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ARTICLE

Female weir fishers of the Southern Lowlands of Papua New Guinea: implications for an archaeology of gendered activities

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ABSTRACT

In this paper we examine a set of ethnographic practices from the mid-reaches of the Kikori River, specifically pertaining to women's crustacean fishing, and in doing so re-examine the archaeological record of nearby rock shelter Epe Amoho. These practices, we argue, are poorly represented in many archaeological sites across the landscape. Such patterned biases of the archaeological record (e.g. of some gendered activities) have major implications for how we understand individual sites and for the utility of ethnography in archaeological interpretation. We conclude that the archaeological record of Epe Amoho underrepresents some elements of women's dry season activities.

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Introduction

In 1971–1972, Sandra Bowdler undertook the first archaeological surveys and excavations of the Kikori River delta, Gulf Province, south coast of Papua New Guinea (PNG). Four years later, in 1976, Jim Rhoads began intensive ethnoarchaeological investigations along the mid-reaches of the Kikori River for his PhD research (Rhoads 1980, 1983). Both Bowdler and Rhoads were interested in patterns of land use and the antiquity of occupation, with a view to historicising long-distance exchange and pottery. In light of what was then a burgeoning interest in PNG's past, incorporating oral history, social anthropology, and archaeological practice (e.g. Allen 1977; Bulmer 1978; Golson 1968; Oram 1968), Rhoads (1980) pioneered an ecological approach to the ethnoarchaeology of southern PNG with his focus on sago production and use, seasonality studies and settlement-subsistence systems.

Archaeological research temporarily ceased along the Kikori River near the end of the 1970s – as indeed it largely ceased along the entire southern coast of mainland PNG by the mid-1980s. A second phase was ushered in, in 2005, again ethnoarchaeological in endeavour, this time initially relating to cultural heritage management in light of industrial developments, and subsequently through community-based research programs (Figure 1) (e.g. Barker et al. 2012, 2015, 2016; David et al. 2010, 2015a, 2015b; McNiven et al. 2010).

Central to both phases of archaeological research was the use of ethnography to understand the past. McNiven et al. (2010:41) thus asked a series of questions aimed at investigating the temporal depth of ethnographically observed practices as a means of determining 'when in the past did activities start to resemble those known ethnographically?'. In taking such an approach, McNiven et al. (2010:42) noted the importance of documenting both continuities and discontinuities in material expressions of ethnographically observed behaviours through archaeological sequences (i.e. through time). In particular, like had to be compared with like: while ethnographic information could relate to general patterns of behaviour, so too would a focus on a particular set of activities generate information on those particular activities rather than on the grander pattern. Similarly, while a broad set of sites would reveal a more complete archaeological record for a given period of time, focusing on a single site would probably mask the full range of activities represented by that broader pattern, revealing details of individual events or sets of events that related more to that particular geographical location. McNiven et al. (2010:42) reported archaeological research in a single site because it allowed a very specific and detailed analysis and dating of a 'broad range of activities contained within the archaeological record' of that site. It is important to note that the excavation reported by McNiven et al. was one among

