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REPORT ON ARCHAEOLOGICAL INVESTIGATIONS AT THE COALMINE BEACH SITE, S02720, WALPOLE, WA, 24-28 NOVEMBER 1992

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INTRODUCTION

Coalmine Beach, on the north shore of Nornalup Inlet, in the Walpole-Nornalup National Park, provides the locality name for Aboriginal Site S02720 (Figure 1). The area (horizontal extent) of site S02720, first recorded in March 1991, is unknown (see below). As presently defined, the site consists only of small numbers of flaked quartz artefacts (flakes, cores, etc.), which are thinly distributed through the upper part of unconsolidated quartz dune sands overlying the sandstone and lignite cliffs bordering the west end of Coalmine Beach. This older, lithified unit is part of the Middle-Late Eocene Werillup Formation (Hocking 1990: 562-563). The overlying quartz sand is Pleistocene to Holocene in age; its upper part, in which the artefacts are present, is suggested to be in the range 6,000 to 15,000 years before present, within a maximum age bracket of 3,000 to 30,000 years (b.p.).

The investigations described below, consisting mainly of a test excavation in the quartz sand unit on the cliff top at the west end of Coalmine Beach, confirmed that the site is of archaeological value, and that its protection under the provisions of the WA Aboriginal Heritage Act , 1972, 1980 is to be continued. The site excavation was carried out partly as a youth orientation exercise under the administration of the Lake Jasper Project, as was done at Black Point in the D'Entrecasteaux National Park in early November (Dortch, n.d.).

THE COALMINE BEACH SITE (S02720)

Background to the project

Listed below are the factors which led to the excavation and other archaeological investigations (monitoring and survey) in the Coalmine Beach area.

1. Concern that planned re-development in the area around Coalmine Beach could destroy part of site S02720 led CALM to give its financial support to the investigations. The planned digging of a 30 m-long leach drain for the ablution block at the Coalmine Beach Caravan Park seemed an immediate potential threat, since the area of the registered Aboriginal site was unknown. The dune soil exposed at site S02720 extends several hundred m along the northern shore of Nornalup Inlet. Occasional stone artefacts exposed at various localities in the developed area running parallel to the beach, and other artefacts exposed in sandy tracks just to the East of the beach suggested that site S02720 could be more or less continuous along this part of the inlet's northern shore.

2. Site S02720 is potentially important because of its presumed age and geomorphological situation. It is suggested to be relatively old, since the quartz dune sand in which the artefacts are present is part of the cliff face cut when Nornalup Inlet formed 6,000 to 8,000 years ago (Hodgkin and Clark 1988: 8). Establishing the age of Site S02720 would provide clues to its original environmental setting, and thus to its likely economic function. If the site does pre-date estuary formation, it could be interpreted as a base for the exploitation of forest, woodland or wetland food resources, rather than fish or other

estuarine foods, as suggested by its present-day topographical position overlooking Nornalup Inlet. Any information obtained relating to the site's cultural and economic significance would be important, since the prehistory of this part of the Southern Ocean coast is almost unknown.

3.The investigations would provide the Aboriginal youth group organised under the Lake Jasper Project with an introduction to archaeological procedures, particularly excavation techniques. The investigations would have the potential of encouraging youths to understand new concepts, in this case, the nature of prehistoric sites, and the dynamism of the past sea level changes and landscape events that produced the present coastal environment.

Coalmine Beach, like Black Point, is ideal for youths taking part in the Lake Jasper Project in that it is located on an almost entirely unspoiled part of the Southern Ocean coast, with a heritage value second to none. Working on different kinds of projects in these surroundings should then enable at least the more receptive and motivated individuals in the youth group to appreciate that they can contribute to preserving this heritage for the common good.

The excavations (26-28 November)

The occasional stone artefacts present in the upper 1 m of leached quartz sand in the upper part of the cliff face bordering Coalmine Beach presumably represent human occupation of successive, temporary aggrading dune surfaces pre-dating what is assumed here to be a period of dune stability culminating in soil formation. The soil now formed at the top of this deposit (Figure 2) consists of a root / fibre / humic horizon (A1), overlying a leached lower horizon (A2) . Cessation of sand deposition and the beginning of soil formation presumably took place before the cliff was cut, suggesting a likely minimum age for the artefacts of 6-7,000 years before present, with the possibility of an age considerably in excess of that.

On 25 November, the assisting archaeologist (Joe Dortch) and I searched the more elevated sandy soils in the Coalmine Beach area for suitable test excavation sites. We chose the graded area of the scenic viewing point on the cliff top bordering the west end of Coalmine Beach. After securing the CALM District Manager's permission for the excavation, we laid out two 1 m squares 10 m north of the eroding face of the cliff. Excavation commenced the next morning; we were assisted by four youths from the Lake Jasper Project (Brendan McHenry, Rick Kelly, Michael Bennell and Lindsay Calyun), accompanied by their mentor (Mark Hutchins) and carer (Mitchella Thompson).

