” which occurs between 1200-1000 BP. This “hiccup” marks a break in understanding of the history of this region. Following Lapita occupation is the ceramic tradition known as Early Papuan Pottery (EPP) which emerges as a sequence of stratigraphically and decoratively related ceramics ranging across the south coast of Papua New Guinea and into the southern Massim between c.2000 – 1200 BP. What is recognizably EPP comes to an end between c.1200 – 1000BP and what follows EPP is known as ‘pottery transformation’, ‘ceramic seriation break’, or ‘ceramic hiccup’. This ceramic hiccup represents a general disruption of settlement patterns, socioeconomic systems, and ceramic traditions c.1200-800 BP during which the recognizable design characteristics of EPP are supplanted by a variety of emergent local styles, and indeed in some areas an aceramic interlude.
SESSION EIGHT

MISCELLANEOUS LAPITA PAPERS

(Contact Stuart Bedford (Stuart.Bedford@anu.edu.au) and Matthew Spriggs (Matthew.Spriggs@anu.edu.au)

THIS FRIDAY AFTERNOON SESSION IS DESIGNED TO ACCOMMODATE PAPERS ON LAPITA TOPICS THAT DON’T FIT IN ELSEWHERE, OR WHERE SESSIONS ARE NOTIALLY FULL. THE CONFERENCE ENDS WITH A SOCIETY OF ANTIQUARIES OF LONDON SPONSORED KEYNOTE ADDRESS.

1. MANSIRI: A NEW DENTATE-STAMPED POTTERY SITE IN NORTHERN SULAWESI

C. Reepmeyer, N. Azis, G. Clark, D.A. Tanudirjo, Sriwigati

This paper reports on the Mansiri site, a newly-found dentate stamped pottery site in Northern Sulawesi. The site has been excavated in three field seasons by the Balai Arkeologi, Manado, since 2011 and in 2015 in a joint field season with a team from the Australian National University. Located in the upland region of Northern Sulawesi it follows a similar settlement pattern as sites in the Karama Valley in Western Sulawesi, being associated with main inland river valleys. Tentative radiocarbon dating indicates an initial colonisation prior to 3000 BP.

2. LANGUAGE AND LAPITA: THE IMPLICATIONS OF LANGUAGE DIVERGENCE DATES AND EXPANSION SEQUENCE FOR OUR UNDERSTANDING OF LAPITA ORIGINS AND SPREAD

Russell Gray

Computational methods recently developed in evolutionary biology enable the diversification of language lineages to be tracked in both space and time, and thus potentially infer multiple waves of population expansion. In this talk I will use a new “island hopping” variant of these Bayesian phylogeographic methods to analyse a cognate coded basic vocabulary dataset of over 600 Austronesian languages (the data will be drawn from the Austronesian Basic Vocabulary database, http://language.psy.auckland.ac.nz/austronesian/). Particular emphasis will be placed on the timing and sequence of the break up of Proto-Oceanic.

3. MARITIME ASPECTS OF THE LAPITA EXPANSION: ESTIMATES OF CANOE PERFORMANCE

Geoff Irwin

Until now, studies of Oceanic canoes have been largely typological rather than technological. Estimates of ancient canoe performance have been mainly a matter of guesswork. The paper will discuss preliminary results of tests of the aerodynamic properties of relevant sails, and hydrodynamic properties of relevant hulls, plus the implications for Lapita voyaging.

4. THE TEMPORAL AND GEOGRAPHIC TRANSFORMATIONS OF LAPITA SHELL ARTEFACTS: A WORKING HYPOTHESIS

Kat Szabo

As has often been mentioned in the Lapita literature, there is a distinct suite of shell artefacts which occurs in association with dentate-stamped earthenware assemblages. Lapita archaeologists are very familiar with the ubiquitous narrow Conus spp. rings, as well as other artefact types such as Trochus niloticus, Tridacna spp. and broad Conus spp. rings, Conus spp. beads and long units in Tridacna spp. Although the association of these artefacts with Lapita earthenware assemblages is clear, the occurrences of particular types is not even across the Lapita spatio-temporal range. Neither too is their treatment when details of curation patterns and use-wear are considered. I hypothesize that the role and meaning of particular shell artefact types transforms as Lapita peoples move into and across Remote Oceania, and that these transformations provide insights into a dynamic and evolving Lapita social identity.
5. RECENT INVESTIGATIONS OF AN INTERTIDAL POTTERY SITE AT MANGROVE BEACH, LIZARD ISLAND

Matt Felgate19, Sean Ulm19, Ian McNiven25, Jim Specht1, Carol LentferError! Reference source not found., Bill Dickinson42, Ulrike Proske38, Simon Haberle38, Jim Feathers56, Error! Reference source not found. Samantha Aird19, Alison Fitzpatrick19

