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Walpole, A "Mystery Island" in Southeast New Caledonia?

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ABSTRACT. Walpole Island, the southernmost island of Melanesia, is a spectacular raised limestone formation 135 km south of the Loyalty Islands within the New Caledonian archipelago. Occupied by enormous numbers of seabirds when the first westerners landed, this rocky spot was mined for guano. Workers frequently reported archaeological finds that indicated prehistoric occupation and an early collection of artefacts was sent to the Australian Museum in Sydney. Over the last 30 years, research on the archaeological heritage of the island has been carried out through the study of museum collections and excavations. This paper reports the results of recent stratigraphic excavations, and synthesizes current archaeological knowledge about the human occupation of Walpole spanning at least 2,500 years.

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During the last two decades, Melanesian and Polynesian prehistory has come of age (Kirch, 2000). Jim Specht was a pioneer with an insatiable drive to explore new directions in Pacific prehistory. Amongst numerous other projects, he initiated modern archaeological studies of the pre-European settlement on Norfolk Island (Specht, 1984). Before discovering Norfolk on the 5th October 1774, James Cook put a new archipelago on the European map—New Caledonia (Beaglehole, 1961). One week previously he had passed just out of sight of a small uplifted coral island, at the southeastern tip of the Grande Terre. Its name, given a few decades later, is Walpole.

Very few people know of this island at the southernmost point of Melanesia. Although Walpole appeared as a "mystery" early in the literature (see Sand 2002: 14 for a review), it is not normally listed in studies of the Pacific "mystery islands", which focus only on Polynesia and eastern Micronesia (Bellwood, 1978: 352–353; Kirch, 1988; but see Di Piazza & Pearthree, 2001: 165). A historical connection links Walpole to the Australian Museum in Sydney, where the oldest archaeological collection from the island is stored. In this paper I summarize the historical and archaeological data of Walpole and propose a tentative chronology.

"Mystery Islands": a short review

When European navigators started to systematically explore the Pacific, they visited uninhabited islands with signs of former human occupation, like Pitcairn in East Polynesia, and Norfolk off eastern Australia. These abandoned islands were mostly in Polynesia (Kirch, 1984: table 9), although some east Micronesian islands were also identified (Terrell, 1986: fig. 28). The "mystery" of their pre-historic settlement and abandonment led to early research (e.g., Emory, 1928, 1934). As Kirch (1984: 89–92, 1988) pointed out, although all these "mystery islands" were grouped on the basis of isolation, resource scarcity and absence of occupation at

European contact (Bellwood, 1978: 352–353), there are huge differences in size, geographic location and natural environments.

First archaeological surveys in the early twentieth century showed a Micronesian-Polynesian cultural origin based on the presence of marae, ahu or diagnostic stone tools. Excavations dated these occupations to between 1,000 and 500 B.P., with most being abandoned soon after 500 B.P. More importantly, Kirch (1985: 89–98) showed that some, like the 23 ha Necker Island 500 km off Kauai in leeward Hawai'i, were occupied for a single generation (Kirch, 1988: 30), whereas the larger 77 ha neighbouring island of Nihoa, only 250 km from Kauai, probably had a longer human history. Although Necker and Nihoa were remembered in oral traditions (Kirch, 1985: 89) (as were other uninhabited islands) and showed a classic prehistoric Polynesian occupation, they were classified as "mystery islands".

More recent studies of the "mystery islands" concentrate on three regions:

- In the southwestern Pacific, research on sub-tropical Raoul and Norfolk Islands, has shown the existence of an inter-voyaging network between smaller and bigger islands during the first millennium B.P., in some cases over distances of more than 1000 km, before abandonment (e.g., Anderson, 2000; Anderson & McFadgen, 1990; Anderson *et al*., 1997).
- In sub-tropical eastern Polynesia, Weisler (1994, 1995, 1996*a*,*b*) conducted an extensive program on the Mangareva-Pitcairn group. Around 500 B.P. interaction ceased and consequently about 200 years later the Pitcairn group was abandoned by Polynesians (Weisler, 1998).
- Finally in the central Pacific, two teams (Anderson *et al*., 2000; Di Piazza & Pearthree, 2001) have conducted research on the windward Line Islands, concentrating on Kiritimati (Christmas Island) and Tabuaeran (Fanning Island). Interestingly, although both conducted excavations essentially on the same sites on Kiritimati, their proposed conclusions are very different. Anderson *et al*. (2000: 289) view settlement of the large atoll during the first half of the first millennium B.P. as occurring only once, being continuous, substantial, and not related to a wider inter-island interaction sphere, before "a combination of environmental hazard, tenuous horticultural productivity and unsustainable harvesting of the natural resources, produced, eventually, a subsistence environment that was no longer attractive to settlement, even one unable to sustain settlement". In contrast, Di Piazza & Pearthree (2001: 164) see Kiritimati as a staging post on long regional voyages, and as a regularly visited "satellite" island for bird and turtle hunting from a neighbouring "mother community" in Tabuaeran, but without permanent settlement.

This final example shows how much even the first step in interpreting "mystery islands" can vary immensely. Accordingly, reasons advanced for abandonment are numerous and certainly do not apply in the same way to each island. Weisler (1996*a*: 627) has listed five reasons to explain small population extinction: demographic and environmental stochasticity, natural catastrophes, inbreeding, and social dysfunction (like political threat and cessation of inter-island voyaging). On small, barren Necker Island, the whole history might have just involved a canoe castaway, with the survivors trapped. On large, fertile islands like Pitcairn, Raoul or Tabuaeran, the reasons for departure might relate to local environmental and social conditions. As Kirch (1984: 90) summarizes: "Why such larger and fertile islands should have ceased to be occupied is indeed a mystery, though either demographic instability, or the depredations of internal conflicts are conceivable causes for extinction". The Rapa Nui case shows how internal stress could lead to political uncertainty in Polynesian communities (Bahn & Flenley, 1992).

In island Melanesia, far less attention has been placed on unoccupied islands, and the small island of Anuta is at present the only one where a possible period of prehistoric abandonment, before resettlement, has been identified (Kirch, 1982). For southern Melanesia, only the remote uninhabited islands of Hunter and Walpole have received some attention, each showing very different types of remains. On Hunter Island, a small 1 km wide cone of volcanic origin located south of Vanuatu, three structures of human origin were partly studied by geologists (Lardy *et al*., 1988). The major site is a rectangular 11 m by 7 m structure with a 1.2 m high and 70–80 cm thick stone wall, and a possible pavement buried about 30 to 40 cm deep. A typical oceanic rounded net-sinker with a central groove was found in this undated structure. Nearby, a smaller 4 m by 4 m wall located in the only part of the island where cultivable soils are present was interpreted as a possible garden. Finally, a stone cairn about 1 m high was identified in the only cave where fresh water (rich in calcium sulphate) is present. No definitive origin for these remains can be given as they might be related to pre-historic short-term occupation, as well as recent historical whaling (Lardy *et al*., 1988: 46–48). In archaeological terms, Hunter Island (named *Fanuamanu*, the birds' island, by the people of nearby West-Futuna) has more in common with a "mystery island" like Necker than with closer examples like Raoul or Norfolk.

