ARCHAEOLOGICAL RESEARCH ON ERROMANGO: RECENT DATA ON SOUTHERN MELANESIAN PREHISTORY

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INTRODUCTION: THE TAFEA CULTURE HISTORY PROJECT

The archaeological research carried out in 1983 on Erromango in Tafea District, Vanuatu, was a development from the senior author's PhD research on Aneityum Island (Spriggs 1981). It is part of a longer-term project on Tafea culture history which is planned to include Tanna, Futuna and Aniwa, the other islands of the District.

During archaeological work on Aneityum in 1978-1980 two problems were encountered: one theoretical, the other practical.

1. For understanding processes of local cultural change, the single island did not appear to represent analytically the most suitable unit of analysis. At European contact, Aneityum was part of a wider regional system involving the other Tafea islands, with considerably more contact between them than any one island had with places outside the area. This contact involved intermarriage, reciprocal feasting and exchanges involving pigs, kava, mineral paints, hawk's feathers, weapons and shell valuables. The languages of Aneityum, Tanna and Erromango form a distinct Southern Vanuatu subgroup of Oceanic Austronesian (Lynch 1978), while Futuna and Aniwa possess Samoic-Outlier Polynesian languages (Clark 1978), presumably replacing languages similar to those of the other islands in the comparatively recent past. Other cultural similarities among the Tafea Islands were noted by early visitors and missionaries, and it is likely that the contemporary societies of Tafea represent different transformations of a single founding culture associated with the Lapita expansion about 3000 years ago.

   In 1981 the social structures of Aneityum and Tanna at Contact were compared, and this treatment was expanded in a more recent paper (Spriggs 1986) in which the various Tafea Island environments were also compared and contrasted in terms of agricultural potential. That paper can serve as a prologue and justification for the present study. It was felt necessary to expand the study from one single island through controlled comparison to the

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regional system level and examine the European contact endpoints as possible transformations of a single founding culture.

2. The second problem on Aneityum was a practical one and concerned the archaeological visibility of early settlement sites. Given the scale of humanly-accelerated landscape change in the form of hillslope erosion and deposition of extensive alluvial plains on the island, early sites would tend to be deeply buried under recent sediments. Despite intensive survey on Aneityum no cultural deposits older than 1000 years were located and even sites of that age were deeply buried and revealed only in stream cuts. From a marsh behind Anelcauhat, the main village on the island, a pollen and sedimentary sequence for the last 6000 years was recorded (Hope and Spriggs 1982). The earliest evidence of human settlement occurred in the sequence at about 3000 BP, consisting of sediments suggesting slope instability, burning in the catchment, and sudden replacement of forest vegetation by ferns and grasses. The dating would fit with colonization during the Lapita expansion (Spriggs, in press-a).

   Based on the Aneityum case it was suggested that there were significant differences in site visibility between high volcanic islands subject to erosion and low coralline islands where early sites would not have been subsequently deeply buried (Spriggs 1984, 1985). The hypothesis was put forward that the then-known distribution of Lapita and other early sites on small, usually coralline islands did not represent a strong cultural preference but could in part at least be an artefact of post-depositional changes reducing site visibility on larger volcanic islands. Lapita site distribution is an issue of wider significance as writers such as Bellwood (1978:262, 264) and Green (1979:47-48) had argued for a pre-Lapita occupation of Remote Oceania (specifically Vanuatu and New Caledonia), partly on the basis of the supposedly aceramic nature of the Southern Vanuatu archaeological record (reviewed by Spriggs 1984). Having predicted an initial Lapita colonization of Tafea, the problem was one of locating early sites to substantiate the idea.

The 'Tafea Culture History Project' was the response to these problems and was formulated in order to:

a) investigate the nature of early occupation of Tafea and establish cultural sequences for each island;

b) look at variation in sociopolitical organization at European contact as an ethnohistoric baseline in relation to environmental and other factors, in order to examine processes of differentiation of an original founding culture; and

c) examine the question of Polynesian influence on these cultures. Linguistic replacement had occurred only on the two smallest Tafea islands but custom stories all over the District mention Polynesian culture heroes such as Mauitikitiki and Tangaroa and it has been suggested by some writers (for example, Lindstrom 1981:134, 140-141) that hereditary rank in Southern Melanesia represents a Polynesian political model adopted by these previously egalitarian Melanesian cultures.

For the island of Tanna there are several recent ethnographic and ethnohistoric studies available (see references in Spriggs 1986) which allow us to establish the ethnohistoric baseline. Archaeological research on Tanna in 1983 was not possible because of political tensions, and Futuna and Aniwa were considered too isolated for short term research given irregular shipping schedules. It was decided therefore to concentrate the initial stage of research on Erromango for the above practical reasons and also for two more academic considerations.

First, no detailed ethnohistoric research had been conducted for Erromango although there were numerous early written accounts which could be consulted. In 1982-83, therefore, the senior author undertook library and archival research in Hawaii, England, Australia and New Zealand to establish the 19th century ethnohistoric baseline for comparison with previously studied Tanna and Aneityum.

Secondly, on Erromango's east coast is an extensive area of recent raised reef about 2-7 m above sea level called the *Imponkor Limestone* (Colley and Ash 1971:48-49). As this formation is backed by older reef terraces rather than volcanics there appeared to have been little sedimentation on top of these deposits. Conditions were therefore directly comparable to those expected to obtain on low coralline islands and site visibility of early coastal settlement locations was expected to be high. It was predicted that early ceramic sites would be located on the Imponkor Limestone.

ENVIRONMENTAL BACKGROUND

The southern islands of Vanuatu form the administrative district of Tafea, an acronym referring to the five inhabited islands of the area - Tanna, Aneityum, Futuna, Erromango and Aniwa (Figure 1). The Islands of Tafea stretch from 180 37'S to 200 16'S. Erromango is the largest island in the district, being some 902km^2 in area (Figure 2). This far south of the equator there is some seasonality of climate, with a wetter, hotter period from January to March and a drier, colder period from July to October. Three climatic zones can be recognised on these islands: windward, perhumid and leeward (Quantin 1979:2-3).

Below 500 m on the windward slopes of Erromango exposed to the south and east, mean annual rainfall is around 2822 mm (recorded at Potnarevin). The perhumid zone above about 500 m is more constantly wet, with rainfall in this zone probably above 4000 mm annually. The western slopes and particularly the northwest of the island have a leeward climate with a mean annual rainfall of about 1740 mm (recorded at Noumpon) and a more marked seasonality. Erromango is in a belt of frequent tropical storms and hurricanes, generally between December and March.

Many of the watercourses on Erromango are perennial. There is a predominantly radial pattern of drainage, but when rivers reach the limestone fringe they are often diverted and as a result they become bottle-necked with only one coastal outlet serving large networks of tributaries.