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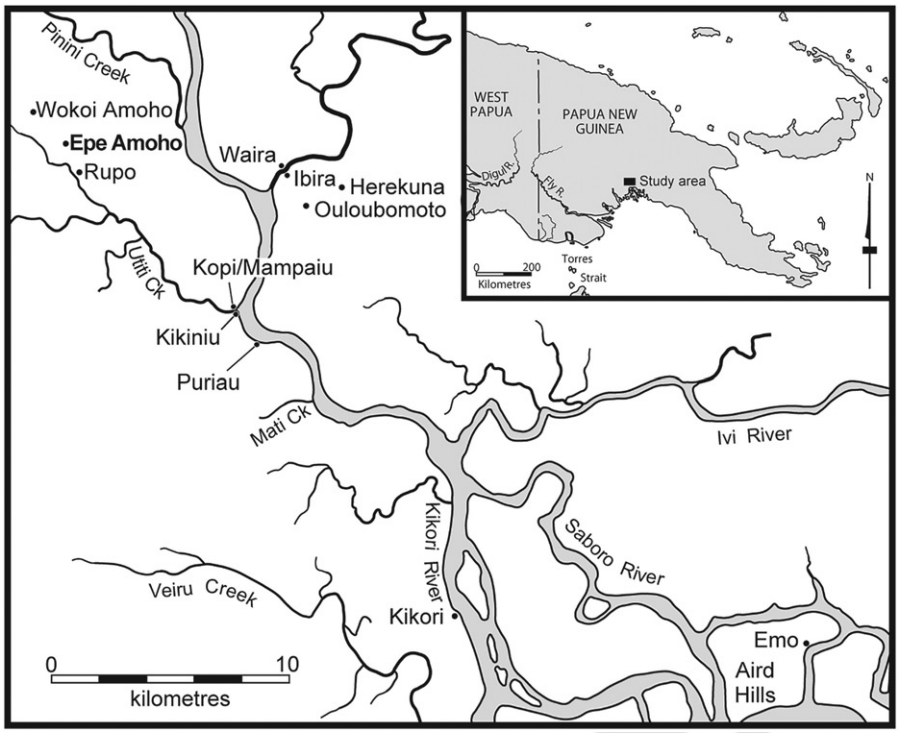

Figure 1. Study area (McNiven et al. 2010:41).

more than a dozen sites excavated in that region that year, including seasonal rock shelters, short-duration open hunting camps, ossuaries, and permanent village locations. These latter sites await publication.

Our present focus complements that of McNiven et al. (2010). Here we examine a set of ethnographic practices from the mid-reaches of the Kikori River undertaken by the same local families as those who also regularly use(d) the rock shelter site reported by McNiven et al. (2010). Rumu lands and Rumu cultural practices of the mid-Kikori River provide a rare opportunity to interrogate patterns and networks of land use that both on archaeological evidence and through oral narratives appear to afford information relevant to the past few hundred years of relations between people and place. To that end we explore a set of activities directed at crayfish and prawn collecting that are not easily visible in the rock shelter archaeological record of places such as Epe Amoho, the site of McNiven et al.'s attention, and ask about the junction between gendered social practice, the visibility of gendered activities, and their representation in the archaeological record. Our aim is to show that even with a keen awareness of gendered divisions of labour and depositional patterns, patterned absences or poor archaeological visibility of specific practices (e.g. of gendered activities) have major implications for how we understand both the archaeological record and how we use the ethnography to better inform the archaeology. If connections between the ethnographic record and the archaeological record need to be 'demonstrated and not simply assumed' (McNiven et al. 2010:42), what do we make of ethnographic information that is poorly visible in the archaeological record? This paper explores this issue through one highly gendered case study among the Rumu.

The archaeological record of a seasonal hunting camp

Rhoads (1980:63–76) noted that the land use patterns he observed ethnographically among the Kairi (Rumu) had major consequences for the regional archaeological record. Dry season camps (of a kind locally known as *kombati*) are established within a day's walk of nuclear villages, as apparent during his ethnographic fieldwork. This was also evident in numerous observations and statements made to the authors by members of many clans between 2005 and 2009, including contemporary Himaiyu clan members of Epe Amoho (e.g. McNiven et al. 2010:44). Occupation of *kombati* was said to be relatively short-lived – lasting from a few days to a few weeks – and the number (and gender) of occupants determined by the specific type(s) of activity taking place. Thus the archaeological record pertaining to such activities will usually be dominated by dry season resources, and are likely to be represented by a small number of specific food types (e.g. fish caught through particular seasonal technologies, or other seasonal food resources). Epe Amoho is such a campsite, and here our goal is to re-examine the site's archaeological record, with reference to the

Figure 2. Epe Amoho (McNiven et al. 2010:44; photograph: Ian J. McNiven).

local ethnographic evidence (Figure 2). For just as McNiven et al. (2010) caution us to not overlook the variability within the archaeological record and subsume it under the guise of ethnographic analogy, similarly, one must not overlook the variability of the ethnographic evidence and transpose a generalised version of it upon the archaeological record. It should be noted at the outset that Rhoads (1980:70) argued that there is no reason to believe that settlement and resource procurement patterns differed markedly between his ethnographic observations and the early European contact period of the late 1800s, with the exception of the introduction of new technologies (see also Busse et al. 1993:39–40). Given that only some 35 years have passed since Rhoads conducted his ethnographic fieldwork, in combination with the comparability of our own observations and accounts of the people we work with, claims of great similarity between some protohistoric, ethnographic and recent land use patterns among the Rumu are reasonable. The nuclear village/seasonal camp settlement pattern observed today is in many ways commensurate with the pattern in place at early European contact.