Walpole's environmental setting

Walpole Island is the southernmost outpost of the Loyalty Islands chain. Positioned 22°36'S 168°57'E, it lies 140 km east of the Isle of Pines and 135 km southeast of Maré (Fig. 1). The uplifted coral platform rises to a height of more than 80 m in some places and has a probable volcanic core.

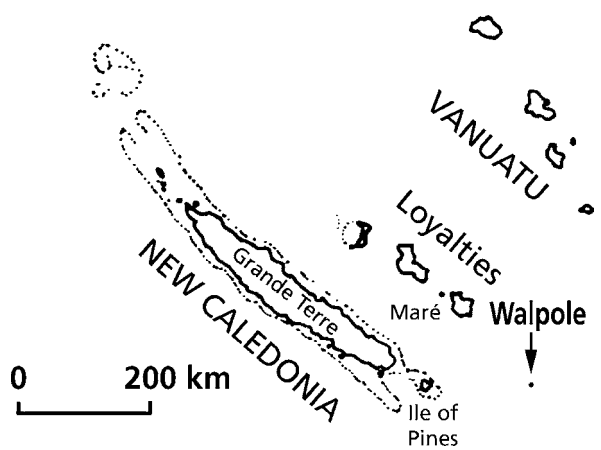

Fig. 1. Location of Walpole Island in the New Caledonian archipelago.

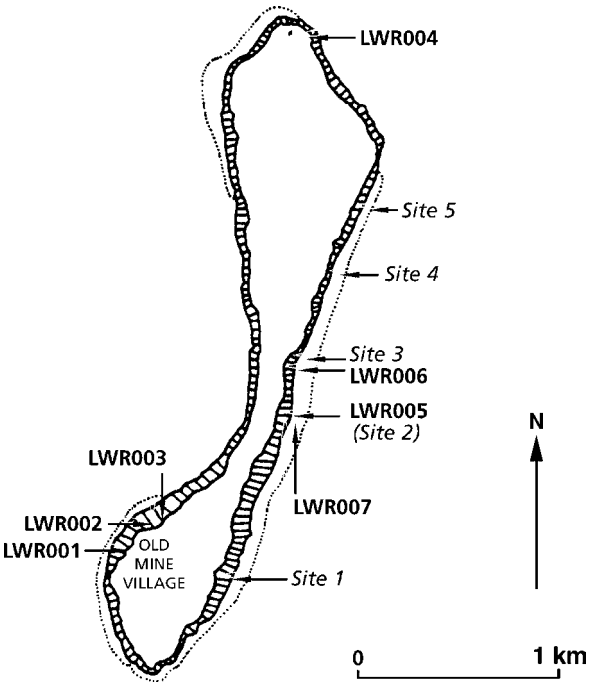

Fig. 2. Walpole Island, with the locations of the surveyed sites. The positions of the sites recorded by the treasure hunters are approximate only.

Successive uplifting and erosion during the last 400,000 years have created a long narrow island, about 3.5 km long and between 300 and 900 m wide (Fig. 2). The centre of Walpole is a flat plateau, surrounded by steep cliffs falling towards the sea (Fig. 3). On its southwestern and northwestern leeward sides, there is a narrow flat area that can be used for landing in calm weather. The heavy waves on the windward eastern side prevent landing by boat.

The island has no permanent streams, and the rainwater drains into the porous soil, sometimes accumulating in freshwater pools in deep caves. In a few areas a thin surface soil has been formed by decomposing leaves. The only other non-calcareous soil is guano from the nesting birds.

The remote position of Walpole and its extreme geology have led to a particular natural environment. Although there is an area of medium deep sea floor on the western side, the ocean around Walpole is not known for its richness in fishing grounds. The number of fish species is more limited than in the other parts of New Caledonia (Sand, 2002: 38–39). The former diversity of local flora has probably been much reduced by recent exploitation of guano soils (Renevier & Cherrier, 1991). On the southern and central parts of the central plateau, very degraded by mining, only a short scrubby vegetation is present, whereas pandanus and other coral-adapted trees grow on the lower plateaux. The only well-preserved remnant of forest occurs on the unexploited north of the plateau, where endemic species, hardwood species and symbolic oceanic trees like banana survive (Sand, 2002). Seabirds, the dominant fauna, nest on the low bushes, in trees, or in various natural holes in the uplifted coral. Endemic land birds, lizards, and insects are rare. Walpole was the first place in the archipelago where horned turtle (*Meiolania*) bones were found (Balouet, 1984).

History of Walpole

Walpole Island was first placed on a modern map on 17th November 1794, when the English captain Butler passed by and gave it the name of his ship. Surrounded by sea currents used by whales during winter migrations, Walpole was frequented by whalers early in the nineteenth century. Captain Herskine is the first European reported to have landed on the island in 1850 (Chevalier, 1976).

Fig. 3. Aerial view of the central and northern part of Walpole, showing the central plateau, the high cliffs and the narrow coastal zones.

At the beginning of the twentieth century, the high quality guano on Walpole led to the industrial exploitation of this natural fertilizer, the major player being the Austral Guano Company Limited. Between 1916 and 1941, up to 300 people lived on the island, with contact to the mainland only every three to four months. Over 100,000 tons of guano were extracted. Europeans, Kanaks and Asians worked in the extraction areas and the local factory. Meat was imported in tins, and very fertile gardens were cultivated (Chevalier, 1976). "One year was enough to have bananas, everything grew" (Sintès, 1988: 14). During their free time on Sundays, the workers explored the cliffs, looking especially for birds' eggs. However, they also discovered evidence of earlier occupation in the low shelters, confirming observations of human structures on the central plateau. Skeletons were found in caves, and various shell and stone artefacts were collected, all indicating the existence of a "mysterious civilization". In 1929, an anonymous writer published his discoveries in the *China Journal* of Shanghai. His testimony is worth reading in full, as the objects and structures he describes have mostly vanished, and it is reproduced in an appendix to this paper.

If the early Europeans had consulted the Kanaks, they would have heard stories about Walpole; to my knowledge, three have been recorded. The first two are from the nearest islands to Walpole—Isle of Pines and Maré—and were published by the ethnographer J. Guiart (1963: 207). One describes two canoes adrift between Maré and Isle of Pines. The first canoe was lost at sea. The second landed on empty Walpole, where its crew constructed a new canoe from two *Casuarina* trees, and set sail to the west. In the other story Tongan sailors stopped on uninhabited Walpole before settling on Isle of Pines and Lifou, probably in the 1820s or 1830s as the tradition is linked to the arrival of Christianity. The third story, recently recorded on Maré (Sand, 2002: 42), is more mythical and tells of two men setting sail to marry the queen of Walpole, an island possibly called *Ha colo* ("turn its back") in Nengone (Maré) language and where only women were living.