The island has a Plio-Pleistocene volcanic core with peaks up to 886m. Much of this is fringed by a series of limestone terraces up to 350 m in altitude, representing a third of Erromango's area. The most recent raised reef complex is the already mentioned Imponkor

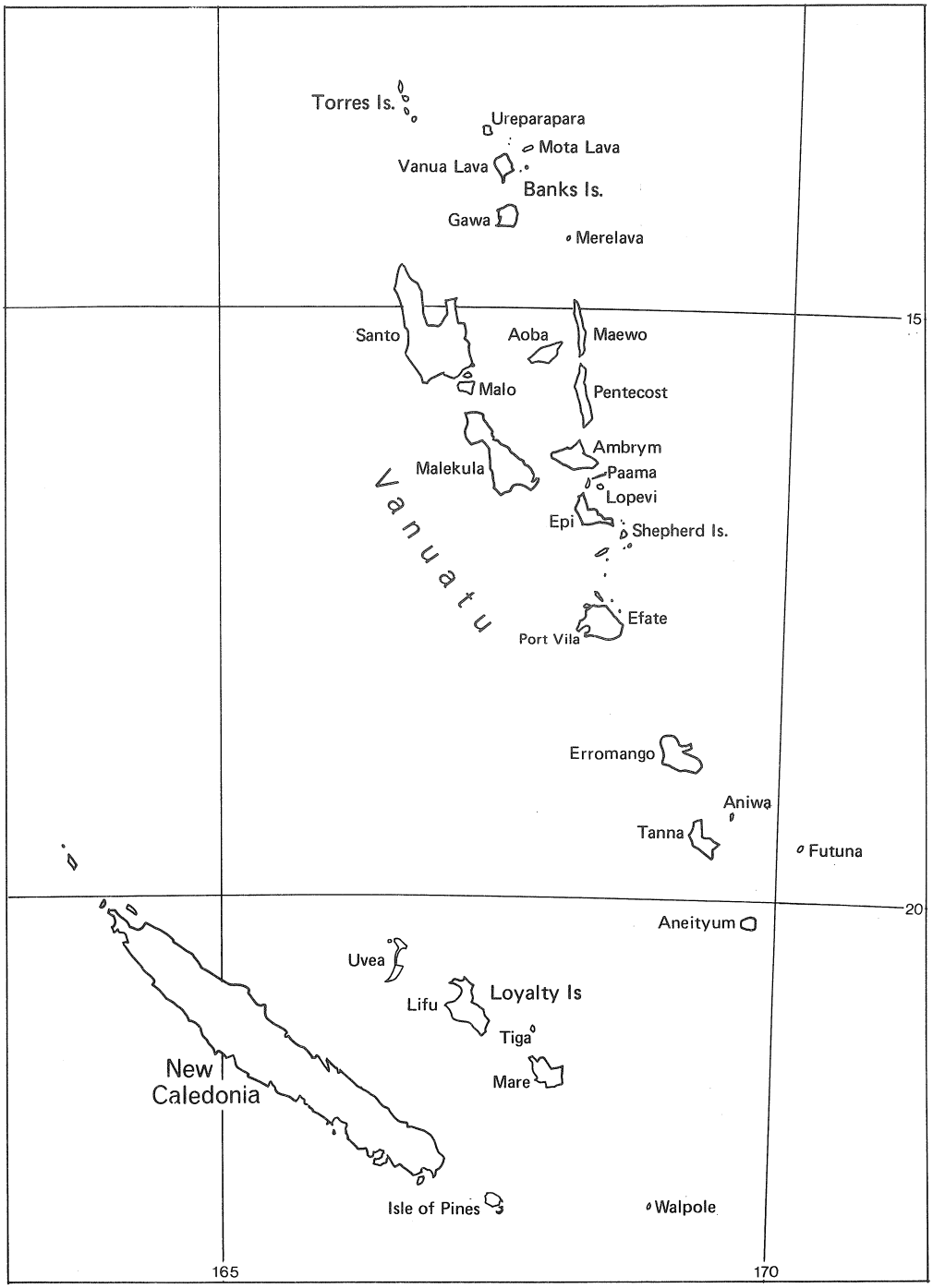

FIGURE 1: VANUATU AND NEW CALEDONIA

Limestone on the east coast, with a maximum width of 1 km near Impongkor and narrowing northwards. The 1983 archaeological research suggests a major episode of uplift within the last 2300 years, with the entire formation likely to be Holocene in age. Areas of recent alluvium occur at the mouths of some of the major rivers, particularly in the Cook Bay area.

Climate and geology together influence the soils and vegetation of Erromango, along with humanly-caused environmental impact primarily through vegetation burning. The majority of the soils are ferrallitic (78 per cent) with eutric lithosols covering a further 12 per cent in area, and alluvial soils only 3 per cent. Quantin (1979:53-4) has rated the soils of the Tafea district for agricultural potential from most fertile (type 1) to little or no potential (type 5). Although he was rating for modern potential rather than taking account of traditional agricultural methods, his work serves as a useful first step in examining traditional agricultural productivity. Taking first and second grade land, Erromango has 206 km^2 (22.8 per cent of land area), while the much more densely populated and smaller (572 km^2) island of Tanna has

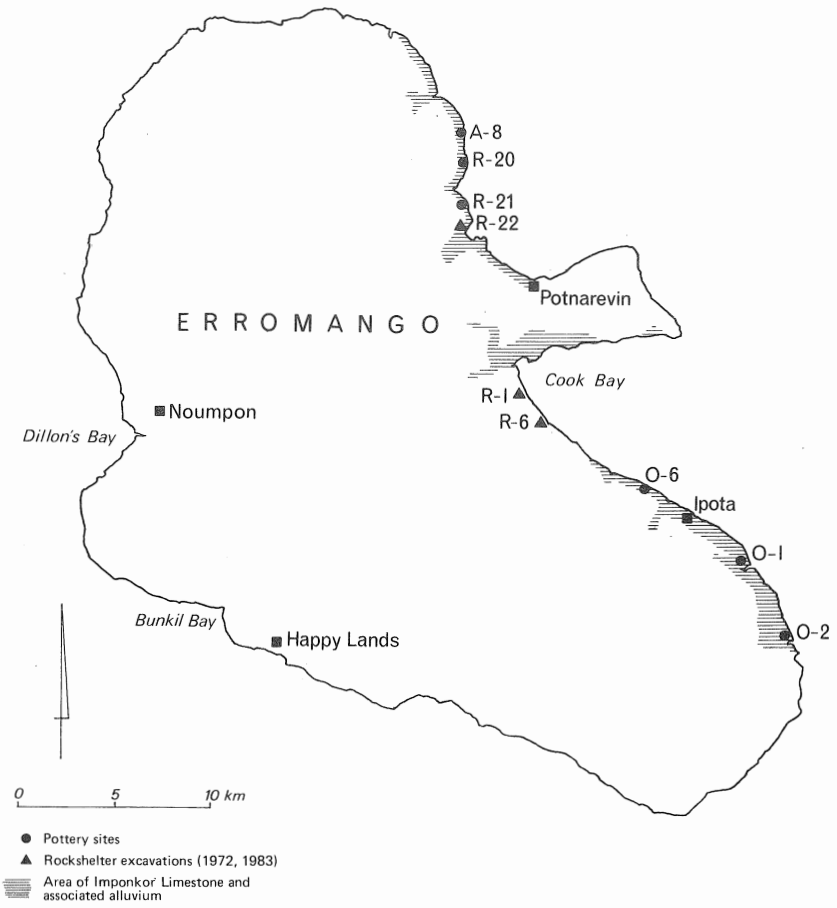

FIGURE 2: POTTERY SITES IN RELATION TO THE IMPONKOR LIMESTONE FORMATION

313 km2 (54.7 per cent of its land area). Both islands have about equal absolute areas of grade 5 land (152 and 146 km2 respectively). This helps to explain the much higher population of Tanna, both today and probably pre-contact, compared to Erromango, its larger neighbour.