Ongoing research at Lizard Island seeks to establish the extent, condition, formation processes and cultural affinities of an intertidal pottery site at Mangrove Beach. This paper presents an update on 2012 intertidal fieldwork and 2013 terrestrial fieldwork at Mangrove Beach, with discussion of analyses in progress. 2012 intertidal fieldwork consisted of suction dredging between tides to recover seven additional potsherds and a multitude of lithic artefacts. Initial dating results (luminescence and radiocarbon) suggest the assemblage is pre-contact. Additional work is in progress including petrographic sourcing and luminescence dating on the materials recovered in 2012 to develop more robust information on production source locales represented, age of the ceramics, and duration of occupation represented. Analysis of lithic artefacts is in progress. Investigation of a nearby terrestrial midden in 2013 did not recover ceramics.

4-5PM. CLOSING KEYNOTE

FOUR DECADES OF LAPITA ARCHAEOLOGY: A RETROSPECTIVE VIEW

Professor Patrick Kirch44

In 1976 I excavated the Early Eastern Lapita site of Lolokoka on Niuatoputapu Island, initiating what will soon be four decades of research into Lapita archaeology. This was followed by work at Lapita sites on Tikopia and especially in the Mussau Islands, during three field seasons in the 1980s. In this retrospective on Lapita archaeology, I will revisit several topics addressed in my 1997 book, The Lapita Peoples, incorporating more recent advances in the field. I will also address what I consider to be several major, as yet unresolved issues in our understanding of the Lapita Cultural Complex.

SESSION NINE: POSTER SESSION

THEMES: (1) NEW LAPITA RESEARCH AND (2) LATEST RESULTS IN PACIFIC ARCHAEOLOGY – ALL PERIODS

(Contact James Flexner for all poster enquiries (James.Flexner@anu.edu.au))

WE ARE ENCOURAGING A WIDE RANGE OF POSTERS, PARTICULARLY FOR MORE TECHNICAL AND/OR NARROW TOPICS, AND FOR ALL THOSE PARTICIPANTS WHOSE WORK DOES NOT RELATE DIRECTLY TO LAPITA. IT IS ANTICIPATED THAT AT THE WEDNESDAY POSTER SESSION PRESENTERS WILL GIVE A 5-MINUTE OVERVIEW OF THEIR POSTER IN TURN – DEPENDING ON NUMBERS. POSTERS WILL BE PLACED AROUND THE CONFERENCE VENUE FROM MONDAY ONWARDS, AND ARE TO BE TAKEN DOWN AT FRIDAY LUNCHTIME.

THEME 1: NEW LAPITA RESEARCH

1. DIVIDING UP THE CADAVER: A COMPLEX CASE OF PREPARATION OF THE BODY AT TEOUMA (VANUATU)

Florence Allièse41, Frédérique Valentin4, Neil Dudley50, Hallie Buckley50, Stuart Bedford38,50 & Matthew Spriggs38,58

Pre-burial treatments constitute a significant stage of the funerary sequence, but only a few of them leave traces directly detectable. Taphonomic analysis of both the grave and the human remains allows reconstructing some of these behaviours. In order to better characterize this stage of the Teouma Lapita funerary sequence (Vanuatu, c. 3000 BP) we have undertaken a systematic analysis of spatial distribution of the skeletal elements present in the grave, combined with a detailed examination of bone surface modifications. Amongst the 47 observable adult primary contexts, 29 revealed
anomalies of positioning of certain anatomical segments and at least 8 individuals presented bone surface modifications. If the manipulation of the cadaver at a late stage of the decomposing process is evident in many cases, an invasive treatment transforming the fresh corpse must be considered for at least a third of the individuals. This operation would involve cutting up, dismembering and placing the body in separated anatomical segments within the same burial unit. At Teouma, the inhumation of the deceased in separated anatomical segments, theoretically suggesting a loss of individuality, would rather testify of a practice associated with the preparation of the body, as are the positioning of the members and the placing in a container.

2. FINDINGS OF INTERNATIONALLY SIGNIFICANT LAPITA POTTERY AT CAUTION BAY AND A CASE FOR PRESERVING LAPITA LANDSCAPES AS WORLD HERITAGE SITES.

Nick Araho32 and Alois Kuaso32

Findings of internationally significant Lapita pottery dating to 3400 years ago in the Caution Bay have re-written the history books of PNG, the Pacific and world archaeology by a team led by Dr Bruno David & Ian McNiven of Monash University and Matt Leavesley of University of Papua New Guinea. The momentous discoveries of the PNG LNG site were not expected to uncover Lapita pottery. The discoveries in the Boera-Papa area confirms that it is not only one Lapita archaeological site, but an entire Lapita landscape, including pre-Lapita sites dating to 4200 years ago, with individual sites linking to each other across the geographic space of the Caution Bay Area. This poster re-visits the notion on how one decides on preserving a Lapita landscape faced with rampant development issues on the South Coast of PNG.