At the end of the Guano mining period new tales circulated about the Walpole discoveries. One was that a Kanak worker had found the remains of European sailors in a cave with pieces of cloth and a canoe. With them was a button that was supposed to bear a "fleur-de-lis" design, the emblem of the French king. In the early 1960s, Pognon, a local amateur historian, inferred from the button that Walpole was the place where Laperouse was shipwrecked after leaving Vanikoro. Another local historian wrote that the Peruvian captain Robertson had hidden his fabulous golden treasure (which he stole from the British in 1826) on Walpole. Others claimed that the human bones were the remains of convicts escaped from Tasmania (Sintès, 1987). Although amusing now, these stories were taken seriously by some people at the time.

Archaeological fieldwork and treasure hunting

The island was first archaeologically surveyed between the late 1960s to early 1970s by the former director of the New Caledonia Museum, Luc Chevalier. During five short stays, he found the remains of pre-European settlements with associated human remains, shell adzes and wooden objects. Working in southern Melanesia, R. Shutler Jr. started collecting information about Walpole, made the first study of the Australian Museum collection, and in the early 1980s submitted three samples from the Chevalier collection for radiocarbon dating (Sand, 2000*a*).

Unfortunately, each time Chevalier visited Walpole, the weather turned to rain and wind, necessitating departure after only two days (Nunn, 1967). However, worse was yet to come. In 1993, a team of "treasure hunters" spent one month on Walpole to find traces of Laperouse, collect prehistoric remains of the "mysterious civilization", and find hidden treasures (Letrosne, n.d.; Sand, 2002). They explored most of the rockshelters in the cliffs and systematically emptied those where stratified *in situ* deposits had been preserved, excavating five sites on the east coast (Fig. 2). Their activities resulted in huge destruction, although only some of the objects were brought back to Noumea. The available written reports suggest they collected all surface material, and mapped some surface "hearths" and "working floors". They also indicate stratigraphies up to 30–40 cm deep, with *in situ* materials like hearths, ornaments and shell artefacts. The richest site (No. 5, called "The Women's Cave"), located in a niche at the base of the cliff, contained worked bone points, shell artefacts and food remains.

The New Caledonia Museum managed to recover some of the archaeological material from these unauthorized excavations only after a long battle. The most interesting objects were kept by the treasure hunters and so the collection, recently published (Lacroix, 1998; Sand, 2002), allows only a partial view of the island's archaeology. In the mid-1990s, I went to Walpole twice to evaluate the destruction caused by the treasure hunters, to make a preliminary survey (Fig. 2) and to conduct the first scientific excavations (Sand, 1995*a*; Sand, 2002). This recent visit showed a deplorable destruction of the deposits by the treasure hunters, particularly in Site No 5 where huge amounts of archaeological material were abandoned in the cave and scattered along the outside path. Some stratified deposit has hopefully survived, but this is yet to be confirmed.

Most of the large rockshelters are at the base of cliffs, beyond wave action, and have archaeological deposits consisting of sediment and ashes, up to 60 cm deep. In some cases there are successive stratigraphic layers, indicating regular use of these sites over a relatively long period. Although no pollen samples have been studied to date, samples from some rockshelters could enable the reconstruction of local vegetation changes. During my first stay, I excavated 50 by 50 cm test pits in four locations. The sediments were not screened but soil samples were taken from each layer. A summary of the collected data follows:

Site LWR003. A rockshelter with a 20 sq m floor, located about 30 m above sea-level on the southwest coast, the only accessible shore of Walpole. The 50 cm deep stratified deposit in the centre has six layers (Fig. 4). Under a sterile layer 1, layer 2, 10 cm thick, is mostly white ash with some charcoal forming the upper part of the anthropogenic occupation. Layers 3 and 5 are burnt soil and charcoal, with burnt oven stones, shells and broken bird bones. They are separated by a thin sterile yellow layer 4. The bottom layer 6, resting on the limestone floor, is of same texture as layer 4, and has some *Placostylus* land snail shells.

Site LWR004 is the only inland site excavated. It is at the northern tip of the central plateau, where a collapsed limestone cave has trapped sediments. Today, numerous rats

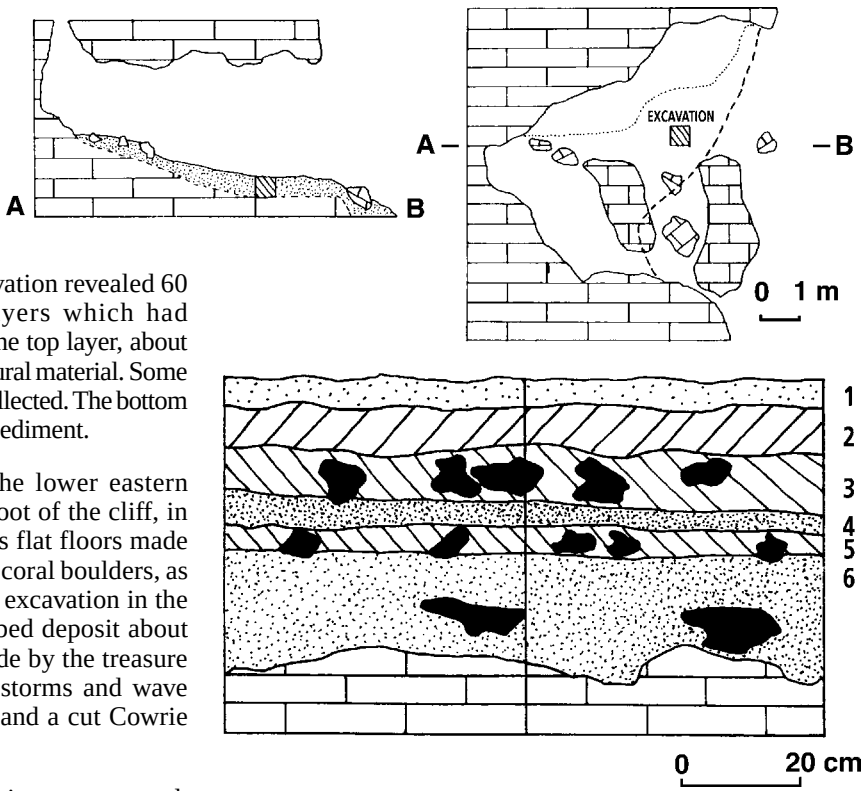

Fig. 4. Plan and cross-section of rockshelter LWR003 and stratigraphic profile.

and birds have dug deep holes. The excavation revealed 60 cm of stratified deposit with two layers which had accumulated on the limestone bedrock. The top layer, about 55 cm thick, is loose soil with very little cultural material. Some charcoal in the lower part of this layer was collected. The bottom layer, about 5 cm thick, is a brown sterile sediment.

