

Australian Archaeology



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Physical Setting

Montagu Island, or Barunguba, lies 7 km offshore from Barunga Point and approximately 10 km southeast of Narooma, New South Wales. It is 1.4 km long and 0.5 km wide with an area of 49 ha. Formed from two igneous intrusive rock types, the island is almost cleft in two at a point approximately one third along its length, where the older intrusive basaltic complex in the north, meets the Cretaceous banatite or quartz monzonite in the south (I. Smith, pers.comm.).

Both parts of Montagu Island are hummock-shaped. The northern part has ramp-like platforms on its northern margin becoming steeper on the eastern side, with steep cliffs in the southeast. On the western margin are ramp-like rock platforms and a gravel-cobble beach sheltered from northeasterly swells. The southern portion has a rocky shoreline, the slope decreasing generally southwards from 40° to less than 10°. Two protected gravelly beaches occur on the western side of the southern portion, and on the western side of the low connection between the two parts of the island is a longer wide boulder beach. In calm weather small-craft landings could be made without difficulty on these gravel beaches or even on some of the ramp-like rocky shoreline.

Much of the surface of the island consists of bare rock or thin soil cover, however there are extensive areas of sandrock - indurated sand cemented by iron oxides and humates - which are generally covered by unconsolidated dune sand to one metre in depth. Both the thin soil and sand support a dense cover of low vegetation, predominantly Honeyrush (*Lomandra longifolia*).

Archaeological Sites

Traces of former Aboriginal occupation occur on Montagu Island. These include one shell midden - apparently undisturbed - and located at the back of a protected gravel beach on the western side of the southern portion of the island (Fig. 1). Considerable numbers of stone artefacts are scattered sparsely across much of the surface of the island but are concentrated mainly on deflated areas in the southwest of the northern portion and the northwest of the southern portion of the island (Fig. 1). The occurrence and distribution of these archaeological remains appear to be related to the food resources available on the island.

The shell midden covers an area of approximately 50 m x 20 m, and the deposit varies in depth from 10 to 40 cms. The shells appear to be mainly rocky shore species, notably the

limpet *Cellana* and the periwinkle *Austocochlea* in a matrix of dark grey to black sand. Bone, hearth-stones and stone flakes mainly of quartz, with some silcrete, are also present in the deposit. On the seaward side of this shell midden are scattered large numbers of flakes and hearth stones, possibly deflated from the midden. (Table 1 - site no. 12).

The stone artefacts are generally concentrated in the areas of unconsolidated sand where in many places they have been exposed on the sandrock surface by deflation of the overlying sand. They consist mainly of waste flakes with some retouched flakes and backed blades. Large numbers of pieces of stone, presumably hearth materials with some showing signs of burning, occur in these areas of more concentrated stone flakes.

A number of sample sites, each of 20 sq.m. were selected within the deflated areas, and the numbers and source materials of the flaked stone artefacts noted. Hearth stones, or similar large stones or beach pebbles carried onto these sites were also counted. The results of these counts are given in Table 1, and the locations of these sample sites shown in Fig. 1.

The Stone Utilised

The average density of stone artefacts within the areas considered was 1.9 pieces of flaked stone and 1.4 pieces of hearth material per square metre. All of the hearth stones and beach pebbles were of rock types represented on the stony beaches of the Island, and were undoubtedly obtained locally. However most, if not all, of the material used in the manufacture of the flakes observed must have been brought to the island by Aborigines. Of the worked stone

76.4%	is quartz
17.4%	is silcrete
3.3%	is porphyritic acid volcanic
2.9%	is other material