3. ROULETTE OR BAR STAMP – A UNIQUE TOOL IN THE EARLY LAPITA ASSEMBLAGES OF FIJI AND TONGA (?)

David Burley25 and Shane Egan20

The presence of roulette stamping in the Lapita decorative tool kit has been vigorously contested since first suggested by Simon Best in the 1980s. In a 2007 paper, Wal Ambrose clearly defined the “raised rib pattern” associated with roulette stamping, stating that it had yet to be identified within the Lapita ceramic suite. This poster illustrates the raised rib pattern in Lapita assemblages in Fiji (Bouroewa, Naigani, Vorovoro) and Tonga (Nukuleka), albeit it may have been applied by a bar stamp for expanded zone markers rather than by wheel.

4. ARBORICULTURE IN THE PACIFIC AND THE LAPITA HORTICULTURAL TRADITIONS: INSIGHTS FROM A COMPARISON OF ANTHROACOLOGICAL CASE-STUDIES

Emilie Dotte-Sarout38

After several decades of discussion, it seems there exists nowadays a general consensus on the subsistence regime of the Lapita populations. This regime has been characterised as a “broad-spectrum foraging of marine and terrestrial resources coupled with horticulture and animal husbandry”, with a transition to more intensive horticulture and arboriculture during the later Lapita and post-Lapita periods. The vast majority of Pacific societies were practicing intensive horticulture at European contact, and it is generally accepted that these were essentially inherited from Lapita traditions. Concomitantly, it is widely stated in publications that the settlement of human populations on the inhabited islands of Oceania had a rapid destructive impact on the islands’ flora, based on the hypothesis that the horticultural systems were relying on an extensive use of slash-and-burns and introduced crops. Among the growing but still relatively small and disseminated set of direct palaeoobotanical data, some do show signs of deforestation (mainly pollen datasets), while others demonstrate the presence of horticultural and/or arboricultural crops from early on. However, very little is actually known on the history of forests in the Pacific islands - their taxonomical composition and spatial organisation, while this appears as a direct way to investigate both the development of horticultural/arboricultural practices and the trajectories of human impact over the vegetation. Anthracology, the analysis of archaeological wood charcoal macro-remains, offers such a perspective. Its potential to address these essential questions of Pacific archaeology will be discussed here by comparing two case-studies from New Caledonia and French Polynesia.
5. EASTERN BUT WESTERN – COMPLEX LAPITA MOTIFS AND CERAMIC ELEMENTS FROM THE NUKULEKA SITE, KINGDOM OF TONGA

Shane Egan\textsuperscript{20} and David Burley\textsuperscript{35}

The Nukuleka site on Tongatapu in the Kingdom of Tonga is claimed to be the earliest Lapita founder colony in Polynesia. This is based in part on radiocarbon and U/Th dates but also in part by the presence of complex ceramic motifs and elements typically associated with the Western Lapita province. This poster identifies and illustrates the range of these motifs at Nukuleka as present in excavated and beach collected assemblages.


Julie Field\textsuperscript{30}, Chris Roos\textsuperscript{37}, John Dudgeon\textsuperscript{12}

Recent terrestrial coring and excavations within the Sigatoka Valley, located on Viti Levu, Fiji, have identified two phases of anthropogenic biomass burning. The first occurred ca. 3000 BP, and appears in the interior of the Sigatoka Valley. This burning is associated with a dramatic oscillation in carbon ratios, indicating the opening up of the forest canopy, and the dominance of grassy plants as the major plant regime. At the site of Qaraqara, natural springs emanating from the Naqalimare limestone massif were utilized as early as 2000 BP for use in pond-field agriculture. Excavations at Qaraqara revealed a sequence of ceramics, phytoliths, and iron oxyhydroxide root casts that are indicative of the site’s use in irrigated food production. These data are now aiding in the compilation of landscape history in Lapita and post-Lapita Fiji.