Information on the vegetation is taken from Quantin (1979:9). The large amount of secondary vegetation on Erromango shows it to have once been much more densely populated than it is today, the vegetation being particularly degraded in the western (drier) parts of the island. A dense forest of kauri (*Agathis*) and *Calophyllum* covers a large area of soils developed on basalt in the centre and south of the island, giving place to cloud forest at higher altitudes. In the northeast and east a low secondary forest of *Antiaris* and thickets of *Hibiscus* come down nearly to the shore. In the west, on the gentler volcanic slopes, can be seen fern scrub and stands of *Acacia spirorbis*, interrupted here and there by corridors of valley forest. On the limestone plateaux open *Acacia* forest is found, with groves of recently introduced *Leucaena* near to the shore, and on the cliffs a forest of Lauraceae, Meliaceae and *Ficus* spp. In the northwest with its more seasonal climate and steeper slopes, fern scrub is found on very eroded soils on basalt. In the southwest on the foot slopes of the mountains occupied by Kauri forest are found savanna lands of *Miscanthus* grass, with the forest recolonizing in areas where burning no longer takes place. The old reef terraces are the main zone for shifting cultivation, and apart from garden clearings are covered with dense woody vegetation. Sandalwood, for which the island was famous in the nineteenth century, is found mainly in the west on basalt-derived soils.

ARCHAEOLOGICAL RESEARCH

Although individual archaeological sites were noted by earlier visitors, the first archaeologists to visit Erromango were Mary Elizabeth and Richard Shutler who made a brief visit in 1964 and noted six caves with cultural deposits (Shutler and Shutler 1966). Details and locations of these sites were not given in their report.

In 1972 Les Groube, then of the Australian National University, made a two week reconnaissance survey of the island. Although his work was never written up for publication, copies of his fieldnotes are held at the ANU (Groube 1972). In July and August 1983 Spriggs, at that time based at the University of Hawaii, carried out further survey and test excavations on the island. The excavated materials were subsequently analysed by Wickler, a graduate student at the same University. In 1988, as part of a FAO study of the proposed Erromango Kauri Reserve, Spriggs carried out further survey in the area of Happylands village near the west coast of the island (Spriggs 1988).

Most recently a cultural resources study of Erromango (Spriggs and Roe 1989) has synthesized the information on sites surveyed in 1972, 1983 and 1988, and included a proposal for further survey and research ahead of planned logging operations.

The archaeological surveys conducted to date have revealed a range of sites including limestone caves and shelters some of which were used as war refuge caves as late as 1900. In these there was remarkable organic preservation with wooden palisades still in place, and remains of collapsed houses inside. Also located were burial caves, caves with rock paintings and petroglyphs, and the most extensive petroglyph sites in Vanuatu extending for hundreds of

metres on beachrock along the shore (Spriggs and Mumford, in press). Old village sites are remembered, but often have no distinct surface features. Many sites of cultural importance to the inhabitants are natural features such as rock formations which have stories associated with them involving supernatural beings.

In contrast to Aneityum, no areas of agricultural terracing, canal-fed irrigation or ditched swampland agriculture were located. Traditional agriculture was apparently based on shifting cultivation concentrating, as on Tanna, on yams. The absence of large coastal plains usable for irrigation and the few suitable swampland areas would appear to account for this difference, although there are areas, particularly inland, where crop irrigation would have been feasible. Groube (1972), for instance, reported stone terraces along the track across the island from Potnarevin to Dillon's Bay but this area has not been visited subsequently to check their function.

The survey for early sites on the Imponkor Limestone turned up seven pottery sites or findspots in seven days of survey, all near past reef passages or at river mouths and concentrated on beach ridge formations (Figure 2). Two of these sites were excavated, Naen (0-1) and Ifo (0-2)[1]. A further site, Velilo (R-1), was also tested. This is a coastal cave in Cook Bay which revealed shallow aceramic deposits.

THE 1983 EXCAVATIONS

0-1 Naen (3217 79111)

The site is in an area of coral rubble beach ridges on the Imponkor Limestone north of the Impongkor River. It lies on the latest (most seaward) beach ridge with an area of swamp between it and the present bare raised coral coast. It is presently about 500 m inland from the coast, and 200 m from the river. When occupied it would have been directly on the coast fronting an inlet between two raised coral outcrops joined to the coast by two coral rubble ridges (a tombolo effect). The inlet would have provided a good canoe landing passage. From the main Ipota to Ifo (site 0-2) foot path there are eight beach ridges to seaward ending with the last one where the site is located. Moving seaward from the path the first four ridges are sharp-contoured and narrow, two to three metres across and two to three metres high. Ridges 5 to 8 are much wider 'double ridges' about 10 m or more across. Two surface concentrations of pottery were found 30 m apart on ridge 8 (30 sherds total). Two 1 m^2 test pits were dug in the northern pottery concentration where crab holes revealed what seemed to be intact shell midden and pottery. The test pits were dug in arbitrary 20 cm levels and screened through an 8 mm sieve.

Test Pit 1: Excavation took place on the crest of a low mound on the beach ridge, less than 150 cm in height.

Stratigraphy: 0-65 cm - coral rubble of beach ridge. 65-115 cm - loamy sand with occasional very large (30 x 30 cm) coral blocks near the top. Near the base of this second layer were some complete shells, presumably *in situ*, on top of a thin ash lens occupation deposit at 115-120 cm sealing a pumice and beach sand lens. 120-140 cm - coral rubble beach deposit, grading between 140 and 170 cm to a clean white sand. The entire deposit showed signs of crab hole disturbance. Forty six sherds were recovered, 13 (28.3 per cent) from the

100-120 cm level, with only one sherd coming from the level below this. From 60-80 cm came a small *Tridacna* shell valve with a hole pierced through it and wear along the edge of the lip, possibly a food scraper.

Test Pit 2: This was situated 26 m to the west of Test Pit 1. On the surface were found a possible adze roughout of *Tridacna* shell, a human tooth, potsherds, and *Tridacna* pieces which were possibly debitage from artefact manufacture.

Stratigraphy: 0-55 cm - coral rubble of beach ridge. 55-150 cm - an ash and charcoal-rich sediment with shell midden. Near 150 cm it grades to clean white sand. Although there was crab hole penetration of the deposit it seemed to represent *in situ* midden dumping. In the 0-20 cm level was a butt fragment of a *Tridacna* shell adze. Twenty two potsherds were recovered, the greatest concentration being at the base of the cultural level at 120-140 cm where six sherds (27.3 per cent) were found.

A sample of *Turbo* sp. shells from 80-100 cm gave a C13-adjusted radiocarbon age of 1400±80 BP (Beta-12508), which calibrates to 1005 (931) 880 BP or about AD1000. Given the extremely similar pottery assemblage from site 0-2 and the more obviously intact nature of its deposit, this date is rejected as reflecting the true age of the cultural materials. It may be related to the creation of the coral rubble deposit above, presumably by storm wave action prior to tectonic uplift of the area. Sherd decoration consisted mainly of fingernail and/or stick impression, with some sherds exhibiting both incised and impressed decoration (Plate 1e, h). There is a custom story about this site and how it was 'turned upside down'.

0-2 Ifo (3240 79074)

An open site with pottery in the present-day village of Ifo. It is in a similar situation to 0-1, a few hundred metres from the shore on the north bank of a river which provides canoe access, in an area of beach ridges, some running at right angles to each other in the vicinity of the river mouth (Figure 3). It does appear however that these ridges are not all formed by wave action, and some may in fact be largely cultural features, a result of midden dumping. Sherds were found where the ridges had eroded or been cut back to accommodate houses and other structures. Pottery was found over an area about 75 by 100m. Sixty nine sherds were found on the surface, as well as a *Tridacna* adze.

Five square metres were excavated in one of the ridges (Squares 1, 2, 4, 5, 6). All material was screened through 8 mm mesh. Excavations went down to sterile basal limestone subsoil at a depth ranging from 140 cm in square 6 to 20 cm in square 1 (Figure 4).

