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Patterns of Mortuary Practice over Millennia in Southern Vanuatu, South Melanesia



Frédérique VALENTIN, Wanda ZINGER, Alison FENWICK, Stuart BEDFORD,
James FLEXNER, Edson WILLIE, and Takaronga KUAUTONGA

ABSTRACT

Burial practices provide a window into cultural practices, beliefs, and cross-cultural contacts through time. Southern Vanuatu's history begins with an initial Lapita colonization 3000 B.P., followed by Polynesian contacts after roughly 1000 years ago, and European encounters starting almost 250 years ago. Using a combination of re-analyzed legacy data from archaeological excavations in the 1960s and recent excavations, this article provides a synthesis of southern Vanuatu mortuary practices using an *anthropologie de terrain* (field anthropology) approach and new ^{14}C dates. The earliest preserved burials from the region date to 1270 B.P., with subsequent transformations and continuities through the nineteenth century. Burials are present in sub-surface and surface contexts, in flexed and extended positions, with some showing evidence of having been wrapped in perishable flexible containers and others of post-depositional manipulation. Many of the burials feature ornaments of shell and stone. Transformations and continuities of burial practice in southern Vanuatu reflect complex histories of interaction within and beyond the region. **KEYWORDS:** mortuary practices, human burial, funerary archaeology, change over time, Oceania, Melanesia.

INTRODUCTION

Archaeologies of mortuary ritual in Oceania provide important insights into cross-cultural interactions, social organization, and associated spiritual practices of small island societies as they changed through time (Garanger 1972; Leach and Davidson 2008:133–254; Sand et al. 2020; Valentin and Sand 2008; Valentin et al. 2011). This article presents new insights into mortuary practices gleaned from burials from the Tanna, Futuna, and Aniwa islands in southern Vanuatu. The skeletons were excavated and described using the *anthropologie de terrain* (field anthropology) methodology (Duday 2009; Duday et al. 1990), which aims to reconstruct the initial situation of

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mortuary events and subsequent manipulations of skeletal remains using an analysis of taphonomic processes related to body decomposition (see Hudson 2020 and Valentin et al. 2016 for examples from the Pacific Islands). One of the innovations of this methodology is the conceptualization of body containers in the absence of any physical traces (Duday 2009). This involves two main categories of observation: an identification of the nature of the environment in which the body has decomposed and a search for constraining effects on the skeleton indicative of container limits. Another innovative aspect of *anthropologie de terrain* is seeking to establish an ordering of identified actions in a funerary sequence (Valentin et al. 2016). During our excavations skeletal remains were generally not removed but burial contexts were uncovered, documented, and then re-buried. In agreement with the local communities, artifacts and some bone samples were removed for subsequent analyses, including radiocarbon dating and ancient DNA and isotopes studies.

The funerary data we report here were gathered during the course of the South Vanuatu Archaeological Survey (SVAS) Project. It was designed to explore the long-term histories, settlement patterns, and interisland networks of Oceanic people living in the islands of southern Vanuatu during the last 3000 years (Flexner et al. 2018). This research builds on the pioneering work of Mary Elizabeth Shutler and Richard Shutler Jr. undertaken during the 1960s (Shutler and Shutler 1966; Shutler et al. 2002). Additional funerary data derives from the Shutler's primary documentation and archives stored at the Vanuatu Cultural Center in Port Vila (Vanuatu) including archives relating to burials uncovered during their excavations and associated curated skeletal remains (henceforth referred to as Shutler Archives).¹

Early observations of mortuary practices mentioned in the accounts of missionaries and travelers who visited southern Vanuatu documented the common use of burial at sea. Terrestrial burial is also mentioned, although noted as having been used for specific categories of individuals, including those of high rank and feared magic users (Gunn 1914:214; Humphreys 1926:118; Steel 1880:379). Terrestrial inhumation has also been described archaeologically in southern Vanuatu. On Aneityum, for example, two multiple chiefly burials, dated close to the time of European contact (450–350 B.P.), were excavated at Anelcauhat. One of the burials contained the skeletal remains of three adults interred simultaneously. Individuals were placed in the grave in an extended position on their backs, arms by their sides, and side-by-side, heads to the north, with a range of ornaments comprising pig-tusk beads, large *Tridacna* beads, whale tooth beads, *Conus* shell rings, and several marine bivalve shells (Haddow et al. 2018:109; Spriggs 1997:217–218).

Other archaeological excavations and surveys have revealed the practices of inhumations on the floor and within the fill deposits in caves and rockshelters during the last 500 years on Erromango (Spriggs and Roe 1989) and Aneityum (Hoffmann 2003:125). Inhumations within these caves and rockshelters were laid on their backs or on the side with limbs extended or flexed. In a few cases they are associated with ornaments like glass beads and a glass bangle, *Conus* rings, and shell beads (Valentin et al. 2011). In Tanna, an 800 year-old burial was uncovered during excavations at a nineteenth century mission house at Kwamera (Flexner 2016:98–106). The burial was identified as a single inhumation in an extended supine position, head towards the south, with no durable grave goods but a scattering of stones marked the boundaries of the grave (Flexner and Willie 2015). Unfortunately, most of these funerary remains have only been partially excavated and are incomplete, poorly preserved, and indirectly

TABLE 1. SUMMARY OF BURIALS UNCOVERED ON FUTUNA, ANIWA, AND TANNA

ISLAND	SITE ID	SITE TYPE	BURIAL ID ^a	BURIAL TYPE	ORNAMENTS ^b	TEMPORAL PERIOD ^c	EXCAVATION REFERENCES
Futuna	FURS1A, room 2	Rockshelter	Burial 1	Sub-surface	None	Before ca. 1000 ya	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURS2	Rockshelter	Scattered human bones	Sub-surface	None	?	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURS5	Rockshelter	Burial 1	Sub-surface	None	Post-1950	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURS12	Rockshelter	Burial 1	Sub-surface	2 half pearl shells with perforations along edges, 3 pearl shell pendants, 1 <i>Comus</i> bracelet, 2 small <i>Comus</i> beads	Before ca. 1000 ya	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURS12	Rockshelter	Burial 2	Sub-surface	1 shell pendant, 1 perforated <i>Spondylus</i> , 1 pearl shell pendant, 1 pearl shell plaque	Before ca. 1000 ya	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURS12	Rockshelter	Burial 3	Sub-surface	None	Before ca. 1000 ya	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURS12	Rockshelter	Burial 4	Sub-surface	3 half pearl shells with perforations along edges, 14 small <i>Comus</i> beads	Before ca. 1000 ya	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURS12	Rockshelter	Burial 5-6	Sub-surface	None?	Before ca. 1000 ya	Shutler Archives
Futuna	FURS12	Rockshelter	Burial 7-8-9-11	Sub-surface	3 half pearl shells, 450 small <i>Comus</i> beads, 1 yellow stone bead	Before ca. 1000 ya	Shutler & Shutler 1966; Shutler et al. 2002

(Continued)

TABLE 1. (Continued)

ISLAND	SITE ID	SITE TYPE	BURIAL ID ^a	BURIAL TYPE	ORNAMENTS ^b	TEMPORAL PERIOD ^c	EXCAVATION REFERENCES
Futuna	FURSI2	Rockshelter	Burial 12	Sub-surface	1 <i>Comus</i> ring pendant	Before ca. 1000 ya	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURSI2	Rockshelter	Burial 13	Sub-surface	None?	Before ca. 1000 ya	Shutler Archives
Futuna	FURSI2	Rockshelter	Burial 14	Sub-surface	1 <i>Comus</i> ring pendant	Before ca. 1000 ya	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURSI2	Rockshelter	Burial 15	Sub-surface	None?	Before ca. 1000 ya	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURSI5	Rockshelter	Burial 1	Sub-surface	Tiny <i>Comus</i> shell beads, turtle shell ornaments	Before ca. 1000 ya	This paper
Futuna	FURSI1	Rockshelter	N/A	Surface	None mentioned	European Contact?	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURSI3	Rockshelter	N/A	Surface	1 <i>Comus</i> ring pendant	European Contact?	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURSI9	Rockshelter	N/A	Surface	1 <i>Comus</i> bracelet, 1 pig tusk bead	European Contact	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURSI10	Rockshelter	N/A	Surface	None mentioned	European Contact	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURSI11	Rockshelter	N/A	Surface	None mentioned	European Contact	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	FURSI13	Rockshelter	N/A	Surface	None mentioned	European Contact?	Shutler & Shutler 1966; Shutler et al. 2002
Futuna	Manumai	Rockshelter	N/A	Surface	None seen	European Contact	This paper
Futuna	Nalomu	Rockshelter	N/A	Surface	None seen	European Contact?	This paper
Futuna	Fajirere	Rockshelter	N/A	Surface	None seen	European Contact?	This paper
Futuna	Fatuo'anga	Rockshelter	N/A	Surface	None seen	European Contact?	This paper
Aniwa	Gogone	Open air	N/A	Sub-surface	Small <i>Comus</i> ring	ca. 1000 ya	This paper
Aniwa	Nakmaroto	Open air	Burial 1	Sub-surface	<i>Tridacna</i> bracelets	ca. 1000 ya	This paper
Aniwa	Nakmaroto	Open air	Burial 2	Sub-surface	None	ca. 1000 ya	This paper

