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Archaeology at the Suloga Stone Tool Manufacturing Sites, Woodlark Island, Milne Bay Province, PNG

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Flakes lay everywhere, literally acres of flakes; not scattered specimens, but in compact sheets having a thickness measurable at least in inches - plain evidence of a vast amount of work extending over a considerable period of time (Seligmann and Strong 1906:250).

INTRODUCTION

It is over 90 years since anthropologist Charles Seligmann published his description of the main adze quarry at Suloga Peninsula on Woodlark Island. And while it is also more than 120 years since the area was actively quarried for adze stone, the peninsula has never stopped being an important mineral source. Late last century the fine-grained banded green stone was replaced by gold as the symbolically charged raw material extracted there. Yet the peninsula remains largely unpopulated, providing excellent conditions for preserving archaeological sites.

The fame of the Suloga stone was well established by the 19th century. It was considered sufficiently important by colonial authorities to warrant a visit by the first Lieutenant-Governor of British New Guinea, Sir William MacGregor, during his visit to Woodlark in 1893 (MacGregor 1894). However, it was a two-day visit by anthropologist Charles Seligmann that provides the richest description of the Suloga working floors. Seligmann's interest in the area, and the stone tools from the region, generated several research spin-offs. The most notable was a paper by Bronislaw Malinowski (1934) for Seligmann's *Festschrift* describing Trobriand modification and use of stone tools made from Suloga. This interest in the stone adzes has continued with the modern generation of anthropologists including Annette

Weiner (1976) working in the Trobriand Islands, and Deborah Battaglia (1990) working on Sabarl Island, respectively west and south of Woodlark Island. Suloga adzes remain, at least in the background, powerful symbols of modern Trobriand prestige (see for example Battaglia 1990) and pivotal in debates about the origin of Trobriand chieftainship (Irwin 1983, Macintyre 1994).

Despite this interest, archaeological investigations of the quarry have not progressed since Seligmann's visit. With this in mind, relocating the main working and village sites described by Seligmann and Strong (1906) was a priority for the Woodlark Island survey carried out in 1995 and 1996. The survey was not designed to provide a detailed investigation of Suloga but did generate much needed data regarding the use of this valuable resource during prehistoric and historic times.

ENVIRONMENTAL AND CULTURAL SETTING

Woodlark Island lies some 270km east of the PNG mainland, at latitude 9°S and longitude 153°E (see Figure 1). It rises from the Woodlark Ridge creating a landmass 60km long, and with maximum width of 20 km. The island has an area of some 1600km² mostly covered with dense tropical forest. Woodlark is sparsely populated: around 4000 people on the 'mainland' and surrounding islands. These figures are remarkably small when compared to the Trobriands Islands to the west which have an area similar to Woodlark but a population in excess of 20,000 (Damon 1990:71, Ollier and Pain 1978a).

The Suloga Peninsula extends from the southern centre of Woodlark (Figure 2). Suloga includes Tabakoi, the highest peak on Woodlark Island, rising 375m above the southern central coast (Ollier and Pain 1978a,b). The area probably never supported a significant population. The semi-attached Nasai Island is particularly rugged; its heavily eroded peaks making it impassable in many areas. The passage at Kwegai between Nasai and Suloga is a useful shortcut between Busai (and Kulumadau) and the villages along the southeast of Woodlark. There is evidence of an old village at Kwegai and it is still used for sago collecting and processing.

In the eastern part of Suloga, abandoned village sites have been located at the top of the ridge between Undalai and Tabakoi, and around the coastline. Today, the largest inhabited village in the area is located on nearby Mapwas

Island opposite. The villagers cross the narrow gap to garden on the mainland, and have easy access to the both the offshore marine resources and mangrove swamp shellfish to the north. The two settlements on Suloga itself are small, with a single family living at Onulak below Undalai hill and two families recently settled at Wavipw from other islands.