7. PRELIMINARY RESULTS FROM THE 2015 SURVEY OF THE LITON RIVER LAPITA SITE, JACQUINOT BAY, SOUTH COAST NEW BRITAIN.

Jason Kariwiga\textsuperscript{51}, Matthew Leavesley\textsuperscript{51}, Jim Specht\textsuperscript{1}, Glenn Summerhayes\textsuperscript{50} & Andrew Sarar\textsuperscript{51}

The Liton River Lapita site provides us with an insight into Lapita expansion and settlement in the Pomio area of south coast New Britain. This is significant given the limited number of archaeological studies carried out in this area. This poster provides preliminary results from surveys carried out this year. The site is located at the mouth of the Liton River, Bain village. The surveys yielded a substantial quantity of pottery, including numerous decorated pieces. These were all recovered while diving. A single fragment of obsidian was also uncovered and is currently undergoing analysis. The poster presents the results of initial pottery analysis. In addition, and given that this survey is the first to be carried out at the site, it provides a firsthand description of the site, and surrounding landscape.

8. THE END OF THE FUNERARY SEQUENCE AT TEOUMA (VANUATU): INFILLING AND COVERING THE GRAVE

Frédérique Valentin\textsuperscript{4}, Florence Allièse\textsuperscript{41}, Stuart Bedford\textsuperscript{38,58} & Matthew Spriggs\textsuperscript{38,58}

Testifying of the long duration of the Teouma Lapita funerary sequence (Vanuatu, c. 3000 BP), as the removal of desired bones, in situ bone re-arrangements, inclusion of bone collections and artefacts, the infilling and the final covering of the grave postdate the decomposition of the corpse. After a description of the various uses of the reef in relation with the digging of the burial pit, the paper will focus on several aspects of final the closure of the grave, including various stone arrangements and the edification of a coral boulders cairn in at least one quarter of the cases. Although cairns are present in both male and female burials, they are only associated with adults, even though at least one perinatal was surrounded by a small stones circle. Questions of the structural variability of these stone structures and of their spatial distribution within the cemetery will be addressed. Interestingly, a fraction of them include human remains, which arrangement can be spectacular as for the cache in B10, and they were erected on graves located in the areas of the cemetery the richest in coral blocks. This variation seems related to the nature of the grave direct environment, an opportunistic behavior perhaps suggesting that the oblivion process was already engaged. As the wide range of body initial position, it may also reflects the low level of obligations required by the earlier and later stages of the Teouma funerary procedure contrary to the more standardised middle stage.
9. ANCIENT FISHING (2900-2800 BP) AT THE ARAPUS SITE, EFATE, VANUATU


A significant number of fish remains were uncovered between 1999 and 2003 at the archaeological site of Arapus, on Efate Island, Central Vanuatu, during a joint Australian National University - Vanuatu National Museum research project. The studied ichthyofauna sample was collected in two test pits excavated in 2001 and is mainly associated with the Arapus layers, dated around 2800 BP. It offers an outline of the taxa captured at the time of the initial occupation of the site and provides an opportunity to characterize the associated fishing methods. A total of 630 fish bones have been identified to the family, genus and species-level and the spatial context and different biotopes have also been taken into account to interpret the sample composition. The assemblage is dominated by the Acanthuridae family, or surgeonfishes, and covers a wide range of taxa, herbivores as well as carnivores and omnivores. Fishing in Arapus seems to have been relatively generalist and exclusively coastal: the reef flats, the fringing reefs and the Port Havannah protected bay close to the site were exploited. Technologies such as hooks and lines, and fish-traps, better adapted to the site's neighbouring marine environments than gill nets, might have been used. The results obtained support current knowledge about first millennium BC fishing in southern Melanesia but also bring new information to bear on the techniques used in Vanuatu during that time.

10. “WASTE NOT, WANT NOT.” MISSION ERA APPROPRIATION OF SACRED STONES IN ANEITYUM, VANUATU: AN ETHNOGRAPHIC APPROACH TO THE ARCHAEOLOGICAL RECORD.

Dijana Crook, Stuart Bedford, Matthew Spriggs and Matthew Prebble

Mission contact in southern Vanuatu greatly impacted on the traditional beliefs of indigenous populations. Missionaries strove to make physical changes to the villages by constructing specialised structures such as churches, printing houses, teaching institutions and dwellings. These changes served to provide a visual reminder of the dominance of the new religion. However, changes did not simply happen on the surface, and it is through the ethnographic approach that we can identify the indigenous reaction to the conversion process. By investigating oral traditions, a cache of buried sacred (tabu) stones were uncovered on the mission site established in 1848 by Rev. John Geddie in Aneityum, Aneityum and date to the mission period via contextual association with historical artefacts. Rubble, consisting of washed and unwashed plaster, mortar and dressed stone, covering these stones indicates their intentional burial by members of the mission. The presence of dressed stone provides an upper limit date for the burial, aligning with the stone church construction during the 1860s. Two associated pits excavated adjacent to the tabu stone pit and filled with historic building debris, provide additional dating contexts and indicate that Presbyterian ideals of cleanliness and order permeated through to removing remains of old buildings from sight and extended to include repurposing sacred stones into mission era structures. Surviving missionary records have contributed to information gleaned from the archaeological record and together strongly suggest that these stones were put to structural use within the mission site. In particular, the topmost sacred stone, raised significantly above the remaining stones, and stabilised by dressed stone beneath it, indicate its use as a doorstep. Such repurposing in high traffic areas advocates the intention to symbolically remove the imbued power from these artefacts – a practice not unusual to southern Vanuatu and Aneityum in particular.

