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A Revision of the Archaeological Sequence of Southern New Caledonia

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ABSTRACT

This paper discusses the archaeological evidence previously available from the region of Naïa, Ongwé and Saint-Vincent Bays on the south-western coast of New Caledonia and presents new data from the same region.

Rich pottery deposits attest 3,000 years of continuous occupation characterised by remains from the Koné, Naïa 1 and Naïa 2 traditions. The earliest occupation during the Koné period was organised in small hamlets, which may have been grouped in larger settlements. These early sites seem to have been disturbed by eustatic and coastal adjustments. The Naïa period saw the development of large communities of potters whose main product was large pots with handles, a type of vessel not known elsewhere in early Pacific communities.

Key-words: NEW CALEDONIA, POTTERY, LAPITA, STRUCTURAL REMAINS, BURIALS, CULTURAL EVOLUTION, SEA LEVEL.

INTRODUCTION

The west coast of the main island of New Caledonia has yielded many archaeological remains from old coastal settlements, among which are many Lapita sites. Many of the sites have been affected by several thousand years of shore and sea movements and *in situ* deposits are seldom found. The southern part of the west coast seems to have been particularly well populated during the initial settlement period as well as in later times. Research carried out over the last 30 years in the Païta area has brought to light some of the best preserved occupation levels of early New Caledonian prehistory.

In a recent article in this journal, Sand and Ouetcho (1993: 107–130) presented a review of published information on the Païta area together with a description of some excavations they undertook in Tonghoin. This paper will focus on unpublished material from the same area as well as from Saint Vincent Bay in order to refine, discuss and complete our current knowledge of the archaeological sequence of the southern part of New Caledonia.

THE GEOGRAPHICAL, CULTURAL AND HISTORICAL SETTING

The Saint Vincent Bay area, as well as other bays along the south-west coast down to the southern tip of the island and Port-Boisé, seem to have been densely populated prior to their discovery by European seamen. Information on this recent history is very scarce as a result of the early disruption of the traditional society and the move away from cultural places

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when European settlers started to expand around Nouméa in the second half of the nineteenth century.

The only available early document from the area is an anonymous account found by Jean Guiart in the archives of the Marist Mission of Païta, which he published together with whatever information he could collect elsewhere (Guiart 1963: 246 ff.). This account gives important information on the social structure of the clans (tribes) which inhabited the area shortly before European colonisation.

It suggests that the population was concentrated along the coast and in the few fertile plains, especially around Païta and to a lesser extent Saint Louis. Large alluvial plains like the Tontouta River delta which drains the highly mineralised soils of the nearby hills were not very suitable for extensive cultivations and may have been used on an occasional basis. Some villages on the plains, such as Ndé near Tiaré, for example, regulated exchanges between coastal fishermen and inland horticulturalists. Traditional kinship and exchange networks stretched along the west coast from Moindou in the north to Naniouni in the south (Toki myth, cited by Guiart 1963: 263). Relationships are also attested with clans in the south-east (Unia, Yate, Touaourou) and the Isle of Pines. In the more recent past, relations existed with the east coast, particularly Canala. Guiart estimates the population of the Saint Vincent and Païta area to have been around 1500 in the mid 1800s.

The first available map of the area, drawn in 1868 by Candelot (of the Service Topographique in Nouméa), shows fishermen's villages in Ndé, Tiaré, Naïa and Tonghoin and taro terraces in the nearby hills.

DISCOVERY

During the first part of the nineteenth century, Saint Vincent Bay attracted those who were thinking of establishing a permanent trading place in New Caledonia. It may have been first visited in 1788 by La Pérouse, who had been asked by King Louis XVI to survey the west coast of New Caledonia on his way to Tonga. The tragic fate that awaited him and his crew in Vanikoro means that this hypothesis remains unproven. In 1792, D'Entrecasteaux sailed along the bay without finding the pass in the outer reef and named it "le havre trompeur" (False Harbour). The first known European to enter the bay was the Englishman, Captain Kent of HMS *Buffalo* on 18 May 1803. He named it Saint Vincent after the first Lord of the Admiralty, John Jervis, Count of St Vincent (Pisier 1974: 37-41).

Kent was enthusiastic about his discovery and mentioned that the indigenous people looked much like those described by Cook in Balade. He found a spring on Parceval island. His report and an article published by his wife in the London magazine *Athenæum* publicised the discovery and the bay became a known anchorage for sailors heading to Melanesia in the first part of the nineteenth century. In 1845, the famous sandalwood trader Andrew Cheyne experienced some difficulties with the inhabitants and some years later, another sandalwood trader, Woodin, noted that in contrast to previous accounts, the bay was nearly empty of inhabitants. From the early 1860s, Nouméa as the developing capital of the newly born colony attracted the traffic and Saint Vincent Bay and its surroundings enjoyed a brief rest, broken in the 1870s and later by the conflicts and rebellions which marked the area when settlers started to expand around Nouméa. A remaining part of its history was wiped out in the 1960s when the nickel rush in New Caledonia boosted the economy and encouraged people to develop large sand quarries in the bays of the Païta area and on some islands in Saint Vincent Bay.

THE ARCHAEOLOGICAL EVIDENCE

The data derive from a survey done by Colin Smart in 1966–1967 in the Naïa area while excavating in Naïa Bay, test excavations I conducted in the same area in 1984 (Galipaud 1984a, 1988a), and a survey I carried out in the islands of Saint Vincent Bay in 1986 while heading the Department of Archaeology at the Office Scientifique et Technique Kanak.

The source of information on Smart's work is the notes he left at the Australian National University. These notes, some of which I quote below, were to be part of a PhD thesis he never submitted. They were made available to me, at my request, in 1988 by Professor Jack Golson together with the excavated material from Smart's Naïa fieldwork. A full publication of the main excavation data together with a re-analysis of the material are in preparation.

The description of pottery rim forms follows the classification I adopted for the study of New Caledonian pottery (Galipaud 1988a: 12–23). In this terminology, rims are ordered in three groups A, B or C depending on their shape (simple, sinuous), direction (straight, inverted, everted) and any additions they might bear (horizontal projection). Group A encompasses simple shapes, group B sinuous shapes and group C sinuous shapes from composite vessels with horizontal or oblique projections.

Body decoration is described using whenever possible the groups and terminology designed by Smart (n.d.) for the Naïa area and Vanderwal's (n.d.) revision which was published by Green and Mitchell (1983: 44, fig. 3).

SMART'S SURVEY RESULTS

Apart from the previously described sites of NOU-1, TON-6 and TON-7 (Smart n.d.; Frimigacci 1975; Green and Mitchell 1983; Galipaud 1984a, 1988a; Sand and Ouetcho 1993), Smart surveyed and tested a few other sites in the same area. The site descriptions are interesting because apart from Gifford and Shutler's work in the 1950s (Gifford and Shutler 1956), they are the only precise account of ancient sites in a now largely destroyed area. The sites are described below on the basis of Smart's notes. See Figure 1 for location of sites. Site references starting with W refer to the site classification currently in use in New Caledonia (Frimigacci and Maitre 1980). Site references starting with another letter refer to Smart's initial recording of sites in the Païta area. These were later renumbered using the new system; equivalences are as follows: TON-1 = WPT-148, TON-2 = WPT-142, TON-3 = WPT-143, TON-4 = WPT-144, TON5 = WPT-145, TON6 = WPT-054, TON7 = WPT-055, NOU-1 = WPT-056, NOU-2 = WPT-146.

TON-1 (WPT 148). Designates the entire area of midden on the low coastal plain fringing the bay of Ongwé. There were no excavations in this bay until I conducted one in 1984. From an extensive surface collection and an examination of sections exposed along the eroding shore as well as from information gathered from the owner, Mr Naturel, who had dug holes for a fence and a well in this bay, Smart concluded that the site contained three major components:

1. A superficial deposit
2. A deeper occurrence of redeposited sherds
3. A scatter of eroded material along the beach and on the reef

I undertook further work on this site from 1984 onwards.

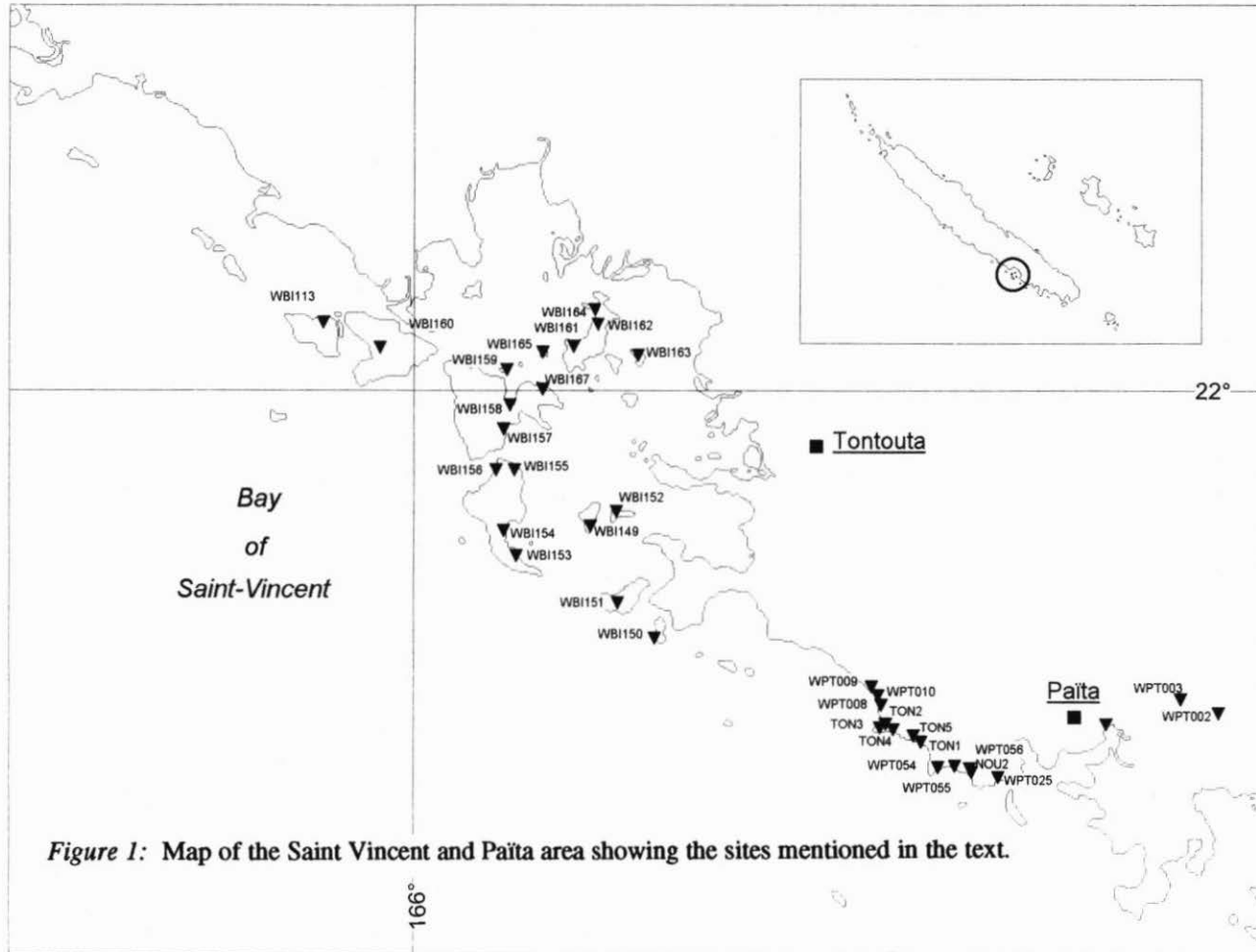


Figure 1: Map of the Saint Vincent and Païta area showing the sites mentioned in the text.