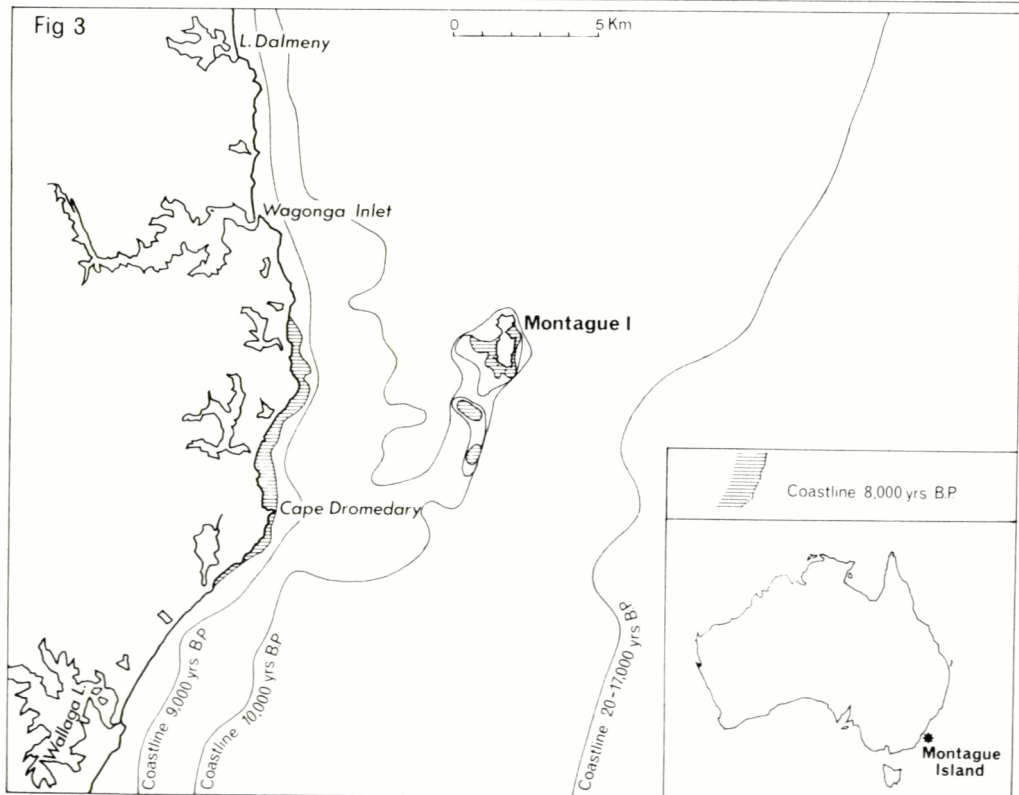
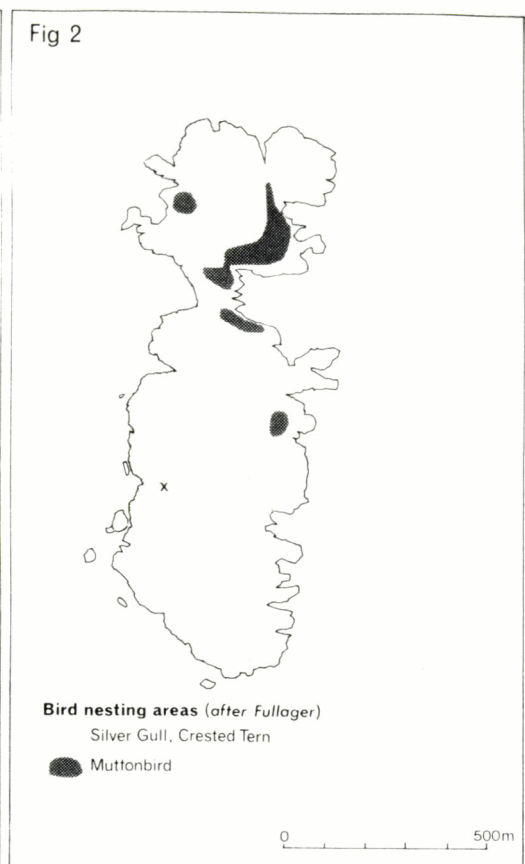
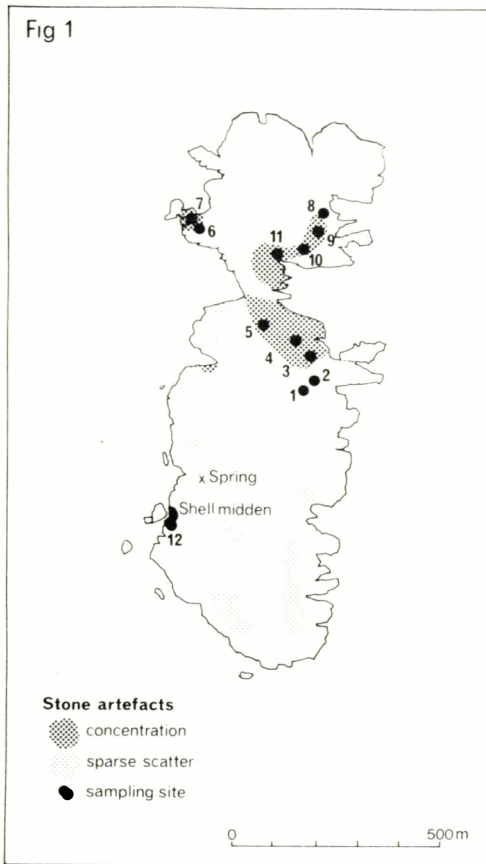
A little quartz is available locally, and two quartz pebbles were observed among the stone on the island's beaches. However this is unlikely to account for the large amount of quartz which has provided material for artefacts. No silcrete pebbles were present among the beach deposits observed, and of the 79 pieces of silcrete counted only two pieces showed any sign of pebble cortex. As the silcretes also varied widely in colour and texture it seems certain that this material was carried to the island by Aborigines. The porphyritic acid volcanics, of which two varieties were recognised among the stone artefacts, was similarly not found among the beach deposits, and it is likely that this was also transported by men.