Site LWR005, in the central part of the lower eastern plateau, is a 30 sq m rockshelter at the foot of the cliff, in front of an organized area with numerous flat floors made of shell debris, some alignments of fossil coral boulders, as well as coconut trees. Unfortunately, the excavation in the centre of the rockshelter revealed disturbed deposit about 35 cm deep, possibly linked to holes made by the treasure hunters (their site 2) or resulting from storms and wave action. Prehistoric *Tridacna* shell adzes and a cut Cowrie shell were recovered.

Site LWR006, in which the deepest test-pit was excavated, is a rockshelter in the northern part of the lower eastern plateau. It is about 35 m above sea-level, partly protected from the prevailing winds by large limestone blocks fallen from the cliff. The shelter has a flat floor of about 60 sq m, a roof over 4 m high and a large talus. A 1.3 m high wall is present on the northern side, and a broken stalactite about 1 m long was purposefully raised at the entrance of the site. The test pit, in the centre of the rockshelter, was excavated until 70 cm deep without reaching the limestone floor. Layer 1 is a thin sterile soil. Layer 2 is a 10 cm thick dark-grey sediment, with burnt soil at the base, containing some bird bones. Layer 3 is a 25 cm thick brown, loose sediment with burnt coral stones and charcoal. Broken bird bones, small sea shells (*Nerithae, Pinctada margarifera, Cypraea caputserpentis*), *Placostylus* shells and sea urchin spines were unearthed. Within layer 4, 20 cm thick, was a burnt white deposit surrounded by charcoal and heated coral stones. No bones were clearly identified in this layer, but the same types of sea shells as in layer 3, plus a *Turbo* sp. opercula, were noted, along with more *Placostylus* shells. Layer 5 is a sterile coarse yellow sand.

Archaeological finds

Although limited in size and scope, the test excavations confirmed the presence of stratified deposits on Walpole. Hearths and burnt coral blocks from ovens were identified. If some credit can be given to the treasure hunters' descriptions, working floors associated with the manufacture of shell adzes and shell ornaments were also observed in some layers. The sediments also contained bird and fish bones, as well as sea shells. Only in the lowest layers were land snails of the *Placostylus* family found. Artefacts include: stone items in surface collections, necessarily imported; shell artefacts, mostly from fossilized shell; as well as bone and wooden items (Lacroix, 1998; Sand, 2002).

Stone artefacts. Apart from one "basaltic" stone with no recognizable form, supposedly found by the treasure hunters, the stone items are all polished adzes/axes. Two artefacts, coming from early surface collections and housed in the Australian Museum, are certainly of Grande Terre origin. One is a classic Kanak adze probably of semi-nephrite (Fig. 5a). The other is a flat disc possibly of nephrite, with two holes made at one end (Sand, 2000*a*). These discs are used by the Kanaks to make the ceremonial *ostensoir* axe (Fig. 5b), which traditionally was manufactured on the Isle of Pines from stone quarried on nearby Ile Ouen, before being exchanged with people from Maré (Leenhardt, 1937; Sand, 1995*b*). A canoe lost at sea between the two islands may have resulted in these objects being on Walpole.

Two other black basaltic adzes, whose typology is clearly Fijian/West Polynesian, tell a different story. The first, a fully ground thin quadrangular adze (Fig. 5c), is from an unknown sub-alkaline basalt source west of the andesite line (Sheppard *et al*., 2001). The other, of longer and thicker section (Fig. 5d), was found by the treasure hunters and is in a private collection in New Zealand (Sand, 2002, fig. 5.22). Both objects indicate an eastern link.

Shell tools. The exposed and rugged nature of the Walpole coast does not allow for a large quantity of molluscs to grow near the surface or on the reef. The vast majority of the shell artefacts found in archaeological contexts were manufactured from fossilized shell which can be obtained easily on the island. The most spectacular are certainly the shell adzes/axes (Fig. 6). Probably made from the large ventral (hinge) and thinner dorsal parts of *Tridacna maxima*, some of these adzes are huge, weighing over 3 kg. Collected rounded hammer stones and waste flakes show that adzes/axes were made locally. Their size and the form are unique in New Caledonia—the archipelago is known for its near absence of shell tools. The Walpole shell tools also differ