(Continued)

TABLE 1. (*Continued*)

ISLAND	SITE ID	SITE TYPE	BURIAL ID ^a	BURIAL TYPE	ORNAMENTS ^b	TEMPORAL PERIOD ^c	EXCAVATION REFERENCES
Aniwa	Mission Terrace (TP19)	Open air	Burial 3	Sub-surface	none	1000–2000 ya	This paper
Tanna	TARS1	Rockshelter	Burial 1	Sub-surface	1 worked basalt disc, small <i>Comus</i> beads, nasal ornament in baked clay	European contact?	Shutler & Shutler 1966; Shutler et al. 2002
Tanna	TARS3	Rockshelter	Burial 1	Sub-surface	None	European contact	Shutler & Shutler 1966; Shutler et al. 2002
Tanna	Enarapap	Open air	Burial 1	Sub-surface	<i>Tridacna</i> and <i>Strombus</i> rings	1000–1500 ya	This paper

^a N/A = no burial ID attributed for surface burials.

^b Ornaments found in burial fill.

^c Estimated period; for AMS dating results, see Table 3; ya = years ago.

dated. Any earlier direct dates must now also be rejected as unreliable as the complications of the influence of diet and other factors on human bone and radiocarbon results were not realized at the time.

Our new data from eight burials sites investigated on Tanna, Aniwa, and Futuna are used along with previous data from twelve sites excavated on the same islands during the 1960s (including unpublished data from the Shutler Archives and published data from Shutler and Shutler 1966; Shutler et al. 2002) to outline the significance of changes in mortuary practices over time in the specific context of successive arrivals and interconnections of populations of Oceanic and European origins in southern Vanuatu (Flexner et al. 2019; Spriggs 1997:187–222) (Table 1). New influences may have shaped (at a local scale) not only the biological structure of the populations, as shown by ancient DNA (Posth et al. 2018) and morphological studies (Zinger 2021; Zinger et al. 2019), but also people's approaches to death and burial. This is illustrated by the appearance of new grave styles on Aneityum and Aniwa following Christian conversion, where the use of tombs with coral slab linings appear, possibly adapted from Samoan and Rarotongan catechists sent to the region in the 1840s (Flexner et al. 2020; Liua'ana 1996).

SOUTHERN VANUATU: PRE-EUROPEAN CONTEXTS

Southern Vanuatu currently displays immense cultural and linguistic diversity between and within the five islands forming the region, namely Aneityum, Futuna, Aniwa, Tanna, and Erromango (Fig. 1). Nine southern Vanuatu languages are spoken in the larger islands of Erromango, Tanna, and Aneityum (François et al. 2015). Two dialects of a Polynesian language named Futuna–Aniwa (Capell 1958; Dougherty 1983) are spoken on the smaller islands of Futuna and Aniwa. Representing one component of present-day Polynesian diversity, these two are classed as 'Polynesian Outliers', that is, islands with Polynesian cultural traits and language but geographically situated within Melanesia and Micronesia (Feinberg and Scaglione 2012). One of the main elements of our research has been an ongoing development of a more complex understanding of the emergence of these Polynesian Outlier identities (Flexner et al. 2019; Zinger et al. 2020).

A regional sphere of interaction between the neighboring islands of southern Vanuatu and the adjacent regions developed over time (Flexner et al. 2019). For example, there is evidence for influence from Polynesia in the rituals and language surrounding the preparation and consumption of *kava*, a culturally important intoxicant prepared from the roots of the *Piper methysticum* plant on Tanna and Aneityum (Lynch 1996). On the other hand, local 'Melanesian' terminology and practice are present in the religion and social organization of the South Vanuatu Outliers, with similar chiefly systems organized in moieties in Futuna and Tanna (Bonnemaison 1994:152–153; Keller and Kuautonga 2007:60–65). Exchange of goods between neighboring islands are also observed, including trade of lithic items between the limestone island of Aniwa and the volcanic islands of Futuna, Tanna, and Erromango (Flexner et al. 2018; Keller and Kuautonga 2011) and the exchange of pearl shell pendants, known in Futuna as *pele*, between Futuna, Tanna, Aneityum, and possibly Aniwa (Flexner et al. 2019; Haddow et al. 2018). Interactions at a regional scale are also well documented in oral traditions that showcase connections and mythical links between Aneityum and the Loyalty Islands in New Caledonia (Capell

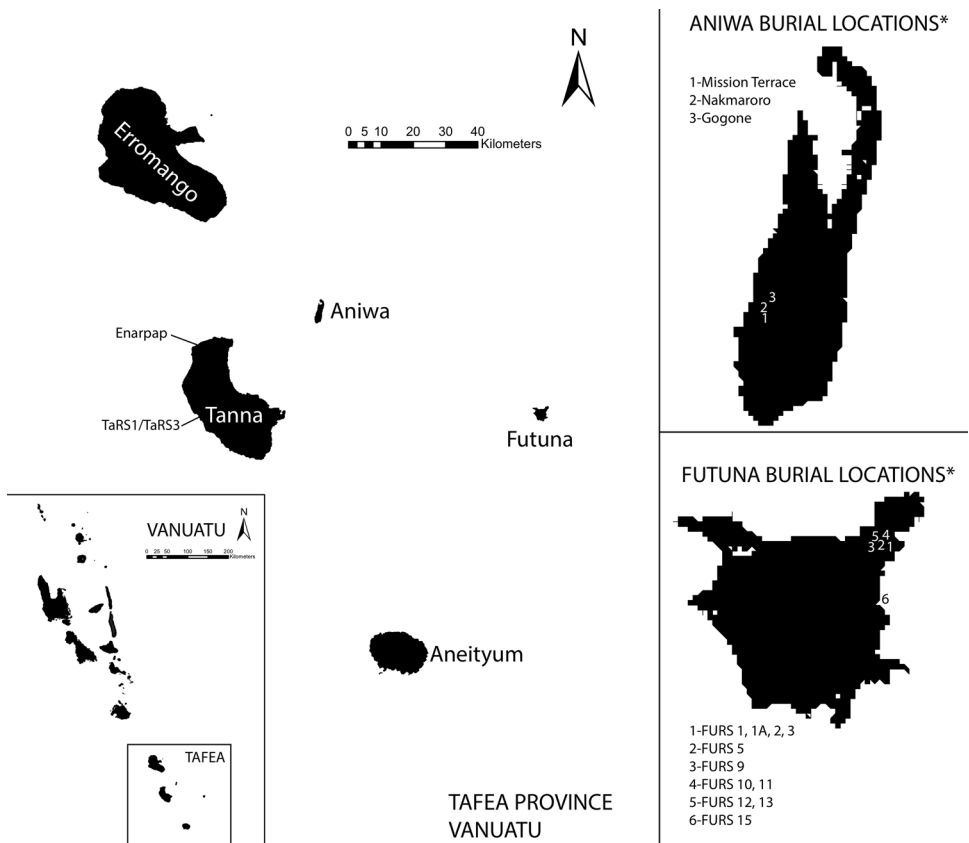


Fig. 1. Map of Vanuatu (inset lower left), Tafea Province (left), with location of studied sites indicated on Tanna (center), Aniwa (upper right), and Futuna (lower right); burial locations are approximate because of scale and to respect cultural sensitivity (maps by J. Flexner).