TON-2 (WPT 142) is located on a sloping hillside overlooking Ongwé Bay from the north-west. This site contained a small range of surface evidence, mainly terraces and round platforms of former houses. Shell fragments and a very few potsherds were scattered around the surface. This is possibly the site of an old village as suggested by the presence of banyan trees (*Ficus* sp.) and the proximity of a small spring, the only reliable source of fresh water in this coastal area. Some test pits dug by Golson and Smart in this site did not reveal much apart from postholes on the round platforms and a small scatter of midden material, mostly shell.

TON-3 (WPT 143) was a small midden at the northwestern end of Ongwé Bay. At the time of Smart's survey, this small flat area was separated from the rest of the bay by the lagoon and saltmarsh. Only a very small area remained between the foot of the hill and the shore and there is most probably no trace of it now. Examination of eroded sections along the shore led to the discovery of a number of structural features including a big oven or 'oven complex', several postholes and a rectangular pit.

TON-4 (WPT 144) is situated on a low spur reaching into the centre of Ongwé Bay, about 250 m from the shore. The spur rises some 15 m above sea level and there is a cliff on its northwestern face. The coastal midden does not extend this far inland. A small area of midden material was found at the edge of the spur above the cliff on the northwestern side. The top of the spur also shows faint ridges and terraces similar to those of site *TON-2*.

TON-5 (WPT 145) is a set of agricultural terraces on the southern face of a low spur close to the shore at the southern end of Ongwé Bay. No trace of midden was discovered in association with the terraces.

NOU-2 (WPT 146). Between the stream and the shore in Naïa Bay, sand had accumulated in dunes to a height of more than 4 m above sea level. Construction of a fence across the sand ridge by Mr Naturel brought to light two human skeletons which were reburied when the posts were set. Smart later exhumed and inspected these burials as well as five or six more which were discovered in the area of the quarry. These dunes contained rich midden layers which had accumulated during dune formation and had subsequently been buried under further accumulation of sand. This site no longer exists.

NOU-4 (WPT 147) encompasses the entire flat area of the eastern part of Naïa Bay, extending inland for about 80–100 m. This area, which used to be covered by midden deposits, was the first to be quarried in Naïa Bay and nothing of the rich archaeological deposits could be saved. Informants who were employed in the quarry recall the disturbance of a number of flexed burials, especially towards the southeastern part of the bay, and the recovery of two almost complete pottery vessels, one of them with handles.

FURTHER WORK IN TIARÉ, NAÏA AND ONGWÉ

In 1984 I undertook further fieldwork in Ongwé, Naïa and Tiaré Bays in order to complete Smart's work and extend it to the adjacent bays, and to test those locations for equally old settlements. The most successful were three test pits dug at 70 m intervals along a north/south axis starting from the shore in Ongwé Bay (WPT-148).

In test pit one, the closest to the shore, I identified three archaeological levels (Fig. 2). Level 1, close to the surface, contained thick pottery together with some European artefacts; it was separated from level 2 by a thin sterile sandy layer. Pottery in level 2, a fine and sandy dark grey sediment with a small oven, comprised the same thick ware as in level 1 with the addition of a thin black incised pottery. Level 3, a coarse white sand, contained only thick pottery with handles. The oven in level 2 was dated to 410 ± 40 BP (GIF 8070, see Table 4 for details).

Test pit two was dug 140 m inland from test pit one. It contained only one grey sandy layer about 40 cm deep with exclusively Podtanéan sherds (attributable to the first millennium BC).

Test pit three, located between one and two, had two layers similar to those in test pit one. The coarse sandy layer containing handle sherds was not noted in this test pit but one handle was found at the base of level 2.

From this information, I tentatively concluded that there was a recent *in situ* deposit close to the shore and some earlier deposits further from the sea. These earlier deposits might have been partially eroded, as suggested by the occurrence of handles on the reef and below level 2 in test pit one. Thick pottery found in level 1 does not seem to be of the same kind as the thick ware associated with handles.

In Tiaré Bay (WPT-025), archaeological work was carried out during the building of an international hotel. In all sections examined as well as in several test pits dug along the bay,

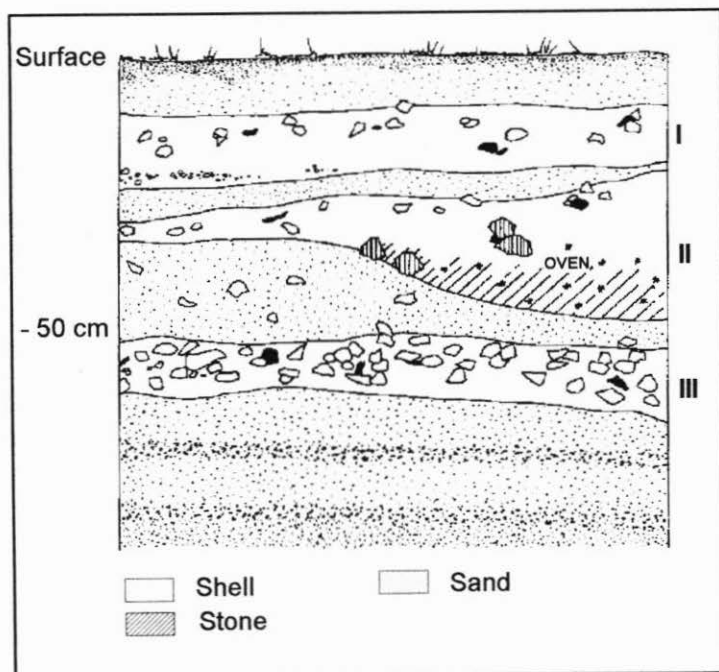


Figure 2: Ongwé (WPT-148), stratigraphy of test pit 1.

only one grey sandy archaeological level was identified directly under the surface. It contained mainly thin pottery with incisions and nubbins but a few handles and thicker sherds were also found. This level was dated to 680 ± 50 BP (GIF-8069).

I made several attempts to find some undisturbed remains of Smart's sites TON-6 and TON-7 in Naïa Bay but without much success. Only one test pit, about 40 m from the shore in a swampy area, contained a unique, seemingly undisturbed level with a few thick sherds and handle fragments (attributable to the Plum or Naïa 1 tradition of the first millennium AD in the south of New Caledonia). There were also two worked shell fragments and parts of two stone adzes (Fig. 3).

Rims and decoration accord well with the stratigraphic evidence. In Ongwé, 13 rims of group A and 6 rims of group C were observed. Direct rims belonging to simple spherical bowls which characterise group A sometimes have inner bevelled lips, A1 (8), or thickened round lips, A2 (5). Observation of a large sample of sherds has shown that the former is usually associated with nubbins and incised decorations on Nera pottery while the latter is typical of pottery with handles. Flaired everted rims are the most common type in group C. In Naïa and Tiaré, only rims of group A are present with a larger occurrence of type A2.

Decoration (Figs 4 and 5) is mostly incised or impressed with the addition of a few nubbins in Ongwé and Tiaré. Incisions belong to Smart's categories D, H and G. On several sherds paddle impression is associated with shell impressions (Fig. 4c-d). Contrary to the statement by Sand and Ouetcho (1993: 119), the association of paddle impression and shell impression is not infrequent in New Caledonian assemblages and further examples of this decoration were found in the Lapita sites of Koumac, Vatcha and Koné as well as in site NBL-002 on Balabio island (Galipaud 1988a: 56).

THE SURVEY OF SAINT VINCENT BAY

The survey of the islands of Saint Vincent Bay aimed initially at discovering older settlements. The results of this work show that the sites are not easily defined and that pottery does not always allow them to be correctly dated.

Nineteen sites were registered (Table 1) for all the islands of the bay. Small islands were thoroughly surveyed. Time did not allow for a complete survey of the few larger islands and there the search was limited to coastal areas and areas thought most likely to have been occupied. Most of the sites are surface scatters which yielded a limited amount of archaeological material. No visible features or structures were discovered.

The survey revealed very scarce occupation evidence compared to other offshore islands and islets along the same coast (Ilot Vert near Nessadiou, Ilot Konième near Koné, etc.). Surface scatters of consistent size occurred only on the large island of Hugon (WBI-153) and to a lesser extent on Page Islet (WBI-149). This is seemingly in contradiction to recent traditions which name clans from the area as having their main residence on Ducos island (Wano clan cited by Crocombe and Crocombe 1968 and Guiart 1963: 256). As pottery is the main indication of past human activity in New Caledonia, the lack of it might mean that pottery was not in use in the recent past. Another probable explanation is that remains of these later settlements were removed when sand quarries were active in Ducos and Hugon. The finding of a few remains in disturbed sediments in these quarries gives weight to this latter hypothesis.

The pottery collected has been described and some sherds were chosen for thin section analysis and heavy mineral determination. Table 2 lists the material collected.