The excavation of squares 1 and 2 confirmed the presence of stone artefacts in situ the deposit, to a depth of just over 1 m (Figure 2). However, while trowelling in square 2, depth 64 cm, I discovered a large, curved iron nail which led me to consider that the deposit was disturbed to that depth. I was further confused when two or three small pieces of charcoal that were fresh-looking ("modern") in appearance were recovered at depths 50 -

95 cm in squares 1 and 2. These apparent signs of disturbance, combined with very extensive root growth in the upper 50 - 60 cm of deposit caused me to consider that the deposit was disturbed and therefore valueless. Causes of this presumed disturbance could have been the growth and decay of large roots over several millennia, and sand removal occurring during the construction of the scenic view parking area.These considerations led to a decision on 27 November to open a third 1 m square adjacent to square 2, west section in order to determine whether the deposit had been disturbed by whatever causes to c. 1 m below surface, prior to our excavation. Establishing this would show whether the extraneous finds noted above had been introduced during the course of the excavation on the previous day.

Other aims of the square 3 excavation were to confirm the distribution of the stone artefact assemblages in two separate zones (as suggested by their distribution in squares 1 and 2), and to collect charcoal in the upper part of the leached horizon, above the lowermost zone of artefacts, depth c. 95-105 cm below surface (see North section, squares 1 and 2: Figure 2). The charcoal sampling was necessary because the radiocarbon samples of charcoal collected from squares 1 and 2 may have been contaminated by the "modern" charcoal fragments collected from these squares the previous day.

We excavated Square 3 with special emphasis on recording the positions of finds in situ within the deposit. We were able to collect charcoal in situ in the deposit to depth c. 80 cm, where it ceased to occur in readily identifiable fragments. Unfortunately, no artefacts were found in the underlying depth zone 90-105 cm, which had yielded 8 artefacts in squares 1 and 2. Prior to re-filling the three squares on the afternoon of 28 November, we shovelled and sieved .5 cubic m of sand from below depth 105 cm in the base of square 3, to see whether artefacts were present. None was recovered, nor had we found any artefacts below 105 cm in squares 1 and 2, including the small test pit in square 1, east end, dug to depth 210 cm. It is concluded from this record that archaeological material is not present below the lowermost assemblage of artefacts shown in Figure 2.

The projections of artefact depth distribution in Figure 2 show that the large nail from square 2, depth 64 cm probably does not derive from mixing of sediments, as during the construction of the scenic view parking lot. This nail, which, in any case, turned out to be one of the staples anchoring a nearby picnic table to a pair of sleepers serving as a base, almost certainly had been pushed into the floor of square 2 in the course of the excavation, sometime during the late morning of 26 November. The "modern" charcoal collected in squares 1 and 2 also was probably introduced during the excavation.

THE CARAVAN PARK LEACH DRAIN

Close examination of the leach drain trench walls dug by back hoe in the caravan park on the morning of 26 November revealed no stone artefacts or other archaeological material. This excavation is in a lowly- elevated part of the quartz sands extending northward from Coalmine Beach. I identified two quartz artefacts on sandy surfaces in the caravan park, though these were in slightly more elevated areas than at the leach drain

excavation site nearby. It is possible that prehistoric human occupation in the area of woodland now occupied by the caravan park was confined to these latter areas.

No further action is required, since the leach drain trench did not intersect any archaeological zone. However, any future trench excavations of this magnitiude, or extensive grading of the sandy soils behind Coalmine Beach should be monitored by an archaeologist.

DISCUSSION

The Coalmine Beach excavation

Although the results of this excavation are inevitably disappointing, the record from square 3 has at least confirmed the stratigraphic integrity of this site's deposit. The overall artefact distribution in squares 1-3, and particularly the concentration of stone artefacts at depth 40-55 cm in square 3, is evidence that the deposit is probably undisturbed below the uppermost 10 or 20 cm of the fibre/root/humic horizon (Figure 2). The square 3 excavation also confirmed that small artefact assemblages were present in two distinct zones, a distribution that suggests the deposit is relatively undisturbed, and that the two assemblages may be significantly different in age.

In square 3, on the other hand, we recovered no artifacts at these lower depths, though we did collect what ~~are presumably unmixed~~, datable radiocarbon samples from the zone above. However, the presence in all three squares of large roots extending downward through the deposit toward the water table may be a source of disturbance effectively preventing radiocarbon sampling of scattered charcoal fragments, some of which may have been redeposited by root growth. For the present, reliable radiocarbon dating of the deposit would seem to depend on collecting charcoal from an intact hearth in one of its undisturbed parts.

The CALM District Manager has informed that the scenic viewing point where the S02720 excavation took place may be shut down because of cliff erosion. Closure would involve planting of trees in the existing parking lot, or other measures aimed at stabilising the spot. Further excavation is needed at the site, and should be done prior to the prior to the closure and soil stabilising of the scenic viewing point.