Epe Amoho, a limestone rock shelter located 300 m from Epe Creek (McNiven et al. 2010), represented a good opportunity to investigate the antiquity and patterning of subsistence activities at hunting camps archaeologically. The rock shelter is found at the base of a c. 5–10 m high limestone karst outcrop. Some 60 m long, the sheltered area is divided into two sections of c. 30 m length each, the two parts separated by a narrow gap through the rock. The archaeological excavation was situated on a relatively high and dry section of the north-westerly side of the rock shelter. Epe Amoho represents the main and largest hunting camp (*iapu*) owned by the Himaiyu clan. Consistent with the general pattern for such sites, it continues to be used in the dry season, sometimes in conjunction with smaller hunting camps, such as Wokoi Amoho nearby (McNiven et al. 2010:44). At Epe Amoho, McNiven et al. (2010) documented fish skeletal remains, crustacean exoskeletal remains and bamboo microfossils dating back to 2500–2850 cal BP. Given the recovery of such archaeological remains from the site, most if not all the taxa represented in the ethnographically observed fishing trips reported in this paper (see below) have the potential to be represented in the archaeological record, although commonly eaten ferns such as *Diplazium esculentum* may not be archaeologically identifiable to recognisable taxonomic levels.

The archaeological record of Epe Amoho contains a range of cultural materials, most of which occur in Excavation Unit (XU) 1 to XU9 (0–500 cal BP). The excavated materials include charcoal, burnt earth, plant microfossils, vertebrate bone including fish, bird eggshell, mollusc shell, crustacean exoskeletal remains, stone artefacts, a single pottery sherd, and, in the upper levels, European items including glass beads, gunshot pellets, unidentified metal and

fragments of plastic (McNiven et al. 2010:48). Of the total 991.3 g of faunal remains, the freshwater component was represented by turtle (18.9 g), fish (47.4 g), shellfish (693.3 g) and crustacean exoskeleton (1.8 g), together comprising 76.7% of the faunal record by weight (mostly due to an MNI of 308 shells) (McNiven et al. 2010:50).

It is of interest to note that minute crustacean exoskeletal remains were recovered (a 2.1 mm-mesh sieve was used). McNiven et al. (2010:50) noted that such remains were concentrated in two chronostratigraphic horizons – one dating to the past 500 cal BP, and an earlier one dating between 900–1200 and 2500–2850 cal BP. These remains were burnt, sparse and so fragmentary that crayfish and crab could not be distinguished. McNiven et al. (2010:54) argue that the presence of fragile fish bones in the lower and middle levels signal that the paucity of cultural materials is not solely due to taphonomic factors. In the upper units, taphonomic bias is less likely to play a role in the quantity of faunal remains than it does in the lower units. As we are concerned largely with the upper level, which is dated to the past 500 cal BP, we are prioritising the exploration of social and ethnographic factors when re-examining aspects of the Epe Amoho archaeological record.

The ethnographic record

Ethnography provides us with an opportunity to add a further degree of nuance to the interpretation of the Epe Amoho archaeological record, particularly for the limited crustacean remains. The Rumu regularly gather, fish, hunt and garden for their foods, but the predominant subsistence activity is arguably the tending and processing of both wild and planted sago stands. While small gardens are common today, garden produce does not feature prominently in daily lives, as was also the case in colonial times (Busse et al. 1993; McNiven et al. 2010; Petterson and Petterson 1992; Rhoads 1980, 1983). Extended families live in a combination of permanent, nuclear villages and seasonal camps established especially for sago processing, hunting and/or fishing. As noted above, hunting camps are usually established in the dry season, at a time when people at the principal villages run out of meat (McNiven et al. 2010:44; Rhoads 1980:45). But there are exceptions: the larger, more permanent and longer-duration seasonal hunting camps, such as Epe Amoho, are used by a 'sizable' number of individuals, often but not always part of a single clan lineage (Rhoads 1980:45). Smaller, less permanent seasonal camps are also often established simply to get away from village life, whether these be hunting, fishing or sago-processing camps. These camps tend to be owned by single family units, their use often not exceeding the nuclear family group. They are constructed 'entirely from materials found in the nearby bush and are an important focus of life' (Busse et al. 1993:40).