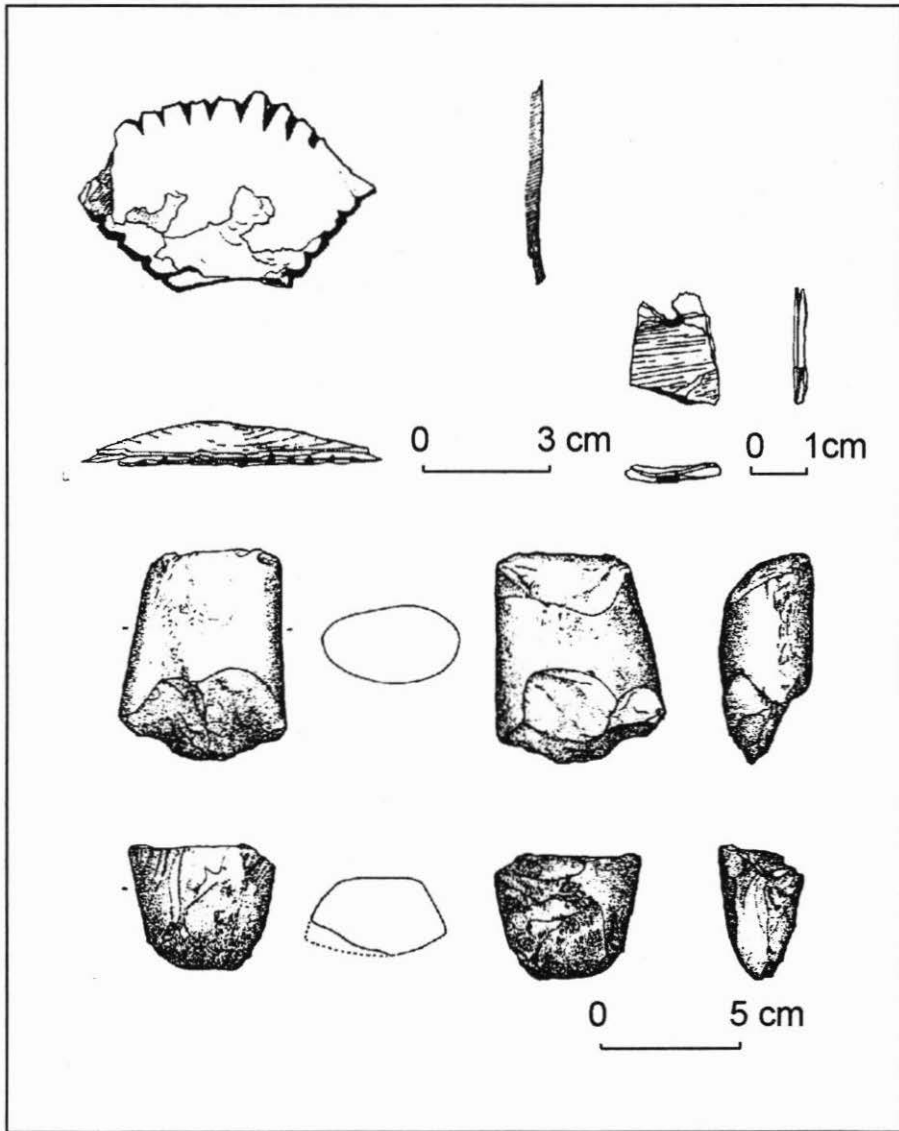


Figure 3: Pearl shell artefacts (ornaments) and fragments of stone adzes from Naia (drawings by J-P. Siorat).

Rim sherds from Saint Vincent Bay belong mainly to group A and thus represent simple restricted vessels. Their diameter varies between 12 and 20 cm which suggests that the pots were of medium size. Only two rims are of group B, the first with a modified raised rim (Fig. 5a), and the second with a modified slightly everted rim (Fig. 5d). Their shape suggests mouth diameters of 28 and 30 cm respectively.

TABLE 1
Site recorded on the islands of Saint Vincent Bay

Site no.	Island	Location	Type of evidence
WBI 149	Ile Page	Plateau	Pottery, stone structures
WBI 150	Ndukue	Coast	Pottery
WBI 151	Mathieu	Hill	Pottery
WBI 152	Longue	Shore	Pottery
WBI 153	Hugon	Slope	Pottery, shell
WBI 154	Hugon	Coast	Pottery, shell
WBI 155	Hugon	Coast	Pottery from quarry
WBI 156	Hugon	Spring	Pottery, shell
WBI 157	Ducos	Coast	Pottery from quarry
WBI 158	Hugon	Coast	Pottery from quarry
WBI 159	Doumbe	Plateau	Shell, lithic
WBI 160	Lepredour	Coast	Pottery
WBI 161	Parseval	Coast	Pottery
WBI 162	Parseval	Coast	Pottery
WBI 163	Verte	Coast	Pottery
-	-	Hill	Pottery
WBI 164	Parseval	Coast	Pottery
WBI 165	Devarenne	-	-
WBI 166	Ducoas	Profile	Pottery, shell

TABLE 2
Pottery collected during the survey of Saint Vincent Bay

	Body sherds	Rims	Decorated
WBI149	119	10	18
WBI150	3	-	-
WBI151	12	-	-
WBI152	2	-	-
WBI153	48	9	42
WBI154	16	1	-
WBI155	21	-	-
WBI156	2	-	-
WBI157	7	-	-
WBI158	24	-	-
WBI159	-	-	-
WBI160	8	-	-
WBI161	20	-	-
WBI162	42	-	-
WBI163	46	1	-
WBI164	10	1	-
WBI165	1	-	-
WBI166	13	-	-

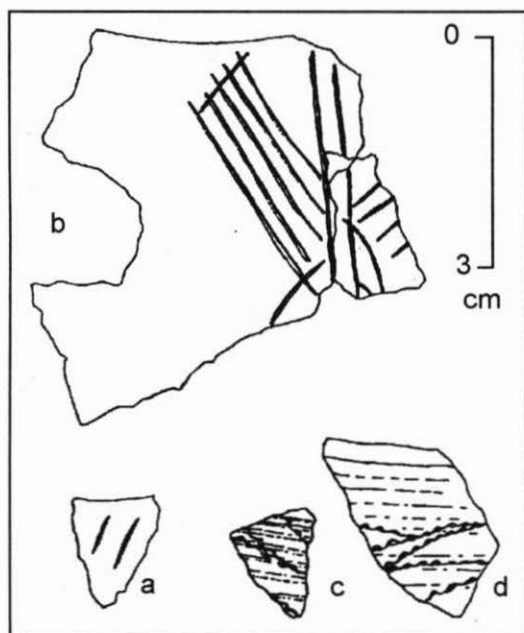


Figure 4: Rim forms and decorations on sherds from Page islet (WBI-150).

Decorations are incised and can be divided into continuous and discontinuous. The former define geometric patterns, often with triangular variation (Fig. 5d) ('hatched' or 'toothed') or simple parallel lines. The motifs correspond to groups D, G and J of Smart's classification. Discontinuous oblique incisions are piled vertically to draw 'frond' or 'chevron' motifs (Fig. 5a, b, c) (groups B and E) or aligned to form dashed parallel lines (Figs 5g, 4b) (group I).

The paste content of the sherds can be divided into two main groups (Fig. 6): a) a fine textured paste with very few poorly sorted rock and iron fragments; b) a fine textured paste with relatively frequent well sorted quartz sand (20 to 30%). The paste of type b is by far the commonest. Paste of type a has been encountered only in sites WBI-154, WBI-164 and to a lesser extent together with type b in sites WBI-152, 155, 156, 161 and 163.

The lack of well stratified sites and sufficient datable material make it difficult to evaluate the time depth of occupation in the Saint Vincent Bay area. A survey of surface evidence should normally lead to the discovery of a large number of recent sites rather than older ones. Looking at the pottery evidence, this does not seem to be the case here. The pottery found on these islands compares closely with the material excavated at Naïa, in particular at TON-7. At that site, this type of pottery is associated with Podtanéan ware in the latter part of the early sequence, in the final centuries BC. Although the majority of decorations from Saint Vincent Bay point to an early archaeological context in the Koné period or the beginning of the Naïa period, the number of rims belonging to group A, which is not such a common feature of this period, shows that later occupations are also represented.

HEAVY MINERALS AND THE ORIGIN OF CLAYS

Heavy mineral determination was carried out on several sherds from these three areas and on surface collected sherds from nearby places in order to assess the probable origin of the clay and the possibility of trade. The heavy minerals represented in the assemblage pointed to three different geological formations (Fig. 7):

Andesitic tuffs of the Permian and Triassic formations in Ducos, Hugon and Teremba islands (Saint Vincent area).

Peridotites which are most common in the southern part of New Caledonia.

The Cretaceous basalt formation along the west coast from Nouméa to Koumac.

All these geological formations are present in the area and all the pottery studied is most probably of local origin. The diversity of mineralogical content nevertheless points to several sources of clay.

The heavy mineral counts in the sherds were converted to percentages and principal components analysis was performed using the commercial software MVSP. It was found that the first three eigenvectors accounted for 81 percent of the variance. These were then used to plot the original sherds in an effort to observe any significant clustering, based on the heavy mineral composition.

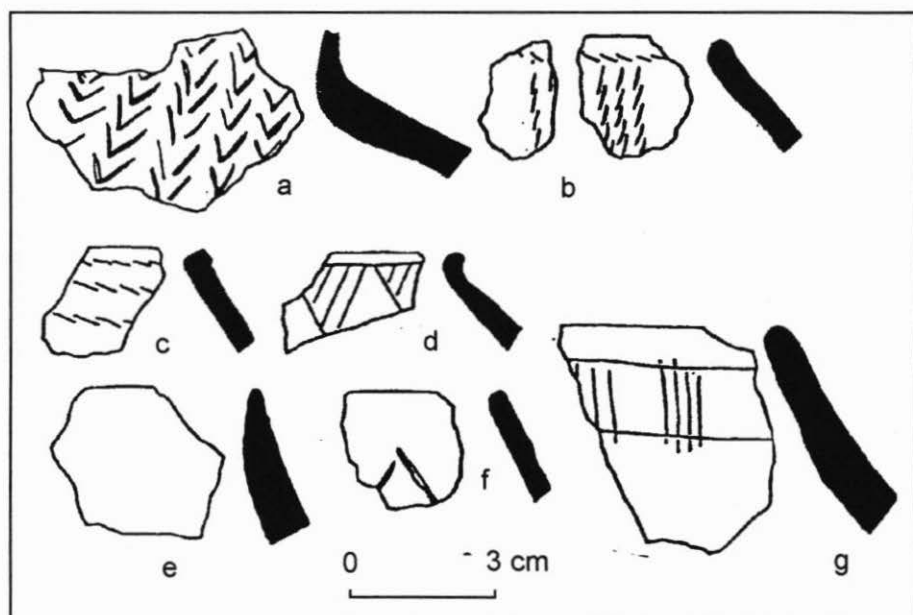


Figure 5: Decorated pottery sherds from Ongwé (WPT-148).

