Investigating Early Settlement on Lord Howe Island

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Abstract

A survey of unconsolidated sediments overlying Pleistocene calcarenites and Tertiary basalts on Lord Howe Island was undertaken in 1996 in order to test the hypothesis that human settlement had not occurred before the European era, beginning in AD 1788. The results, largely from augering in lowland areas suitable for settlement, showed almost no sign of human occupation, and two radiocarbon dates on charcoal from sand-dune deposits are both modern. As the original argument stands, the remains of the AD 1834 colony may now be used in comparative analysis of initial island colonization.

Introduction

The prehistory of human colonization and late Holocene environmental history in relation to archaeological sequences are two basic issues of the Indo-Pacific Colonization Programme which began at the Australian National University in 1996. This programme is concerned largely with the timing and mechanisms of Oceanic human expansion, especially to the more remote archipelagos, and the reciprocal affects of environmental change during early human habitation. Financial difficulties in the Research School of Pacific and Asian Studies in 1996, compounded by our ineligibility for Australian Research Council grants at that time, ensured that the early projects were on a small scale, including the one discussed here. The main projects really got going when Peter White offered collaboration through Sydney University on a large ARC grant. This brief paper is but a token of the debt owed to Peter for his generous collegiality, exhibited also on fieldwork on Norfolk Island and in Fiji and Tuvalu in 1997 to 1999.

Lord Howe Island was chosen early in the colonization project in order to address two linked questions. Had it really been uninhabited prior to European discovery, and could it provide a palynological record of late Holocene vegetation patterns? It was expected that if the answer to both was 'yes,' then the latter could assist an understanding of similar records from elsewhere in the southwest Pacific where prehistoric settlement complicates the separation of natural from anthropogenic perturbations in the spectra (Anderson 1995).

Early observations and their archaeological significance

The Lord Howe archipelago, consisting of Lord Howe Island, the Admiralty Islands and Muttonbird Island immediately offshore, and Balls Pyramid, a large rock stack 16 km to the southeast, was first sighted by the *Supply* on 18th February 1788 while en route from Port Jackson to Norfolk Island. On the return voyage to Port Jackson, the *Supply* anchored at Lord Howe Island and set people ashore on 12th March 1788. David Blackburn, Master, wrote later (Rabone 1940:11):

> ...the whole of the Island Abounds in the Cabbage [tree, presumably *Howea belmoreana*] & Mangrove [possibly *Cryptocarya gregori*, MacPhail, pers. comm. 17th June 2003]...it abounds with Turtle Much superior to any I have ever seen, on the Shore we Caught several sorts of Birds, Particularly a Land fowl of a Dusky Brown About the size of a small Pullet [*Tricholimnas sylvestris*]... Plenty of *Pidgeons*, a white fowl – something like a Guinea Hen [*Porphyrio porphyrio albus*] ...

Transports of the First Fleet visited Lord Howe Island in May 1788, adding some important biological details. It was noted that there were huge numbers of gannets nesting directly on the sand, '...there not being a single quadruped that could be found upon the island to disturb them' (Lieutenant Watts in Rabone 1940:13). Arthur Bowes, surgeon on the *Lady Penrhyn*, wrote on 16th May 1788 (Rabone 1940:13):

> The sport we had in knock'g down Birds, &ca. was great indeed tho' at the Expence of tearing most of the Cloathes off our backs... we had nothing more to do than to stand still a minute or two & knock down as many as we pleas'd wt. a short stick... they never made the least attempt to fly away.

Captain Gilbert of the *Charlotte*, also on 16th May 1788, added (Rabone 1940:14):

> At the head of the bay grew a fine long grass, and the whole island appeared to be covered with trees... There was a very thick underwood, consisting chiefly of a vine resembling what is called *ratten*, which crept along the ground, and greatly impeded us when in pursuit of the birds.

While these descriptions suggested that the island might have its uses, Governor Phillip reported to Lord Sydney, 12th February 1790, that 'Lord Howe Island has been examined, but no fresh water or good anchorage being found it can be of no other advantage to this settlement [Norfolk Island] than occasionally supplying a few turtle' (McNab 1908, I:107). In fact, it does have freshwater creeks, and a shore party camped for 15 days on the island in 1790, but Phillip's view prevailed and thereafter Lord Howe was largely bypassed until the whaling era.