11. DIETARY COMPARISON OF LATE LAPITA AND CHIEFDOM PERIOD GROUPS IN TONGA USING STABLE ISOTOPES

Jack N. Fenner, Frédérique Valentin, Geoffrey Clark

Lapita-period subsistence in Remote Oceania is often thought to have a stronger marine influence than was the case for later populations. Here we evaluate that assessment by comparing carbon and nitrogen collagen stable isotope ratios from people interred in the Talasiu Late Lapita site against those of people interred in several nearby Chiefdom Period mounds in Tonga. The results show that both nitrogen and carbon isotope ratios are significantly higher in the Late Lapita remains
than in the Chiefdom period remains, which supports a greater marine dietary influence for the Late Lapita group. We also discuss isotopic differences and similarities amongst people interred in different Chiefdom Period mounds.

12. ARTEFACTS OF CONVERSION: MISSION OBJECTS FROM TANNA AND ERROMANGO

James L. Flexner

From the 1840s through the early 1900s, the Presbyterian Church was responsible, either directly or indirectly, for millions of industrially produced artefacts arriving in the New Hebrides (now Vanuatu). These objects were seen as crucial to the conversion process, based on Protestant ideology that said true conversion would be accompanied by the external markings of God’s grace, manifested in ample, though simply presented, material wealth. From bronze bells to iron nails to blue and white ceramics, these artefacts are found on mission sites throughout the islands today. Focusing on recent work on Tanna and Erromango, these materials provide significant markers of the materialities of the conversion process, and relate to the ways that both missionaries and Melanesians thought about objects in colonial encounters.

13. ANCESTORS OF THE HIRI: CERAMIC SOURCING AT THE ISLAND OF MOTUPORE, PAPUA NEW GUINEA

Anne Ford & Jim Allen

On the south coast of Papua New Guinea, the post-Lapita cultural sequence is characterized by the continuation of an extensive interaction network, connecting the Port Moresby region to the Gulf Province which was developed during the Lapita period. Over time, this network disintegrates into localized cultural sequences, before being replaced in the recent past again with an extensive exchange system connecting Port Moresby to the Gulf in the form of the hiri trade, where pots and shell valuables from Port Moresby were transported by sea to the Gulf in exchange for sago. This project is examining the development of the hiri trade by sourcing ceramics from the site of Motupore, one of the pot-producing sites to the east of Port Moresby. The results of the geochemical analysis will be presented and the development of the hiri trade related back to current understandings of the post-Lapita sequence on the south coast of Papua New Guinea.

14. BUILDINGS ARCHAEOLOGY IN MELANESIA: FIRST FINDINGS FROM TANNA AND ANEYITUM, VANUATU

James L. Flexner, Richard Shing, Martin Jones, Stuart Bedford, and Matthew Spriggs

Archaeological approaches to standing buildings provide information about changes in construction materials, techniques, and technologies through time, as well as important discoveries about the social use of space by past people. Buildings archaeology is a new field in Island Melanesia, but one with immense potential for the region, especially for understanding the more recent past. Colonial buildings offered symbolic statements about colonial ideologies and ambitions. They were also important spaces where Melanesians and Europeans interacted. The Melanesian setting of colonial buildings shaped the ways they were built, used, and abandoned. Some of the most significant colonial buildings in the region still standing are remains of mission buildings, especially houses and churches. Examples of recent building archaeology from Tanna and Aneyitum, Vanuatu, provide case studies representing the kinds of insights that buildings archaeology can offer, and show the importance of conserving historical heritage in Melanesia.

15. INVESTIGATING THE DISTRIBUTION OF MOUENDS ON TONGATAPU USING LIDAR AND AUTOMATED FEATURE EXTRACTION

Travis Freeland, Brandon Heung & Anders Knudby

Aerial LiDAR technology allows for prospection of archaeological remains over large areas and under dense layers of vegetation. Recently acquired LiDAR data for the Kingdom of Tonga show a profusion of anthropogenic features relating to late prehistoric Classical Chiefdom period (ca. AD 1000-1850), and allow for a variety of geospatial analyses. In this poster, we present the results of a comparative study of automated feature extraction (AFE) protocols designed to identify earthen mound structures, which are abundant on the landscape of the principal island of Tongatapu. The spatial
patterning of these monuments, the majority of which were used for chiefly burial, is highly significant for our understanding of sociopolitical structure and the rise of a paramount chiefly society in Tonga.