As can be seen from Table 3, titanite has been afforded the highest positive discriminant value on the first principal coordinate and hornblende the highest negative value. On the second principal coordinate these two minerals have an inverse weight and on the third principal coordinate, zircon is the mineral with dominant influence, counterbalanced by enstatite. Figure 7 shows a three dimensional representation of these results and illustrates four groups of closely correlated sherds (shown as triangle, circle, square and diamond labels), as well as a few more scattered samples (black labels). These groupings, with few exceptions, reflect the pottery's geographical, morphological or chronological characteristics.

TABLE 3

Component loadings of the first three eigenvectors for each heavy metal considered.

PCA	AUG	HOR	ZIR	ENS	EPI	TIT	RUT	AN	SPI	ALT
1	-10.33	-76.41	-2.305	-41.88	6.028	144.62	0	0	0	0
2	-3.98	105.12	0	0	-12.15	55.77	-29.58	-32.23	-33.89	-34.97
3	1.24	7.8229	84.650	-81.46	-12.95	-17.47	0	0	0	0

AUG = augite, HOR = hornblende, ZIR = zircon, ENS = enstatite, EPI = epidote, TIT = titanite, RUT = rutile, AN = anatase, SPI = spinel, ALT = altered minerals

Ongwé, Naïa and to a lesser extent Tiaré are closely correlated. The results suggest at least two sources of clay for the sherds with nubbins (Naïa 2 tradition) and one origin for most of the pottery with handles (Naïa 1 tradition). Naïa 1 sherds with a high titanite content (triangles) point to a clay source in the Cretaceous basalt formation, further inland. Naïa 2 sherds from these three localities (circles) are also characterised by the importance of titanite with an equally significant occurrence of zircon, a mineral occurring in the coal formations of Katiramona (10 km south of Païta).

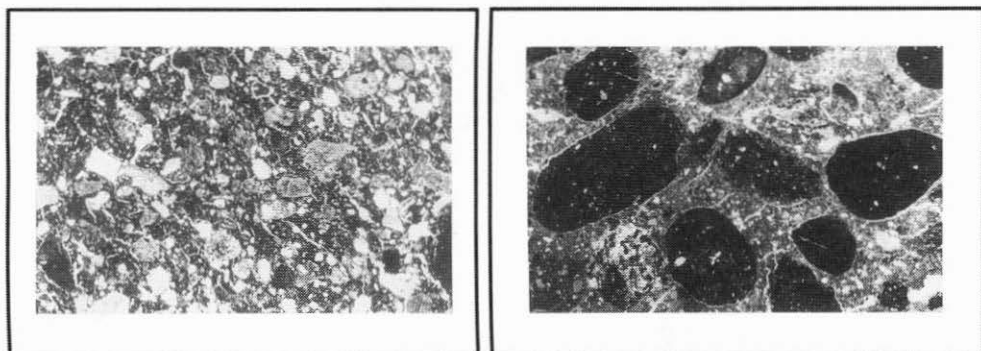


Figure 6: Thin sections of sherds from the Saint-Vincent region showing the two main groups observed. Right, fine-textured paste with poorly sorted rounded iron and rock fragments; left, fine-textured paste with abundant well sorted quartz sand.

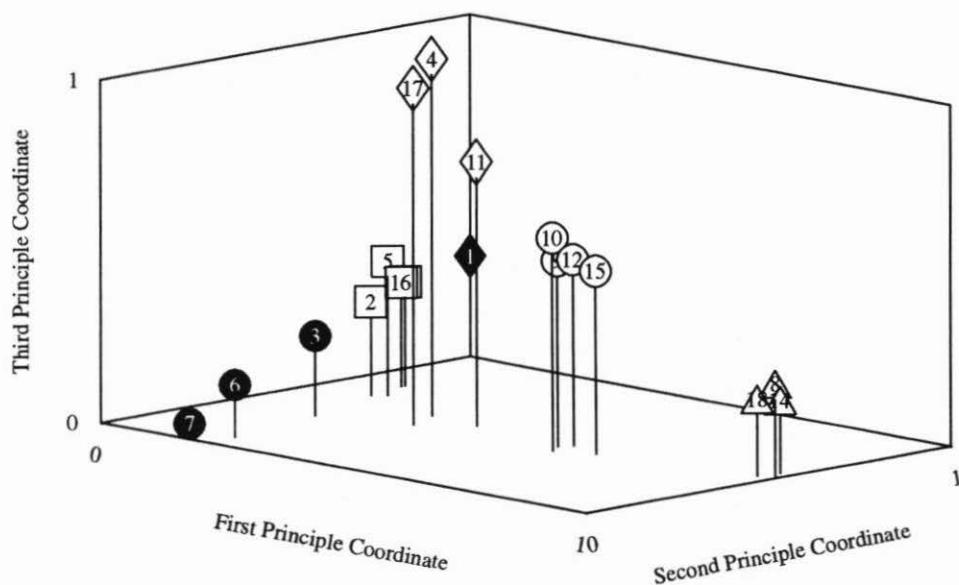


Figure 7: Three-dimensional proximity plot of analysed sherds from the study area using results of the Principal Component analysis.

A second group of Naïa 2 sherds from Tiaré, Naïa, Hugon island and Ouen island (squares) is characterised by minerals from the andesitic tuffs which are only found on a few islands in Saint Vincent Bay. Other sherds from Saint Vincent Bay (black circles) with a high epidote content can also be traced to the volcanic tuffs of this area. Sherds of uncertain pottery type with different mineralogical content can nevertheless be traced to a local origin.

This heavy mineral analysis points to a local origin of the clays used for pottery fabrication with changes in clay sources at different periods. The results suggest that Naïa 1 potters were using only a few clay sources, which were possibly located on the slopes of the basaltic outcrops a few kilometres inland from Naïa Bay. The Naïa 2 pottery (nubbins) has more diverse origins. Two main sources of clay might be the alluvium of the Païta river which gathers sediments from the Katiramona formation and the cretaceous basalts and locally altered soils on Ducos or Hugon islands. These results suggest that pottery making was a local activity and that several groups of potters were active in this area, one group being based in the area of Naïa, Ongwé and Tiaré Bays, while another was located on the islands of Saint Vincent Bay.

BURIALS

Burials are an important feature of the archaeological record from the southwest coast. Unfortunately, most finds of human remains are poorly documented. It is probable that the information I was able to gather during ten years of research in New Caledonia is only a

small part of what has been unearthed and destroyed during extensive quarrying. Nearly every bay in the area covered by this survey has yielded human remains. The best documented are those found in Naïa Bay while Smart was working there in 1966 and 1967. These will serve as a basis for description after a rapid survey of the other finds I was able to trace in the literature and through other enquiries.

GEOGRAPHICAL DISTRIBUTION OF THE REMAINS

The sites or locations of human burials are listed below with a description of the finds where available. Places of discovery are listed from south to north (Fig. 8).

Magenta Bay (Nouméa). Smart, in a memorandum dated 1 March 1966, compared some burials found in Ongwé with "... a line of six such burials having been encountered during work on Magenta aerodrome", citing Chevalier (former curator of the Nouméa Museum). No other information is available on these burials. Presumably the skeletons, like those at Ongwé, were in a crouched and upright position.

Ouémo Bay (Nouméa). This is the earliest account of seemingly ancient burials unearthed in the area. During sand quarrying in Ouémo (Nouméa), about 20 vertical pits of cylindrical

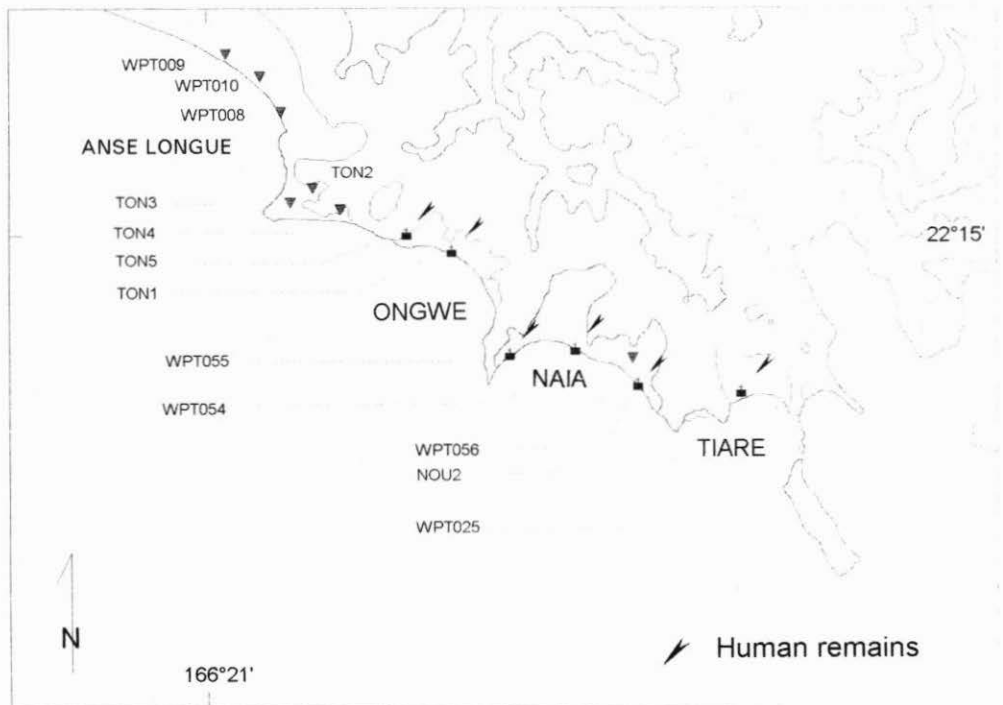


Figure 8: Localities of known pit burials in the Naïa area.

shape were discovered. They contained complete human skeletons in a vertical crouched position (Avias 1950: 132).

Tiaré Bay. I have heard several references to the discovery of human remains in Tiaré Bay during quarrying. The only evidence available is some pieces of human skulls found by Jean Rolland while surveying the area in the early 1970s. His drawings show ten cranial pieces belonging to at least two different individuals (labelled respectively 70271-C and D, 140271 and 1169-A to G).

Naïa Bay. The best account is in the notes made by Smart while he was excavating at Naïa. The information he collected suggests that many burials were found in this area. The first find he mentioned was from site TON 7 (WPT-055), the remains of a small midden on the fringe of the quarry. He wrote as follows.