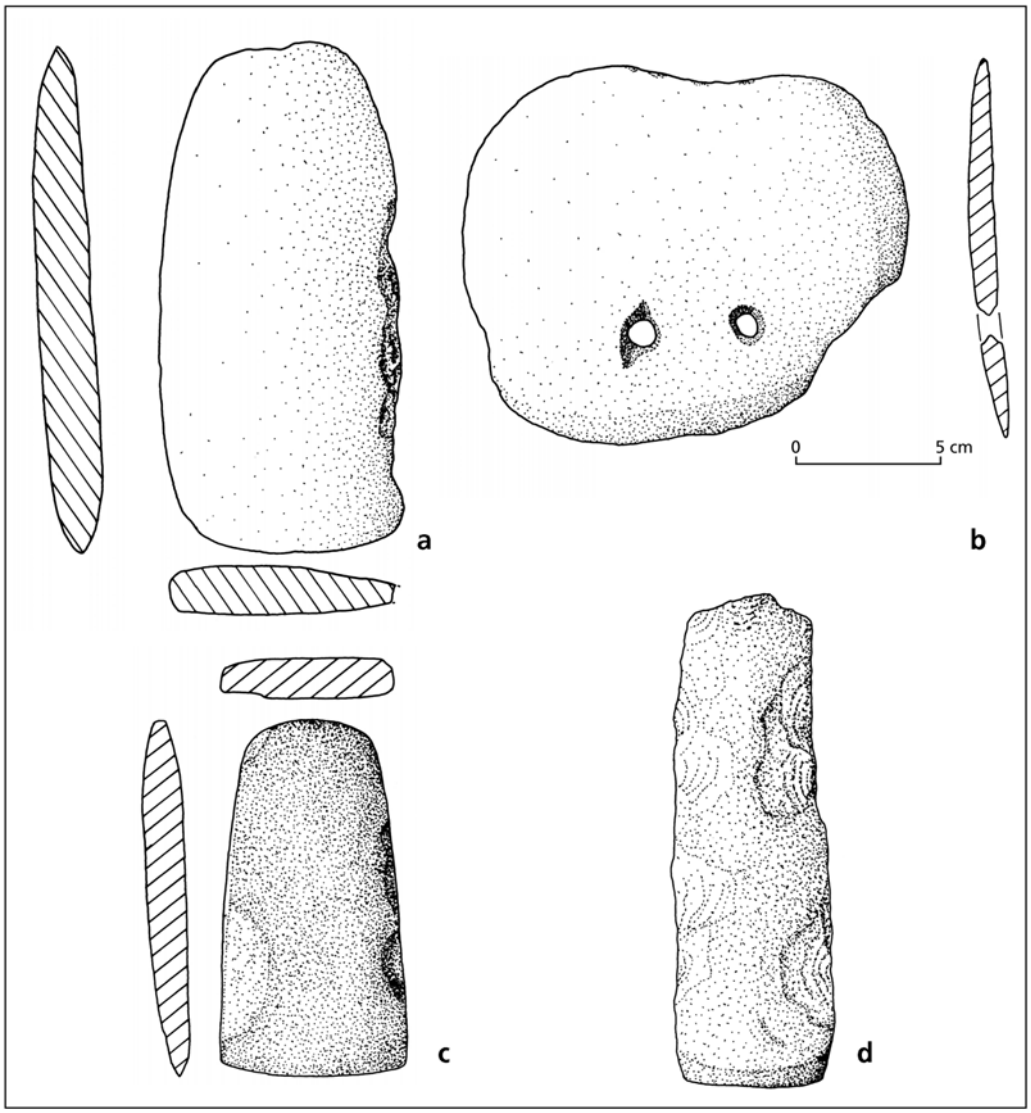

Fig. 5. Stone adzes/axes found in surface collection on Walpole Island. (a–b) New Caledonian origin; (c–d) probable Fiji/West Polynesian origin.

from those known in Vanuatu (Garanger, 1972), the southeast Solomon Islands (Kirch & Yen, 1982), elsewhere in Melanesia, and even East Polynesian islands like Henderson (Weisler, 1996*a*) which lack such large specimens.

Shell ornaments. Three different types of shell ornaments have been recovered. The first is made of the flat parts of bivalve and gastropod shells, smoothly rounded and polished, with a hole drilled at one end (Fig. 7a–b). Some are small, with an average length of about 10 cm, but others are more than 20 cm long and quite heavy. On some large specimens, two or three holes are present. All are made from fossilized shell, pointing to local manufacture. These artefacts were obviously used mostly as pendant necklaces with a string indicated by use wear on some specimens.

The second type of ornament is made from the upper part of a conus-like shell, whose spire has been removed and its lower part cut and polished (Fig. 7c). Diameters vary from less than 3 cm to over 10 cm. None of these discs could be used as arm bands and they were probably attached to a string and worn as necklaces.

The third type of shell ornament is made from gastropod shells (several species and mostly fossilized) with a hole at one end of the margin (Fig. 7d–e). This type of work is mostly associated with fastening shells on complex noded pendants, each shell being firmly tied and therefore unable to damage its neighbour.

Bone objects. The treasure hunters' excavation of site 5's deposit yielded a variety of bone points. All seem to be made from bird bones. Large and small, long bones were bevelled, probably for use in pointing, netting and matting activities (Fig. 8). The articular end is preserved on large specimens but was removed from the small needles, which had a hole on the upper side for string. The large number of these bone objects in some sites indicates a rather long prehistoric occupation. Other bones (such as shark vertebra) may have been used for ornaments.

Wooden objects. Guiart (1963: 207) reported that large paddles and gourds were found during the Guano period, in addition to a decaying canoe with skeletons. The only wooden items remaining in current collections are a wooden beater, possibly for cloth preparation, and a large curved hook, probably used for catching large fish. These objects are recent, as wood preserves poorly in salty environments.

Fig. 6. Shell adzes/axes of different sizes from Walpole Island. Scale length 5 cm.

Human remains. Written descriptions of the structural remains on the central plateau clearly indicate the former existence of complex burials with upright slabs, unknown elsewhere in New Caledonia. The added existence of bodies placed in rockshelters, a common tradition elsewhere in the archipelago, indicates two different ways of disposing of the dead, possibly linked to two cultural traditions or two chronological periods.

The only collection of human remains from Walpole that I have located was brought back after the 1967 expedition and is now housed in the New Caledonia Museum. This material, representing a minimum of eight individuals, was analysed by F. Valentin (Valentin & Sand, 2000). The bones represent young children, adolescents and mature males and females. The skulls are absent. The only jaw has characteristics more common in Polynesian than Melanesian populations. Adults height ranges from 152 cm to 170 cm. The bones have numerous signs of degenerative osteoarthritis on the spinal column, the hands and feet. One vertebra bears a rare exostosis of hooked form (Valentin & Sand, 2000: fig. 6.4).

Prehistory of Walpole: a first tentative chronology

With such complex and mixed material, derived largely from surface collections or illegal excavations, it is difficult to build an accurate chronology. One point is central: objects that are clearly associated with the "Traditional Kanak Cultural Complex" of the last thousand years (such as the stone adzes/axes) (Sand, 1995*b*) have all been found on the surface in the rockshelters. This is also true for the human remains. A second set of objects made of shell and bone has been found in surface collections and in stratigraphic layers up to 40 cm deep. Controlled excavations confirmed the existence of stratified deposits in some sites, suggesting successive occupations. The first set of objects can be related tentatively to the Kanak oral traditions, which record irregular landings on Walpole. The second set of remains and the stone constructions on the central plateau, are clearly quite different and may relate to an older occupation.

There are eleven radiocarbon dates (Table 1) from three series of measurements:

- The oldest, run in the 1980s by Rainer Berger of UCLA Lab for R. Shutler Jr., are from wood, charcoal and shell samples coming most probably from the Chevalier collection (letter from R.B. to R.S. dated 27 April 1982). The dates are calibrated to 660–460 B.P., 760–0 B.P. and 460–110 B.P. (UCLA-2333A, wood; 2333B, charcoal with adze; 2333C, shell; respectively, see Table 1 for other details).
- A human bone, collected by Chevalier in a rockshelter and processed by the Lyon Laboratory in France, returned a calibrated result of 540–460 B.P. (Ly-8308).
- Dates of 690–570 cal. B.P. (Beta-155197) and 660–540 cal. B.P. (Beta-155198) came from bird bone tools excavated by the treasure hunters in site 5.
- Finally, five charcoal samples from stratigraphic contexts excavated in 1995. The earliest date calibrated to 2,750–2,470 B.P. (Beta-155199) comes from layer 5 (25–30 cm deep) in site LWR003, near the only generally accessible part of the island. In the same test pit, and separated by the sterile layer 4, charcoal from layer 3 (20 cm deep) returned a calibrated date of 2,050–1,880 B.P. (Beta-155200). On the lower east coast, samples from site LWR006 returned comparable dates. The earliest from layer 4 (55 cm deep) calibrated to 2,710–1,905 B.P. (Beta-83786), and the most recent layer with continuous signs of occupation (layer 3 at 20 cm deep) calibrated to 2,120–1,900 B.P. (Beta-155202). Possibly related to the Guano period is a calibrated date of 270–0 B.P. (Beta-155201) from LWR004 at a depth of 40cm.