16. MAKING GROUND – MAORI HORTICULTURAL INTENSIFICATION IN THE WAIKATO BASIN, NEW ZEALAND.

Warren Gumbley

Temperate New Zealand lies on the margins of the Polynesia. Polynesians successfully introduced a range of agricultural innovations and were able to maintain an adapted form of systematic oceanic agriculture. Located in the middle of North Island, the Waikato River Basins contain one of the most archaeologically visible horticulture systems in New Zealand. This horticultural system stretches for over 100 km along the margins of New Zealand’s largest river and forms a dominant element of the region’s archaeological landscape. Central to the development by Maori of this horticultural landscape is the manufacture of a characteristic soil created by adding sand and gravel alluvium to the tephra-origin A horizons of the Hinuera and Waikato Formations. This horticultural system represents an energy-expensive and intensive strategy central to the successful adaptation of Polynesian horticultural practices focused on cultivating kūmara (Ipomoea batatas) but also including dryland taro (Colocasia esculenta) cultivation and probably also tropical yam (Dioscorea spp). Radiocarbon dates indicate that these practices began with the initial settlement of this region around 1500 AD and that they continued to expand until the arrival of European introduced cultigens.

17. CONSTRUCTING A MICROFOSSIL KEY FOR FIJI FROM MODERN PLANT SPECIMENS

Rebecca E. Hazard and John V. Dudgeon

Microfossils in archaeology are defined as the floral and faunal-derived microscopic biogenic particles that preserve long after the original organism has died and decayed. Some such examples are silica phytoliths, starches, pollens and spores, calcium oxalates, and plant cellular tissue like trichomes and stomata. Microfossil analysis provides a valuable proxy for inferring prehistoric environmental conditions as well as direct evidence for the presence of agricultural domesticates and related activities; however, the body of reference material for identifying individual plant morphotypes is lacking. Here we present our recent research which entails the construction of a library of microfossil reference images obtained from modern plant specimens collected during fieldwork in Fiji and subsequently applying them to archaeological datasets.

18. HOUSES, SHRINES AND THE SOCIAL LANDSCAPE OF TETEPARE, SOLOMON ISLANDS

Jessie Hurford and Tim Thomas

In the nineteenth century the island communities of New Georgia (Western Province, Solomon Islands) were involved in complex systems of interaction, with ritualised headhunting raids securing the political and spiritual position of chiefly figures. With the emergence and expansion of powerful island polities, many Tetepare Islanders were killed or forced to flee, abandoning places of occupation. Across the landscape, houses and shrines were once integral to daily life, creating spaces of sociality and ritual. Here, I explore the emergence and social role of architectural forms on the Tetepare landscape, correlating socio-political practices with differences in architectural form and arrangement.

19. STONE AND MEMORY: RELICS ON TANNA

Lamont Lindstrom

Abstract: Stones of all sizes reflect memory on Tanna. More than other material, rocks and boulders perdure within the tropics and they are useful memory banks that evoke notable spirits, ancestors, and celebrated events. The largest stony forms, Mounts Meren and Tukosmera which tower over south Tanna, are spirit infested abodes as is Iasur volcano. Mountain stories are thus also spiritual narratives. Less massive but still remarkable boulders and stones may be petrified spirits themselves (or their rocky avatars) or their petrified possessions and tools. These include culture hero Mwatiktiki’s axe, pig, and footprint on the island’s southeast coast, or ark-builder Noah’s petrified axe up on Iankahi ridge. People also inherit, or find, stone axes (paha), throwing stones (kauas or kasakuasaku), and stone beads and pendants (kwanari),
including nephrite green stones (kwanevur). They secure these in safe places, bringing them out for display at ceremonial occasions. They likewise inherit from ancestral namesakes the magic stones (nukwei nari) that control all sorts of natural forces including fertility, climate, birds, beasts, and fish, to sickness and mortality. Given traditional, non-linear time concepts, stone relics prompt ongoing appreciation of the island as it has always existed more than evoking some bygone past.

Johannes Moser⁶, Tony Heorake⁶ and Lawrence Kiko⁶

Abstract: In 2012-2014 excavations at the flint-knapping workshop ‘Apunireha’ on Malaita (Solomon Islands) were conducted as a cooperation project between the National Museum, Solomon Islands and the German Archaeological Institute (DAI). The open air site, Apunireha, covers an area of approximately 3600 m². In the province East Are Are, Malaita many rivers are bearing, due to the geological conditions, chert boulders and pebbles in different varieties. In the area around the flint knapping site Apunireha these natural lithic sources were used in prehistoric times for raw material procurement. The chert boulders were prospected and brought as manuports to the site for further usage and the manufacturing of tools. The excavation revealed a huge amount of lithic products in all stages of their manufacturing process. All components of the débitage products such as flakes, blades, chips and debris and different types of nuclei are present. As modified or ready tools different types of side-scrapers, end-scrapers and denticulate pieces can be distinguished. The most prominent component of the lithic implements consists of knapped stone-adzes.