Soon after we began our excavations, workmen in the quarry brought to our notice two separate burials. One of these was almost entire and enough remained to determine something of the nature of the original burial. While examining this, we discovered a half vessel buried nearby and another skeleton. Near the burials was an enclosure of postholes. Other burials, always badly disturbed, turned up within this same area during the next month or so as did also traces of other fenced enclosures. The disturbance of the site was so thorough, however that it was impossible either to associate one site with another or to determine clearly the relationship of any find with the original overlying midden deposit.

In another quarry lying some distance to the east and closer to the sea, which he named site NOU-2, two burials were found during fencing work across the quarry and exhumed for further study. Other burials seem to have been revealed during quarrying operations but as Smart never excavated at this site, he did not suggest any cultural association for the burials. The eastern part of Naïa Bay, which was extensively quarried for sand in 1965, also yielded a number of human remains.

Ongwé Bay. Many human remains have been found along the beach at Ongwé, especially after high swells. They seem to be washed out from the coastal deposits. In his memorandum Smart mentioned the following finds.

Ms. Naturel [owner of Naïa bay at the time of the archaeological excavation] records that, during the construction of a fence line in the Ngoué bay area, two successive post holes encountered crouched burials. The description given us of these burials seems to indicate a crouched burial without doubt and in the upright position. No grave goods were seen, but the bones were 'strong' and the remains were described to us as having been placed in a 'deep hole in the sand'.

He also notes that

numerous other finds of fragmentary material were made along the eroding beach front of the site and even out onto the fringing reef where all sorts of midden debris are carried during strong seas.

Furthermore, a single cranium, of a youth or adolescent, was found among the stones of the slope surrounding site TON 2. The location of the skull suggests a more recent form of burial.

Tonghoin. In 1988 I was called to the bay of Tonghoin to examine some human remains which had been dug up during sand quarrying. The traditional owners of the area did not wish to have any of the remains excavated and I could only work on one skeleton which had been severely damaged by the bulldozer. In an area of 300 m² close to the shore, there seem to have been about eight pits aligned parallel to the shore in two rows. Each pit contained human remains in an upright crouched position. An extensive search in adjacent spoil heaps did not reveal any associated material apart from a few undecorated potsherds, possibly from the Naïa 1 period (pottery with handles). About 100 m away from this area, paddle impressed sherds were collected on the surface.

Ouitoé. In 1973, information was sent to the Nouméa Museum about the discovery of a human skeleton buried about 80 cm below the surface, near the sea. The head of the skeleton was covered by a flat stone (letter dated 9 May 1973 from F. Goy to Maire of Païta; copy to Luc Chevalier on file at Nouméa Museum).

CULTURAL ASSOCIATIONS

There is remarkable uniformity in these scattered finds and it is a real pity that none of the skeletons could be studied in detail. In most of the cases cited above (apart from Magenta and Tiaré), the remains had been deliberately buried in a small vertical pit in a crouched position. The problem we now face is to relate these human remains to the pottery traditions represented in the area. None of the burials contained any cultural material or grave goods and in most cases, the circumstances of discovery were such that no association with a specific archaeological layer can be determined.

The conditions of inhumation suggest a common cultural origin of all these finds. The placement of the skeleton in an upright crouched position in a pit and the presence in some cases of a stone covering the head or closing the pit are not a burial practice commonly encountered anywhere in the contemporary or pre-European Pacific, although similar burials have been noted elsewhere.

In Naïa Bay, Smart mentioned that

...the burial pit contained a sandy matrix of light brown colour which contrasted with the surrounding white or yellow sand. The burial had originally been situated just beneath the black or dark brown midden deposit which covers most of the coastal area of Naïa bay. None of these distinctive midden material, either the dark sandy matrix or the rich content of shell, stone and sherds ever occurred within the burial pit itself...

These observations led him to conclude that the burials found in both TON-7 and NOU-2 had been made at a time when there was little or no midden material on the site. In TON-7, midden material covering the burials consists mainly of ceramics of the Podtanéan tradition (paddle impressions and associated incised decorations). In NOU-2, pottery in the surface collection comprises mainly simple restricted vessels of spherical forms with direct rims, some incised decorations and looped handles.

Evidence of similar burials was found more recently in the northern part of New Caledonia, in site WKO-013 at Lapita near Koné on the northwestern coast and in site NBL-002 on Balabio island, offshore from Arama on the northeastern coast (Frimigacci 1984).

At Lapita, Site 13C location A, Shutler (unpublished notes) in 1967 excavated a single human crouched burial in a pit which had been covered with an open pottery bowl. This bowl is similar in shape to Polynesian Plain Ware bowls and carries paddle impressed marks. I discovered a second burial of a similar type in the same site in 1988 (Galipaud 1993). This burial was beneath the archaeological layer and could not be associated with any archaeological feature, although a complete, decorated Lapita pot was found in an identical stratigraphic context only a few metres away from the burial. The skeleton has been analysed by Michael Pietrusewsky and the results of this analysis will be published shortly. This skeleton was dated by AMS to 2410 ± 55 BP (OxA-4908).

Another skeleton buried in the same way with the head covered by a flat stone was excavated in site NBL-002 on Balabio island (Frimigacci 1984). The skeleton was covered by a cultural layer dated to 1830 ± 160 BP (ANU-4926) and characterised by plain pottery of similar form to the paddle impressed pottery (Balabio tradition) from which it is supposed to have evolved. Paddle impressed pottery was also present around the site.

Although none of these skeletons was in clear association with a particular archaeological layer, there is a strong possibility that they are contemporary with the Podtanéan ware and thus that these burial practices can be attributed to the Koné tradition. This hypothesis does not seem to be in contradiction with similar finds made in Watom (Specht 1968: 126) or at the Sigatoka site in Fiji where comparable burial features seem to be associated with the same general pottery type (Best 1987; Hudson 1994).

STRUCTURAL REMAINS

The description of structural remains in archaeological sites requires large scale excavations and thorough work, two conditions which have rarely been met in New Caledonian archaeology over the past 20 years. The only descriptions of ancient structural remains are to be found in the reports of excavations at Nessadiou (Frimigacci 1979) and Ilot-Vert (Frimigacci and Siorat 1988) and to a lesser extent at Tiwi (Galipaud 1988b).

While excavating at Naïa, Smart came across a number of structural features brought to light by quarrying activity. He made a precise plan of part of these remains which he also described in his notes. Unfortunately, the original documents were consumed by the fire which destroyed nearly all his base at Naïa during the course of his first field season.

I also observed some traces of structures during the quarrying at Ongwé in 1989 but conditions did not permit more than a general sketch of these features. More recently, Sand described and dated several stone ovens in the same area (Sand and Ouetcho 1994: 44-48). When these data are brought together they provide the only available account of ancient forms of settlement in New Caledonia.

On the evidence available, two main types of structures can be defined: posthole alignments and ovens. Both were very common in TON-7 and Ongwé. Ovens were also encountered in TON-6 and Tonghoin and to a lesser extent in NOU-1. Some of these structures have already been described elsewhere; the following account focuses on data that have recently become available.

POSTHOLE ALIGNMENTS

At Naïa and Ongwé, postholes were traced over a large part of the unworked quarry. In Ongwé, no systematic arrangements could be identified in the mapped area, mainly because of the irregularity of the bulldozer work and some significant discrepancies in depth between closely related zones.

In one area on the surface of TON-7, Smart was able to describe a very large rectangular enclosure with a complete back (away from the beach) and end walls but few traces of postholes along the front. This enclosure measured 12 x 23 m and was aligned parallel to the shore. All the postholes were filled with dark sand and midden deposit and extended below the cultural deposits to penetrate into the underlying white sand. The inner part of this structure contained traces of small ovens and many other postholes, some of which Smart thought may have been from round houses. Two of the pit burials were found inside the enclosed area. In other unquarried areas of the same site, several other enclosures were visible, as well as scattered postholes, ovens and half a pot with a handle (Plum type). While excavating the site, Smart came across another posthole alignment (Fig. 9), which he interpreted as part of a rectangular enclosure and which he dated from associated charcoal to 2065 ± 110 BP (ANU-97). In the same excavation, below the lowest layer (III), was a set of postholes defining the pattern of half a small round house. Some of the postholes were cut by a big oven which was dated to 3165 ± 120 BP (ANU-96). The stratigraphic associations enable these structures to be assigned to the Koné period.

In TON-6, postholes were not at all common and only one structural pattern was distinguished: "a small circular house plan encountered about halfway down the deposits in the early part of the excavations". This was larger than the example from TON-7. Details of this first excavation were lost but the remaining part of the structure was exposed during the re-excavation of the site. Unfortunately, the plan of the house is not in Smart's surviving notes and no photographs have been located. There is no information about the size or exact shape of the structure apart from a list of the following components: one central post, two paired door posts, ten wall posts, and two paired small posts inside. There was no visible hearth or burnt area. This structure is not very well located in the TON-6 stratigraphy but seems to be bracketed by two charcoal dates: 1400 ± 80 BP (ANU-286) and 1635 ± 110 BP (ANU-99). These two dates and the associated material link this round house with the Naïa 1 period.

At Ongwé, the only structural pattern I was able to record was on a 20 x 20 m flat area where the bulldozer had left some of the midden soil on top of the sterile white sand. Darker spots on this thin cultural residue indicated possible structural remains. After thorough cleaning of the area, several units of dark colour could be isolated. These were mainly postholes but also included remains of larger ovens. In unit 1 (Fig. 10), several sets of postholes and a well preserved fireplace filled with stones surrounded a darker patch of grey black charcoal-rich sediment which possibly represents the inner part of a rectangular house. The postholes were sectioned to assess their shape. One of the darker strips close to the house contained a great quantity of undecorated potsherds, among which was an everted flared rim of type C, a distinctive Lapita feature. At the eastern and western ends of the house, stones and charcoal scatters were interpreted as the remnants of two fireplaces. In the vicinity of one of them a fragment of a finely crafted trochus armband was recovered. In unit 2 (Fig. 11), the shape of a round structure about 8 m wide can be recognised.



Figure 9: TON-7 at Naïa during the excavation of level II+. The line of postholes crossing the picture from top to bottom was interpreted by Smart as a palisade. On the right, remains of a large oven and the postholes of a circular structure can be seen (Photo C. Smart).

OVENS

Ovens (or more precisely, concentrations of burnt wood often associated with stones) have been found in all the sites of the Naïa-Ongwé district. They are most often described as 'ovens', and it is not easy to distinguish a true stone oven from the more usual fireplace. However, a distinction can be made between fireplaces of the normal size and the huge ovens described by Smart in Layer I at TON-7 and by Sand near the shore at Ongwé and in unit B of his Tonghoin (WPT-010) excavation (Sand and Ouetcho 1994: 44–50).