A sequence of five natural stratigraphic layers was distinguished in the excavation profile. Layer I was a black loam representing in situ 'A' horizon development. Layer II apparently represented an old land surface exposed for some period of time and contained small amounts of shell as well as sherds. Layer III was primarily made up of large volcanic water-worn boulders and blocks of coral with little soil matrix. This layer only extended through squares 6, 5, and the northern half of square 4. Layer IV represents the cultural deposit and consists of a sticky black loam with no internal stratification. This layer was excavated largely in artificial 10 cm levels, and the stickiness of the matrix made screening difficult. Layer V was

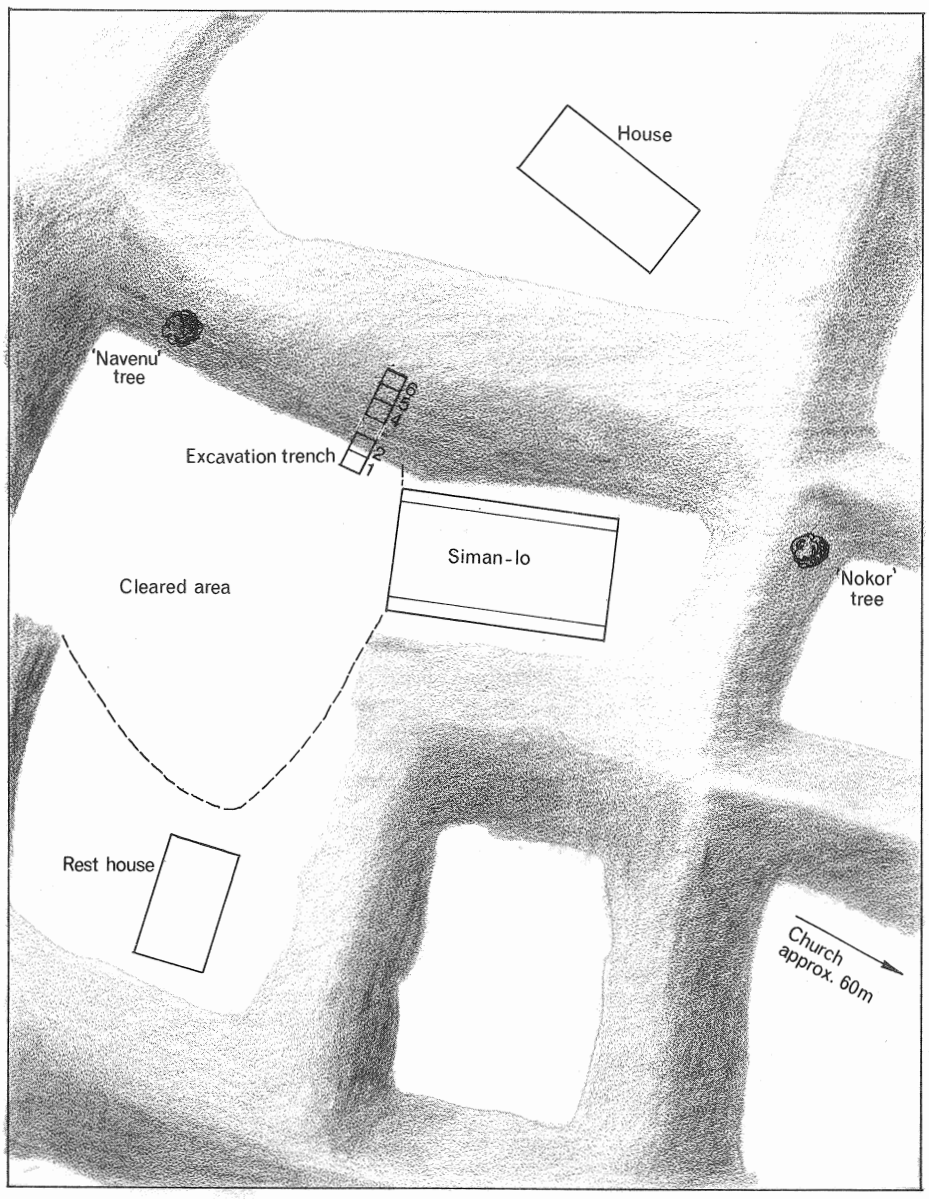

FIGURE 3: IFO VILLAGE (ER-0-2), EXCAVATION SITE (TAPE AND COMPASS PLAN)