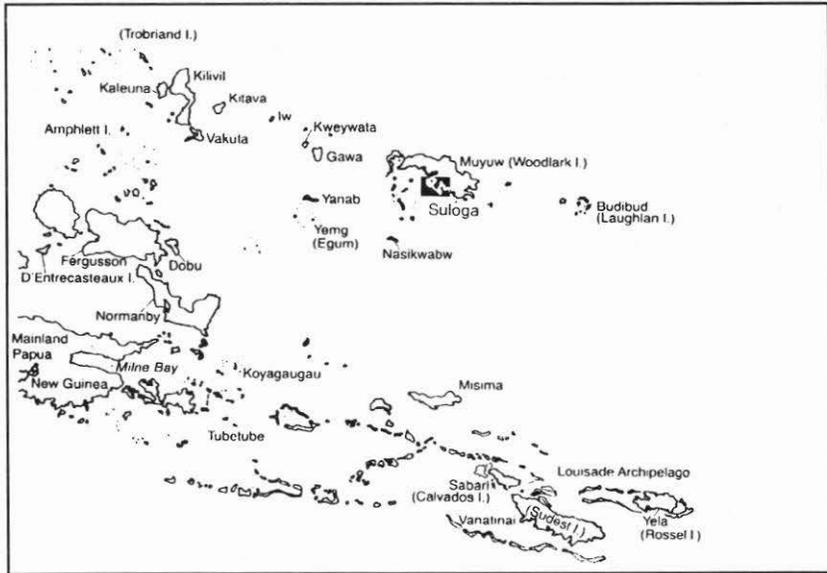


Figure 1. Map showing the location of Woodlark Island and the Suloga peninsula

The igneous rock which makes up Suloga represents Woodlark's most valuable resource for the prehistoric involvement in Kula by its inhabitants. The qualities of the stone make it the best raw material for stone tools in the region. This was appreciated by people throughout the Massim. The stone was traded over extensive distances possibly as Kula valuables (Malinowski 1934). As yet there are no well established dates for the use of Suloga. Ethnographic research suggests that the quarry has probably not been worked since the introduction of metal tools around 1870 (Damon 1990).

THE SULOGA SITES

During our first day at Suloga we were able to relive the highlights of Seligmann's path. Although we approached Undalai from the west,