Table 1. Radiocarbon dates from Walpole Island. Shell date UCLA-2333C has been calibrated using a ΔR of 0.0.

sample no.	material	site	depth (cm)	measured ^{14}C (B.P.)	$^{13/12}C$	conventional ^{14}C (B.P.)	calibration (2σ) (B.C./A.D.)	calibration (2σ) (B.P.)
Beta-155199	charcoal	LWR003	25–30	2,530±40	-25.2	2,530±40	B.C. 800 (780) 520	2,750 (2,730) 2,470
Beta-83786	charcoal	LWR006	55	2,270±130	-24.7	2,280±130	B.C. 760–635/560 (360 280 255) A.D. 45	2,710–2,585/2,510 (2,310 2,230 2,205) 1,905
Beta-155202	charcoal	LWR006	25	2,070±40	-26.0	2,050±40	B.C. 170 (50) A.D. 40	2,120 (2,000) 1,900
Beta-155200	charcoal	LWR003	20	2,010±40	-24.8	2,010±40	B.C. 100 (10) A.D. 70	2,050 (1,960) 1,880
Beta-155187	bone	site 5	?	510±40	-12.5	710±40	A.D. 1,260 (1,290) 1,310/1,370–1,380	690 (660) 640/580–570
Beta-155188	bone	site 5	?	420±40	-13.7	610±40	A.D. 1,290 (1,320 1,350 1390) 1,420	660 (630 600 560) 54
UCLA-2333A	wood		surface	530±80	not rep.		A.D. 1,290 (1,410) 1,490	660 (540) 460
UCLA-2333B	charcoal		surface	460±200	not rep.		A.D. 1,190 (1,440) 1,952	760 (510) 0*
UCLA-2333C	shell		surface	650±80	not rep.		A.D. 1,490 (1,660) 1,840	460 (290) 110
Ly-8308	bone		surface	455±40	not rep.		A.D. 1,410 (1,440) 1,490	540 (510) 460
Beta-155201	charcoal	LWR004	40	100±40	-25.5	90±40	A.D. 1,680–1,770/1,800 (1,890–1,910) 1,940/1,950	270–180/150 (60–40) 10/0

The calibrated dates obtained for stratigraphic contexts in the bottom and middle levels of the excavations fall into the early part of the regional prehistoric chronology, mainly covering the second half of third millennium B.P. Significantly, the dates obtained from surface collections all fall in the first millennium B.P., mainly during its middle and second part. These results, although preliminary, enable a hypothesis of prehistoric occupation.

First discovery and permanent settlement. It appears that initial settlement of each Pacific region was characterized by a period of regular exploration to locate all the islands (Irwin, 1992). Walpole, although very rarely visible from Maré Island and Isle of Pines even in good weather, must have been discovered during Lapita times. The earliest date for a human presence on Walpole in front of the only viable landing place (LWR003) possibly places this exploratory phase at around 2,750–2,470 B.P. (800–520 B.C., Beta-155199).

Long-term settlement on the island was probably delayed until the expansion period of New Caledonian prehistory which occurred during the second half of the third millennium B.P. (Sand, 1999), partly as a consequence of rapid population growth (Sand, 1995*b*). Two radiocarbon dates place the major occupation of two strategically located rockshelters, LWR003 and LWR006, about 2,000 B.P. (Table 1). Significantly, the chronology of the nearby Loyalty Islands at that period shows the rapid reduction of exchange and relationships with the Grande Terre, leading to the disappearance of imported items in the excavated sites (Sand, 1995*b*, 1998). In this regard, one major difference between Walpole and the East Polynesian "mystery islands" (Weisler, 1994) is certainly the absence of foreign objects (e.g., potsherds, stone flakes, and stone adzes). Imported items have never been found in stratigraphic association with the shell artefacts on Walpole, contrary to what appears in the Loyalty Islands during the third millennium B.P. (Sand, 1998). Production of artefact types unknown in the rest of the archipelago included the heavy *Tridacna* axes, unusual shell ornaments, and numerous bone points—all rare or unknown in prehistoric contexts in New Caledonia where pottery, conus armbands and stone tools dominate. I consider that this is a sign of a rather isolated community on Walpole at a period characterized by little movement of objects between islands. In the Loyalty Islands, this occurred during the second millennium B.P., contemporaneous with the appearance of megalithic fortifications indicating regular episodes of war (Sand, 1996).

This first period of permanent settlement seems to have been characterized by a humanization of the landscape, with at least some environmental transformations. *Placostylus* land snails are present only in the bottom of the stratified deposits and unidentified bones of what might be extinct species have been found associated with the shell artefacts. If the settlement had been only intermittent, each time by a small group, these indigenous species would have managed to survive in one or the other part of the island. However, at this stage there is no way of linking the rockshelter chronology with architectural remains on the central plateau (i.e., the walls, plazas, coral columns and raised burials with cut coral slabs).

Some human bones found buried in rockshelters may be related to that major phase of occupation. As well as exploiting fish and birds, the people were probably