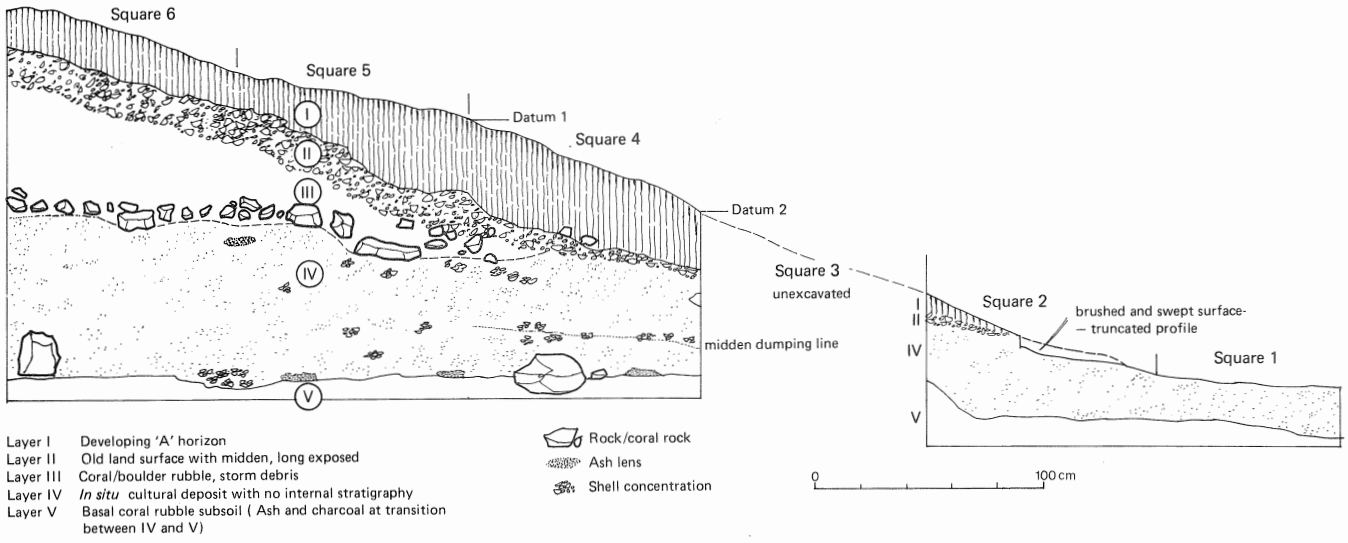

FIGURE 4: ER-0-2, IFO SITE, STRATIGRAPHIC SECTION OF EAST FACE

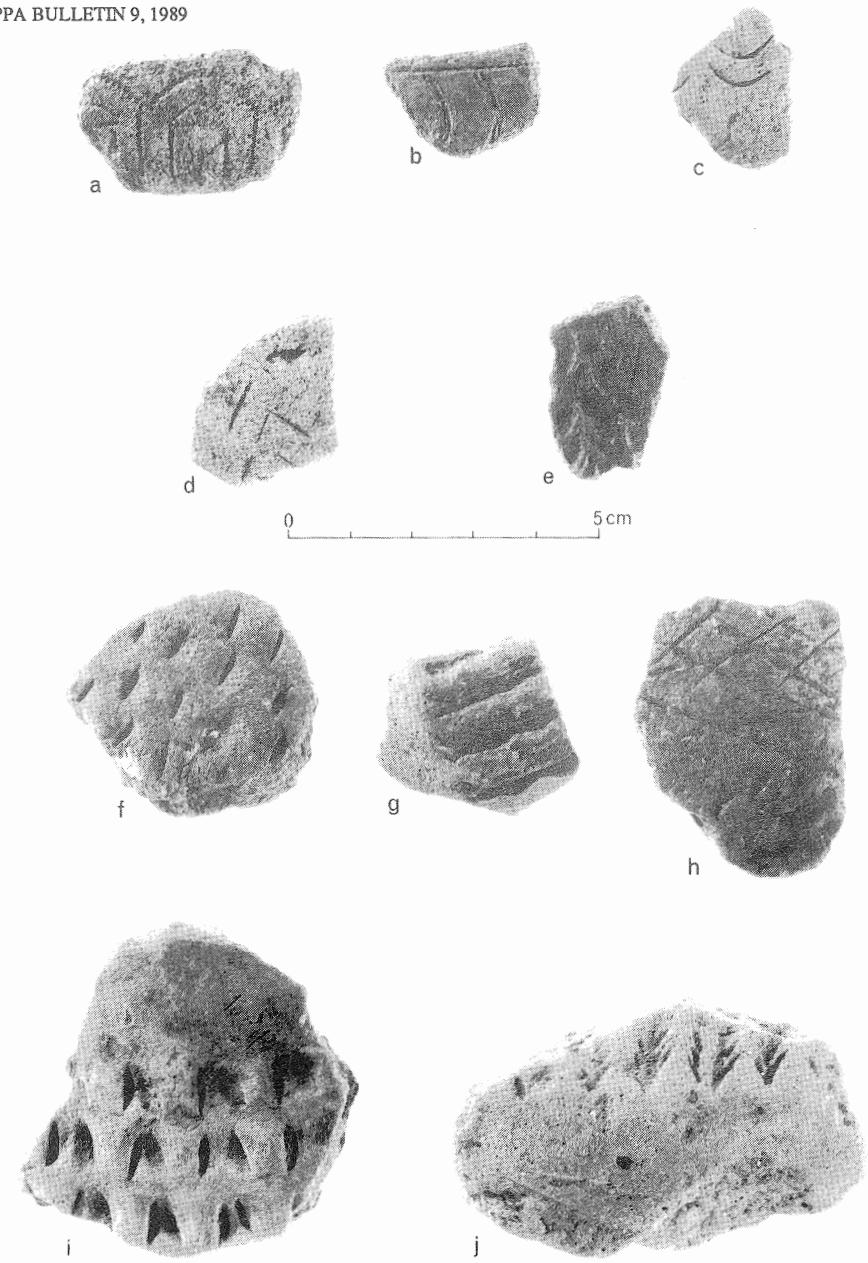

PLATE 1: ERROMANGO DECORATED POTTERY

(A) Dentate-stamped sherd, Ifo (0-2-148), square 6, 0-30 cm; (b) Lapita incised rim, Ifo (0-2-32), square 4, 70-80 cm; (C) Fingernail-impressed sherd, Ifo (0-2-31), square 4, 70-80 cm; (D) Incised sherd, Ifo (0-2-147), square 6, 0-30 cm; (E) Incised and impressed sherd, Naen (0-1-10), test pit 1, 0-30 cm; (F) Fingernail-impressed sherd, Ifo (0-2-100), square 5, 65-90 cm; (G) Applied-relief and fingernail-impressed shoulder sherd, Ifo (0-2-192), square 6, 70-80 cm; (H) Incised and impressed sherd, Naen (0-1-101), surface collection; (I) Impressed sherd, Ifo (0-2-193), square 6, 70-80 cm; (J) Impressed angled sherd, Ifo (0-2-1), square 2, 30-50 cm

basal coral rubble in an orangey clay matrix representing sterile subsoil. Excavation halted in all units upon reaching this layer.

A range of evidence supports the interpretation of Layer IV as an intact cultural deposit. For example, shellfish remains were found throughout Layers I-IV but only Layer IV appeared to contain in situ deposits of shell midden.

Further evidence is provided by a number of ash lenses associated with fire-cracked rock and possible oven stones which were scattered through Layer IV along with concentrations of shell and charcoal, with densest concentrations at the interface with Layer V. No indications of occupation such as structural features or hearths were discovered. Ceramics were dispersed through Layers I-IV, but Layer IV appeared to contain many more unworn sherds than the upper three layers. On the basis of these various lines of evidence, there is little doubt that Layer IV represents an undisturbed deposit.

The presence of concentrated shellfish remains and the lack of occupational evidence suggest that the cultural deposit represents midden dumping activity associated with a nearby occupation site. The presence of ash, charcoal, and cooking stones mixed with the shellfish remains (some burnt) indicates that the remains of hearths were being deposited at the site. Pottery sherds and other artefacts probably entered the deposit along with the hearth remains as a result of general cleaning activities. The original areal extent of the cultural deposit at Ifo is unknown and it appears that a sizeable portion has been eroded away, probably through storm wave action. Human use of the site was relatively brief as indicated by radiocarbon dates of closely similar age taken from the base and upper portion of Layer IV.

Following the fairly brief and continuous accumulation of midden from dumping activities which formed Layer IV, the site was covered by probably storm-deposited volcanic and coral rubble forming Layer III. The presence of worn shells and potsherds in this layer suggests disturbance of the upper portion of Layer IV and/or transport of cultural material from nearby deposits. A thin soil (Layer II) developed on top of the storm deposits and remained exposed for some time.

The final event in the depositional sequence of the Ifo site was the development of a dark 'A' horizon (Layer I) which forms the modern ground surface. Only a few sherds were recovered from this layer, all of which were worn and fragmentary. The modern ground surface has not been subject to agricultural disturbance and has only recently been cleared of forest to provide pasture for cattle. It is likely that this layer is the result of humus accumulation when the area was still forested. The recent construction of houses and associated activities within Ifo village have had an impact on the site, as seen in the truncation of the beach ridge edge because of cleaning activities, which has affected the cultural deposit in squares 1 and 2 (see Figure 4).

Two radiocarbon dates were obtained from shell (*Turbo* sp.) located at the base and upper portion of Layer IV. These are 2310±70 BP (Beta-7674) for the basal sample taken from square 6 and 2220±70 BP (Beta-7673) for the upper sample taken from the same square. The closeness of these dates indicates a relatively brief occupation period, with Layer IV accumulating rapidly. Combined and calibrated[2], these samples produced an age of 2381 (2338) 2313 BP or about 400 BC.

Two hundred and seventeen sherds were recovered from the excavations as well as 13 non-ceramic artefacts, including three *Tridacna* adzes, *Conus* shell ring fragments and a grooved sea urchin spine pendant. *Tridacna* adzes and *Conus* rings are distributed widely in the Western Pacific in time and space, but similar grooved sea urchin spines have been found only in Lapita-associated or derived contexts in Tikopia, Fiji and Samoa (Spriggs 1984:217, footnote 90). The pottery included dentate-stamped and incised Lapita sherds, fingernail- and/or stick-impressed sherds, and incised sherds. The intact nature of much of the cultural deposit where these were found, supported by the dates, suggest this site to be culturally transitional between the Lapita and Mangaasi traditions. This is discussed further below.