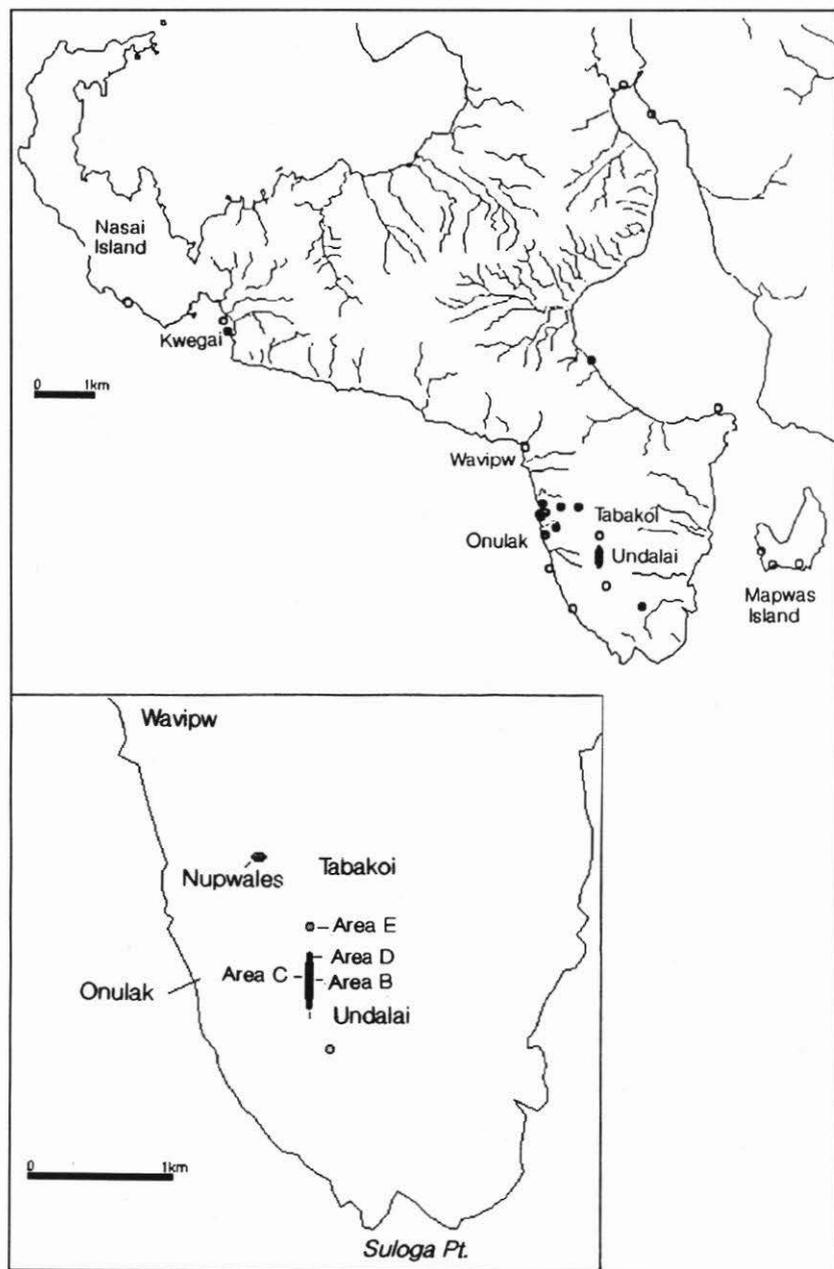


Figure 2. Map of main site at Undalai showing areas where test pits were dug

Seligmann made the climb up from the east:

Here, at an elevation of about 700 feet, was a natural clearing, and one of those curious places, common in New Guinea, where trees do not grow... This open space was some acres in extent and marshy, with plenty of chips lying about, and two remarkable standing stones of which we could get no explanation. The bush on opposite sides of this open space was, in the childhood of men now old, occupied by two large villages... whose folk in the old times had been the custodians of the "quarry", and through whose hands its output passed (Seligmann and Strong 1906:349)

This site located at the top of the ridge between Undalai and Tabakoi (Figure 2) can be identified by the presence of coconut trees (Undalai was called Coconut Hill by Seligmann). The trees are still used today (particularly as welcome relief after a hard trek to the top of the ridge). The area is heavily disturbed by wild pigs, also after the coconuts.

Much of the ridge remains covered with stone debris. In patches this flake and preform debris is so dense, it is like walking on cornflakes. Amongst the debris are grinding stones (*simat*).

The two stones mentioned by Seligmann and Strong were located and cleared of bush although they are no longer standing. Further survey of the ridge suggested that the stones were the southern extreme of a more complex arrangement of stones similar to those recorded in other parts of Woodlark and elsewhere in the region (see Damon 1979, Ollier and Pain 1978a,b). This complex was heavily disturbed by pigs but once extended over an area of 400m x 25m (see Figure 3).

To the southeast and southwest of the coconut trees are small groves of betel nut trees currently in production. There are no obvious signs of villages described by Seligmann, although patches of the site show signs of old shell middens and occasional fragments of pottery. These are probably indicative of shifting occupation along the ridge.

The working floors stop within 50m south of the coconut trees. The ground rises slightly to the peak of Undalai and the area is densely covered with bush with no obvious signs of occupation. However, at the southernmost edge of