At TON-7, two "enormous oven pits filled by a much lighter sand [as in layer II]" were excavated by Smart and one was dated to 3165 ± 120 BP (ANU-96). Smart described the pottery in this oven as having "a form of stamped impressed [Lapita] decoration and some applied motifs". This statement is relevant to the question of a possible Lapita occupation of Naïa Bay but is unfortunately not confirmed by a thorough examination of the excavation records and catalogues. Although punctiform-impressed sherds do appear among the classified decorated sherds from TON-7 (Fig. 12), their catalogue numbers do not refer to level Ia where large ovens were uncovered but to level II (N°4832 and 4907) and level III (N°3876 and 4306). A further Lapita decorated shouldered sherd was found on the surface of NOU-1 (no catalogue number). From Smart's description these two 'ovens' apparently did not contain any stone but were pits filled with sand and containing archaeological material.

The oven excavated recently in unit B at Tonghoin (Sand and Ouetcho 1994) measured 2.10 x 1.80 m and was filled with siliceous stones, some of which were cracked and

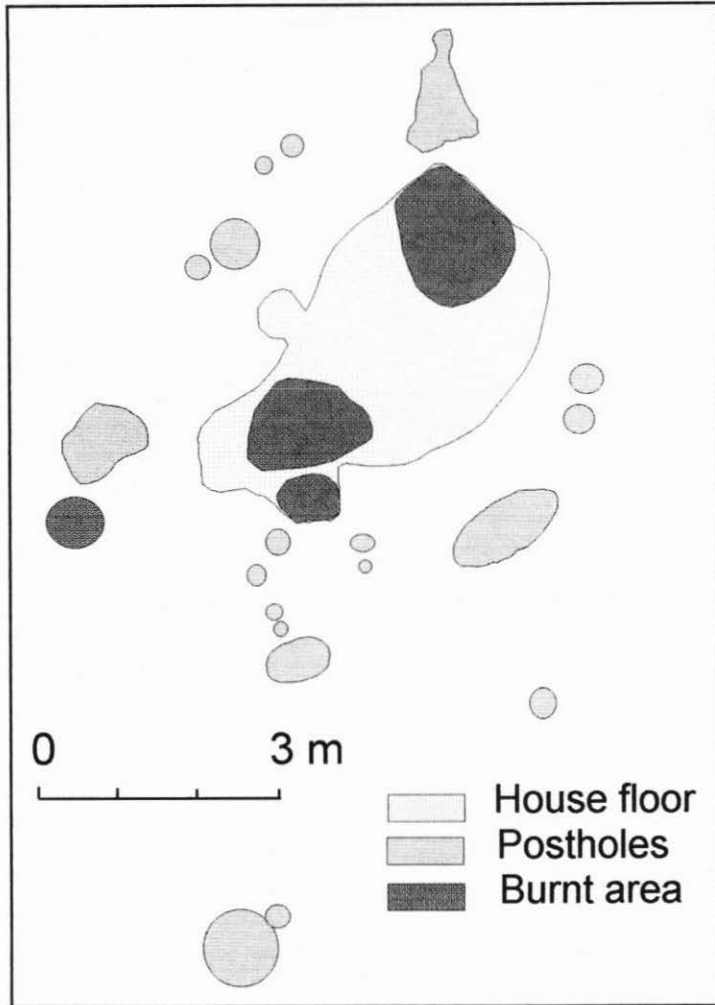


Figure 10: Posthole alignments and ovens in Unit 1 at Ongwé.

shattered as a result of heat. It is unclear from the description what artefactual evidence was associated with the oven. It seems that no pottery or other artefacts were actually found in it, although pottery of the Plum type (handles) was noted around and beneath it. It was dated to 1480 ± 60 BP (BETA-55999), a result well in accordance with the Naïa I tradition and the Plum pottery type. A similar date (1570 ± 50 BP BETA-62764) was obtained for a small oven filled with stones in unit C of the excavation at WPT-148 (Ongwé) (Sand and Ouetcho 1994: 56). The authors note the occurrence of three large ovens more than 2 m in diameter along the shore at Ongwé. They were not excavated and were later destroyed by quarrying activities. These structures apparently also lacked stones. One of them was dated to 2290 ± 70 BP (BETA-61950) (Sand and Ouetcho 1994: 56).

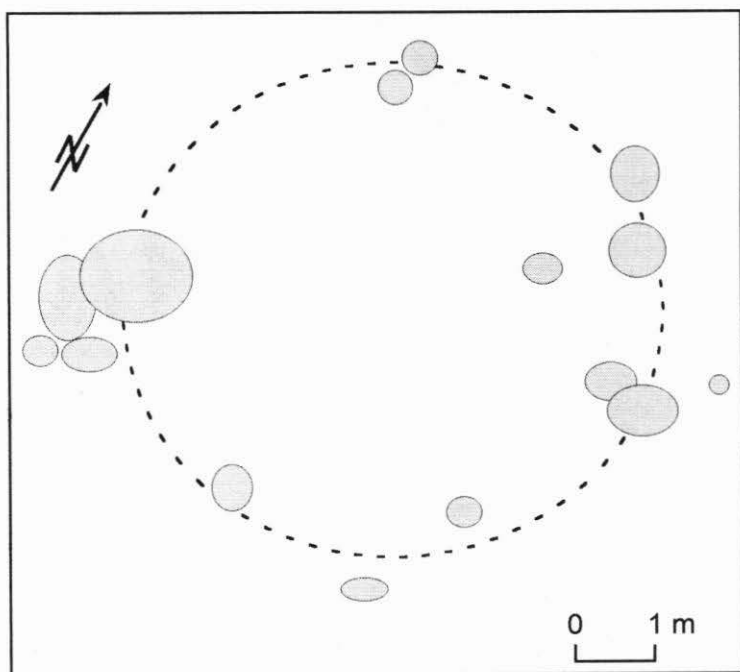


Figure 11: Postholes delimiting a circular structure in Unit 2 at Ongwé.

The existing evidence suggests that the so-called ovens might not always have had the function which their name suggests. It is possible to define three types of structures according to size and the presence of stones in the pit. The most common type, which appears at all levels of the chronology, is a small fire structure lined or covered with stones, which might have been the usual cooking structure. Large 'ovens' without stones are described only from a very early context in TON-7 and WPT-148 in association with Podtanéan and possibly Lapita pottery. The only comparable structures found in a similar context in an archaeological site are the so called "fosses à détritus" of the Lapita site of Nessadiou (Frimigacci 1979: 11 and fig. 4). Their use as ovens is unproven.

The third type of oven, and in my view the most interesting, is characterised by large size and a fill of stones. It lacks charcoal and other faunal or cultural debris usually associated with an oven, although this might have been cleaned out after the oven was used. However, the presence of stones suggests that the oven had been in use up to the time when the site was abandoned. The description strongly suggests that heat had been applied to the stones, but the lack of faunal material and the arrangement of the stones suggest that this structure had a different function than that of an oven. A flat bed of stones is the base on which pots are laid before being fired in an open fire in some Pacific potting societies (Guiart 1956: 56; Shutler 1968: 17; Galipaud 1984b: 12). Although it is possible to build a fire on the bare ground, the use of stone, often preheated, isolates the unfired pots from the often humid ground and eliminates the risk of thermal shock at the beginning of the firing process. Once the fire is finished, the remaining embers are dispersed and the pots are set aside. When pots

are very suggestive of this technique and can be compared with ethnographic examples I have observed in Gapat near Touho on the north-east coast of New Caledonia and in the still active potting village of Wusi on the south-west coast of Santo in Vanuatu. The absence of cultural debris, the lack of charcoal or ash (which are either cleaned away or nonexistent because of the light fuel used in firing pots in the open) together with the presence of three small (50 cm in diameter) round depressions (which could have provided a stable surface for the round bases of large pots) are in my view good reasons to think that the excavated structure might have been used in the firing of the big pots with handles which were in use at the time.

ABSOLUTE CHRONOLOGY

Sixteen radiocarbon dates provide a framework for discussion of the Saint Vincent and Naïa Bay chronological sequence. The samples were submitted by Smart, Sand or myself in the course of our work in the area. I have added to this corpus two dates from human burials at Koné (WKO-013) and Balabio (NBL-002) which are typologically similar to the one found at Naïa. Conventional radiocarbon ages and other relevant information are listed in Table 4.

Figures 13 and 14 show the continuity in the archaeological sequence in this area. Naïa and Ongwé Bays especially seem to have been occupied from the initial settlement up to European contact.

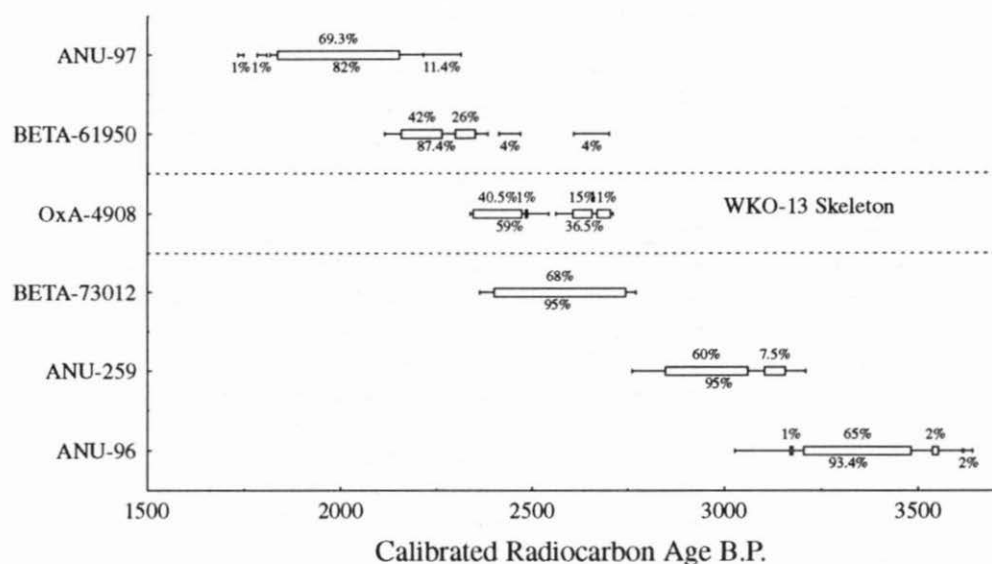


Figure 13: Radiocarbon dates relating to early settlement in the study area. The dates have been calibrated using CALIB Version 3. Percentage probability at one and two sigma is displayed by boxes and lines respectively. All dates are on charcoal except OxA-4908 which is on bone collagen.

