BUTT MODIFICATION ON SOME SHELL ADZE BLADES FROM THE BANKS ISLANDS, NORTHERN VANUATU

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INTRODUCTION

Examination of a collection of 334 shell adze blades in the Australian Museum attributed to the Banks Islands, Vanuatu, has revealed at least four complete examples with butt modification, presumably to facilitate hafting. They display bifacial flaking along their previously ground lateral margins, three with opposing concave notches or 'waists'. Waisted and tanged stone artefacts are known to occur throughout the Western Pacific and parts of Asia from late Pleistocene to recent times (Bulmer 1977:57). It seems, however, that shell adze blades with butt modification are rare, or perhaps have been overlooked in previous archaeological studies.

BACKGROUND

The provenance of the collection (Australian Museum Registration Number E59471) is uncertain. It was received from the University of Sydney in 1957. No documentation survives, but each item is labelled 'Banks Is., New Hebrides'. The Banks Islands (between Lat. 13° 30'S - 14° 30'S and Long. 167° 10'E - 168° 10'E) comprise about 15 volcanic islands with fringing reef systems which lie about 75 km north of the main Vanuatu Island chain. Possible collectors include anthropologists from the University of Sydney (e.g. C. Wedgwood, D. Powers, H.I. Hogbin); or earlier workers such as the missionaries R.H. Codrington and W.J. Durrad; or W.H.R. Rivers and F. Speiser (Elkin 1953:115-6).

All adze blades in the collection are weathered, with grey-green discolouration usually on the dorsal side and well rounded edges, suggesting that they were from surface collections.

DESCRIPTION

The four adze blades appear to be made of *Tridacna* spp. clam shells. Three (Items 2-4) are probably of the smaller *T. maxima*, and the other of either *T. maxima*, *T. squamosa*, *T. gigas* or *Hippopus hippopus*. *T. maxima* was commonly used for adze manufacture at Pakea in the Banks Islands (Ward 1979: 9.7), Tikopia (Kirch and Yen 1982:208), Anuta (Kirch and Rosendahl 1973:68), Vanikoro (Kirch 1983:98), and central Vanuatu (Garanger 1972:127) (Fig. 1). Fine-grained basalts and andesitic basalts suited to ground-stone tool manufacture are plentiful in the Banks Islands but were apparently not widely utilised (Ward 1979: 9.2)



Figure 1. Map showing locality of Banks Islands and other sites mentioned in the text

I follow Garanger's (1972: Fig.285) descriptive typology where the dorsal surface is closest to the handle when hafted; the frontal surface of lip portion blades displays the outer shell sculpturing. The metrical attributes are listed in Table 1.

Artefact No.	Max. Length	Max. Th.	C/E Length	Midpoint Width
1	96	22	64	56
2	106	24	58	52
3	89	15	52	44
4	74	11	40	37

Table 1. Metrical attributes for modified Banks Island shell adzes (mm).



Figure 2. Tridacna adzes with lateral margin modification, Banks Islands.

Item 1 (Fig. 2) is made from the thick hinge portion of the shell; ground until all traces of the original surface were removed; almost rectangular in plan, with a convex cutting-edge and bevel on its dorsal face extending to the mid-section; bi-convex cross-section with flattened sides; flat to slightly rounded poll. Two opposing notches or 'waists' are bifacially flaked at the mid section after initial grinding of the sides. The cutting-edge is damaged by use. The poll has flake scars on the dorsal face.

The other three adzes discussed here appear to be made from the thin lip portion of T. maxima. They retain the characteristic wavy outer sculpturing of the shell after grinding the frontal surface.

Item 2 (Fig. 2) is almost triangular in plan; plano-convex cross-section; rounded lateral margins ground before modification, converging from a convex cutting edge to a sharply pointed poll; opposing 'waists', flaked bifacially on the sides about half-way between distal and proximal ends; large flake removed from one corner at the distal end, reducing the cutting-edge by about one-third. As the line of the frontal bevel arc is unbroken and symmetrical with the cutting edge, it appears that this reduction in cutting-edge length did not prevent continued use of the tool. The surface area of workable shell needed to grind a secondary or frontal face bevel was limited by an oblique natural hollow in the shell.

Item 3 (Fig. 2) is almost triangular in plan; plano-convex cross-section; small and thin, displaying the natural convexity of the shell lip area; lateral margins well-ground before modification; straight or slightly curved cutting-edge with assymetrical frontal bevel created by an oblique hollow in the shell cortex which limits the area to be ground down to meet the dorsal surface bevel; bifacially flaked 'waists' half way between distal and proximal ends; pointed to slightly rounded poll; butt area heavily weathered by water action.

Item 4 (Fig. 2) is roughly rectangular in plan; plano-convex cross-section; small and thin, following the natural convexity of the shell lip area; not waisted but extensive bifacially flaked modification along the lateral margins for about two-thirds of its length terminating in a pointed and slightly rounded poll; modified after initial grinding of the sides; curved and symmetrical dorsal bevel and pronounced frontal bevel; plan may have been roughly triangular before modification; cutting-edge features fine unifacial chipping on the dorsal face later worn smooth by water action.