Site No.	Flaked Stone				Other stone carried on to site
	Quartz	Silcrete	Porphyritic acid volcanic	Other	
Nth. part					
6	20	4	2	6	25
7	91	5	1	1	10
8	18	10	2	1	50
9	5	3	2	1	60
10	21	12	2	-	100
11	2	1	-	3	19
Sth. part					
1	12	10	1	-	15
2	9	1	1	-	1
3	15	7	-	-	6
4	17	20	1	-	10
5	16	4	2	1	20
12	120	2	1	-	20
Total	346	79	15	13	336

Table 1

Other kinds of stone used in the manufacture of artefacts seem to be of local origin. These are a dark grey chert-like sedimentary rock, present in outcrop on the northwestern part of the island, a fine grained basalt found within the rock complex of the northern portion of the double-island, and aplite formed within the banatite of the southern portion.

However, most of the stone used in the manufacture of artefacts was, apparently, carried to the island. Apart from these concentrations in sandy areas, artefacts are very sparsely scattered over the rest of the island, and consist almost entirely of quartz. Large choppers and horsehoof cores have been found at the northern end of the island. Those observed were manufactured of porphyritic acid volcanic rock, similar to that used to make the smaller flakes, but others of unknown rock type are reported to have been found in the past (B. Conley, P. Nicoll pers.comm.) and removed from the island.



Site Locations and Resources

It seems likely that Montagu Island was exploited chiefly as a source of muttonbirds or shearwaters (*Puffinus* spp.) of which three species, *P. pacificus*, *P. griseus* and *P. tenuirostris*, now breed in colonies on the Island (Fullager, 1973). Because muttonbirds need loose ground in which to dig burrows, these colonies are associated with the areas of unconsolidated sand. The distribution of concentrations of stone artefacts closely resembles that of the present muttonbird colonies (Fig. 2) as mapped by Fullager (1973), and erosion following intense burrowing by muttonbirds undoubtedly leads to the deflation of the loose sand, thus exposing areas of artefact concentration.

Aborigines are known to have made seasonal visits from mainland Tasmania to islands in Bass Strait seeking muttonbirds (Bowdler, 1974) and it seems likely that this would have been the nature of their occupation of Montagu Island.

Breeding muttonbirds begin to arrive on Montagu Island in September, with the major influx of non-breeding adults occurring in November. From then until April, when the chicks are ready to leave the island, large numbers of muttonbirds are present on the island - particularly at night - when many adult birds could be caught on the surface.

In late March and April large chicks could be taken from the burrows. In the case of the short-tailed shearwater, *P. tenuirostris*, now the predominant muttonbird on the island, (Fullager, 1973) these chicks commonly have body weights of over 700 gms wt. (P.J. Fullager, pers.comm.). Fullager (pers.comm.) estimates that up to half of the chicks at this stage could be taken from the burrows without significantly affecting the overall population. At the present level of the colony this is approximately 10,000 chicks although the number fluctuates markedly from season to season (Fullager, 1973). Taking large numbers of young adults from the surface would have a greater effect on the muttonbird population. As a strong northeasterly swell makes conditions very unfavourable for a canoe voyage to the island in March, it seems likely that the Aborigines would have travelled to the island in the generally calmer conditions prevailing in December or January, and remained there until the chicks were large enough to provide a worthwhile food supply in late March or April, perhaps feeding on adult birds in this time. As there is a permanent fresh-water spring on the island (Fig. 2) as well as significant runoff along many gullies after rain, a prolonged stay there would have been possible.

Another factor which may have influenced Aboriginal use of Montagu Island is its status as a rookery for many other seabirds. The Little Penguin, *Eudyptula minor*, Silver Gull, *Larus novae-hollandiae*, and Crested Tern, *Sterna bergii*, now breed on the island in large numbers (Fullager, 1973), and if such populations were present on the island in prehistoric times it may have been a

favoured locality for collecting eggs. A scatter of implements throughout the area now occupied by these colonies (Fig. 2) may indicate that this was the case.