The dating of the initial settlement of this area is not easy and may reflect a more general problem associated with coastal settlements. Initial settlement at TON-7 in Naïa Bay was until recently attested by a single date from charcoal in a big oven at the bottom of layer 1 (ANU-96). I was recently able to submit some more charcoal from the same oven for AMS dating. The result (BETA-73012) is several hundred years younger than the initial date and thus does not help to clarify the question of the initial settlement of this area.

New dates obtained by Sand (1994) basically confirm what was already known from Smart's excavations: pottery with handles, or Plum type, was produced in the area in the first few centuries AD (ANU-4926 and BETA-62763) and production ceased before the end of the first millennium AD. However, no site has yet been found with continuous stratigraphy from the Koné to the Naïa period and it can be asked whether the early dates for pottery with handles could reflect secondary deposition of this pottery in the remains of a Podtanéan occupation context. The fact that dates for handles and paddle impression almost overlap could also suggest a rapid disappearance of Podtanéan ware at the beginning of the second millennium BP, rather than continuity of occupation not attested in the stratigraphy.

Nera, or nubbin pottery, is well dated at TON-6 to the beginning of the first millennium BP. A recently obtained AMS date from Tiwi supports this relatively recent appearance.

TABLE 4

Radiocarbon dates from Saint Vincent and Naïa Bays.

All samples were charcoal except OxA-4908, which is human bone collagen

Lab. No.	Conventional Age BP	Cultural association
ANU-96	3165 ± 120	TON-7 (WPT-055), Layer I, base oven
ANU-259	2855 ± 95	NOU-1 (WPT-056), small oven
BETA-73012	2560 ± 60	TON-7 (WPT-055), Layer I, base oven
OxA-4908*	2410 ± 55	WKO-013, AMS date of human skeleton
BETA-61950	2290 ± 70	WPT-148, large oven in sand quarry
ANU-97	2065 ± 110	TON-7 (WPT-055), Layer II+, oven
BETA-62763	1870 ± 70	WPT-148, Unit A, -50 cm
ANU-4926*	1830 ± 160	NBL-002 (Balabio), Unit A, Layer 2
ANU-98	1745 ± 117	TON-6 (WPT-054), bottom of Layer I
ANU-99	1635 ± 110	TON-6 (WPT-054), Layer Vb
BETA-62764	1570 ± 50	WPT-148, oven in test pit 4
BETA-55999	1480 ± 60	WPT-010, large stone oven in Unit B
ANU-286	1400 ± 80	TON-6 (WPT-054), Layer Vb
ANU-230	1245 ± 70	TON-7 (WPT-055), oven on top of layer II
ANU-284	930 ± 80	TON-6 (WPT-054), Layer VII
GIF-8069	680 ± 50	WPT-025 (Tiaré), Level I
ANU-285	440 ± 120	TON-6 (WPT-054), Layer VIII
GIF-8070	410 ± 40	WPT-148, test pit 1, oven

* not from the region of Saint Vincent and Naïa Bays

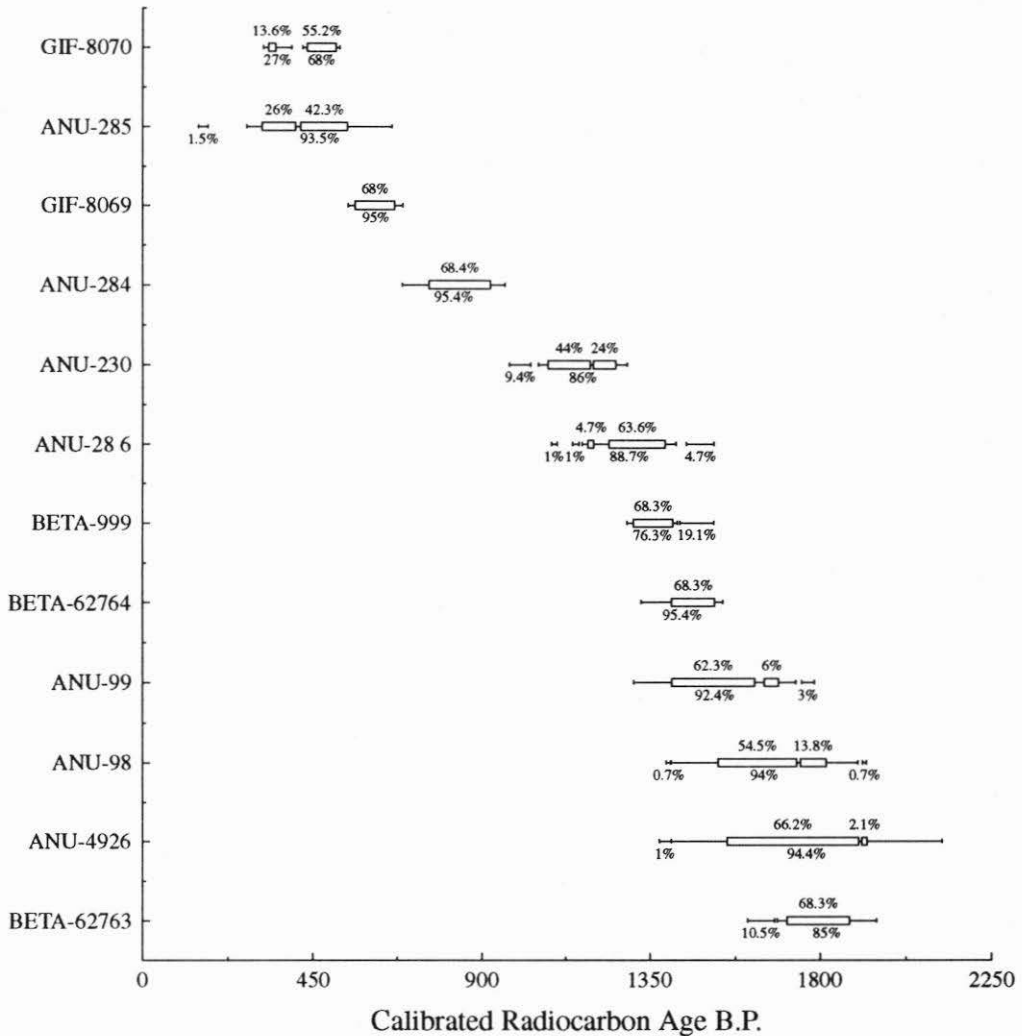


Figure 14: Radiocarbon dates relating to the last two millennia in the study area. Details as for Figure 13.

THE ROLE OF POTTERY IN DEFINING THE NEW CALEDONIAN SEQUENCE

POTTERY USE AND POTTERY ABUSE

New Caledonian prehistory has been defined mainly by the sorting and analysis of its pottery components. The cultural chronology I proposed in 1988 was set up using previous work on pottery by Avias (1950), Chevalier (1970), Smart (n.d.) and Frimigacci (1975, 1981) as well as the framework established by Green (Green and Mitchell 1983). By re-

analysis of the stylistic and morphological components of available and newly excavated material and by study of the physico-chemical nature of the pottery I tried to develop a framework within which to place the scarce non ceramic evidence. This led to a definition of the New Caledonian cultural sequence comprising two main periods: the Koné and the Naïa-Oundjo periods, the latter being further subdivided in the north of the island into Balabio and Oundjo and in the south into Naïa I and II. While some of these subdivisions were closely linked with the appearance or disappearance of a particular type of pottery, the Nera or nubbin pottery during the Naïa II period for instance, others encompassed a series of related events or artefacts among which were one or several kinds of pottery. This is the case with the Koné period, which comprises two major ceramic components: Lapita and Podtanéan (paddle impressed) wares (Galipaud 1988a, 1990a, 1990b).

While mainly using pottery, I was always very careful not to give the results of the analysis a value which might have been disproportionate to the significance of the data being analysed. Although prehistoric pottery is a very useful item to help us disentangle the complex evolution of Pacific societies, we must remain aware that its cultural value might not always have been as high as we now consider it. We know from ethnographic accounts of communities in Vanuatu and Fiji where pottery is still made and of former potting communities in New Caledonia that potters did not usually belong to the uppermost classes of the society to which they were attached. They often were or are members of fishing communities for whom pottery is an important addition to fish in providing access, through trade, to valuable food crops such as taro and yam which are not easy to grow in the areas where they live. It also gives them the status which allows them to stay on a foreign piece of territory. Because of this, pottery cannot be an adequate mirror of past societies, and changes in style will not always reflect changes occurring at a broader cultural level. However, because families of potters are usually attached to culturally homogeneous groups and because pottery production is largely dependent on the local environment, study of prehistoric pottery in tropical islands like New Caledonia remains a very useful *fossil directeur*.

The definition of new pottery types based on the discovery of new forms or decoration without a proper and thorough examination of the material already known may be misleading and can add confusion to an already complex typology. This was a general tendency in the early days of New Caledonian prehistory. The diversity in form and design led to a multiplicity of pottery types such as 'combed pottery' or 'guirlande pottery', to name but two very distinctive designs. On the other hand, pottery which had no chronological or stratigraphic relationship was sometimes lumped together into one type, for instance 'incised' pottery.

The recent proposed definition of a new type, the Puen pottery (Sand and Ouetcho 1994: 68) on the basis of the discovery of a complete pot with triangular filled decorations under the rim (Smart's 'toothed' or 'toothed hatched' design), takes us back to this early typological stage. This new Puen type does not represent a previously unknown ceramic type but rather highlights, without a strong chronological or geographical basis, a type of decoration which is already known and described in the area and which is commonly associated with chevron designs on some Podtanéan pottery. The toothed design also appears in some instances on pottery with handles, as do chevrons and other related designs. The pottery from Puen Islet (in the north of Saint Vincent Bay) described by Sand belongs in my view to the Podtanéan pottery tradition, as does another whole pot of similar shape decorated with chevrons which was found on the same islet some years ago (Galipaud 1988a: fig. 95). The relationship between paddle impression and chevrons is clearly attested

by the occurrence of the two motifs in association on pottery from Nessadiou (WBR-002)(Galipaud 1988a: fig. 93). It is also evident from the study of the design types encountered in TON-7 (Vanderwal n.d.) that chevron and toothed or toothed-hatched incisions occur mostly during the Koné period in association with paddle impression.