There was very little faunal material in the Ifo site except shellfish. The identified fish were surgeonfish (Acanthuridae) and pufferfish (Diodontidae), which are inshore species, and grouper (Serranidae) representing benthic habitats. Small quantities of bone of turtle, rat (*Rattus exulans*), lizard, bird and fruit bat (*Pteropus* cf. *P. tonganus*) were recovered but no identifiable pig, dog or chicken, although there were five bones attributed to 'medium mammal'. The bird bone included that of an extinct rail of the genus *Tricholimnas* (Jerry Van Tets, personal communication). Seventy mollusc species were present; 50 of these were marine gastropod species and 12 were bivalves, representing shallow water, intertidal reef habitats with a minor component of brackish water species. *Trochus* and *Turbo* were dominant with no significant variation in species between excavated levels. However, average shell weights were greatest in the lowest 20 cm of the site for all species, with several producing average shell weights near the upper weight range recorded for the species as a whole. Charcoal from *Canarium indicum* was recovered *in situ* and identified by Douglas Yen.

R-1 Velilo (3099 79203)

The third excavated site was a cave about 2 km south of the river mouth at Cook Bay, at the base of the cliff and about 100 m inland. It is associated with the 7 m coastal cliff notch and is immediately south of a gap in the limestone where a creek comes down. Scattered midden and ash are found on the surface including firepit features. The cave mouth is 4 m wide but it widens inside to about 8 m maximum and is 10 m deep. In the northern wall is a low side chamber 2 by 1 m which is partly walled up, containing some marine shell and sea urchin spines.

A 1 m x 0.5 m test pit was excavated to 80 cm (Figure 5), with an auger probe to a stone at 125 cm. A complex set of ash lenses and ash-filled pits extended to a maximum of 40 cm, sitting on a sterile red-brown clay which occurred down to the maximum extent of the auger probe. Shell midden and charcoal occurred in the cultural deposit, but no pottery or other artefacts were found. Very occasional shell in the red-brown deposit may have filtered down cracks. The shallow cultural deposit (in parts only 8 cm thick) may reflect a short period of time in which this cave has been uplifted above the influence of storm surge. The clay deposit could reflect rapid infilling perhaps associated with an underground water channel which may have flowed through the cave.

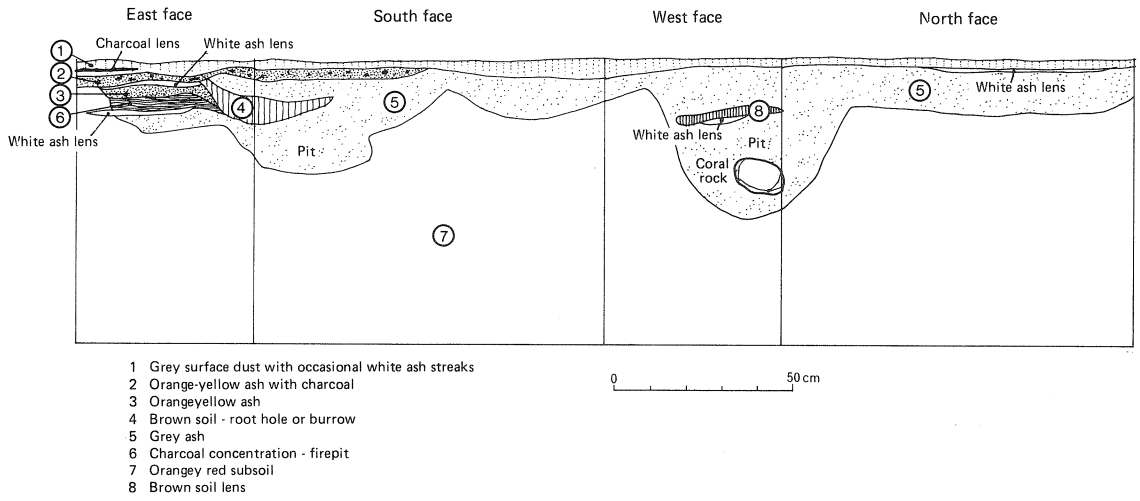

FIGURE 5: ER-R-1 VELILO TEST PIT SECTION

THE ERROMANGO POTTERY ASSEMBLAGE

Descriptions of pottery sites other than those excavated are given in Appendix 1. When the pottery for all sites surveyed and excavated was analysed, a clear dichotomy was seen between sites in the northern half of the island compared to those in the south, including differences in proportions of particular temper types, colour, and paste. Rivers in the two areas drain different volcanic formations although these are of roughly similar mineralogic composition. There is also a different occurrence of back reef facies associated with older reef limestones inland of the more recent Holocene limestones on which all the pottery sites were located. The southern rivers travel through back reefs consisting largely of detrital limestones interbedded with a high percentage of volcanic materials. The northern sites are in situations with no or negligible areas of older back reef facies (Colley and Ash 1971). In the south the dominant temper type in the pottery is calcareous sand while in the north it is ferromagnesian minerals.

Sherds are generally small and apart from paddle and anvil finishing there is little evidence for construction techniques. Vessels forms were pots or jars of spherical shape with restricted orifices. Decoration occurs on 14 per cent of sherds, concentrated on the neck and lip areas. There is a predominance of everted rims and rounded lip forms.

Three types of decoration occur (Plate 1):

1. Dentate-Stamping. One classic Lapita sherd with a smooth paste was found at Ifo in secondary context (Plate 1a);
2. Incising. One almost certain Lapita curvilinear incised sherd (Plate 1b) with smooth paste was found *in situ* at Ifo (no other smooth paste sherds are decorated except a possible impressed rim). Three sherds have typical Mangaasi (Garanger 1972) incised designs (Plate 1d). Only one definite applied relief decoration was found (Plate 1g), in contrast to the Mangaasi sites on Efate to the north where this technique is common;
3. Impressing. The technique used is mostly fingernail impression (Plate 1c, f, g and i) which is rare in Efate Mangaasi sites. One possible cord-wrapped paddle impressed sherd was found, although the surface is badly eroded, making positive identification difficult.

Most of this pottery is probably a regional variant of the Mangaasi tradition with some Lapita sherds present. It seems likely that all the smooth paste sherds belong to the Lapita tradition; these tend to be friable, and many are burnished and have a red slip-like surface. Twenty two percent of smooth paste sherds have calcareous temper and 49 per cent have ferromagnesian temper.

Although most of the pottery was probably made on Erromango, mention must be made of one petrologically distinct sherd of exotic origin. This has been tentatively sourced to New Caledonia, as have some sherds from the Malo Island Lapita sites and from a site on Santo Island investigated by Shutler (Dickinson and Shutler 1979), as well as all examined sherds from the Loyalty Islands (Huntley *et al.* 1983).

The presence of Lapita and Mangaasi pottery together in a site is usually considered to represent mixing of deposits. The Ifo site suggested an alternative hypothesis to Spriggs

(1984), that it could represent a 'transitional' type of site at a time when both kinds of pottery were being manufactured.

In that paper other candidates for such transitional sites were suggested, stretching from the Admiralty Islands to New Caledonia and all dating to around 2500-2000 BP. This hypothesis was used to suggest a model of gradual culture change on a regional scale from Lapita to Mangaasi-related cultures. The alternative models discussed by Spriggs (1984) either saw Mangaasi as representing an intrusive population which replaced/absorbed the previous Lapita inhabitants in island Melanesia, or as representing the culture of the original pre-Lapita inhabitants reasserting itself after a brief Lapita migration stopover in the area. On present archaeological evidence, while local population replacement may have occurred further north in the Solomons (Spriggs, in press-b), in Vanuatu gradual change within the context of continuing widescale regional interaction seems the most parsimonious explanation.