It was at one of these small temporary camps belonging to Max and Ruth Pivoru (Himaiyu clan) that two fishing excursions were observed on 7 February 2009. The excursions were undertaken by a group of seven women and two children (one girl and one boy) who had not yet reached their teenage years. The university-based research team members consisted of both men and women; over a number of days, the men (BD and BB) joined the male hunting groups (especially documenting flying-fox hunting in some of the caves), while LL and CA worked with the women. Bernard Sanderre, a professional cameraman, moved between the two teams, documenting the activities on film.

The fishing camp was located on Epe Creek, the built component consisting of a wooden platform (with roofing frame) raised on stilts, a few metres from the creek bank. The women proceeded to construct a 3–4 m wide weir across a gently flowing section of Epe Creek, a small but permanent creek. The aim of the weir was to stop the flow of water, rather than to create a trap specifically to lower or raise the water level (cf. Rhoads 1980). Construction began by placing a 3–4 m long pole across the creek above the water level. Perpendicular to the pole, a series of stakes was made to lean like ribs, covered with palm and other leaves from the nearby environment and sealed with mud gathered by hand from the creek bank (Figure 3). Once completed, the overall installation caused the flow of water downstream to slow to a stand-still (Figure 4). Under Ruth Pivoru's direction, the women then stood upstream of the weir, performed a short ritual that involved scooping water and throwing it further upstream. This was accompanied by a set of short incantations that translates as: 'you don't come back – you go back up that way', an instruction to the water to cease flowing.

The women and children then began fishing downstream, with prawns and crayfish particularly sought. They vigorously stirred up the mud of the creek banks and creek bed (Figure 5), causing the prawns and small fish to float to the surface, stunned or disorientated by the lack of oxygen from the now-muddy water denied its flow. The prawns and fish were picked off by hand as they surfaced, while the crayfish appeared to be uprooted from their burrows beneath clumps of mud and vegetable matter and captured in situ. One by one they were placed in bags made of sago palm leaf or

Figure 3. Weir construction (photographs: Lara Lamb).

Figure 4. The weir, regulating the flow of water (photograph: Lara Lamb).

Figure 5. Fishing by stirring up the mud (photographs: Lara Lamb).

repurposed rice bags. The weir was crucial to the success of the day, as it prevented the hand-churned muddy waters from washing downstream and being replaced by clean and aerated flowing water.

This process was repeated during a second fishing trip, with the exception that this time a weir did not need to be constructed, as the chosen site was a still pool in a small tributary of Epe creek. On both

occasions, after fishing was completed the women and children proceeded back to the fishing camp (where they stayed for a few hours only) to process, cook and consume *all* the food caught on the day. No food items were kept for sharing with the men, other women, other children or old people upon returning to the village later in the day.

To our knowledge, the fishing technique described above had not been documented before, but it is commonly practised in this region. The precise method is not among the suite of subsistence activities described by Rhoads (1980), but rather seems to be a variation of the crustacean collecting and 'fence fishing' that he reported (Rhoads 1980:37, 43).

Archaeological implications

At Epe Amoho, McNiven et al. (2010) concluded that the archaeological record represents dry season activities, following the testimony of the Rumu clans' people who used the site historically and who continue to use the site today. In doing so, they argued that here the archaeological signature of ethnographic activities could be extended back some 400–500 years – but this, of course, can only refer to the kinds of activities represented at the site. It leaves silent the history of those activities without an identified local archaeological expression.