The early observations of complete forest cover (excluding the highest ground) and a vulnerable avifauna suggested that if there ever had been pre-European settlement on Lord Howe, it had by 1788 long since disappeared. This is not, however, an unusual situation in Remote Oceania. There are records of about 40 islands uninhabited at discovery upon which archaeological

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remains were later discovered (Anderson et al., 2002a:9). Bellwood (1978:352) referred to these as the 'isolated mystery islands.' Most of them are coral atolls in the equatorial zone but proportionately the greater number are found in the southern subtropics, from about the Tropic of Capricorn to 30°S (Anderson 2001). They are Norfolk Island (Specht 1984; Anderson and White 2001), Raoul and Macauley Islands in the Kermadecs (Anderson1981), Marotiri and Temoe near Rapa and Mangareva respectively (Weisler and Conte n.d.), Pitcairn and Henderson Islands (Weisler 1995) and Alejandro Selkirk and Robinson Crusoe Islands in the Juan Fernandez group (Anderson et al. 2002b). Of the subtropical islands, only Easter Island, Mangareva, Rapa, and Raevavae (southern Australs), were inhabited at European discovery. Despite the historical observations, then, finding evidence of prehistoric settlement seemed a reasonable possibility, although no archaeological remains of pre-European type have ever been reported from Lord Howe Island.

Holocene sites

A University of Wollongong expedition to Lord Howe Island in May 1996 (Kennedy and Woodroffe 2000) provided an opportunity for palynologist Mike MacPhail and me to investigate sedimentary sites that might contain pollen records or other evidence of human occupation during the late Holocene. Wherever clay layers or other sediments potentially suited to pollen preservation were encountered, by soil auger or spade holes, they were sampled continuously by a D-section corer, or at 10 cm intervals by hand. Further data are in Anderson (1996) and MacPhail (1996), and sampling locations are shown in Figure 1.

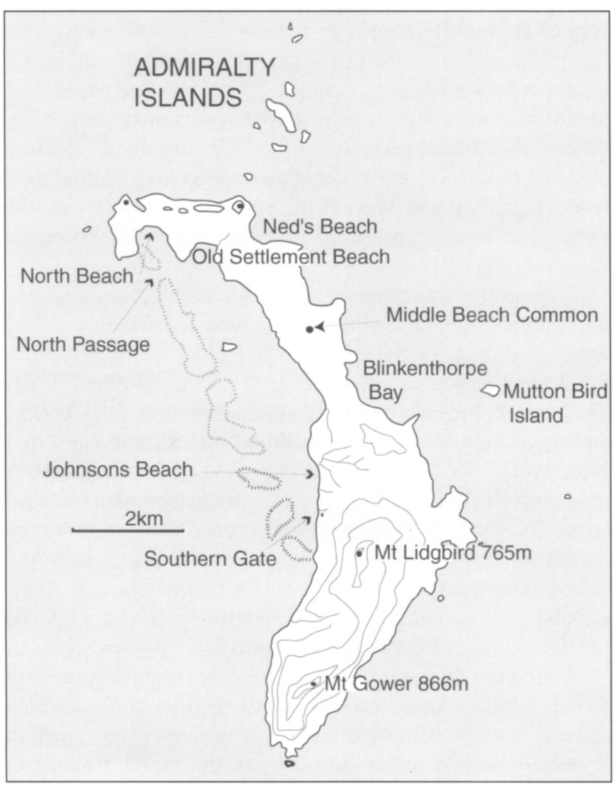

Figure 1 Lord Howe Island showing places mentioned in the text.

1) At North Beach, there are two embayments in the east of which is a small shallow mire located some 80 m inland from the high tide mark (HTM). An auger hole (NB #2) at 51 m inland, another (NB #1) on the edge of the mire at 75 m, and a third (NB #3) 25 m east of the mire all showed a thin sandy loam passing down into medium-fine then medium coarse calcareous sand, and beach-rolled coral and shell, with occasional basalt pebbles down to the water-table at 2.0 to 2.3 m. Three spade holes in the mire revealed 0.12 m of friable peat over 0.3 m of dark olive-green clays above calcareous sands, as in the nearby core.

In the west embayment, auger holes at 82 m (NB #4) and 117 m (NB #5) inland disclosed a very similar stratigraphy with some lenses of blown dune sand, with the watertable at about 2 m. A spaded excavation of 1.2 m by 0.6 m at NB #6 (177 m) showed two horizons of dark-grey, peaty-loam clay increasing with depth, lying at 1.2 m on a volcanoclastic sand. A thin gravel band separated the two horizons at 0.45 m. Wet, black material at 1.1 m appeared, in the gloom under the forest, to be charcoal. A 5 kg sample, dried over several days, contained only nodules of a non-charcoal material, probably manganese dioxide precipitate. At 252 m inland, NB #7 revealed dark-brown clay loam, with increasing clay content downwards, and containing abundant basalt clasts down to the watertable at 2.2m. Augering continued through stiff grey-brown clay and medium gravel to 3.5 m.