1958; Spriggs 1997:219–220) or between Futuna and the Tonga archipelago in West Polynesia (Keller and Kuautonga 2007:146–165).

In the 1960s, Richard Shutler Jr. and Mary Elizabeth Shutler carried out the first extensive archaeological fieldwork in southern Vanuatu (see Bedford 2006:14–17 for a synthesis). While interested in the five islands of the region, the couple mainly surveyed and excavated on Aneityum, Futuna, and Tanna with the objective of reconstructing chronological and cultural sequences, defining the settlement history of the region to contribute to a “greater understanding of the origins and dispersal of the Melanesian people and their relationship to the Polynesians” (Shutler and Shutler 1966:157; 1967). Rather than finding evidence of early occupation, the Shutlers generally uncovered more recent domestic occupations, human burials in caves, and limited material culture, primarily artifacts of shell and stone (Shutler and Shutler 1966; Shutler 1969; Shutler and Shutler 1975; Shutler et al. 2002).

The lack of ceramics in the assemblages revealed by the Shutlers led to the idea among the scientific community that southern Vanuatu was first settled by aceramic groups originating in Polynesia (Bellwood 1978; Green 1979; Shutler and Shutler

1966), an idea that was still held until recently at least for the Outliers of Futuna and Aniwa (Carson 2012). However, archaeological work over the last decades demonstrates that the islands of southern Vanuatu were part of the same general settlement pattern as described for New Caledonia, Fiji, and West Polynesia, with early occupations dated to approximately 2800 years ago, associated with the migrations of Lapita people. Lapita pottery has been discovered on Erromango, at the Ifo and Ponamla sites, and dated to ca. 3000 B.P. (Bedford 2006:32–39) and at Anelcauhat, Aneityum, dated to around 2850 B.P. (Bedford et al. 2016).

More recently, our excavations have resulted in the discovery of early occupation sites in north Tanna. Ceramics and scattered human remains dating to 2600–2700 B.P. were found in midden mounds and in a rockshelter in Marseille and Lowenpakel (authors' unpublished data; Flexner et al. 2018; Posth et al. 2018) (Table 2, Table 3). The Outliers of Futuna and Aniwa appear now to have been settled during the same time period, with evidence for two pottery bearing sites in Futuna used at least 2600 years ago and a settlement area at the site of Imaarae on Aniwa where the reef passage attracted early settlers at least 2500 years ago (Flexner et al. 2019). Our archaeological excavations and surveys on Aniwa and Futuna also uncovered evidence for intensification of the use of terrestrial and marine resources and settlement around 1000 years ago. Material evidence in relation to Polynesian culture remains allusive, but this is a pattern we interpret as resulting from the combination of shared practices inherited from a deep Oceanic past and material exchanges linking island populations via maritime networks transcending linguistic boundaries in a dynamic context of identities formation (Flexner et al. 2019). Finally, our archaeological excavations and surveys on both islands revealed evidence for European installations in the mid-nineteenth century associated with Christian missionaries who were preceded in southern Vanuatu by Samoan and Rarotongan catechists (Flexner et al. 2019; Flexner et al. 2020).

The changes in the archaeological sequence we have observed on Aniwa and Futuna can be related to arrivals of newcomers in the southern Vanuatu region through the analysis of island populations' biological features. A study of Vanuatu Y-chromosome haplogroup diversity has identified European haplogroups in Aniwa and Futuna individuals (Cox 2006). More recent genomic studies have found European and Polynesian admixture in present-day individuals of Futuna and Aneityum (Lipson et al. 2018, 2020). The date of Polynesian admixture is nevertheless difficult to establish due to accumulation of an undistinguishable Asiatic (First Remote Oceanian) component. Incursion of newcomers during the last millennium is also demonstrated via morphometric and palaeogenomic preliminary analysis of the human remains sampled in Tanna, Aniwa, and Futuna burials (Table 2).² Individuals from Tanna associated with early and later settlements and individuals of Futuna predating the last millennium display genomic (Posth et al. 2018) and morphological (Zinger 2021) features affiliated with post-Lapita populations of Vanuatu. In contrast, more recent individuals from Futuna feature a Polynesian component appearing in various proportions in addition to ancestral components (Zinger et al. 2019; Zinger 2021). Lipson and colleagues (2020) have shown that Polynesian components in southern and central Vanuatu populations represent two separate instances of Polynesian influence. Evidence for diversity in Polynesian origins is therefore expected to emerge from ongoing studies of these ancient individuals from Tanna, Aniwa, and Futuna.

TABLE 2. GENETIC AND MORPHOLOGICAL DIVERSITY OF INDIVIDUALS FROM BURIALS IN SOUTHERN VANUATU

ISLAND, SITE REMAINS	TIME PERIOD	ANCIENT DNA DATA ^a	MORPHOMETRIC DATA ^b
Futuna	ca. 1270–970 B.P.	No diversity, all Papuan ancestry, on 4 individuals from FURS1A, FURS12	Individual with Australo-Melanesian affinities (FURS12, Burial 4, 92%)
Sub-surface burials			
Futuna	ca. 300–200 B.P.	n/a	Wide diversity, with Polynesian (FURS1, 93%), mixed (FURS10, 64%, FURS11, 30%, FURS13, 51%), or Australo-Melanesian (FURS3, 92%) affinities
Surface burials			
Aniwa, Mission Terrace (TP19)	ca. 2000 B.P.	n/a	Lapita-derived affinities (South Melanesian, 88%)
Burial 3			
Tanna, Lowenpakal	ca. 2600 B.P.	Papuan ancestry	n/a
Isolated remains			
Tanna, Marselle	ca. 2600 B.P.	n/a	Australo-Melanesian affinities, 64%
Isolated remains			
Tanna, TARS3	ca. 260–0 B.P.	Papuan ancestry	Australo-Melanesian affinities, 80%
Burial 1			

^aData source: Posth et al. 2018.

^bData source: Zinger et al. 2019, Zinger 2021.

TABLE 3. RADIOCARBON DATING RESULTS FOR FUTUNA, ANIWA, AND TANNA BURIALS

ISLAND	SAMPLE ID	ELEMENT	LAB NUMBER	RADIOCARBON AGE	CALIBRATED AGE	SOURCE ^a
Futuna	FUR51A, room 2, Burial 1	L clavicle	Wk-44199	1306 ± 20 B.P.	1270–1070 B.P. cal (95.4%)	Posth et al. 2018
Futuna	FUR12, Burial 4	R petrous	MAMS-29688	1303 ± 20 B.P.	1190–970 B.P. cal (95.4%)	Posth et al. 2018
Futuna	FURS 12, Burial 8-9, child	R petrous	MAMS-29686	1377 ± 20 B.P.	1240–1000 cal B.P.	Posth et al. 2018
Futuna	FURS 12, Burial 7, child	L petrous	MAMS-29775	1284 ± 20 B.P.	1230–980 cal B.P. (95.4%)	Posth et al. 2018
Futuna	FURS 12, Burial 12	I1 sup	MAMS-29689	1376 ± 29 B.P.	?	Posth et al. 2018
Futuna	FURS 15, Burial 1	L humerus	Wk-46195	Abandoned	N/A	New data
Futuna	FURS5, Burial 1	Fibula	SacA61611	Post-1950	N/A	New data
Futuna	FURS11	R humerus	SacA61612	330 ± 30 B.P.	472–308 cal B.P. (95.4%)	New data
Futuna	FURS9	L ulna	Wk-46194	275 ± 18 B.P.	320–290 cal B.P. (51.6%)	New data
Futuna	FURS10	R ulna	Wk-46674	285 ± 15 B.P.	320–280 cal B.P. (91.3%)	New data
Futuna	Manumai	Fibula	Wk-48336	227 ± 20 B.P.	306–277 cal B.P. (95.4%)	New data
Aniwa	Gogone	R ulna	Wk-46197	1179 ± 19 B.P.	1180–1050 cal B.P. (95.4%)	New data
Aniwa	Nakmaroro, Burial 1	L fibula	Wk-46196	Low yield	N/A	New data
Aniwa	Nakmaroro, Burial 1	Shell	Wk-46277	1267 ± 23 B.P.	890–690 cal B.P. (95.4%)	New data
	<i>Turbo atyrosstomus</i>					
Aniwa	Nakmaroro, Burial 2	L Radius	Wk-48337	Abandoned	N/A	
Tanna	TARS1, Burial 1	L femur	Wk-44198	Abandoned	N/A	
Tanna	TARS3, Burial 1	L temporal	Wk-44200	Abandoned	N/A	
Tanna	TARS3, Burial 1	L petrous	MAMS-29690	228 ± 20 B.P.	260–0 cal B.P. (95.4%)	Posth et al. 2018
Tanna	Enarpap, Burial 1	R humerus	Wk-48334	Abandoned	N/A	
Tanna	Lowempakal ^b	R petrous	MAMS-29690, Wk-46623	2610 ± 17 B.P. 2471 ± 17 B.P.	2630–2350 cal B.P. (95.4%)	Posth et al. 2018