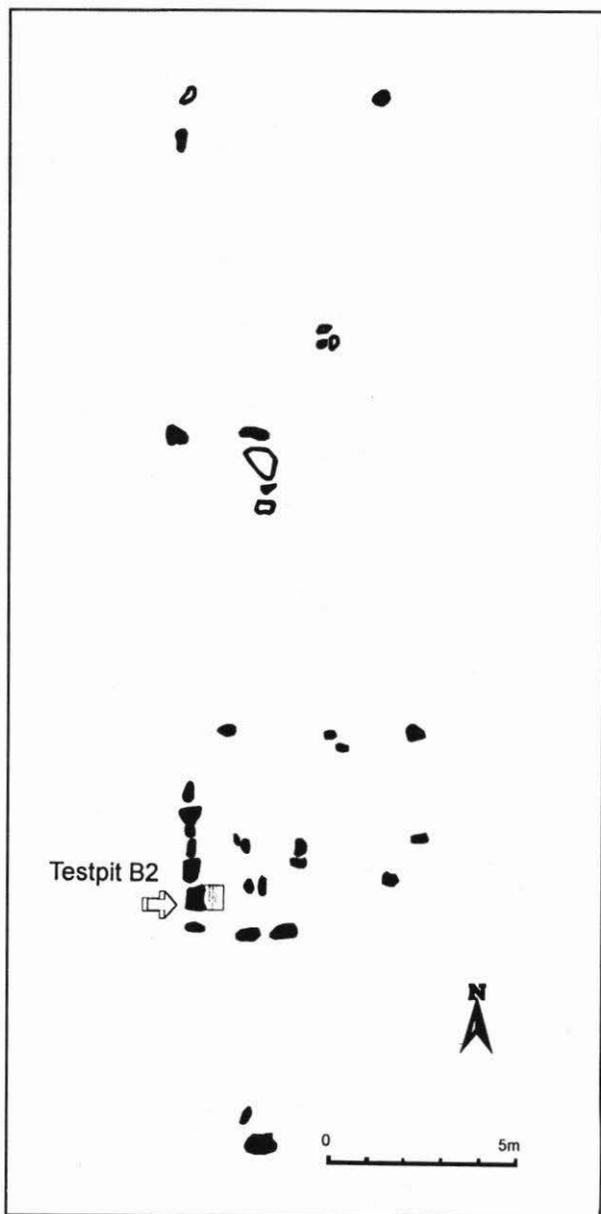


Figure 3. Plan of stone arrangement

the peak there is a small niche in the coral with human skeletal material in clay pots, similar to those described by Seligmann and Strong (1906) and ubiquitous on the island.

Northwards from the coconut grove, the ridge top offers a wide, flat tree-covered area covered in stone tool debris with small amounts of shell midden. After about 300m, the ridge starts to rise towards Tabakoi peak and there is a 30m by 50m clearing with flake debris down to a depth of about 30cm. Almost no evidence of habitation was found, although this area fits with Seligmann's description of the abandoned village of Maied (Seligmann and Strong 1906:350). Covered only with long thick grass, the clearing offers a glorious view to the south.

Continuing up the ridge to the peak of Tabakoi, there are several exposures of red and yellow clays soils which appear suitable for pottery manufacture. Professor Frederick Damon, the anthropologist who accompanied us, had seen another stone arrangement on Tabakoi during a previous visit, but we were unable to relocate it.

There are no obvious exposures of suitable stone for tool manufacture on the ridge top, but following Seligmann's path we were able to establish likely locations for the raw material:

Soon we bore to the left, plunging into the thick bush of the peak's western face... till at last, after a long rugged traverse of the mountain's flank, we came to the place of our desire. The steep slope breaks away suddenly in a half-circle 100 yards wide and perhaps 30 yards deep, down whose nearly perpendicular sides we scrambled to the creek-bed all boulders and ledges of tool stone, and showing frequently the curious narrow streaks and bands of lighter-coloured material which, running lengthwise of its blade, give the material its last attribute of value and beauty in the natives' eyes (Seligmann and Strong 1906:351).

Seligmann points out the material could have been taken from anywhere along this creek which was identified to us by its modern name: the Nupwales River (site BDU) and probably also corresponds to the area MacGregor (1894) described as "Debenewatu". We collected several chunks

of rock for analysis. Large stones used for grinding were also found in the stream bed (see Figure 4).