Johannes Moser⁶, Tony Heorake⁶ & Lawrence Kiko⁶

Abstract: The Ria-Rockshelter, an isolated natural cliff overhang, is located in East Are Are, Malaita and was investigated in 2013 and 2014. The site shows evidences of human presence in ancient times. Excavations under the rockshelter disclosed cultural deposits and features and a large collection of knapped stone tools, shells and faunal remains. In the rear of the shelter two extended supine burials were discovered. Radiocarbon dating is currently in process and will help to establish a chrono-stratigraphic frame. The excavation under the Ria-rockshelter will be continued in 2015.

Elia Nakoro⁶ and Sakiusa Kataiwaï⁶

Archaeology work in the Fiji Islands spans across the borders revealing cultural finds that enlighten new discoveries that complement previous awareness, or better yet, originates innovative realizations of the history of the Fiji islands from a total new perspective. Ongoing research, especially with the regular influx of foreign researchers, has further collaborated more on historical Fiji and along with these studies, the Archaeology department of the Fiji Museum are also heavily involved with community level requests on the research and protection of cultural sites around the country. Under the provisions of the Preservation of Objects of Archaeological and Paleontological Interest (POAPI) Act, cap 264, Laws of Fiji, the Archaeology department is continuously attending to requests and collaborating in national projects to implement this national legislation and further enhance awareness to the population including developing the National database on tangible aspects of the history of the Fiji islands for future research and cultural development.

Yoko Nojima¹⁸

This paper presents the results of basic surveys of ceremonial stone structures in the Banks Islands, northern Vanuatu. The survey conducted from 2011-2014 covered Vanualava (southwest and east) and Motalava, and recorded approximately 30 sites. Ceremonial constructions in the Banks Islands are characterized by raised rectangular
mounds/terraces having tightly piled frontal face within which elongated volcanic slabs are inset in order to form ascending steps. Such prominent structures constitute the core of ceremonial spaces along with gamal (longhouse) structures, confirming their clear association with suqe, ceremonial pig killings in the Banks Islands. While remnants of gamals are found in various locations on the islands, raised mounds/terraces are mostly confined to inland and upland locations. In the case of southwest Vanualava, such ceremonial sites are typically located in the vicinity of taro irrigation terraces. The difference in the components of ceremonial sites could be displaying the dichotomy between the inland and the coast, which is to say pigs and shell moneys, the two key valuables enabling the Banks Islands suqe.

24. WHO WERE THE PACIFIC ARCHAEOLOGICAL PIONEERS IN THE PRE-WWII PERIOD?

Michelle Richards

This poster introduces the early European archaeological pioneers from the pre-World War II period chosen for my PhD research: F.W. Christian (The Caroline Islands, Tahiti and the Marquesas Islands 1896-1899), William and Katherine Routledge (Easter Island 1915-1919), Rudolf Pöch (New Guinea, Bismarck Archipelago, Australia, 1904-1906), C.A.W. Monckton (New Guinea, Bismarck Archipelago, Australia, 1906-1921) and Leo Austen (Papua 1921-1939). The objective of my PhD is to investigate the ongoing contribution of these museum collections to the construction of archaeological knowledge in the Pacific region. A biographical appreciation of the philosophies and methods of collecting employed by these early archaeological pioneers in the Pacific will be achieved by re-examining their collections in conjunction with the original field notes and other historical information. The collections will then be reconsidered within the context of current archaeological knowledge; I will seek to reinterpret them alongside recent excavations and in particular the results from geochemical analyses of obsidian, basalt and ceramic artefacts. To achieve the later, I will use nondestructive pXRF on suitable objects held in European museum collections.

25. RELIABLE CHRONOLOGY OF NORTH ATLANTIC AND PACIFIC ISLANDS: A COMPARABLE APPROACH

Magdalena M.E. Schmid

Recent research stresses the importance of the timing and nature of human settlement to previously unhabituated Islands and the environmental impact on pristine ecosystems. Human dispersal through the Pacific, such as the Lapita people of Near Oceania and the settlement of the archipelagos in East Polynesia is primarily dated by radiocarbon dates. However, radiocarbon-dated materials with large sources of error have caused controversy both in the North Atlantic as well as in the Pacific; a “chronometric hygiene” protocol has been applied in East Polynesia in order to exclude dates with high uncertainty. However, this protocol has been recently criticized arguing that the criteria employed appear to have been too strict resulting in an estimate of settlement dates that are too young.