^a Radiocarbon dates in Posth et al. 2018 were calibrated by Fiona Petchey using OxCal v4.2 with a mixture of the Marine13 and Intcal13 curves, 30 as determined by the calculated % Marine Carbon. New radiocarbon dates on human samples were calibrated by Fiona Petchey using OxCal v4.3.2 (Bronk Ramsey 2017) and Intcal13 atmospheric curve (Reimer et al. 2013) and on shell using OxCal v4.3.2 (Bronk Ramsey 2017) and Marine13 marine curve (Reimer et al. 2013) Delta R(29, 28).

^b Isolated bone from 2016 test-pit excavation.

In addition to this biological history, there is the cultural practice of mortuary routine and ritual among southern Vanuatu's small island societies. Below, we report on the mortuary evidence from the islands of Tanna, Aniwa, and Futuna, which reflect the shared and evolving practices of burial or disposal of the dead covering a period of over 1000 years. This complementary line of evidence contributes additional understanding to the diversity and connectivity of islands within and beyond the region of southern Vanuatu.

Tanna

Tanna (550 km²) is a large island formed of three overlapping volcanic massifs, with the most recent volcanic activity in the southeastern part of the island where the active volcano Mt. Yasur is located. The island has been tilting to the east throughout its formation, exposing limestone terraces that contain cliffs and rockshelters, especially along the west coast of the island, which is bordered with a narrow and irregular fringing reef (Carney and MacFarlane 1971).

Previous excavations on Tanna were few and focused mainly on the southern and western parts of the island (Flexner 2016:66–106; Shutler and Shutler 1966). In 1964, the Shutlers' uncovered burials in two rockshelters in the raised reef when they conducted research and recorded a total of seven sites in the Lenakel region (Hoffmann 2003; Shutler Archives; Shutler and Shutler 1966; Shutler et al. 2002). At the rockshelters designated by the Shutlers as TARS1 and TARS3, inhumations appear to be interstratified at different depths within midden layers comprising fire hearths, fire-cracked rocks, lenses of ash, and a number of elements of material culture and other domestic debris. European elements were present on the surface at TARS3. Disturbances were noticed in TARS1 with European artifacts found in the lower levels of an inner room that is connected to an outer room by a small passage.

Our reexamination of the Shutler's documentation, photographs, and skeletal collections confirms that the burial (Burial 1) found in Pit 10 at TARS1 was still in articulation. It was an extended inhumation of an adult in a prone position, hands under the pelvis, skull towards the southwest. The burial (NISP = 119 remains) was observed close to the wall of the outer room, while a number of scattered human remains (NISP = 68) were also found in the rest of the cave deposits (Fenwick 2018). These remains attest to the presence of other burials which were affected by the above mentioned disturbances. The TARS1 burial was associated with a worked basalt disc found near the skull and other ornaments were found in the fill of the cavity, including three *Conus* sp. beads of varying forms and a nasal ornament made of baked clay (Shutler et al. 2002:192–195).

Some scattered human remains and the single inhumation of an adult (Burial 1) were also found at TARS3, which is located just to the south of TARS1. The body was lying on its back, knees highly flexed on the right side and feet by the left side of pelvis. The left arm was extended on the side of the body, elbow slightly flexed, the hand at the pelvis, and the right elbow flexed, forearm placed on the abdomen (Fig. 2). This new description, relying on the archived documentation, differs in some points to that proposed by Shutler and colleagues (2002) indicating it was in a flexed position on its right side. No ornaments were associated with the burial or present in the rockshelter (Shutler et al. 2002).



Fig. 2. Burial 1 at TARS3 site in southeast Tanna: remains in a flexed position (top left) (photo from Shutler Archives, used with permission from Vanuatu Cultural Center); skull showing dental wear due to pipe smoking (bottom left) (photo by A. Fenwick); detail of worn dentition (bottom right) (photo by A. Fenwick) (illustration assembled by H. Goudiaby).

Direct dating of the TARS1 Burial 1 individual was obtained in 1965 at Gakushuin Laboratory, with a result dating to 1818–1314 B.P. (1650 ± 100 B.P. Gak-757) that is now considered to be unreliable by current standards (Shutler Archives; Shutler et al. 2002). Consequently, new direct dating was undertaken on individuals from TARS1 and TARS3 (Table 3), with successful results for TARS3 Burial 1 returning a recent date of between 260 and 0 cal. B.P. (Posth et al. 2018).

Another Tanna burial was studied in 2018 during field research in the northwest part of the island. It was found at Enarpap, an open site located on a narrow section of the terrace above the shoreline, 200 m north of the locality of Marseille. The burial (Burial 1) was located at the base of the cliff at the rear of the terrace and was

encountered accidentally and partly destroyed during construction work at the site. The human remains appeared 112 cm below the surface in a sterile yellow sand sealed by a 40–50 cm brown gravel-rich layer that lay beneath a brown/black cultural layer comprising a number of oven stones, shells, lithic fragments, and metal.

The Enarpap individual, an adult, was deposited in a pit, with the head located in the west. It was resting on its back with the upper limbs on the sides, left hand by the pelvis, and lower limbs highly flexed, knees towards the right side and feet close to the pelvis in a position that is similar to that of the TARS3 burial (Fig. 3). The decomposing body parts were progressively replaced by gray sand resulting in the maintenance of the anatomical coherence of the skeleton. Constraining effects, indicated by the position of the skull showing its upper aspect and the placement of the



Fig. 3. Burial 1 at Enarpap site in northwest Tanna (top), showing feet (encircled) on left side of the body (photo by R. Shing); ornaments (bottom) including rings made of *Tridacna* sp. (upper) and *Stombus* sp. (lower) (photos by I. Philip, assembled by H. Goudiaby).

TABLE 4. DESCRIPTION AND MEASUREMENT OF ORNAMENTS FOUND AT ENARPAP (TANNA) AND NAKMARORO BURIAL 1 (ANIWA)

ISLAND	SITE	ORNAMENT	SHELL	WEIGHT (G)	INTERNAL	EXTERNAL
		TYPE	SPECIES		DIAMETER (MM)	DIAMETER (MM)
Tanna	Enarpap	Ring	<i>Strombus</i> sp.	110	58.2	77.6
Tanna	Enarpap	Ring	<i>Tridacna</i> sp.	144	50.8	84.8
Aniwa	Nakmaroro	Ring (right wrist)	<i>Tridacna</i> sp.	102	75.7	93.4
Aniwa	Nakmaroro	Ring (left wrist)	<i>Tridacna</i> sp.	106	73.5	88.3

right humerus over the right ribs, affect the right side of the burial and the skull. However, whether they result from contact with the edges of the pit or from having been placed in a perishable container cannot be determined from the available taphonomic indications because the burial is very incomplete. Concentrations of small charcoal fragments were found in the ribcage and near the left arm.

Ornaments were associated with the burial (Fig. 3). They consist of two shell rings, one fashioned from a conch shell (*Strombus* sp.) and the other from a giant clam shell (*Tridacna* sp.). Neither ring dimensions conform to those of an arm bracelet, since their internal diameters are 58.2 mm and 50.8 mm, respectively (Table 4).