Human behavioural ecology-focussed examinations of food sharing, 'tolerated theft' and food 'hoarding' practices, framed as cost/benefit analyses (e.g. Bird and Bird 1997; Codding et al. 2011; Kaplan et al. 1985), are rarely concerned with 'proximal causal mechanisms' of behaviours that bring into being adaptive responses (Blurton-Jones 1987:34). Rather, the risk to reproduction, generated by unpredictable resource acquisition, is frequently emphasised, with gendered differences sometimes viewed as related to divergent reproductive goals (e.g. Bird 1999). Here we focus more on those proximal causes such as socialised interactions and decision-making processes that, being regularly gendered, will produce gendered task-products and by-products, often but not always resulting in a spatial partition of activities (see also Austen 1946; Bliege Bird and Bird 2008; Chang 2017; Hide et al. 2002:20–1; Knauft 1993:86–97; Rhoads 1980; Williams 1924).

The archaeological record of Epe Amoho – in particular, the paucity of crustacean remains in the past 500 years – can likewise be re-examined in light of gendered divisions of labour. Collecting crayfish and prawns among the Rumu is undertaken almost exclusively by women and children (Rhoads 1980:43), although men are also known to fish for them with bow and arrow either alone, in groups of two, or with their wives (Rhoads 1980:35). Women undertaking small-scale collecting in groups are likely to consume the fruits of their efforts prior to returning to a communal setting (Rhoads 1980:43), where they would be required to prioritize the men at meal times (LL personal observation February 2009; Petterson and Petterson 1992).

Using the fishing technique described above, the women caught three distinct types of game: freshwater prawns of various sizes (c. 3–10 cm long; 69% of the total catch by number), freshwater crayfish (c. 15–20 cm long; 23%) and small fish (c. 4–15 cm long; 7%).

Prior to cooking, the anterior section of the large prawns was shelled, leaving the legs and tail intact, and the fish were roughly scaled. All were wrapped, either individually or in groups of two or three, in *Diplazium esculentum* edible fern fronds (*taramo*), and placed in tubes of green bamboo that were then positioned horizontally on an open fire to steam (Figure 6). The bamboo containers were occasionally turned for even cooking. After consumption, all rubbish (crustacean exoskeleton, bamboo tubes and fishbone) was wrapped in banana leaves and placed on the fire, then reignited for rubbish disposal 'to keep the large snakes away'. All food preparation, cooking, consumption and disposal were undertaken in the open, on flat ground adjacent to the creek near the weir.

Whether crustacean collecting is conducted while in residence at the larger, more permanent hunting camps such as Epe Amoho, or the smaller family hunting camps such as that belonging to Max and Ruth Pivoru and documented here, the consumption and disposal behaviour lead to the food remains from these collecting expeditions being unlikely to make their way back to stratified archaeological sites such as Epe Amoho. Traces of such activities, undertaken in open site, creek bank or temporary hunting camp contexts, are also unlikely to survive *in situ*, especially when undertaken in the more open, erosional creek bank settings. These factors combined indicate that such highly gendered events will not usually be archaeologically visible. The paucity of such products in the archaeological assemblages of seasonal camps such as Epe Amoho could lead us to conclude that some dry season events, particularly women's freshwater subsistence activities, are underrepresented.

Conclusion

The paucity of reporting on specifically female-gendered activities in the archaeological record has been theorised as a reflection of a general

Figure 6. Cooking the catch in bamboo tubes (photographs: Lara Lamb).

indifference by a dominant patriarchal cultural paradigm to things female gender-oriented (Conkey and Gero 1991:3; Conkey and Spector 1984; Hays-Gilpin and Whitley 1998; Nelson 2004:1; Wylie 1992). The growing interest in gender as a subject of investigation throughout the 1980s and 1990s, including in archaeology (e.g. Balme and Beck 1995), was influenced by shifting political standpoints (Wylie 1992) that were slow to influence archaeology (Conkey and Gero 1991:xi–xiii; Nelson 2004:1; however see Bowdler 1976; McBryde 1978; Poiner 1976). Part of this restraint was based on the reluctance to apply 'assumptions' about female gender roles in the archaeological past, when the source of these assumptions – ethnography – was viewed as an inadequate source of empirical data (Conkey and Spector 1984:14). The challenge, as Sørensen (2013:3) states, has been to 'translate theoretical and political convictions about the importance of gender into practical application' of archaeological interpretation (e.g. see David 2002:154–176 for a synthesis of seed grinding as social action).