2) At Old Settlement Beach, auger holes OS #1 (30 m from the HTM and 30 m from the base of the hills at the western end) and OS #2 (30 m further inland) both showed a thin sandy loam going down through buff to light-yellow calcareous sand with occasional water-rolled coral and shell, reaching the watertable at 1.45 m. Essentially the same stratigraphy was revealed in a transect of spade holes dug by the Wollongong team at 10 m intervals across the centre of the beach flat (Brian Jones pers. comm. 16.5.96). Two spade holes (OS #m and OS #n) were dug at 10 m and 30 m on the slope beyond the inland edge of the marsh, with the second at 7 m above it. These showed sticky dark-brown clay with abundant basalt clasts, mostly of pebble size, going down to large, subangular basalt boulders at 0.8 to 1.0 m. The University of Wollongong team also took vibrocore samples on the sand flat at Old Settlement Beach, but these have not yet been published (Kennedy and Woodroffe 2000). At the east end of the beach, five spade pits at 5 m intervals along the eastern stream bank, beginning 20 m upstream from the footbridge showed brown clay loams over, and sometimes within, calcareous sands, marine shell hash and coral. The sand and loam unit was 1.2 m deep downstream, pinching out to 0.03 m upstream, and lying above grey brown silty clays with lignite below. McPhail regards this locality as potentially very promising, but unfortunately his samples were lost in transport. Along the exposed, 2.0 m high, western stream bank between the footbridge and the HTM, a 29 m long section was cleaned down. In its centre a 4 m section was cut back 0.5 m and the stratigraphy recorded (Fig. 2). This showed a weak palaeosol containing charcoal fragments at 0.65 – 0.75 m below the surface. Samples were taken for radiocarbon dating. Petrel bones and numerous land snail shells were observed in the stratigraphy up to the charcoal band, but not above it.

3) Brendan Brooke of the Wollongong team and I put a transect of auger holes at about 50 m intervals across the 0.8

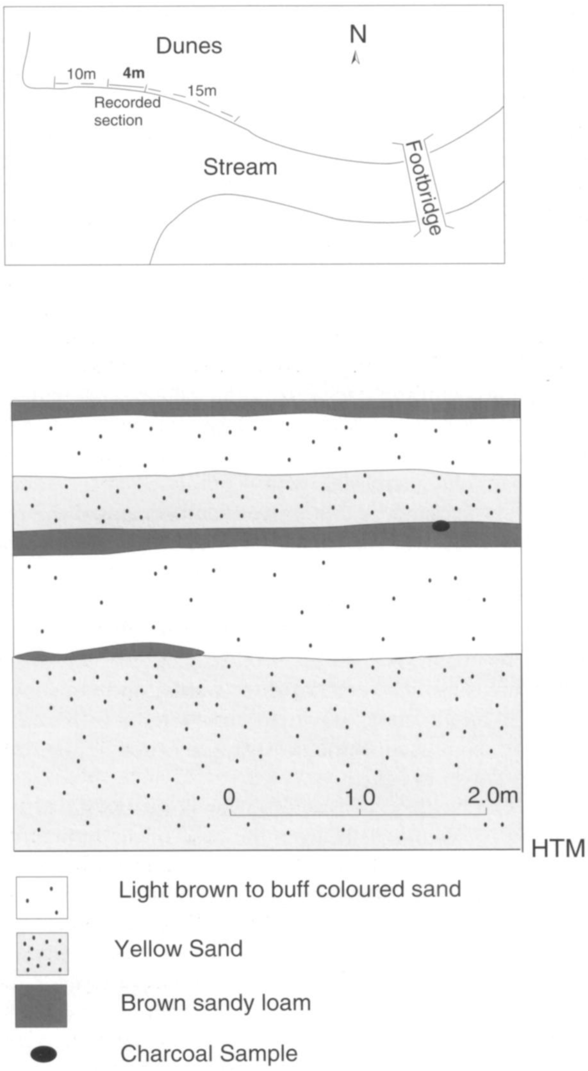

Figure 2 Stratigraphy of section on the west stream bank at Old Settlement Beach (location in insert) with collection point of radiocarbon sample.

km wide neck of sand which runs from the lagoon to Neds Beach. Apart from NB #1, which encountered an old creek bed close to Neds Beach, the others disclosed only variations of calcareous sand and similar materials. Two examples will suffice here. NB #2, 35 m inland from Neds Beach, showed a medium fine yellow-brown sand, with occasional traces of clay, going down 2.1 m to abundant calcarenite clasts. NB #3 about 200 m inland from the lagoon, showed pale, yellow-brown fine sand, going down into medium sand with weakly-lithified pieces and thin lenses at 1.0-3.8 m and then to brown-yellow medium sand and lithified material beneath to 5 m.