Direct radiocarbon dating from the skeleton was unsuccessful (Table 3). However, the layout of the burial suggests a pre-European practice. The stratigraphic setting, buried beneath a soil matrix and substantial slope wash, indicates burial dates to well before the historic period. As there is no sign of pottery in this location or nearby or in the excavated matrix of the grave and its environs, the burial most likely dates to 1000–1500 years ago.

Aniwa

Aniwa is a small (8 km²) coral atoll with a maximum height of 42 m above sea level and a large lagoon in the north of the island. The series of uplifted limestone reef terraces around the island contain a number of caves and rockshelters. Surface scatters or concentrations of faunal remains suggest some of these caves and rockshelters may have contained cultural deposits although no human remains (except one tooth) were recorded on the surface of five surveyed sites or in the fill during the excavation of two other sites (Punanga Imanu and Punanga Ruru). Early burials were uncovered in the vicinity of the site of Imaerae, where early settlers begin to live around 2600 years ago, in different open sites known as Gogone, Mission Terrace, and Nakmaroro (where excavations were concentrated).

At Gogone, burials were discovered accidentally and had been disturbed during earlier sand quarrying near the edge of the beach terrace. Bones were surrounded by white sand, buried beneath a layer of mixed soil and sand sediment approximately 50 cm thick that included nineteenth century artifacts. Skeletal remains of at least two individuals were observed, some still partly in articulation (suggesting extended inhumations) and associated with a basalt adze and a *Conus* shell ring.

Three other single inhumations in the white sand were uncovered close by, found when excavating a series of test pits on the Mission Terrace and at Nakmaroro cemetery. Burial 1 and Burial 2 discovered at Nakmaroro were at the edge of the terrace like those at Gogone. Burial 3, discovered at Mission Terrace, was located further to the rear of the terrace. The excavations at Mission Terrace and Nakmaroro revealed complete but poorly preserved skeletons of an adult in each burial; these display some similarities in their layouts and arrangements.

Burial 1 was identified 80 cm below surface under layers of a brown mixed soil and sand sediment containing historical artifacts near the surface. The limits of the sepulchral pit could not be identified, but the skeletal arrangement indicates that the body was deposited in a concave depression in both directions, with the feet and skull higher than the pelvis and the right upper limb higher than the left. The feet were at the contact of a large earth oven which contained pig bones, large burnt shells (*Lambis* sp. and *Turbo* sp.), and a fragment of a large *Tridacna* ring at its base.

Burial 1 was extended on its back with an initial left lateral rotation of the head and the neck, in a southeast–northwest orientation with the head to the southeast (Fig. 4A). The upper limbs were on side of the torso, with the forearms on the iliums and the hands on the thighs, wrists 27 cm apart, knees and feet very close to each other, ankles and feet extended and turned to the right side. The general anatomical coherence of the skeleton and the conservation of the cephalic, thoracic, and pelvic volumes suggest decomposition of the body in an immediately filled space. However, the dissociation of the right elbow and wrist and hand joints and the constraining effects on the knees and feet (indicated by their very close proximity) are suggestive of the possibility that the body had been wrapped in a flexible perishable container such as a woven mat. Two distinctive *Tridacna* bracelets were found on the wrists of this individual, the only case of associated ornaments on Aniwa.

Burial 2 was uncovered 3 m south of Burial 1 at 50 cm below surface in the white sand forming the substratum (Fig. 4B). Similar to Burial 1, the skeleton, which had been badly disturbed by roots and subsequent activities, was found underlying layers of brown mixed soil and sand sediment, again containing historical artifacts near the surface. No grave cut was identified. The body was extended on its back following a south–north orientation with the head to the south. The upper limbs were on the side of the torso, hands outside the thighs, knees 13 cm apart and feet 6 cm apart, ankles and feet in extension. The general anatomical coherence of the skeleton suggests a decomposition of the body in an immediately filled space. There is, however, a lateral rotation of the right lower limb (the right hip being disjointed and the right femur, tibia, and foot presenting their medial aspects), suggesting the presence of a void at this level at the time of decomposition. This observation means we cannot reject the possibility that the body was originally wrapped in a flexible container.

Burial 3 was uncovered during the excavation of TP19, approximately 40 m southeast of Burials 1 and 2, but at a much deeper level, towards the back of the terrace and some 25 m west of the cliff at the rear of the Mission Terrace. The body had been deposited in a narrow pit 50 cm wide, clearly visible about 120 cm below the surface, and materialized by a change in the composition and color of the sandy sediment, which was lighter and sandier than the overlying occupation layer. The burial pit had reached the sterile yellow sand layer, while the bones were embedded in gray sand containing burnt stones and fragments of burnt shells. It had a slightly concave shape longitudinally as indicated by the position of the right foot, flexed at 45° against the



Fig. 4. Burials from Aniwa, all in extended position: (A) Burial 1 at Nakmaroro; (B) Burial 2 at Nakmaroro; (C) Burial 3 at Mission Terrace (photos by F. Valentin, assembled by H. Goudiaby).

wall of the pit. A large block of coral measuring 50 cm long and 30 cm high that was situated about 20 cm above the skull probably contributed to the layout of the tomb, which was completed by a small fire feature (ca. 30 cm diameter) placed just above the feet and visible at 80 cm below surface.

Burial 3 was extended on its back with an east-west orientation, head to the west (Fig. 4C). The right upper limb was on the side, with the hand resting on the right thigh and the left was highly flexed at elbow, with the hand (showing its dorsal aspect) on the chin; the knees were 7 cm apart, ankles 5 cm apart, and feet tightened by the nearby fire feature. Evidence such as maintenance in anatomical position of the patellas, pubic symphysis, and sternum and the flattening of the iliums to the rear and the ribs to

the fore suggests decomposition of the body in an immediately filled space. However, the close proximity of the knees and ankles suggests that the possibility that it was wrapped in a flexible perishable container should not be completely rejected. The few displacements affecting the bones of the right upper limb and hand and of the right clavicle would support this possibility.

The Aniwa burials provided rare ornaments and associated objects. Two large *Tridacna* bracelets, each weighing about 100 g and having an external width (diameter) of 93.4 mm (Fig. 5A) and 88.3 mm (Fig. 5B), adorned each wrist of Nakmaroro B1; a fragment of a basaltic pebble about 40 mm diameter rested on its abdomen (Table 4). No ornaments or other goods were directly associated with the bodies in the other two burials but a small adze fragment was found in the infilling of B2. Finally, a basalt adze and a *Conus* shell ring were associated with the Gogone burials.

Radiocarbon dating of one bone sample at Gogone indicates that burial events in that location occurred at the beginning of the second millennium A.D., ca. 1180–1050 cal. B.P. (Table 3). No direct dates have been obtained so far on the other burials at Nakmaroro and Mission Terrace. Burial 1 is probably as early as the Gogone individual and perhaps earlier, while Burial 2 would on stratigraphic grounds be slightly later. Burial 3 is likely to be earlier than those at Gogone and Nakmaroro. It had been buried in the ancient beach but further back from the edge of the terrace slope, and demonstrated very limited evidence of any soil accumulation at the time of burial. The earliest date for the cultural deposits sitting on top of the beach sand in these zones is 2500 B.P.



Fig. 5. Aniwa Burial 1 showing *Tridacna* sp. rings at each wrist (photo by F. Valentin): (A) right wrist ring; (B) left wrist ring (photos by I. Philip, assembled by H. Goudiaby).

Futuna

Futuna (11 km²), located about 90 km southeast of Tanna, is an ancient uplifted volcanic cone with a high point of 666 m a.s.l., bordered by seven successive raised limestone terraces and a summit plateau of approximately 4 km² (Carney and MacFarlane 1971; Neef and McCullough 2001). The island is just over 5 km across at its widest, and is bordered by a discontinuous fringing reef, forming a large coastal plain towards the north. Steep slopes and high limestone cliffs comprising a large number of crevices and rock shelters are the main elements of Futuna's geographical landscape.