Pottery making appears to have died out on Erromango and elsewhere in Tafea District by 2000 years ago, as it did in many other parts of the Pacific. Given the current stage of research on Erromango, we have no firm details of the later culture history of the island until the 19th century, the early European contact period. Velilo (R-1) was the only site tested in 1983 which would fit into the intervening period, but the small excavation only established the absence of pottery during this time. Coastal rockshelter sites tested by Groube in 1972 gave similarly negative results (Spriggs and Roe 1989:51-52, 56, 62-63).

THE ETHNOHISTORIC BASELINE

The library research in 1982-1983 allowed some delineation of social organization on the island at European contact, and oral traditions collected in 1983 were invaluable for establishing boundaries of traditional political districts and linguistic units as well as locating historic settlements referred to in written sources. Results are summarized here and a fuller treatment, fully referenced, will be given elsewhere.

At European contact Erromango appears to have been divided into six political districts (Figure 6), called *lo* ('canoe'), each controlled by a high chief (*fan-lo*) of patrilineal descent with several 'village chiefs' under him. High chiefs were the leaders in inter-district warfare and feasts (*nisekar*). The marriage form was one of district exogamy, and in contrast to the other islands of Tafea there was payment of brideprice, in shark teeth, star-clubs, *nunpuri* shells, pig tooth necklaces, spears, bows and arrows, and *navela*. These latter are images of the new and full moon made from fossilized giant *Tridacna* shell in the form of rings or crescents. They are said to have been brought with the people of Erromango when they emerged from holes in the ground or migrated to the island from elsewhere. The largest rings were big enough for a person to crawl through and often had individual names. *Navela* were exchanged between chiefs on important occasions and constituted their material wealth, functioning as prestige goods. Commoners might only own the smallest size of *navela*, often a more recognizable *Tridacna* armring.

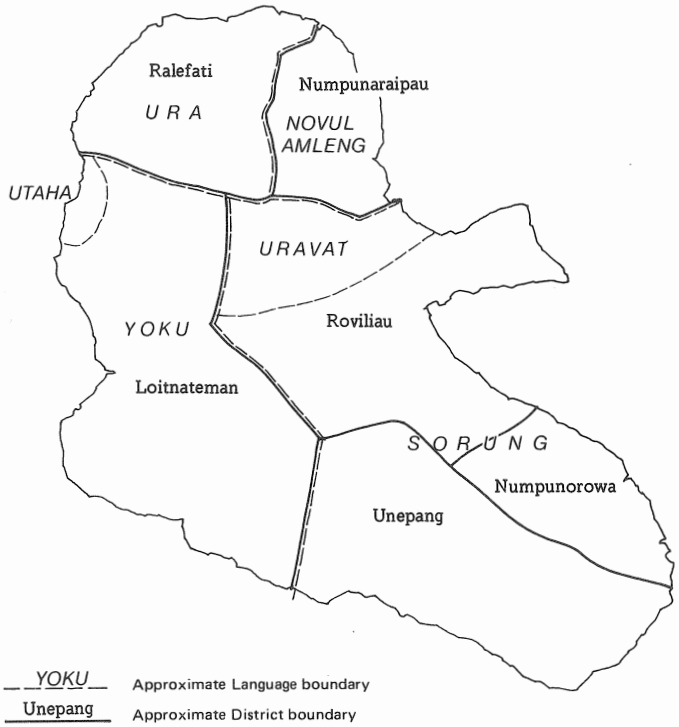

FIGURE 6: ERROMANGAN DISTRICTS AND LANGUAGES, MID-NINETEENTH CENTURY (AMENDED FROM LYNCH 1983: MAP 2)

Early European visitors were impressed by *siman-lo*, the chiefs' entertainment houses, which were up to 100 feet (30 m) in length, 25 feet (7.5 m) wide and up to 27 feet (8 m) high. These were sometimes surrounded by ornamental reed fences up to 40 feet (12 m) high. The chiefs officiated at first fruits ceremonies and controlled the marriage arrangements between districts. While commoner men only had one wife, those of chiefly rank usually had up to three, with one chief recorded as having eleven wives.

Erromango controlled some rare resources used by the other Tafea islands and maintained exchange relations directly with Aniwa and parts of Tanna. The Erromangan products were black manganese and 'red ochre' paints, as well as clubs, bows and arrows, and women. In return the Erromangans received pigs, kava, *nunpuri* shells, and special sorcery stones.

If we compare this pattern of social organisation briefly with Aneityum and Tanna there are some instructive contrasts (a more detailed discussion of these latter two islands is given in Spriggs 1986). Aneityum consisted of seven chiefdoms or dominions, also called 'canoes' (*nelcau* in Aneityumese), each ruled by a high chief and further divided into a number of districts under lower chiefs. Chiefs had a central role in giving and receiving competitive feasts (*nakaro* in Aneityumese, compare *nisekar* in Erromango), involving the appropriation of surplus food in their dominions and its redistribution across dominion boundaries. The productive basis for this 'fighting with food' was intensive irrigated taro production. On

Tanna, hereditary chiefly titles did exist but chiefly power was strongly limited. Given the topography and water resources of the island, development of irrigation was not possible and there were limited possibilities for agricultural intensification. As on Erromango yams were a staple grown under shifting cultivation. Tanna was divided into about 115 districts, again called 'canoes' (*niko*), consisting of a collection of hamlets sharing a common territorial name. This was a much more 'atomistic' organisation than occurred on Aneityum or Erromango.

Erromango presents a picture of a chiefly system in some ways resembling Aneityum, but with a subsistence regime closer to Tanna. It can perhaps best be described as a variant of a prestige-goods system in Friedman's (1981, 1982) terminology, chiefly power being based not so much on control of agricultural surplus (although this was clearly important) but on possession and exchange of prestige valuables, in particular the *navela* necessary for social transactions such as marriage, various religious ceremonies and inter-district exchange. The limited supply (no new *navela* could be made) and chiefly control of *navela* exchange gave a firm basis for the monopolization of power on Erromango.

Friedman has suggested, based on linguistic reconstructions, that a prestige-good economy was the basic building block of ancestral Oceanic society (loosely identified with the Lapita culture). Chiefly power was based on monopolization of wealth items necessary for social transactions (marriage, etc.) which were obtained by long-distance exchange, a monopoly which could only be maintained under conditions of trade scarcity. New Caledonian chiefly systems may well be of this kind, and an exchange cycle between the main island of New Caledonia, the Isle of Pines, and the Loyalty Islands where shell valuables were exchanged against greenstone objects appears to have been important in stabilizing the system. This exchange system appears to have previously included Tafea. Tanna and Aneityum are visible from the Loyalty Islands and greenstone pendants clearly of New Caledonian origin were valuable personal wealth in Tafea at European contact. The supply appears to have already dried up by that date, however, representing a contraction of the exchange system.

Trade density in general within Aneityum and between Aneityum and the neighbouring islands appears to have been quite low at European contact. If we follow Friedman's scenario, collapse of trade and loss of access to imported valuables would have meant no clear monopoly basis for power. Competition would have led to a stress on feasting, with attendant intensification of production, intensified warfare and a stress on the religious sanctity of chiefs. This system Friedman calls 'theocratic feudalism' and it does bear a striking resemblance to the situation on Aneityum at contact.

Tanna is certainly more centrally placed with respect to external exchange than Aneityum and may have experienced an increase in trade density, probably pre-contact but certainly accelerated with the coming of the Europeans when Tanna became the major provisioning centre in the area for European vessels. Increasing trade density would have led to a breakdown of the monopoly hierarchy into competition between smaller groups as access to external goods became easier for all. A variant of the 'big man system' thus came to operate either shortly before or shortly after European contact.

Chiefly titles, therefore, may have been declining in importance on Tanna, whereas on Aneityum the basis for chieftainship had shifted but chiefly status was maintained. In this

model, both systems were transformations of an earlier ancestral prestige-good system rather than being an evolutionary continuum with Tanna as a 'less developed' version of Aneityum.