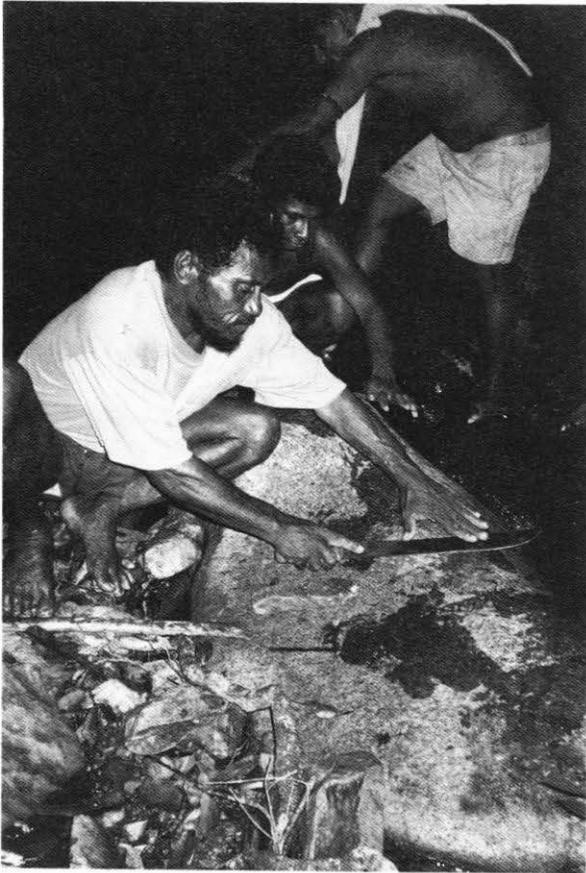


Figure 4. Grinding stone in Nupwales stream bed

Seligmann continued up to an area from where the best material was supposed to originate but we did not locate this cliff face. There is no shortage of suitable material in and around the stream beds. The quantity of large pieces of rock strewn around the Suloga substantiates Seligmann and Strong's (1906:352) assertion that no actual "quarrying" was required.

Flakes occur at the mouths of streams but not in vast quantities. Several other working floors were found in the vicinity and at other locations on the peninsula. The terrain is rugged and ground cover dense, and it is likely that many more sites would be found with more intensive survey. We decided, however, to focus further attention on the large working floor at Undalai.

Excavations at Undalai

The site was divided arbitrarily into five general areas:

- Area A: in the southern section from northern slopes of Undalai peak proper into the area still covered in coconuts. This area is heavily disturbed by wild pigs after the fallen coconuts.
- Area B: the eastern half of the ridge extending north for about 100m and containing extensive flake material and shell midden.
- Area C: the western half of the ridge opposite Area B with flake material, shells and small amounts of pottery. The material collected in Area C appeared to be slightly different from Area B, although the split was due to the large quantity of material found.
- Area D: the northern 50m of the flat ridge area before the rise towards Tabakoi. This area is heavily disturbed by pigs.
- Area E: the clearing 50m north of area D on the slope up to Tabakoi peak.

A total of 6 test pits (see Figure 2 for locations) were dug around the site: one in each area with an additional test pit excavated within the stone arrangement (Figure 3). The quantity of flake material generated by even small test pits was considerable and logistics prevented any large scale excavation. The main purpose was to assess the depth of deposit present at the site and provide datable material to guide future work.

Figure 5 shows the test pit sections. About 10-15cm of flake debris covers the natural clay base across most of the site. In the centre, the debris is more concentrated and at a greater depth. The contents included a mixture of shell, fish bone and pottery mixed with the flake debris and some soil. Test pit C1 was most surprising with more than 1m of deposit.