In 1964, guided by the local community, the Shutlers recorded 38 archaeological sites on the island, including 10 which yielded human remains (Hoffmann 2003; Shutler Archives; Shutler and Shutler 1966; Shutler et al. 2002). Located in the northern part of the island, these sites consisted of rockshelters and crevices where burials were found in two types of context: on the surface of shelter floors (i.e., surface burials FURS1, FURS3, FURS9, FURS10, FURS11, FURS13) or in pits dug into the fill deposits of the shelters (i.e., sub-surface burials FURS1A, FURS2, FURS5, FURS12). The fill deposits of the rockshelters mainly comprise natural detritus from the erosion of the shelter walls and midden material and fire features, ornaments and other non-ceramic artifacts, and food debris along with associated fire by-products including charcoal lenses and ash and fire-cracked rocks and oven stones. Stone walls creating compartments or rooms within shelters (FURS1A, FURS5) or blocking the opening of the cavity (FURS3, FURS11) were also recorded in several instances.

Burial orientation and position were recorded in seven sub-surface burials uncovered in three of the four sites (FURS1A, FURS5, FURS12) (Shutler Archives). Despite a number of disturbances and the partial preservation of the skeletons, it appears that the bodies of children and adults were placed in pits in flexed (Fig. 6 left) or semi-flexed positions (one case at FURS1A and five cases at FURS12), or more rarely extended on the back (one case at FURS5), and in a west-east or southeast-northwest orientation (at FURS1A and FURS12). Evidence of stone arrangements surrounding the bodies was reported at FURS12 site, where several of the burials were rock-lined or covered with rocks creating cairn-like structures along with a large earth oven perhaps associated with the burial ceremonies (Hoffmann 2003).

Personal ornaments were observed in situ or scattered in the fill deposits with other items. A large number of diverse elements were found at FURS12, including *Conus* rings, disks and beads including a rare yellow stone bead, and pendants made of pearl or oyster shell and one red *Spondylus* shell pendant (Shutler and Shutler 1966; Shutler et al. 2002) (Fig. 6 right). This contrasted with FURS1A and FURS5 where no associated artifacts were found. Ornaments and other items were associated with surface burials, including *Conus* rings and a pig-tusk bead at FURS9 and *Conus* rings, a *Cypraea* scraper, a basalt hammer stone, and a worked piece of branch coral at FURS3 (Shutler et al. 2002).

Direct dating of six individuals interred in the fill of two rockshelters (FURS1A and FURS12) were obtained in 1965 at the Gakushuin Laboratory, with results ranging from 1730 to 323 B.P. (Shutler Archives; Shutler and Shutler 1966). New dating obtained on five individuals from the same sites resulted in a narrower age range of between 1270 and 970 cal. B.P., indicating that the deaths occurred at the end of the first millennium A.D. (Posth et al. 2018) (Table 3). By contrast, direct radiocarbon dating of individuals deposited on the floors of three rockshelters studied by the Shutlers



Fig. 6. Northeast Futuna Burial 4 at FURS12, showing skeleton in flexed position and stone arrangement (left) (photo from Shutler Archives, used with permission from Vanuatu Cultural Center); ornaments associated with burials at Futuna (right): (A) coral file from FU1A; (B) *Conus* ring pendant from FURS12, Burial 1; (C) *Tridacna* adze from FU1A; (D) shell adze from FURS12, Burial 12; (E) pig tooth bead from FURS9; (F) stone bead from FURS12; (G) shell pendant from FURS12, Burial 1; (H) coral file from FU1A; (I) *Conus* ring from FURS12, Burial 1; (J) small *Conus* beads from FURS12, Burial 8 (Shutler et al. 2002:197, plate 5) (illustration assembled by H. Goudiaby).

(FURS9, FURS10, FURS11) indicates more recent deaths toward the end of the second millennium A.D., around 300 cal. B.P. and later (Table 3). Finally, the single inhumation at FURS5, distinguished from the others by its extended position and absence of ornaments, provided a very recent date of post-1950 (Table 3).

Five other rockshelters displaying similar descriptive traits were studied during our survey, including one that had a modern grave covered by a cairn-like structure at its entrance. Our excavation at site FURS15, a rockshelter surveyed but not excavated by the Shutlers on the east side of the island, revealed new burials in the lower levels of its fill deposits; we uncovered the remains of at least six individuals in a 7 m² area. These interments were revealed at 75 cm below the surface and were partly disturbed by subsequent activities represented by layers of domestic debris containing a range of fire features.

One inhumation (Burial 1) was fully excavated (Fig. 7). The individual, an adult whose skeleton is poorly preserved, leaning against the oblique wall forming the rear of the shelter, rests in a north-south orientation with the head to the north. The body was placed in a contracted position, with the thorax on the right side and, as indicated by the arrangement of the lower limbs bones, the pelvis on its posterior aspect (Fig. 7 left). The lower limbs are hyperflexed, ankles and feet tightly together near the pelvis. The



Fig. 7. Northeast Futuna Burial 1 at FURS15, showing skeleton in a contracted position (left); associated ornaments, including small *Comus* sp. beads and a turtle shell ring (right) (photos by F. Valentin, assembled by H. Goudiaby).

arms had been placed along the trunk and the forearms between the legs. The right elbow was slightly bent, hand under the left leg resting on the right ankle and the left elbow bent at 90° on the abdomen, hand under the left knee. Ruptures of joints visible at the right knee, left elbow, left knee, and between the bones of the left leg suggest a decomposition of the body in an empty space and the possible use of a flexible envelope to wrap the corpse.

The individual was buried with a necklace made up of a multitude of tiny *Comus* sp. shell beads each about 5 mm in diameter and turtle shell rings (Fig. 7 right). Shells, mainly white cowries (*Ovula* sp.), had been placed in the grave fill. Beads and turtle shell rings along with cervical vertebrae and elements of the hyoid bone were found scattered in the sediment; the cephalic end is totally absent while the rest of the skeleton is in perfect articulation. This arrangement suggests a complicated funerary practice involving the removal of the skull following the decomposition of the flesh and initial interment. A large earth oven was found just above the burial; it was perhaps placed there intentionally after manipulation and infilling, since the skeleton has not been disturbed.

Direct dating of this individual from FURS15 was unsuccessful (Table 3). However, as the layout of the burial is very similar to that of the nearby FURS1A and FURS12 burials, and it was located beneath more than 50 cm of cultural and natural accumulation, we estimate an age around 1270–970 cal. B.P. for the burial event.

During our survey and test excavation program in Futuna, we discovered a previously undocumented rockshelter, Manumai, which featured inhumations on the floor of the shelter. Direct dating of bone again accords reasonably well with the other skeletons in similar contexts, dating to around 300 cal. B.P. (Table 3).

DISCUSSION

A whole range of different practices were identified in an earlier study reviewing burial ritual across the Vanuatu over its 3000 years of human occupation (Valentin et al. 2011).

This is to be expected over such a long period with different phases of settlement across vastly different physical landscapes and the arrival of different cultural groups in southern Vanuatu and continued connections beyond the archipelago. Our new data enhance the discussion of the significance of changes in mortuary practices over time in this specific context.

Chronology

Thus far, 12 burials from Aniwa, Futuna, and Tanna have provided acceptable direct radiocarbon dating results for a total of 18 tested skeletons (Table 3). The obtained conventional ages range between 1377 ± 20 B.P. (for Futuna burials, FURS12) and 228 ± 20 B.P. (for Tanna burial, TARS3), covering a time period of about 1200 years between 1270–0 cal. B.P. This burial age range can be extended when archaeological and stratigraphic parameters are considered. Although no direct dates are yet available for the three Nakmaroro and Mission Terrace interments from Aniwa, they appear most likely to date back to the beginning of the second millennium (ca. 1180–1050 cal. B.P.) because they display similar burial environments and layouts as the neighboring Gogone inhumations. Such an estimation is consistent with the date obtained for the oven feature adjacent to Nakmaroro Burial 1 (ca. 890–690 cal. B.P. on *Turbo argyrostomus* shell) (Table 2). However, Mission Terrace Burial 3 could be somewhat older as it is located further to the rear of the terrace and appears to be sealed by deposits that date to at least ca. 2000 B.P.

Our new dating results divide the Futuna burials into two categories, with sub-surface inhumations in caves and rockshelters dated to ca. 1270–970 cal. B.P. and inhumations on the floor of the shelters, aged ca. 300–200 cal. B.P. Overall, the obtained age range includes a point in time of about 1000–700 B.P. that is related to arrivals in southern Vanuatu of people coming from West Polynesia, as has been suggested for other Outliers such as Tikopia and Taumako (Kirch 2017:130–134; Leach and Davidson 2008; McCoy et al. 2020).