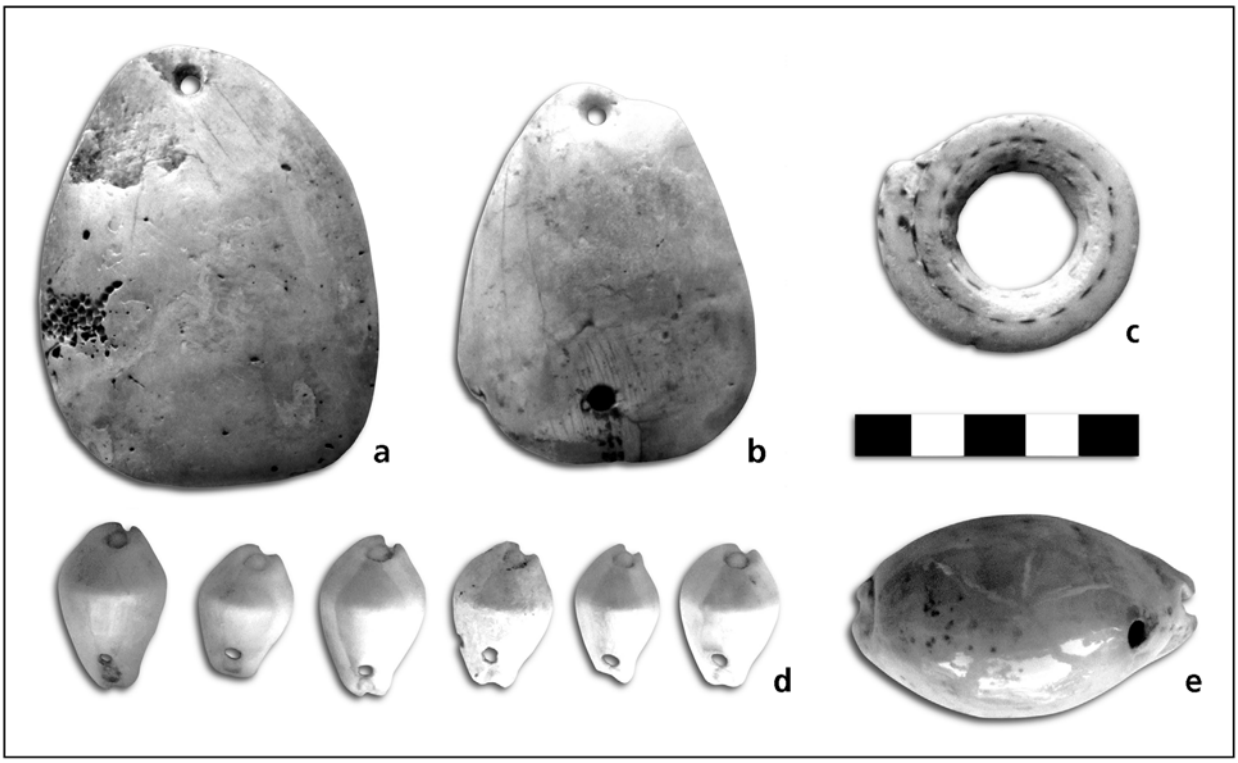

Fig. 7. Shell ornaments from stratigraphic contexts on Walpole Island. Scale length 5 cm.

Fig. 8. Bone points from Walpole Island. Scale length 5 cm.

cultivators. Historical records emphasize the high fertility of the soil, and taro plants still survive today. Some walls may have been garden enclosures protecting crops from the wind. The descriptions of "raised burial mounds" with cut coral slabs and rounded pebbles on the surface point to a West Polynesian or maybe Vanuatu tradition, but clearly not to New Caledonia. The coral columns described as laying on their side recall a coral pillar of Maré, raised on the seashore to mark the limit of a former chiefdom (Sand *et al*., 1999). However, it is not possible to link the remains described on the central plateau to a specific culture or society, and even less to give them a date.

The duration of this possibly isolated settlement is impossible to evaluate at this stage. Similar results from the two rockshelters indicate that it may have lasted a few generations or a few centuries. Studies in other areas have shown that a simple explanation for the abandonment of small islands is unsatisfactory and that each case is probably unique (Kirch, 1988).

A stopover. After its abandonment, perhaps during the second part of the second millennium B.P., Walpole was used as a stopping point on regional voyages. The archaeological imported materials found in surface collections, significantly limited to a dozen items, is dated to the first millennium B.P., when new exchange routes were developing (Sand, 1995*b*, 1998). Six radiocarbon dates all fall in the last 600 years (Table 1), a period known for new movements of people (Spriggs, 1997: 187–222). The two dates from the bird bone tools excavated by the treasure hunters might correspond to one of these episodes of long duration by passing sea farers in search of new lands.

The stone artefacts, such as the nephrite *ostensoir* axe, indicate relationships with the rest of the New Caledonian archipelago, probably as a consequence of involuntary stops between the Isle of Pines and Maré as part of the jade exchange network. Interestingly, relations with the east, mainly Fiji/West Polynesia, are also represented, thereby giving credence to the oral tradition of an early historical "Tongan" stop on Walpole. Examination of the only collected human jaw shows affinities with Polynesians (Valentin & Sand, 2000: 95–96), possibly indicating the deaths of foreign visitors. Future surveys might even show that the few slab-faced burials of the central plateau are of West Polynesian cultural affinity, and bear no relation with the possibly older surrounding walls and cairns. Clearly, no objects collected on the surface indicate permanent settlement. Finally, the apparent absence of a widely known indigenous name for the island is another sign of the absence of a permanent local population immediately preceding European discovery, making the Walpole case no different to the "mystery island" of Nihoa for example, known in Hawaiian traditions (Kirch, 1985: 89).

Sometimes Kanaks came deliberately to Walpole for fish, bird eggs and feathers (Sand, 2002: 42). The large number of birds on Walpole, some with long or coloured feathers, may have attracted the producers of ornaments for dancing or display. No wide tradition of using indigenous bird feathers has survived in ethnographic accounts. Archaeological data, however, show that Kanak society was so transformed after first European contact (Sand, 2000*b*) that the scarcity of feather use during historical times and near absence of oral traditions about Walpole might not be a definitive sign that these traditions did not exist previously. The difficult access to Walpole's shores meant that the island may have experienced long periods without visits before the new settlement to exploit guano was established.

Analysis—Is Walpole a "Mystery Island"?

The archaeological data collected on Walpole Island show a complex human history. The destruction of most pre-European remains scattered on the central plateau prevents us from fully reconstructing the former landscape and occupation chronology. However, the main question arising from this work concerns the inclusion of Walpole into the group of "mystery islands", as traditionally described and summarized in the first part of this paper. Significantly, the term itself is getting outmoded, now that archaeology is taking "the mystery out of the … 'mystery islands'" (Weisler, 1994). Kirch, in his wide summary of Pacific prehistory, doesn't tackle the point of the "so-called 'mystery islands' of Polynesia" (2000: 265) in any detail. Interestingly, in his extensive work on southeast Polynesia, Weisler talked about "marginal islands" (1994: 84) when referring to the Pitcairn group. Di Piazza & Pearthree, expanding on work by Weisler (1996*a*), propose "three classes, defined by the role each island played in regional interaction. These classes might be characterized as mother communities, satellites and isolates" (Di Piazza & Pearthree, 2001: 165).

Applying this model to Walpole shows how unique the New Caledonian island is. The "mother community-satellite" model, with a distance not exceeding c. 250 km (Di Piazza & Pearthree, 2001: 150), can apply for the late part of the prehistoric chronology proposed for Walpole, with canoes using the spot as a waypoint, and Kanak navigators visiting irregularly to collect local products. Interestingly enough, Walpole is the only Melanesian Island appearing in Di Piazza & Pearthree's paper (2001: 165). In their model there is no "abandonment", as there is no resident populations. However, recent excavations now suggest an early permanent occupation, rendering the "mother community-satellite" model inapplicable for that period. Walpole may be unique in the Pacific, having two clearly differentiated historical episodes.

Moreover, Walpole remains a "real mystery island", as we do not know who made the unusual artefacts and structures, or for what purpose. Most likely Walpole represents an extreme situation of "local cultural adaptation and differentiation" widely recognized in the Melanesian region (Bedford, 2000) and possibly linked to some form of purposeful isolation.

In conclusion, Walpole is a "mystery island", not in Bellwood's (1978) sense, but because of its unique chronology, incorporating discovery and later long-term occupation(s), then abandonment, followed by irregular visits and short-term settlements. Although the start and endpoints of this chronology are fairly well identified, the unique phase of long-term occupation(s) characterized by unusual artefacts and raised structures, remains an enigma to be properly solved only by future archaeological research.

Fig. 9. The northern tip of Walpole Island, with its manta ray profile.