4) At Johnsons Beach, auger hole JB #2, 50 m inland from the low calcarenite cliff and 28 m north of the creek edge, revealed 0.9 m of brown sandy loam, with small patches of clay over a stiff, grey clay to 1.3 m at the watertable. JB #1 was 17 m inland from the road and 18 m from the south side of the creek, and JB #3 at 247 m inland from the road and 30 m from the north side of the creek at about 4 m. a.s.l. JB #4 was at about 450 m inland on a small, apparently natural, terrace about 20 m. a.s.l. Each of these disclosed a dark brown sandy loam over sticky dark-brown silty clays to about 0.6 m, and then various yellow, yellow-brown or brown clays with basalt clasts which became too wet to core at depths from 0.8 to 1.2 m.

5) A 3.7 m auger hole in a small, damp depression at Middle Beach Common penetrated brown to black plastic clays with occasional basalt pebbles. MacPhail (1996) suggests that this is possibly a post-European slope-wash deposit. Another small closed depression was sampled near the southern gate. In a 1.3 m horizon of dark brown clay, there were some charcoal fragments at 0.2 to 0.3 m depth (MacPhail 1996).

Preliminary analysis of the samples showed that, in general, pollen was scarce. MacPhail (pers. comm. 20.05.03) suggests that much of the organic matter was rapidly oxidised by carbonate-rich groundwater. Only the samples from NB #6 were analysed in detail and the only plant microfossils preserved in them were fragments of *Howea* sp. pollen, probably *Howea belmoreana*, the Kentia palm. In earlier research, Dodson (1982) analysed three cores and found two of them to belong entirely to the European era. The third, from the Old Settlement swamp, though reaching only 0.3 m, indicated a closed *Cryptocarya-Ficus* rainforest, succeeded by *Howea-Pandanus* forest and then evidence of clearance in the top 0.10 m, suggesting that it occurred very late, almost certainly in the European era. That is consistent with our scarce pollen evidence, and informal observations of the stratigraphic distribution of landsnail density. Detailed late Holocene palynological records, if they can be found, are needed to go beyond these tentative conclusions. Elsewhere in the Pacific, the advent of people is marked in the sedimentary and pollen records by substantial changes in vegetation, usually indicating clearance, accompanied by massive increases in charcoal frequency (Anderson 2002).

Age of first settlement

The case for no pre-European settlement on Lord Howe Island is now more compelling than before. The absence of identifiable charcoal in nearly all of our cores and of any other indications of a human presence, and their apparent absence so far in any cores analysed by the Wollongong team (Kennedy and Woodroffe 2000), lends weight to the view that human presence began only with European discovery.

This is also indicated by two radiocarbon dates obtained on charcoal samples, which are vanishingly scarce in the local sediments. Sample ANU-10265 from the Old Settlement Beach palaeosol (Fig. 2) returned 300 ± 120 BP. The sample consisted of pieces too small to identify to taxa and might include significant inbuilt age. In any case, it is effectively modern. A second sample of similarly unidentifiable pieces was obtained by Brendan Brooke (pers. comm. 25.6.96) in a pit dug immediately south of the Anglican church. It came from 0.35 m depth in white calcareous sand, below the surface soil horizon. This yielded a very modern result (ANU-10380: 120 ± 3.3 %M) ($d^{13}C$ = -24.0 ± 2.0 ‰ for both dates).

Given the high correlation of Oceanic colonization with the introduction of murids, especially *Rattus exulans* which arrived with prehistoric Polynesian settlement on Norfolk Island (Anderson and White 2001a), the initial absence of murids on Lord Howe Island is probably significant. The mouse (*Mus musculus*) arrived about 1868 from Norfolk Island and increased rapidly in numbers (Etheridge 1889:6-

7). Rats (not specified but presumably the ship rat, *Rattus rattus*, which is adept at climbing) first appeared following the wreck of the *Makambo* on 14th June 1918, and soon overran the island, causing havoc among small bird populations and attacking the seeding palms (Nicholls 1952:64-65). It is quite remarkable that Lord Howe remained rat-free for so long, especially considering the numerous whaling vessels that called there. Perhaps it reflects the fact that because of the shallow lagoon, most vessels anchored outside and took only rowing boats to shore.