Through careful attention to the archaeological record, McNiven et al. (2010) demonstrated that the ethnographic past may indeed be historicised in the archaeological record of Epe Amoho. Through a renewed examination of available ethnographic sources coupled with our own ethnographic observations of a previously undescribed seasonal fishing activity, this paper extends the work of McNiven et al. (2010) to clearly demonstrate that: (1) a female-gendered, dry season resource procurement activity could remain archaeologically under-represented and thus invisible, were it not for ethnography; (2) gendered divisions of labour can be identified from the archaeological record, given a sufficient, continuous archaeological record to track back archaeological signatures in time, from the recent past; and (3) ethnography affords us the potential to more fully contextualise past and present subsistence practices.

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References

Allen, J. 1977 Fishing for wallabies: trade as a mechanism for social interaction, integration and elaboration on the central Papuan coast. In M. Rowlands and J. Friedman (eds), *The evolution of social systems*, pp. 419–455. London: Duckworth.

Austen, L. 1946 Notes on the food supply of the Turamarubi of Western Papua. *Mankind* 3(8):227–230.

Balme, J. and W. Beck 1995 (eds) *Gendered archaeology: the second Australian women in archaeology conference*. Canberra: Division of Archaeology and Natural History, Australian National University.

Barker, B., Lamb, L., David, B., Korokai, K., Kuaso, A. and J. Bowman 2012 Otoia, ancestral village of the Kerewo: modelling the historical emergence of Kerewo regional polities on the island of Goaribari, south coast of mainland Papua New Guinea. In S.G. Haberle and B. David (eds), *Peopled landscapes: archaeological and biographic approaches to landscapes*, pp. 157–176. Canberra: ANU E Press.

Barker, B., Lamb, L., David, B., Skelly, R. and K. Korokai 2015 Dating of in situ longhouse (dubu daima) posts in the Kikori River delta: refining chronologies of island village occupation in the lower Kikori River delta, Papua New Guinea. *Quaternary International* 385:27–38.

Barker, B., Lamb, L. and T. Manne 2016 Baikaboria ossuary and the origins of the Kesele Clan, upper Kikori River, Papua New Guinea. *Journal of Pacific Archaeology* 7(1):89–105.

Bird, R. 1999 Cooperation and conflict: the behavioral ecology of the sexual division of labor. *Evolutionary Anthropology: Issues, News, and Reviews* 8(2):65–75.

Bird, R. and D. Bird 1997 Delayed reciprocity and tolerated theft: the behavioral ecology of food-sharing strategies. *Current Anthropology* 38(1):49–78.

Bliege Bird, R. and D. Bird 2008 Why women hunt. *Current Anthropology* 49(4):655–693.

Blurton-Jones, N. 1987 Tolerated theft, suggestions about the ecology and evolution of sharing, hoarding and scrounging. *Information (International Social Science Council)* 26(1):31–54.

Bowdler, S. 1976 Hook, line and dilly bag: an interpretation of an Australian coastal shell midden. *Mankind* 10(4):248–258.

Bulmer, S. 1978 Prehistoric culture change in the Port Moresby region. Unpublished PhD Thesis, University of Papua New Guinea.

Busse, M., Turner, S. and N. Araho 1993 *The people of Lake Kutubu and Kikori*. Port Moresby: Papua New Guinea National Museum and Art Gallery.

Chang, C. 2017 Nauyalik fish camp: an ethnoarchaeological study in activity-area formation. *American antiquity* 53(1):145–157.

Codding, B., Bird, R. and D. Bird 2011 Provisioning offspring and others: risk-energy trade-offs and gender differences in hunter-gather foraging strategies. *Proceedings of the Royal Society B: Biological Sciences* 278(1717):2502–2509.

Conkey, M. and J. Spector 1984 Archaeology and the study of gender. In M. Schiffer (ed.), *Advances in archaeological method and theory* 7, pp. 1–38. New York: Elsevier.

Conkey, M. and J. Gero 1991 *Engendering archaeology women and prehistory*. Oxford: Blackwell.

David, B. 2002 *Landscapes, rock-Art and the dreaming: an archaeology of preunderstanding*. London: Leicester University Press.