The Norse Atlantic Islands benefit from excellent chronological control provided by periodical deposits of well dated tephra layers of Icelandic origin as well as AMS radiocarbon dates. Furthermore it is possible to obtain improved precision of dates for events between tephra layers or where they are absent, by integrating the scientific dates with the associated archaeological stratigraphy within a Bayesian framework.

Although the timing of colonization and the cultural remains vary in the North Atlantic and Pacific islands, the problems regarding the accuracy and reliability of dating techniques remain similar. This study argues that a holistic approach to reliable and substantial data sets, such as of well dated tephra layers and 14C dates in Iceland, can be transferred to other islands; in fact, better dated tephra layers in the Pacific – such as tephra deposits at Vanuatu – would allow a more nuanced understanding of occupation and abandonment of key sites.

26. C, N, S STABLE ISOTOPE ANALYSIS OF COMMENSAL ANIMALS AS PROXY DATA FOR HUMAN DIET AND ENVIRONMENTAL CHANGE

Jillian Swift

Abstract: Carbon, Nitrogen, and Sulfur stable isotope analysis has proven an effective tool for human paleodietary studies in a range of environments and time periods. However, in many regions of the Pacific it is often difficult or inappropriate
to conduct destructive analysis on human remains. This poster explores the potential for stable isotope analysis of commensal animals to serve as a new line of evidence for investigating human diet, island ecosystem change, and animal husbandry practices. Bone collagen δ13C, δ15N, and δ34S stable isotope analysis of the Pacific rat (Rattus exulans) on Mangareva and the pig (Sus scrofa) on Maupiti serve as case studies to demonstrate the utility of these data towards understanding Polynesian foodways and anthropogenic landscape transformation. This technique can be similarly applied elsewhere in the Pacific as an additional line of proxy data to address large-scale questions of human, animal, and environment interactions throughout Oceanic prehistory.

27. TECHNOLOGY APPLICATIONS FOR POTTERY ANALYSIS: A TEST CASE FROM AMERICAN SAMOA

Brett Tanselle28, Jeffrey T. Clark28 & Narayanganesh Balasubramanian28

Abstract: Pottery analysis has been a staple of archaeology for as long as archaeologists have studied Neolithic and more advanced societies. Key questions have always been, how was the pottery made, how was it used, and what can it tell us about the people who made it? To help answer these questions, the authors are exploring the application of new analytical methods applied to a small sample of Plainware sherds from a set of sites in American Samoa dating to the first millennium BC. This poster will summarize our preliminary findings. The first technique is Computed Tomography (CT) using a micro-CT scanner. CT scanning is a nondestructive method that provides volumetric, 3D imagery of objects in their entirety, not just the surface. We sample shreds from three sites on Ofu and one on Tutuila, seeking evidence of method of construction, temper distribution, and temper type through both CT and conventional physical analysis. The second method is a technique for organic residue analysis based on sonication to extract residues from the sherds. The residues were examined with the use of a Gas Chromatography Mass Spectrometer (GCMS), with the results compared to reference materials to determine what organic materials were contained within the pots from two sites on Ofu. Through the application of these technologies, we may be able to learn more about pottery manufacturing and use, and the societies behind those activities, in the post-Lapita Plainware period in Samoa.

28. THE MONUMENTAL STRUCTURES OF MARÉ ISLAND, NEW CALEDONIA

François Wadra23

Abstract: Maré in the Loyalty Islands of New Caledonia, preserves a unique type of built heritage in Melanesia: large megalithic enclosures, present in a number of places on the central plateau as well as in some of the coastal areas. Studied by several archaeologists since the 1990s, some of the structures are linked to local Kanak myths. This paper will present the results of a long-term program fulfilled by the author on some of these unique sites, involving extensive mapping, excavations and dating.

29. COOKED, WORKED, AND EXCHANGED: TRIDACNA AND CONUS SHELL AND THEIR MULTITUDE OF USES OVER 3,000 YEARS IN VANUATU

Edson Willie58

Abstract: Lapita settlers in Vanuatu were welcomed 3,000 years ago by a pristine marine environment which played a key role in supporting initial settlement. The wide range of shellfish provided a key component of diet and also a whole range of shells were used to fashion various artifacts. Different shell species continued to be used as important resources in the manufacture of a range of material culture which continued for thousands of years. Tridacna and Conus species were widely utilised. Presented here is a broad selection of the material culture that was produced using Tridacna and Conus shell which has been recorded in the archaeological and ethnographic record of Vanuatu.
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