The occurrence of similar decoration on some pottery with handles does not imply that "the presence of sherds with incised or chevron decorations in this site [WPT-148, Ongwé] allows the pottery of the Koné period to be related typologically to the pottery of the Naïa I tradition" (Sand and Ouetcho 1993: 127). The pottery of the two periods is typologically very different. Naïa I pottery, also referred to as pottery with handles or Plum pottery is a big (up to 80 cm in diameter), oval-shaped, thick pottery with a direct inverted rim and two or more thick handles directly beneath the rim. It is decorated rarely and only under the rim and around the handles. It differs from Lapita and Podtanéan pottery in its shape, its dimensions, its methods of manufacture (large coils) and, in the Naïa area, in its clay composition. The only similarity, rarely, is the occurrence of chevron design. However, at this stage we cannot rule out the possibility that the persistence of certain design elements reflects some form of cultural continuity.

LAPITA OR NOT LAPITA?

Much has already been written about the possibility of a Lapita site in the Ongwé and Naïa Bay area (discussions of the subject include Green and Mitchell 1983: 46; Galipaud 1988a: 124–125; Sand and Ouetcho 1993: 126). It is clear from Smart's account that a few stamped decorated sherds were found while excavating the Naïa Bay site:

I have so far uncovered some 50 square meters of nice postholes, ovens, and magico-religious structures.... All this associated with a very interesting range of pottery—paddle decoration, shoulders, flared rims (so far so good), a couple of stamped impressed sherds (formerly known as *pointille*), and a sprinkling of handle fragments and incised decoration (Letter to Golson of 11/07/1966, emphasis mine).

Smart's precise cataloguing system allows us to trace the origin of the stamped impressed finds (see section on structural remains above and Fig. 12). Other finds of Lapita sherds have been published recently by Sand (1993:119, fig. 6). I also found a flared rim (type C, commonly associated with Lapita; see Galipaud 1988a: 23 for an explanation of this type of rim and its dominance in the Lapita assemblage of Koumac) while working on the Ongwé structural remains in 1989. Sand describes at least two more rims of this type (Sand and Ouetcho 1993: fig. 5) which he misleadingly classifies as of B type. Frimigacci (1975: 85), following a statement by Chevalier, published a photo showing several well decorated Lapita sherds which had been found during excavation of a well near Mr Naturel's house in Naïa (information given to D. Frimigacci by L. Chevalier). Recently, while sorting the collections of Lapita sherds in the Nouméa Museum, Kasarherou was surprised to find that several of the sherds described from Naïa could be matched with sherds from the Lapita site of Vatcha in the Isle of Pines. Moreover, the sherds found during the digging of a well at Ongwé Bay (not Naïa Bay) are described by Smart in these terms:

Ms. Naturel records that, during the excavation of a well some distance inland from the beach (perhaps 200 m), a cemented sand matrix with sherd material was encountered. The sherds he saved are again of large size—including the longest

handle, attached to a section of an enormous pot, that Luc [Chevalier] has ever seen. As with the littoral exposures, the sherds from this cemented sand matrix are coated with a white calcareous material. Ms Naturel estimates the depth of the layer encountered in the well as about 4½ m but, after finding only salty water, the well was subsequently filled in.

I later interviewed Chevalier, who denied having found any Lapita sherds at Naïa. The initial suggestion that there was some Lapita material in this well may perhaps have been due to the fact that the sherds were coated with calcareous material, a feature which was commonly associated with Lapita at that time.

The situation remains unclear, and it would be going too far to assume, on the basis of the information currently available, that there was a genuine Lapita settlement at Naïa and Ongwé (Sand 1993: 127). The abundance of Podtanéan Ware in most of the sites of the Naïa and Ongwé Bay area leaves no doubt about the occupation of these sites during the Koné period. The presence of a purely Lapita area in one or both bays would not be surprising and it would fit perfectly with the evidence available from elsewhere on the same coast (Nessadiou, Koné, Koumac) where Lapita sherds are always found in conjunction with Podtanéan sherds in an adjacent area. The fact that there does not seem to be any real Lapita deposit in this region is interesting and the question which should be addressed is why is it so? The continued existence of an undiscovered Lapita occupation in Naïa and Ongwé Bays and most of the adjacent areas is unlikely in view of the extent of quarrying in the region since the late 1950s. In my view, the discovery of a few Lapita sherds in a largely Podtanéan context confirms the relationship of Lapita and Podtanéan during the Koné period and raises anew the question of the respective social and cultural values of Lapita and Podtanéan pottery during this period.

The possibility of a former Lapita occupation cannot be completely rejected. Given a hypothesis of very early initial Lapita settlement (which could be cautiously proposed in the light of Smart's comments about the presence of stamped impressed sherds in the very early dated oven of level I in TON-7)², we could suggest that the traces of Lapita pottery at Naïa are the disturbed remains of a largely destroyed earlier occupation. Evidence of large coastal movements at the end of the Koné period (see below) support this hypothesis. To investigate this possibility, it might be necessary to check for archaeological remains under the fringing reef in these two bays.

Leaving aside discussion of the possible presence or absence of Lapita at Naïa and Ongwé, it is worth noting that Lapita is a rare feature of the prehistory of the south of New Caledonia—the only known site, surveyed but never excavated and now destroyed, is Anse-Vata Bay in Nouméa. This evidence is suggestive of early multiple influences in New Caledonia, possibly from two directions, Fiji and Vanuatu. An understanding of this phenomenon might shed new light on wider aspects of Melanesian and West Polynesian prehistory.

²This idea is not easily supported for the following reasons: the lack of evidence concerning the deposition of the few Lapita sherds in Level I; the recently obtained younger AMS date on the same oven; Smart's difficulty in relating this very early date and the structures to some sort of artefactual evidence, given that paddle impressed pottery, the most frequently encountered pottery in this context, was considered at that time to be a quite late, post-Lapita ware.

LANDSCAPE EVOLUTION

Most Lapita and Podtanéan bearing horizons are found on fossil beaches built during the warmer period which followed the last marine transgression, which is dated in New Caledonia to about 3200 BP. At that time, relative sea level on the western coast was 1 m above present. It dropped off to -0.5 m around 2900 BP, and then gradually rose to its current level (Baltzer 1970 and 1982: 23-32). These fluctuations in relative sea level are difficult to identify precisely at the local level, but probably had a significant influence on the initial selection of sites for occupation and, subsequently, on their preservation.

At Naïa and Ongwé, the base of the stratigraphy in the zone closest to the shore (TON-6) contains layers of relatively recent date (1745 ± 117 BP [ANU 98] for the base of level 1) and evidence of secondary deposition of pottery with handles. About 100 m in from the present shore, older layers have been preserved immediately below the surface (2065 ± 110 BP [ANU 97] layer II+, TON-7). The lack of older deposits near the shore is an indication of the movements of the coastline during this period. TON-6 may represent a re-settlement of the area after the abandonment of TON-7 or a new settlement in an area that had been uninhabited for some time.

This suggests that the maximum oscillation in sea level and the climatic instability associated with this event occurred during the Koné period and resulted in settlements that are now some distance away from the present coastline. There is a slight possibility, as discussed earlier, that a very ancient occupation (characterised by Lapita?) might have existed during the period of lower sea level (around 3000 BP) but was later destroyed as a result of increasing erosion of the beach. If the information we have is correct, the instability of the coastline during the first few hundred years of occupation might partly explain the seemingly large extent of these early coastal sites. Significant beach progradation at the beginning of our era allowed new settlements to be established closer to the present coastline and helped protect inland remains of older occupations. Stabilisation of relative sea level and formation of coastal dunes may not have occurred until the early centuries AD, as is seen from the occurrence of pottery with handles in a redeposited context some 1 to 4 m below the deposits from which they were expected to derive.

There is no known site in New Caledonia with continuous stratigraphy throughout the Koné and Naïa I periods. Even the Tiwi shelter, at the southern tip of New Caledonia, shows evidence of some stratigraphic disturbance during this time. This suggests some climatic and landscape instability and does not help resolve the question of cultural continuity.

CONCLUSION

The accumulating archaeological data about the Païta and Saint Vincent Bay region demonstrate the rich and diversified prehistoric occupation of this part of the coast. From the time of the earliest human colonisation of New Caledonia, large settlements of the kind already known from Naïa Bay seem to have extended to the adjacent bay of Ongwé and further north to the bigger islands of Saint Vincent Bay. These settlements contained structural remains, few of which have withstood the large scale sand quarrying of the coastal area. We know, however, mostly through the work of Colin Smart, that rectangular enclosures, round houses and large ovens once stood close to the shore. The chronological framework is firmly established and recently obtained dates have not contradicted the cultural sequence previously defined. However, it is still difficult to date single events or

features accurately and one could speculate that the large scale evidence of a seemingly uninterrupted settlement during the first millennium BC is but a combination of many smaller events in a changing environment. Were the first settlers of Naïa-Ongwé Bays fishermen living close together in large villages or small family groups moving from place to place in a shifting pattern of settlement? More excavations are needed in the surviving area to help us understand the exact nature of these early settlements.

The early evidence of the presence of people in this area is not as obviously associated with Lapita as it is in the northern part of the main island and in the Loyalty group. This suggests that New Caledonia received early influences from several directions during the early part of its prehistory. These could have contributed to the cultural differentiation between the north and south of the main island which is well attested for the later part of the prehistoric sequence (Galipaud 1988a, 1990a).

Pottery is an important element in the prehistory of the region and its abundance in every level contrasts with evidence from other known settlements in New Caledonia. The most distinctive type is certainly the Plum ware, or pottery with handles, which appeared at the beginning of our era. Its origin is hard to trace. The abundance of pottery, the presence of large stone-covered combustion patches and the results of mineralogical analysis show that potters were active along this part of the coast; we might be seeing here the place of production of most of the Plum ceramics in New Caledonia. If this is the case, our view of the prehistory of this period is biased and it is important to survey and excavate sites of the same period which have lesser amounts of ceramic material. This will allow us to gain the necessary understanding of the extent and nature of occupation during the Naïa 1 period, which is at present very poorly known outside this region.

In the later part of the sequence shortly before the arrival of the first Europeans, the region was well settled by small communities. Interestingly, this is the less visible part of the archaeological sequence, partly because of the simpler nature of the ceramic material—the Nera or nubbin pottery—and its early disappearance (before European contact). This again should warn us not to put too strong an emphasis on pottery when surveying and analysing the remains of ancient occupation in this pottery-rich country. At the same time, as research in New Caledonia intensifies, it will be necessary to pay renewed attention to the identification of pottery production centres and trace the spread of their respective products.

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