Of the 15 species of land birds at AD 1788, nine are now extinct, and at least five of those disappeared within five years of the arrival of rats (Recher 1977). This is a rate comparable to that established archaeologically as associated with prehistoric human arrival on Polynesian islands (Steadman 1989). The prior survival of a fragile land fauna, including very large flightless insects now confined to rat-free Balls Pyramid (e.g. *Dryococelus australis*, Smithers et al. 1977), clearly indicates that rats had not been introduced until the 20th century. No doubt pigs, goats, and cats liberated from whaling vessels (Rabone 1940), and late 19th century forest clearance, also contributed to faunal extinctions directly or through vegetational change.

The absence of pre-European settlement on Lord Howe Island is not easily explained. At 16 km^2 it is twice the size of Pitcairn and half the size of Norfolk, two other remote subtropical islands that were inhabited prehistorically, and it had a biota very similar to that of Norfolk Island (Etheridge 1889; Green 1994). There is no reason to think that pre-European colonists would have encountered any greater difficulty surviving on Lord Howe than on Norfolk.

From the sea, Lord Howe was also potentially easier to find than Norfolk Island. Its high peaks are visible for 100 km and, indeed, can be seen in clear conditions from Middleton Reef, 130 km to the north (Rabone 1940:17). From Norfolk Island, Lord Howe thus presented a target angle wider than that of New Zealand, viewed from Rarotonga. It is possible, however, that Lord Howe presented a difficult sailing proposition. It is well down to the southwest of Norfolk Island, the nearest point of prehistoric Polynesian settlement. Norfolk Island had probably been settled from the Kermadecs (Anderson and White 2001b:139), from which it is directly downwind in the summer easterlies. If early East Polynesian vessels had no more than a downwind capability (Anderson 2000), then pinching southwest from Norfolk into latitudes where the westerlies are becoming prominent, may have been too difficult.

Alternatively, the Polynesian colonising impetus or the availability of potential colonists might simply have run out on the remote margins. Pre-European East Polynesians got north to Hawai´i, but not out to Laysan or Midway (Kirch 1985); east to Easter Island, but not to the Juan Fernandez group (Anderson et al. 2002b); south to the New Zealand subantarctic (Anderson and O'Regan 2000), but not beyond the Auckland group; and west to Norfolk, but not to Lord Howe.

Prospects for colonization archaeology

In the light of these considerations, it might seem that there is not much opportunity for colonization archaeology on Lord Howe Island. In fact, with the 1996 evidence added to that already known, the prospects are brighter than before, but different. Historical remains can now be said with some certainty to constitute the earliest record of human colonization and they are particularly well recorded. The earliest are at Old Settlement Beach. This is an attractive area for small-scale occupation because it contains about 8 ha of flat land, a stream, swamp and cultivable slopes behind. It is also close to the North Passage through the reef and has easy access to the east coast, at Neds Beach, where the shallow-water rock shelf is widest and the Admiralty Islands are situated immediately beyond. It was, in fact, the first site of permanent settlement on the island the remains of which are observable as a pile of rocks in the sand approximately 20 m inland from the HTM and 20 m from the base of the hills to the west.

In the early 19th century Lord Howe Island became a place to water, fuel and provision whaling ships on the Middle Ground sperm whale fishery (Nicholls 1952:28-42). Apparently in response to this opportunity, a small colony was established at Old Settlement Beach in June 1834. It consisted of three European men (Ashdown, Bishop and Chapman), their Maori wives and two children. They landed in Blinkenthorpe Bay but set up their huts in Hunter Bay on what is now Old Settlement Beach. H.J. White's map, drawn January 1835, shows a rectangular garden at the north end of Ross (Blinkenthorpe) Bay and five huts at the west end of Hunter Bay (Old Settlement Beach); two on the flat and three on the lower hill slope (Etheridge 1889: plate VIII). White reported that the garden grew 'potatoes, carrots, maize, pumpkins and tarra [taro], all of which seem to thrive well' and that the colonists were 'subsisting on birds and fish, which are caught in great abundance' (Nicholls 1952:24-25). Later reports indicate that gardening was shifted to Neds Beach, and that the colony was growing. In 1841 the original colonists were replaced by others, deforestation increased, and a more complex settlement pattern with new subsistence and commercial activities began to develop.

Here, then, is an uncommonly visible landscape of initial human colonization. It is important in its own right as a clear and contained example of the archaeology of European colonization, but also holds out the prospect of a valuable analogue for Pacific prehistory. The basic questions that are usually asked of prehistoric colonization - about the locations of the first settlements, the nature of their subsistence patterns, the rate and directions of human impact on the environment, and the early directions of economic and demographic change - may be more amenable to archaeological investigation on Lord Howe than on any other remote Pacific island and could provide, thereby, a valuable comparative case. A suitable project is now being planned.

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