Earliest Mortuary Practices in Regional Context

At least some of the Aniwa burials could represent the earliest evidence of burial rituals thus far seen in southern Vanuatu. These burials consist of single inhumations in open sites at the rear of limestone terraces in ancient beach sands. The funerary practice is somewhat uniform, comprising inhumation in a pit dug in sand at various orientations, placement of the body on the back in an extended position with the upper limbs on the side of the body or flexed with the hand placed close to the face, and the body possibly wrapped in a flexible perishable container then covered with the sediment extracted from the sepulchral pit. The occurrence of coral rock over the body or by the head and the presence of fire features by the feet appear to be part of the protocol.

Archaeological evidence at Aniwa indicates single burial events that differ from the complex mortuary protocols observed in pioneering colonizing sites in Vanuatu such as those featured at the Teouma site in Central Vanuatu dated to ca. 3000 B.P. (Valentin et al. 2016; Valentin et al. 2010). It offers instead parallels with that observed at other southern Melanesian sites in similar settings dated to the first millennium A.D., although examples are infrequent and dispersed across the region (Valentin 2019). For instance, at the Poé site in New Caledonia, individuals buried between 1500 and 1000 A.D. were

placed in small pits dug in the sand dune, on their back, on their side, or seated with their limbs tightly flexed and with no ornaments or grave goods (Sand et al. 2012).

Adornment of the bodies is a rare feature of these early burials of southern Vanuatu. In Aniwa, it consists of a small *Conus* ring and distinctive *Tridacna* bracelets worn at the wrist. While *Conus* rings of various diameters are documented across the region since first settlement (e.g., Szabo 2010), *Tridacna* bracelets of this form are exceptional. This form has been seen on Aneityum in a surface collection but is currently unknown in the center and in the north of Vanuatu. In Tanna, another unique form of ornament consisting of *Strombus* and *Tridacna* large rings was found in association with a flexed inhumation in the sand at Enarpap. Such nonperishable objects are atypical, suggesting they may have been valued by the living for their activities and interactions or the objects were used as social status markers.

On the island of Futuna, the earliest burials, dated to ca. 1270–970 cal. B.P., feature another way of treating the dead. They consist of inhumations in rockshelter sediments. This practice is poorly known across the region. It appears to have been used in New Caledonia and other islands of southern Vanuatu during the same time period. Primary and secondary burials with no associated ornaments were only partially excavated at Tiouandé (New Caledonia), Hnenigec (Loyalty Island), Île des Pins (Lagarde and Ouetcho 2015; Valentin and Sand 2008) and Raowalai on Erromango (Valentin et al. 2011).

Dating results indicate that this method of inhumation appears to have been used over a period of time with successive interments at the same location in Futuna (Table 2). Counting and identification of the human skeletal elements support this view. The minimum numbers of identified individuals via skeletal analyses are higher than the number of burials counted at the time of excavation. For example, the Shutlers identified 15 burials at the entirely excavated FURS12 rockshelter (Shutler and Shutler 1966), whereas the combined MNI (Minimum Number of Individuals) estimate based on the Shutler skeletal collection is 32, including 16 adults, 9 infants, and 7 children over 3 years old (Zinger 2021).

The related mortuary practices comprise four main features which differ from the open site burials described above: construction of cairn-like features; interment in flexed positions; lengthy protocols at least for some individuals (whose skulls were removed after decomposition), and adornment of the bodies. Associated ornaments included necklaces made of small shell beads or shell, pearl, or stone pendants, shell rings, and a narrow *Conus* shell bracelet. This series of items has existed in the region since first arrival ca. 3000 B.P. (Szabo 2010), although not normally described in association with funerary contexts. The Futuna set of ornaments also comprises rings made of turtle shell, a material not yet identified for this early time period. These ornaments might have been used as earrings or as nasal ornaments, since similar ornaments were described in early historic accounts of Futuna (David 1995:53; Gunn 1914:93).

Latest Mortuary Practices in Regional Context

The ca. 300–200 cal. B.P. Futuna burials illustrate another way of treating the dead, with deposition of the body on the surface of the rockshelters and in crevices. This funerary use of the karstic areas is frequent in southern Vanuatu and New Caledonia. For example, according to Sand and colleagues (1999), they constitute about 25 percent of

the cultural sites recorded in the Wetr district on Lifou in the Loyalty Islands. Spriggs and Roe (1989) recorded 17 burial rockshelters and cave complexes containing a combined total of at least 79 individuals on Erromango. In this exposed environment most of the human skeletal remains are generally separated and commingled and no mortuary pattern can be recognized due to the influence of various taphonomic processes and human impacts (Shutler and Shutler 1966; Shutler et al. 2002; Valentin and Sand 2008). Ornaments are generally absent either because they were not used or have decayed or been removed.

In Futuna, ornaments associated with the superficial burials included a small flat *Conus* ring, *Conus* bracelet, and pig tooth bead (Shutler and Shutler 1966; Shutler et al. 2002). This set of elements appears limited in number and diversity in comparison to that recorded in other Outlier mortuary contexts such as at Mele Island (Efate, Garanger 1972) and at Namu (Taumako, Leach and Davidson 2008), but the burials were sub-surface at these sites. The ca. 300 B.P. Futuna ornament assemblage includes a pig tooth bead uncovered at site FURS9, an element that does not appear in the ornaments listed for the earlier sub-surface interments of Futuna or any other early deposits of any sites in the southern islands of Vanuatu. Pig tooth beads of various shapes have been recorded in other Polynesian Outliers such as Tikopia in the Solomon Islands in cultural deposits dated after 765 cal. B.P. (Kirch and Yen 1982; McCoy et al. 2020) and perhaps on Taumako (Leach and Davidson 2008). The only other places pig tooth beads have been found to date in Vanuatu include Aneityum in burials dated close to the time of European contact (Haddow et al. 2018:109; Spriggs 1997:217–218) and on Erromango excavated from a surface site (Groube 1972). This suggests a very late appearance of this new ornament in southern Vanuatu and its local or imported origins still need to be clarified.

Interpreting the Evolution of Mortuary Practices Over Time

Although interactions between Polynesian newcomers and Vanuatu hosting communities, as visible in people's biological make-up (Table 2), might have played a role (indefinable at this stage of research) in the expression of their culture and mortuary rituals, the influence of other factors beyond human cultural control are not excluded from explanations for the ca. 300 B.P. burials lying on the surface of rockshelters. Epidemics and associated death correlated with European arrivals within South Melanesia and West Polynesia since the seventeenth century (Cruz Berrocal and Sand 2020; Kirch and Rallu 2007; Spriggs 1997:253–264) may have forced the Futuna islanders to change and adapt their original burial methods; this process is sometimes mentioned in regional oral traditions (Lagarde 2012:160). Historical records related to the Mission period indicate severe demographic loss and diseases in southern Vanuatu (Flexner et al. 2020; McArthur 1981; Spriggs 2007). Futuna (Gunn 1914:113–122) alone saw a reduction of about half of its population between 1866 ($n = 1000$) and 1879 ($n = 550$) (Miller 1978:13, 18).

Diseases are mentioned along with related social disorders; for example, “Samoa teachers settled in Futuna since 1841 were killed [in 1845] as a sickness struck the island” (Miller 1981:28). Moreover, as on Aneityum (Spriggs 2007) and in other areas of South Melanesia (Flexner 2016:160; Sand et al. 2007), the process of population decline in Futuna certainly started earlier than the missionary era. Evidence of this is apparent in the high concentration of agricultural terraces dating to the last 1000 years

in Futuna compared with the low number of people in historically documented demographic data (Flexner et al. 2018). Explorers, traders, sandalwood traders, whalers, and sealers carrying a host of diseases were all passing through southern Vanuatu well before missionaries established themselves there (Shineberg 1967).