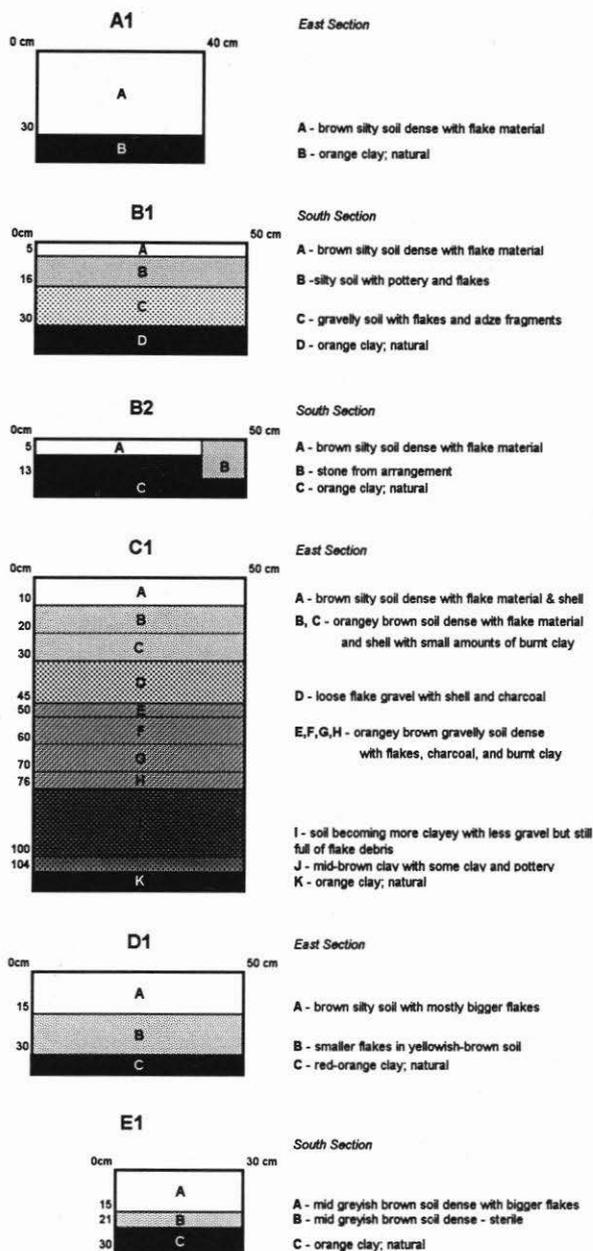


Figure 5. Sections of test pits excavated at Undalai

Preliminary interpretation of the pottery from test pit C1 suggests that the main use of the Undalai working floors is relatively recent (see Figure 6). The few pottery fragments collected from the site all look similar to the thin-walled Tubetube/Wari and Paneati pottery described from late prehistoric and historic sites elsewhere (see Tindale and Bartlett 1937).

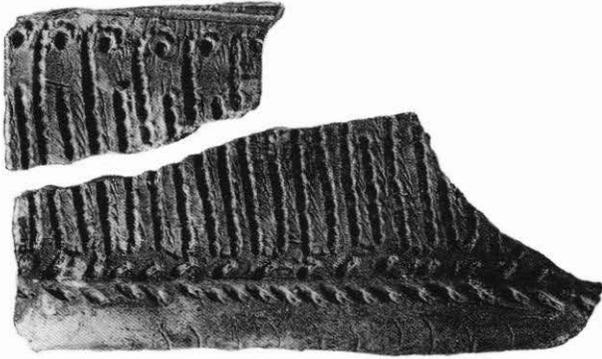
Test pit B1 exhibited interesting stratigraphy. Layer C contained a gravelly soil matrix with flakes and adze fragments. The matrix was most similar to layer G in test pit C1, and part of a general build up of material between 76cm-50cm depth in that test pit.

The test pit (B2) dug within the stone arrangement contained almost no subsurface deposits. However, the stone was clearly dug into natural material - completely devoid of the stone debitage. The stone arrangement probably predates the use of the Undalai site, or at least this part of it, as a stone working floor. The stone arrangements found elsewhere on Woodlark and the Trobriands have generally been ascribed to the "Early Period", between 2000-1000 years bp (Egloff 1979:107). No direct means of dating the Suloga stone arrangement was obtained on this trip and the dates from other Woodlark arrangements, recorded by this survey are not yet available.

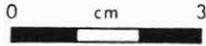
The stone tools collected from the site show a wide range of sizes and shapes. Rounded hammerstones, coconut scrapers, chisels, square and rounded adzes blades and sago pounders are all identifiable from the collections (see Figure 7). Tools ranged from a few centimetres to broken roughouts for adzes 30cm wide and as much as 50cm long. No complete adzes of the largest sizes were found. Many of the adzes show a high degree of finer flaking and could be used with only minimal flaking on the edges.

Adzes at most stages of manufacture were found, many still show the striking platforms. Many preforms showed fine flaking and were ready for polishing. Further analysis of this material should provide a more complete picture of adze technology at Suloga. Broken adze fragments and other misshapen tools were common at the site. Polished material was very rare although the presence of grinding stones in Area A suggests that polishing was carried out at Undalai. The polished material was probably too valuable to remain on the site. Grinding is also unlikely to cause breakage.

Ethnographic descriptions have identified the elements of the Suloga stone adzes which were, and still are most valued, although these generally refer