A colony of Tasmanian Fur Seals, *Arctocephalus pusillus*, now occupies a rocky platform on the northern margin of the island, and it is possible that this may also represent a resource exploited in prehistoric times. It may be significant that the large choppers or cores were also found in the north of the island.

Although extensive rock platforms with abundant shell fish occur around much of Montagu Island, especially the southern part, there is little evidence of shell-fish collecting. The one stratified midden deposit is at the back of a sheltered beach, and close to the fresh-water spring on the southern portion of the island. As shell-fish were readily available on the mainland, it is not likely that Aborigines would have made the hazardous trip to the island merely to obtain shell-fish, and occasional gathering of such food during visits there would not be expected to leave significant traces. It is possible that the one apparent shell midden now preserved on the island relates to the collecting of the Paper Nautilus *Argonauta nodosa*, which periodically congregates to spawn in inshore waters off Montagu Island (Dakin, 1960:308). No trace of Nautilus egg cases was observed in the midden, however excavation may reveal the presence of such shell. It is likely also that the thin, fragile shell would not be preserved in the midden, since very few fragments of such egg cases washed onto the beach less than three months previously, still remain.

A second site which may relate to gathering of shellfish is above a gently sloping platform on the western side of the northern portion of the island, similarly adjacent to a sheltered beach. On this headland the concentration of stone flakes (Table 1 - site No. 7) and the abundance of green grass cover may indicate the presence of a midden.

Excavations at these two sites may also reveal the presence of fish bone, as it seems unlikely that Aborigines visiting the island would not have availed themselves of this abundant food resource of the inshore waters.

The Effects of Sealevel Change on Montagu Island

The effect of a rising sealevel since the last glacial maximum has probably been very significant for the prehistoric occupation of Montagu Island. P.J. Fullager (pers.comm.) considers it unlikely that Montagu Island would have been a breeding site for muttonbirds when it was a headland. The colony is relatively small, and predators such as thylacines could have destroyed it. A reconstruction of the approximate coastline positions at various sealevel phases (Fig. 3) has been made from the Hydrographic Chart A 807 (R.A.N., 1974).

At the glacial maximum, approximately 20,000-17,000 years BP, sealevel stood about 125 m lower than at present (Bird, 1972). At that stage Montagu Island would have been a hill some 6 km inland. By about 10,000 years BP, with sealevel approximately 30 m below its present stand (Thom and Chappell, 1975) Montagu Island would have formed the headland of a narrow promontory 8 km long extending from the present Cape Dromedary. Such a promontory may possibly have provided a sufficiently isolated environment for the establishment of a muttonbird colony. In any case, the deep embayment and long coastline generated by this promontory would have provided abundant sources of food for an Aboriginal population.

Within the next 1000 years, Montagu Island was dramatically cut off from the mainland. Two islands, each larger than the present island would have lain 4.5 km offshore. By 8,000 years BP, an island twice the area of the present Montagu Island with two smaller islands to the south lay 5 km offshore.

Within a period of 1,000 years, the Aboriginal inhabitants of the N.S.W. coast would have had to markedly adjust their life-style to continue to visit the former headland. It is also worthy of note that although a rising sealevel must have brought profound ecological changes to three sides of the "island", the northern coastline has changed very little in 10,000 years, and it would be interesting to know whether fur seals, found today only on the north coast, or muttonbirds provided the incentive for the earliest voyages to the formed or forming Montagu Island.

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Comment on the Montagu Island Survey

A few, additional points are relevant to the survey. In the 1850's, Reginald Barlow collected stories from some of the older Aborigines living along the coast adjacent to Montagu Island, publishing them under the *nom de plume*, 'Wolrab', as reminiscences in the *Moruya Examiner* on 26/1/1888 and 5/2/1892. In the 1888 reminiscences, Barlow tells how the Aborigines mourned their 'dead brothers who had been lost years ago in passing backward and forward to Montagu Island in their frail bark canoes'. A similar, or perhaps the same, event is referred to by Barlow in 1892 when he speaks of 150 members of the Wagonga tribe being lost en route to Montagu Island to collect sea bird eggs. These accounts support Sullivan's interpretation, formed independently from archaeological and environmental evidence, that Aborigines visited the island by canoe in recent years, that the crossing was dangerous, and that the journey was made to exploit seasonal foods