Such a degraded sanitary and demographic situation in Futuna directs us to the possibility that the surfaces of the rockshelters and the crevices in cliffs of the island were used around 300–200 B.P., along with other modes of disposal of the deceased such as burial at sea, to cope with an increasing number of dead (Gunn 1914;

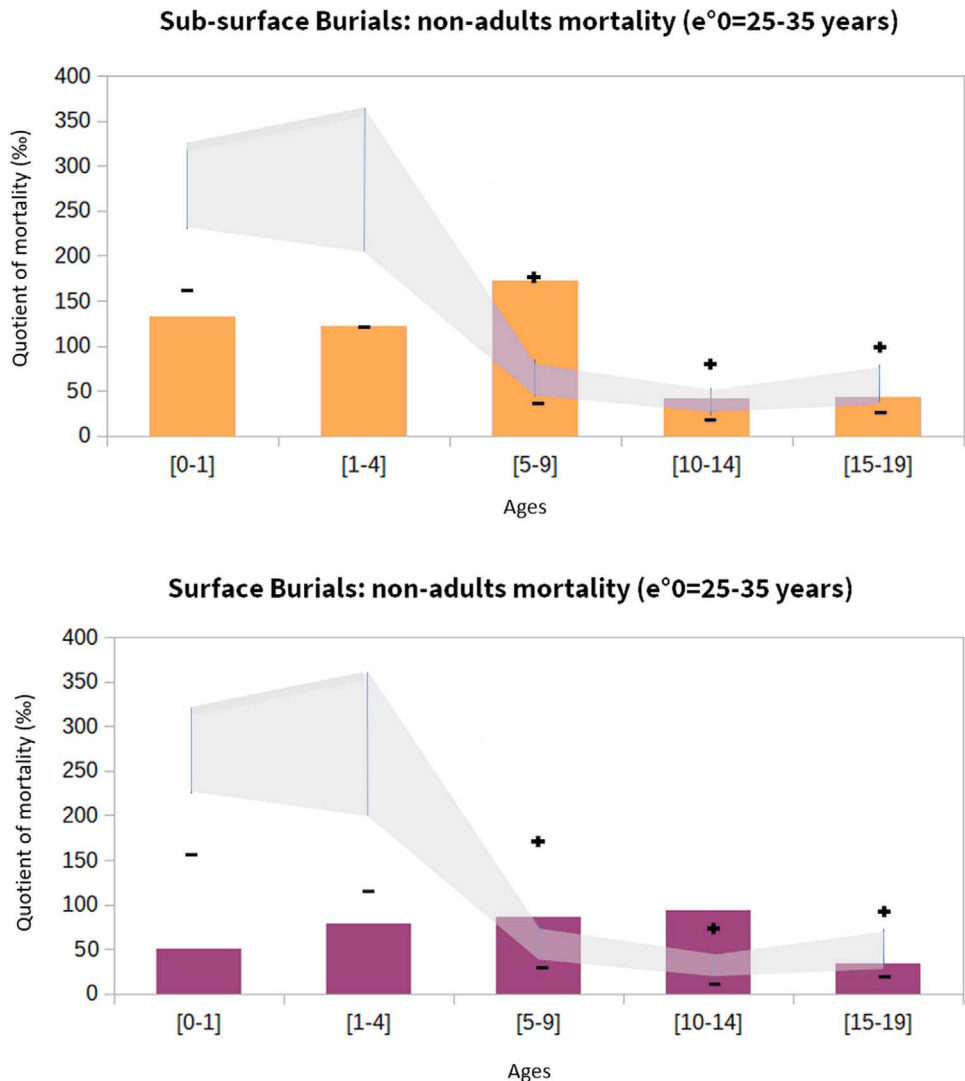


Fig. 8. Rate of mortality for non-adults from Futuna for ancient sub-surface burials (top) and recent surface burials (bottom); both compared to reference table (from Ledermann 1969) for a population with a life expectancy at birth between 25 and 30 years (median values in light gray with minimum [–] and maximum [+] values noted) (charts by W. Zinger).

Humphreys 1926:118; Steel 1880:379). Demographic anomalies and a change in the number of individuals dying between 10 and 14 years old observed between sub-surface (41.6%) and surface (93.7%) burials lends support to this hypothesis (Zinger 2021), although mechanisms of selection by disease within a population vary with the pathogen involved (Castex and Kacki 2016) (Fig. 8).

On the other hand, other behaviors and choices might also have been at play in the communities of southern Vanuatu. The tradition of burying the dead in the fill of a cave or rockshelter used at the end of the first millennium A.D. in Futuna was also in use in Tanna at the time of European contact or slightly later. Such a situation is illustrated by a burial found at the TARS3 rockshelter on Tanna. The individual (dated to ca. 260–0 cal. B.P.) showed specific dental wear featuring damage caused by clay pipe smoking (Fenwick 2018) (Fig. 2). The individual was placed in the ground in a manner resembling that used in Futuna c. 1270–970 cal. B.P. This represents the possibility of retention through the nineteenth century of a method of inhumation predating Polynesian and European contacts. At least four individuals (three adults and one child) were interred in the same fashion in the fill deposit of another Tanna rockshelter, TARS1 (Fenwick 2018). Their bodies were adorned with ornaments (*Conus* sp. beads of varying form) similar to those found in four of the Futuna sub-surface burials of FURS12 (Shutler and Shutler 1966; Shutler et al. 2002).

CONCLUSIONS, FUTURE CHALLENGES, PROSPECTS

Several challenges remain in understanding southern Vanuatu burial practices in a wider Pacific context. Body deposition on the floor of caves or rockshelters is a common practice in raised coral limestone islands of the region (Valentin and Sand 2008; Valentin et al. 2011), but to our knowledge, the practice seems uncommon in West Polynesia, where the most prominent funerary structure of ca. 300 B.P. was the burial mound and the near absence of body adornment (Davidson 1969; Sand et al. 2006). No evidence for rockshelter burials is recorded for Uvea, (East) Futuna, or Alofi (Christophe Sand pers. comm. 2020), and only a small number are reported for Samoa and Tonga (McKern 1929). The practice has not been recorded for the Outlier of Aniwa at this stage of our archaeological research, even though the uplifted southern half of the island presents a number of cliffs, crevices, and rockshelters. Whether the differences between Futuna and Aniwa and between southern Vanuatu and West Polynesia are associated with sampling issues (due to erosion, sediment deposition, or human removal of bone post-Christianization), configuration of the terrain (related to the islands' geographical form and need to preserve land for cultivation), or cultural differences (related to migrants and their relation with hosting communities) remains an open question. Beyond physical and cultural differences between Futuna and Aniwa (Dougherty 1983; Flexner et al. 2018, 2019; Keller and Kuautonga 2011), the presence of surface burials in Tanna, Aneityum, and Erromango rockshelters further complicates the analysis of the dynamics of pre-European interactions in the region during the last 1000 years.

Despite these issues, we can now offer some general conclusions about the significance of the burials described above for the archaeology of Oceania. Southern Vanuatu was an important hub of Oceanic settlement and interaction throughout its 3000 year history. Our documentation of burials, the biological features of the dead, and associated ornaments reflects this formative history, as people in southern Vanuatu

developed new forms of inhumation through time, likely in concert with the arrival of new populations, specifically people from West Polynesia after 1000 B.P. and European voyagers from the late eighteenth century on, among other possibilities. However, the burial patterns do not suggest a simple diffusion of new practices that were adopted in a straightforward manner by the extant populations of these islands. Rather, novel burial forms and material culture appear to have emerged in response to the arrival of newcomers in some cases, while in other cases extant practices were maintained even as the outsider group was adopted into the existing society.

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NOTES

1. Stored at Vanuatu Cultural Center in Port Vila, Vanuatu, the Shutler Archives include various fieldnotes, papers, and other documentation produced and assembled by Mary E. Shutler and Richard Shutler Jr.
2. Individuals deposited on the surface of the Futuna rockshelters ca. 300–200 cal. B.P. display a wider morphological diversity, including Polynesian phenotype, than the earlier individuals dated to ca. 1270–970 cal. B.P. These earlier individuals have morphological and genomic homogeneous features indicating a single biological origin in Northern Melanesia region, similar to that of earlier and later individuals from the neighboring island of Tanna, uncovered in Marseille, Lowenpakel, and TARS3 sites (Posth et al. 2018; Zinger 2021; Zinger et al. 2019).

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