Erromango perhaps most closely retains the original prestige-good system, turned in on itself with the continuing exchange of *navela* strictly limited in number and circulating only within the island.

At European contact there appear to have been six speech-forms on Erromango, although whether they all had the status of separate languages is unclear. Lynch (1983) has recently summarized the written information on these languages but more information is available on their number and location from older informants on the island. One now extinct form, Uravat, has nowhere been recorded before. From the published information and oral history it appears that Enyau/Yoku and Sie/Sorung in the west and south were closely related (they have now in fact merged to produce a Sorung-influenced Yoku); Ura, Uravat and Novul-Amleng were closely related speech forms in the north and northeast; and Utaha was somewhat intermediate between these two groupings, being spoken by a small group in the northwest part of the island. Today Ura is nearly extinct, Sorung-influenced Yoku (now called Sie) is the common language, and the other languages or dialects are now extinct. As noted in the literature, language boundaries and political district boundaries at contact did not necessarily coincide. Yoku and Utaha were spoken within Loitnateman district, Sorung was spoken in Unepang, Numpunorowa and the southern part of Roviliau district, Uravat was spoken in the northern part of Roviliau, Ura was limited to Ralefati district, and Novul-Amleng to Numpunaraipau (see Figure 6).

The population of the island at contact is unknown, as are the demographic effects of the sandalwood trade and epidemics in 1842 and 1861, although estimates of up to one-third of the population dying in each epidemic have been put forward. In 1857 the Reverend G. Gordon estimated 'no more than 7000' as the current population. Whatever the original figures, by 1877 the population was down to about 2650 and at its nadir in 1932 it was 381. By 1967 the population had risen to 595 (data from McArthur and Yaxley 1968:4, and missionary sources), and at the latest census in 1979 it was 945.

The first contact with Europeans took place in August 1774 when Cook landed briefly at Potnuma or Polenia Bay on the east coast to a hostile reception. The next recorded contact was with Peter Dillon in 1825 when sandalwood was discovered, and an active trade in sandalwood continued for much of the nineteenth century amid armed conflicts with the Europeans and the introduction of exotic diseases. Information on the early Contact period has been culled from a variety of sources but useful summaries are provided in Robertson (1902), Miller (1981), and Shineberg (1967). Ethnographic details were compiled by Humphreys (1926).

CONCLUSIONS

Erromango is the first Tafea island to produce evidence of early pottery-using settlements, although there should be still earlier sites to be found there. The finding of Lapita and Mangaasi pottery now places Tafea firmly in the mainstream of Melanesian prehistory instead of it being an aceramic oddity.[3] It has also contributed to the debate on the nature of the

Lapita to Mangaasi transition. The 1983 research supported the hypothesis concerning the distorted patterning of early (particularly Lapita-related) sites in the Pacific due to post-depositional landscape change. Finally, in sketching the outline of the European contact endpoint of Erromangan social organization and comparing it to Tanna and Aneityum, we start to get a better idea of the different but related trajectories of political transformation on the various Tafea islands. Further comparative research on the prehistoric sequences of these islands will allow us to develop a regional prehistory sensitive to the interplay of ecological and social forces hinted at in the evidence from the early and late phases of settlement.

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NOTES

[1] Given the large size of Erromango it was decided in 1983 to number sites according to the traditional district in which they occurred, following the prefix ER - for the island identification. The districts were identified by Robertson (1902:49) on his map of the island and are discussed in his text (ibid:10), but the exact boundaries were not reported. According to Humphreys (1926:128), depopulation had made location of the tribal (district) limits 'futile', but the experience of 1983 was that sufficient information existed to establish them at least tentatively. Further research on land ownership would help to clarify them and the boundaries as established in the surveys should not be taken as definitive. Sites are given a district indicator and then numbered consecutively within the district. The district indicators are: L - Loitnateman; U - Unepang; O - Numpunorowa; R - Roviliau; A - Numpunaraipau and E - Ralefati. Map references are approximate, taken from the 1:50 000 North and South Erromango topographic maps (Institut Géographique National 1976).

[2] The Naen and Ifo shell samples were calibrated using the Calib program of Stuiver and Reimer (1986) with Delta-R as 0 (cf. Spriggs, in press-a).

[3] There have been occasional earlier reports of pottery from Tafea District. Aubert de la Rue (1945:174) reported picking up pottery fragments on Aneityum but whether these were in fact prehistoric is not known. Potsherds attributed to Tanna donated by 'Dr [Frank?] Paton' in 1925 are housed in the Melbourne Museum, Catalogue number X32580 (L. Lindstrom, pers. comm.) but with no further provenance. Examination of a photograph of these sherds shows that there are several carved (parallel-ribbed) paddle-impressed sherds, some plain sherds and a Mangaasi-like incised sherd. Dickinson and Shutler (1979) include analysis of a single sherd from Tanna, collected by Shutler and of probable local origin. No details of the find are given there, or in the report of the Shutlers' original visit to Tanna in 1964 (Shutler and Shutler 1966). In a 1975 publication they mention only that 'very little pottery' has been found in Tafea (Shutler and Shutler 1975:69).

APPENDIX 1: DESCRIPTIONS OF SURFACE-COLLECTED POTTERY SITES

0-6 BUNNOVITAMPUP (3168 79148). An open site in dense vegetation, revealed by pig disturbance of the side of a beach ridge on the Imponkor Limestone north of the Melvi River, at the base of the hillslope. Eight plain sherds were collected.

R-20 SUMPRIM Area (3065 79311). A *tabu* area and findspot of a single red-slipped sherd. It was found about 2 minutes walk south of the river and approximately 150 m from the sea on a 1 m high beach ridge on the upper terrace which starts immediately south of the river at Sumprim. On the same ridge were two *Tridacna* shells and a piece of metal. On the next ridge or mound to the south another sherd was seen, but further investigation was not possible because it was a *tabu* area for leaves used in fishing magic. *Cordyline* had been planted in the area. Other mounds in the area inland of the footpath were also within the *tabu* area. To the south of this point the hill slopes down nearly to the sea, so only a restricted area suitable for settlement existed between Sumprim and Nova.

R-21 PONAIWA Area (3067 79296). A *tabu* area and pottery findspot in a very similar setting to R-20, 100 m from the coast and ten minutes walk along the footpath south from the Nova River. Many of the beach ridges on this terrace were part of a *tabu* area so could not be examined, and others had no artefacts on them. One sherd was found on a small hummock which the path crosses and another was found on a mound to the seaward side of the path, together with a possible *Tridacna* adze roughout and a flake from a polished stone adze. Other ridges further south were part of the *tabu* area, which extended to the place where the cliffs again come down to the shore.

A-1 ARAPAT (3052 79357). A pottery site in an area of beach ridges on a terrace at about 7 m above sea level, 75 m from the sea and 50 m from the base of the slope. Pottery sherds were found on two ridges either side of the footpath, but other ridges were not examined. No suitable areas for settlement exist nearer the Potasivsiv River, as this upper 7 m terrace ends and the cliffs come down to near the shore.

A-8 NELPON NORAVAU Area (3065 79319). A pottery site on beach ridges c.200 m inland of Noravau Point. The ridges themselves are about 2 m high and contained occasional *Tridacna* pieces. They are on a terrace above the coastal raised reef, but prior to uplift would

have been on the coast. The ridges continue south to the creek marking the southern boundary of Numpunaraipau. The site is five minutes walk south of Ponousei. Nothing was found on the beach ridges north of Ponousei stream.

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