Conclusion

This very preliminary exploration into the prehistory of Walpole Island, the southernmost part of island Melanesia, has led to a voyage into a unique human experience in Remote Oceania. Using various sets of data collected on this coral fortress over nearly one century, I propose a hypothetical, preliminary and general chronology. To go further, a multi-disciplinary research program involving soil, pollen, bone and shell tool specialists is required. Recent studies prefer to replace Bellwood's concept of "mystery island" with terms like "marginal island" (Weisler, 1994: 84). For Walpole, the best term in the regional context is perhaps "extreme island", being one of the most inaccessible and inhospitable places in southern Melanesia.

Walpole is a fascinating place, one that you cannot forget once you have explored it. The permanent wind, the sea at the base of the huge cliffs, the noise of the millions of birds, and the profound loneliness of the place make it a unique experience, markedly different from the Pacific cliché. The whales and their young that can be seen from the cliffs around the island are a reminder of the Kanak traditions about the sign of first field preparation for planting during the winter season (Barrau, 1956) and of the Polynesian symbol of the *Tafola'a*, the chiefly representative. The northern point of Walpole has a long coral outcrop, that from one side looks like the giant head of a manta ray (Fig. 9). I am convinced that the first oceanic occupants of the island had seen this and perceived the rock as a protector of their *Fenua*.

ACKNOWLEDGMENTS. This paper has been written with help, information and contributions from many people. I which to thank the New Caledonia Territory for granting me permission to go to Walpole Island with the help of the French Navy, and S. Calmant for inviting me to join his team on the island. Jim Specht kindly showed me the archaeological material from Walpole stored in the Australian Museum and approved its study. I also acknowledge that R. Shutler Jr. sent me his notes on Walpole and allowed me to publish the radiocarbon dates he had submitted to R. Berger of UCLA Lab. L. Chevalier, former Director of the New Caledonia Museum, shared information on the expeditions he made to Walpole in the 1960s and 1970s. A thorough investigation of the Walpole environment has been conducted by E. Lacroix for her University Maîtrise.

I would like to thank those who edited my text, and an anonymous reviewer whose very critical comments made me rework and detail the data for this paper. The final proposals published here still remain my own.

Finally, I would like to dedicate this paper to the memory of R. Sintès, Journalist in Noumea, who conducted bibliographical research on the Walpole case and would certainly be happy, wherever he is now, to see part of the "mystery" of the island solved.

Appendix

"… What was to me another interesting feature was the many traces of human habitation in the form of rough walls obviously built by man, columns of coral from two to nine feet high, large tombs or graves, clam shell bladed instruments and so on.

I knew from the walls and columns of coral, before I found anything else, that at one time the island was inhabited, but had not been so for nobody can say how long (the present people are only there to work the guano). What beat me was where did these early inhabitants get water, for although there is plenty of rain in the season, at times eight to nine inches in a night, it disappears nearly as quickly as it falls … .

The walls that I found in various parts of the island were of a very crude style, but still walls, up to about four feet high, one coming upon them here and there as the scrub was cut down. The columns of coral are as a rule in lots of fifty or so in and about one place. They appear in various parts of the island, but, strange to say, practically the whole of them are not great distances back from the edge of the cliff, some so close that part of them at the base project over the cliff, all going to show what a long time ago it must be since they were erected. The idea of them no one perhaps can say, certainly nothing to do with graves, as, where a lot of them are, there are no holes where a body could be placed, practically bare coral rock. Any body buried at the foot of one of them could only be covered with a heap of coral, and there are no signs of anything of that kind. Moreover, graves I found were built up or over with loose coral, with no sign of a columns [sic] near them. The most mysterious thing to me was how and where did they get those practically flat coral slabs. Anyone who knows anything about coral knows that you cannot split it, and of course, never get it in slabs that can be separated. There are all kinds of coral on this island, some so hard that it will cut glass, but most of it strongly gnarled. These columns are just wedged into crevasses, but are well fixed, very few having fallen. They have, of course, a good long base. At various times I have had boys from most of the islands in the western Pacific but these columns were new to them, so they told me.

I found several graves, all of which were formed by coral of various kind, built up like mounds the shape of a grave. One in particular was most interesting, being inside a walled enclosure, pear-shaped, about 50 feet long and 20 feet wide, with the entrance at the small end. The grave itself was extra large, about 12 feet long, piled up like the smaller ones, but on a better scale. Some of the coral was shaped a bit. On this grave only there were a lot of waterworn pebbles (coral, no stone of any kind on the island), also pumice, some very large pieces. I found no pumice anywhere else on the island. There was also a large piece of the hard cemented guano the shape of an egg, about 30 inches long, and of course, very heavy. How they got it into this shape which was perfect is another mystery. It certainly was not in its rough or natural state, nor was it waterworn.

Up to the time that I went there no one had been down on the lower reef on the weather side of the island. (I was most anxious to get down, thinking that perhaps I might find traces of water, so one Sunday the engineer, some Loyalty Island boys and myself made a bid for it. Getting down was not worrying us so very much, it was the getting up again that might be the trouble. However, we stuck a long crowbar into a hole in the coral, made a rope fast to it, also a small wire rope in case the other got cut on the sharp rough coral.) We got down all right. (The first 20 feet or so was the worst, as the cliff over hung there.) We found several caves at the foot of the cliffs, two of which contained good fresh water. These two caves were two of the outlets for the rain water, and one might call them small under ground creeks. Of course they only run during heavy rains. We crawled along one of them for a fair distance. The caves were pretty wide near the mouth with a smooth floor, each having a saucer shaped hole about eight feet across and about eighteen inches deep; both full of fresh water. The holes I am almost sure were formed by nature, although the ancients may have given them a start. The whole was of course of coral formation, and some kind of a sediment must have lodged in them to retain the water. The quantity of water we found would not go a long way towards keeping a lot of people supplied, but there are other caves which may be of the same nature, although since they are all in the face of the cliffs where the latter run sheer down into the sea, it was not possible to get near them. (But they were not always as they are now. Again, the island at one time may have been very much larger with some of the primitive rock showing, which would retain water.)

In some of the other caves we found numerous implements, such as axe heads and the like, made from fossilized clam shells. The axe heads were from six inches long and up, beautifully shaped and smooth at and near the cutting edges, the rest of the head being left pretty much in its natural stage, all very hard. (In breaking a piece off it glittered like a bit of broken quartz.) One of the axe heads was very large and heavy. I could not possibly lift it with one hand, and feel sure it could never have been used as an axe. We found also skulls and human bones in the caves, but I am pretty sure that they must be of a more recent date, and may have belonged to castaways from the Loyalty or other islands. I did not take away any of the skulls or bones, but the implements I took and gave to the Sydney Museum, where they told me that implements of that kind had not previously been found south of the Equator. They showed me some from, I think the Caroline Island. They had never seen or heard of anything of the kind so large as the large axe head."

Anonymous, 1929. This anonymous writer was most probably A.C. Mackay, who gave the Walpole collection to the Australian Museum.

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