DISCUSSION

Item 1 shares basic morphology and metrical attributes with Types B-2-1 and B-2-2 from central Vanuatu (Garanger 1972: Fig. 287); one from Nukuoro (Davidson 1971: Fig. 26b); and examples from southern Yap in Micronesia, with one possible lateral margin modification (Gifford and Gifford 1959: P1.37 d and g).

The morphological attributes for items 2 and 3 generally conform to the unwaisted Type B-1-1 from central Vanuatu (Garanger 1972: Fig. 286, 5-11) and Type 4 from Tikopia (Kirch and Yen 1982: Fig. 89). This type, with sharply pointed butt, was found in excavated and surface contexts on Vanikoro (Kirch 1983:102) and at Pakea in the Banks Islands (Ward 1979: 9.13) and is temporally of limited distribution. It has associations with shell adze blades found with Mangaasi pottery in Vanuatu (Kirch and Yen 1982:232) and is characteristic of the Sinapupu and Tuakamali phases on Tikopia dated between 100 BC and European contact (Kirch 1983:102).

The absence of spatial and temporal contexts for the waisted Banks Islands tools make these comparisons of limited value. The pointed poll may indicate that waisting accompanied a different lashing technique in which poll shape was functionally unimportant, or that both attributes provided a more secure grip. Item 4 is similar to an artefact from Kapingamarangi, re-fashioned from an adze into a coconut grater featuring fine chipping or serrations along the cutting-edge (Buck 1950: Fig. 15c).

Two Samoan stone coconut graters, formerly adzes, are also similar in morphology and metrical attributes (Buck 1930:368). Another *Tridacna* coconut grater from Kapingamarangi appears to have butt modification resembling waisting (Buck 1930: Fig. 15a). Buck (1930: 25 and Fig. 14a) states that these tools were:

... brought to us as adzes but recognised by the elders as *tuai* graters for fastening to a stand. Two have plain edges like an adze, but are constructed near the butt end for lashing to the stand.

Examples of waisting or other butt modification as hafting aids in shell are few in western Pacific archaeological and ethnological studies. They include a lip adze from Anuta with one side possibly waisted (Kirch and Rosendahl 1973: Fig. 21d), shouldered hinge adzes from Nukuoro (Davidson 1971: Fig. 26a, 27b), and tanged hinge adzes from Tuamotu Archipelago (Emory 1975: Fig. 88). Two possibly waisted shell adze blades were observed in a large collection of 347 items from Tikopia (cf. Firth 1957) held in the National Museum of Australia, Canberra (Temporary Registration Number 129), representing only 0.6% of the total. This approximates the 0.9% frequency of the Banks Islands adzes.

At Pakea in the Banks Islands, Ward found no definite evidence for hafting modifications in a collection of 53 *T. maxima* lip adze blades (Ward 1979: 9.11) and 18 hinge adze blades (Ward 1979: 9.15) from excavated and surface contexts. Garanger similarly found no evidence in central Vanuatu and none are evident in his illustrations.

No modified shell adze blades were reported in either excavated or surface finds from Vanikoro (Kirch 1983), Tikopia (Kirch and Yen 1982), Bellona (Poulsen 1972), Anuta (Kirch and Rosendahl 1973) and southern Vanuatu (Shutler and Shutler 1966). Hafted shell adzes from or near the Banks Islands do not reveal possible butt modification such as waisting (Codrington 1891: 314-315; Crosby 1973).

CONCLUSION

Ground stone tools with waists, grooves, or tangs are well known in the western Pacific, the New Guinea Highlands (White *et al.* 1970; Bulmer 1964; Bulmer 1977), southern New Britain (Chowning and Goodale 1966; Golson 1986), northern Solomons (Golson 1968), Guadalcanal (J. Specht pers. comm.), southeast Solomons (Davenport 1972; Hendren 1976) and Fiji (Palmer 1969). Chipped stone tools with waists and tangs are also known from southern Bougainville (Nash and Mitchell 1973). The use of such butt modification in shell tools may reflect a borrowing of this hafting aid, though the distribution of the modified shell and stone tools do not coincide.

A low frequency of waisted shell tools could point to very localised cultural traditions or specialised activities. Poulsen (1970:42), however, also draws attention to the influence of shell morphology on the degree and character of possible modification of shell artefacts. The apparent under-utilisation of local stone for adze blade manufacture in the Banks Islands may indicate that the earliest settlers arrived with a developed shell tool technology. Earlier research may have been directed by the preconception that such modification only occurred in stone. Chipped butt-modified shell adzes may also have been categorised as adze preforms/unfinished blanks. If this is so, then it is likely that similar artefacts will be found in other museum collections. Chronological data, however, must come from excavated contexts and distributional studies would help resolve the question of a possible relationship with similarly modified forms in stone.

ACKNOWLEDGMENTS

I wish to thank Dr. Jim Specht for his editorial assistance. Stella Faccioli prepared the drawings of the four tools.

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