David, B., Geneste, J-M., Aplin, K., Delannoy, J-J., Araho, N., Clarkson, C., Connell, K., Haberle, S., Barker, B., Lamb, L., Stanisic, J., Fairbairn, A., Skelly, R. and C. Rowe 2010 The Emo site (OAC), Gulf Province, Papua New Guinea: resolving long-standing questions of antiquity and implications for the history of the ancestral hiri maritime trade. *Australian Archaeology* 70: 39–54.

David, B., Aplin, K., Petchey, F., Skelly, R., Mialanes, J., Jones-Amin, H., Stanisic, J., Barker, B. and L. Lamb 2015a Kumukumu 1, a hilltop site in the Aird Hills: implications for occupational trends and dynamics in the Kikori River delta, south coast of Papua New Guinea. *Quaternary International* 385:7–26.

David, B., Mialanes, J., Petchey, F., Aplin, K., Geneste, J-M., Skelly, R. and C. Rowe 2015b Archaeological investigations at Waredaru and the origins of the Keipte Kuyumen clan estate, upper Kikori River, Papua New Guinea. *Paleo* 26:33–57.

Golson, J. 1968 Introduction to Taurama archaeological site Kirra Beach. *Journal of the Papua and New Guinea Society* 2(2):67–71.

Hays-Gilpin, K. and D. Whitley 1998 Introduction: gendering the past. In K. Hays-Gilpin and D. Whitley (eds), *Reader in gender archaeology*, pp. 3–7. London: Routledge.

Hide, R., Bourke, R., Allen, B., Fereday, N., Fritsch, D., Grau, R., Lowes, E. and W. Woruba 2002 *Gulf Province: text summaries, maps, code lists and village identification*. Agricultural systems of Papua New Guinea: working paper 5. Canberra: Australian National University Press, Department of Human Geography, Australian Naitonal University.

Kaplan, H., Hill, K., Cadeliña, R., Hayden, B., Hyndman, D., Preston, R., Smith, E., Stuart, D. and D. Yesner 1985 Food sharing among Ache foragers: tests of explanatory hypotheses [and comments and reply]. *Current Anthropology* 26(2):223–246.

Knauft, B. 1993 *South coast New Guinea cultures: history, comparison, dialectic*. Cambridge: Cambridge University Press.

McBryde, I. 1978 *Records of times past: ethnohistorical essays on the culture and ecology of the New England tribes*. Canberra: Australian Institute of Aboriginal Studies.

McNiven, I., David, B., Aplin, K., Pivoru, M., Pivoru, W., Sexton, A., Brown, J., Clarkson, C., Connell, K., Stanisic, J., Weisler, M., Haberle, S., Fairbairn, A. and N. Kemp 2010 Historicising the present: late Holocene emergence of a rainforest hunting camp, Gulf Province, Papua New Guinea. *Australian Archaeology* 71:41–56.

Nelson, S. 2004 *Gender in archaeology: analyzing power and prestige*. Walnut Creek: AltaMira Press.

Oram, N. 1968 *Taurama: oral sources for a study of recent Motuan pre-history*. Canberra: New Guinea Research Unit Publications, The Australian National University.

Petterson, R. and D. Petterson 1992 Rumu Ethnography. Unpublished report prepared for the Summer Institute of Linguistics Publications.

Poiner, G. 1976 The process of the year among Aborigines of the Central and South Coast of New South Wales. *Archaeology and Physical Anthropology in Oceania* 11(3):186–206.

Rhoads, J. 1980 Through a glass darkly: present and past land-use systems of Papuan sagopalm users. Unpublished PhD thesis, Department of Archaeology and Anthropology, The Australian National University, Canberra.

Rhoads, J. 1983 Prehistoric sites from the Kikori region, Papua New Guinea. *Australian Archaeology* 16:96–114.

Sørensen, M. 2013 *Gender archaeology*. Cambridge: Polity Press.

Williams, F.E. 1924 *The natives of the Purari Delta*. Port Moresby: Government Printer.

Wylie, A. 1992 The interplay of evidential constraints and political interests: recent archaeological research on gender. *American Antiquity* 57(1):15–35.