MUY 131 Tp C1, Layer E



MUY 131 Tp C1, Layer J

Figure 6. Pottery from test pit C1 Layers E and J

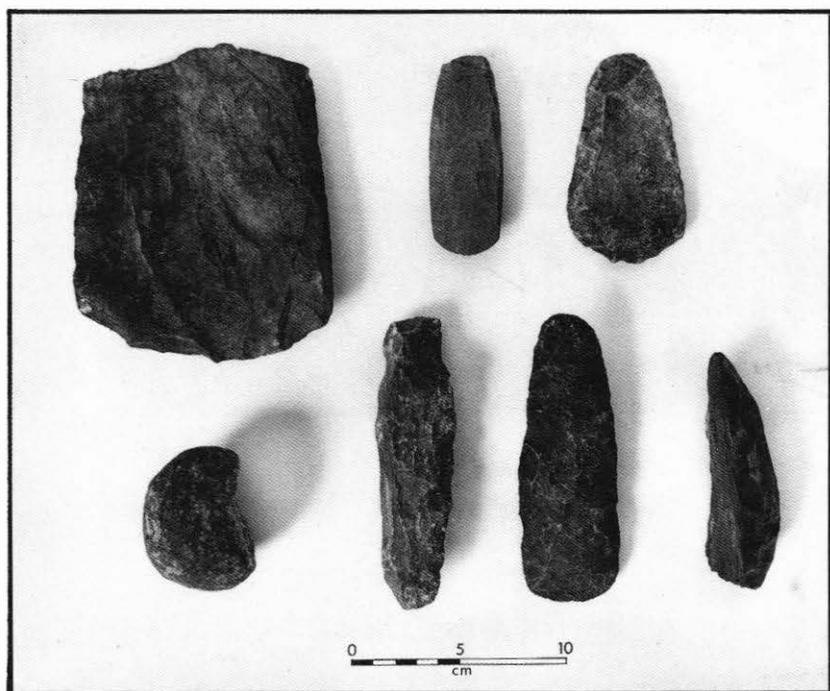


Figure 7. Selection of tools/preforms found at Undalai, from top left clockwise: large adze fragment, small chisel, coconut scraper, sago pounder, small adze, *lal pilipil*, and hammerstone

to the symbolically important “ceremonial” adzes rather than those used as tools. The light grey or white “banding” in the stone is important for the aesthetic quality of the stone adzes (MacGregor 1894:19; Seligmann and Strong 1906:351; Malinowski 1934:190). Intriguingly, the most valued Suloga stone - a well vitrified dark green material with white bands - was very rare both at the site and on the other parts of the island surveyed. Malinowski (1934), among others, even managed to organise fakes to be made and noted they were promptly rejected by the Trobrianders.

It is clear why Suloga stone is such a good choice for adze manufacture. The combination of fine-grain, toughness, and good flakeability, is a feature of the raw material (Marianne Turner pers. comm). Thinness and length are also considered important features of these adzes (Battaglia 1990) on neighbouring islands. The technological basis of such desirable features

however will require further research of the artefacts from Undalai both in terms of material chosen and the processes of tool production.

DISCUSSION

Dating of the sites remains only broad at this point. The few potsherds found are probably all from the last few hundred years but at the moment the pottery sequence from Woodlark is not well dated. The Undalai working floors and villages were probably intensively used during these previous few centuries. The presence of the stone arrangement on Undalai does suggest an earlier use of the site predating the working floor. With the present state of knowledge, it is plausible to argue that the villages and working floors represent a shift and perhaps an intensification of the stone tool manufacturing on Woodlark during the last few hundred years.

The inconvenient position of Undalai as a major working floor atop a substantial ridge suggests a need for a defensible location. As yet, our knowledge of the prehistory of Woodlark is not sufficient to establish what may have caused this choice, although endemic warfare characterises the late prehistory of other parts of the region (see e.g. Macintyre 1983). If the site proves to have been used intensively only during the last few hundred years then this might fit the models presented by Egloff (1978), Irwin (1991) and Allen (1984) of an intensification of specialisation in the area. Elsewhere, the specialist production has been of pottery, such as on the Amphletts and Tubetube, but on Woodlark it probably was stone tool production.

Distinguishing Suloga material from other sources of stone has so far not proved a significant issue. The characteristic colours of the stones and the shapes of the adzes are distinctive. One adze fragment was identified in Collingwood Bay on the surface of an excavated mound, some 400km from its source, by Egloff (1978:435). On the mainland opposite Mailu Island, Irwin (1985:221) identified a complete adze on a site containing "Mailu" (i.e. late) period pottery (Irwin 1985:Table 17). Other sources of stone tool material are found in the Massim and it will prove interesting to contrast the distribution of Suloga stone with obsidian from the only known source in the region on Fergusson Island.

Significant research remains to be carried out at the adze quarry at Suloga but the data presented here represents the first archaeological steps towards a fuller understanding of the place of Suloga, and Woodlark Island more

generally, in the development of the regional system and the exchange network known as the Kula.

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