THE CONTRIBUTION OF USE-WEAR/RESIDUE STUDIES OF OBSIDIAN ARTEFACTS FOR UNDERSTANDING CHANGES IN SETTLEMENT AND SUBSISTENCE PATTERNS IN WEST NEW BRITAIN, PAPUA NEW GUINEA

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ABSTRACT

This paper considers how patterns in use-wear/residues relate to debates about the nature of the day-to-day lives of the people who created the Lapita Cultural Complex. Changes in subsistence and settlement patterns have often been proposed as being the result of the introduction of new kinds of agriculture to the Bismarck Archipelago by people using Lapita pottery (Green 2002:95-120; Kirch 1997:45-52; Spriggs 1997:67-106). In contrast, several recent use-wear/residue studies of stone tools in West New Britain, Papua New Guinea have reconstructed a complex pattern with a much longer term trend toward the intensification of resource exploitation and a decrease in mobility (Fullagar 1992:135-43; Torrence 1992:111-26; Torrence et al. 2000:225-44). To further examine the impact of Lapita on subsistence and settlement patterns, a use-wear/residue study was made of a large number of obsidian artefacts excavated from two test pits at the FAO site on Garua Island. The sample included artefacts dating from both before and during the time of Lapita pottery. My preliminary analyses indicate there were no differences between these periods in terms of the kinds of tool use or the nature of the activities apparent at the site.

INTRODUCTION

The middle-late Holocene period in the Bismarck Archipelago introduced dramatic changes in human behaviour. The archaeological record demonstrates an intensive movement of people into new landscapes and the development of complex maritime transportation patterns and the establishment of economic and social networks (Kirch 1997:39-42; Spriggs 1997:43-66). Crucial changes occurred in subsistence and settlement patterns about 3,500 years ago with the advent of the Lapita Cultural Complex and the associated development of pottery, agriculture and the domestication of pigs, dogs and chickens in the region. There are continuing debates among Pacific scholars about the origin of Lapita culture (Green 2003:95-120; Kirch 1997:45-52; Spriggs 1997:67-106). One group of scholars proposes cultural continuity among indigenous inhabitants and suggests the development of the Lapita Cultural Complex within the Bismarck Archipelago (Allen and White 1989:129-46; Specht *et al.* 1991:281-94; Torrence 1992:111-26; Torrence and Doelman in press).

Intensive research in West New Britain, Papua New Guinea, by Specht and Torrence has identified a number of sites containing both the pre-Lapita and Lapita periods of occupation (e.g. Specht 1974:302-6; Specht and Torrence in press; Specht *et al.* 1988:3-16; Torrence 1992:111-26; 2002:766-76; 2004:163-72; Torrence and Stevenson 2000:324-45;Torrence *et al.* 2000:225-44). The material from these sites provides a basis for Torrence's hypothesis that a gradual change in stone assemblages from a curated technology involving the stemmed tool tradition during the pre-Lapita period to the expedient production and use of unretouched flakes in the Lapita period is the result of a gradual increase in the intensification of land management and plant exploitation. Torrence (1992:111-26; 2004:163-72; Torrence, *et al.* 2000:225-44) has also inferred that, firstly, during the pre-Lapita period, plant collecting is likely to have been the primary source of food for highly mobile groups and, secondly, that the intensification in the use of land-based resources, gardening and the shift to a more sedentary lifestyle is associated with the Lapita period.

The beginning of the period characterized by Lapita pottery is marked by the devastating W-K2 eruption. Following this event, radical changes are observed on Garua Island that include the introduction of pottery, the disappearance of stemmed tools and the transformation of the pattern of artefact production, use and discard (Torrence 1992:111-26; 2004:163-72; Torrence and Stevenson 2000:324-45, Torrence *et al.* 2000:225-44). Although the increasing dependence on cultivated gardens is supported by recent phytolith and starch analysis of sediments at the FAO site on Garua Island (Lentfer and Torrence 2007; Torrence and Doelman in press), the explanation of pre-Lapita and Lapita subsistence and settlement patterns still relies heavily on the interpretation of stone tool technology and the distribution of obsidian artefacts within the landscape (Torrence 1992:111-26; 2002:766-76; Torrence and Doelman in press; Torrence *et al.* 2000:225-44).

The change in both subsistence strategy and lithic technology during the middle and late Holocene in West