The opening of a third square at site S02720 contravenes Department of Aboriginal Sites Permit 116, which specifies two 1 m squares only. However, the decision to dig the square is felt to be justified, since the extraneous finds presumably introduced deliberately into squares 1 and 2 had not only cast doubt on the value of the site deposit, but had also subverted the field project, frustrating and jeopardising the efforts of all taking part. As excavation supervisor, I had to take immediate steps to restore the integrity of both the site deposit, and this particular field activity within the Lake Jasper Project. In any case, the excavation of square 3 has not adversely affected site S02720, which probably covers an area conservatively estimated to be several hundred square m.

Site S02720 has a potentially important archaeological deposit, despite the marked scarcity of artefacts recovered, and the lack of biotic remains. Although the deposit exposed in the excavation at the scenic viewing point is probably only a very small part of site S02720, the useful information already obtained there makes this a key position for continuing the investigation of the site's deposit. However, site S02720 will probably never yield archaeological finds providing significant insight into the nature of local human subsistence, as has been obtained at other sites along the Southern Ocean coast, where more diverse archaeological evidence is present, particularly faunal remains and other biotic material (Dortch et al. 1984). The site is important, however, because of its potential for showing human occupation in this district during the last period of glacio-eustatic low sea level, a time when environmental conditions, and probably climatic conditions as well, were significantly different from those of the present. Even when lacking diverse macrobiotic remains, stratified and datable sites such as S02720, located in regions of diverse geology, land forms, soils and plant associations, whose environmental and climatic histories will eventually be understood, have the potential to give much insight into prehistoric patterns of human occupation and land use.

Extent and nature of site S02720

S02720 presumably extends through several hundred square m of the sandy soils mantling the peninsula that ends at the quartzitic hill (The Knoll) overlooking the narrow channel between Walpole and Nornalup Inlets (Figure 1). For the present, recording the site's area seems impractical because it would require the digging of at least a dozen 1 m square test pits in the more elevated and better drained parts of this sandy soil. Much larger and more diverse artefact assemblages than the ones excavated at the scenic viewing point may be in situ in undisturbed soils in more sheltered localities behind Coalmine Beach, particularly in the vicinity of the caravan park and other developed areas, which have probably for a very long time offered most of the best campsites in the locality. However, barring major development, these presumed archaeological horizons, perhaps including ones significantly more important than the ones recently excavated, will remain undisturbed, except in those parts of the cliff behind Coalmine Beach which are eroding. Although larger, more diverse artefact assemblages may be present in other parts of site S02720, those excavated at the scenic viewing point are probably representative of the site as a whole, since prehistoric sites in the leached quartz sands of extreme south-western Australia almost invariably consist only of stone artefacts and scattered fragments of charcoal (Dortch and Gardner 1976). The whole of this site may be defined simply by discontinuous "lenses" of stone artefacts, more or less sparsely distributed in the heavily leached sands in this locality.

Other regional sites

Sites similar to S02720 may be assumed to be present in many localities in the Walpole-Nornalup National Park, and other parts of the coastal/sub-coastal region around Walpole. Most of these "artefact" sites probably would classifiable as open-air campsites. Small quartz quarry-factories are probably also present in the region. Very few

best known sites in the region are the series of stone-lined fish traps along the northern shore of Broke Inlet (Dix and Meagher 1976). These fish traps can be assumed to post-date the estuary's formation, and may be relatively recent in age.

Submerged in shallow water near the fish traps are scatters of prehistoric stone artefacts. It is unclear whether all of the specimens present in these artifact scatters pre-date the formation of Broke Inlet, ca. 6000 years ago, though this would seem to be the case with some made of a distinctive fossiliferous form of Eocene chert probably deriving from quarry-factories submerged by glacio-eustatic sea level rise (Glover 1984; Glover et al. in press). Other artefacts present in the scatters may have been left by groups camping on the exposed estuary floor during times of drought.

The archaeological character of this part of the Southern Ocean coast is defined largely by the potential it offers for the detection of prehistoric sites in topographical situations that have been radically transformed by glacio-eustatic sea level rise. The most impressive examples of these sites to date are the series of former open-air camps and quartzite quarry-factories submerged among hundreds of tree stumps to depths of 10 m on the floor of Lake Jasper (Dortch and Godfrey 1990). The Broke Inlet artefact scatters also are indicative of this aspect of regional prehistory, as is site S02720 , since it wholly or in part probably pre-dates the formation of Walpole and Nornalup Inlets. During much of its time of human usage, then, site S02720, located on a sandy ridge, to north and south overlooked level sand plain covered by woodland, scrub and wetland, and traversed by the Deep and Frankland Rivers, and smaller streams. Other sites dating to this time of low sea level may be present on Saddle Island (Figure 1), then a large hill rising above a level sand plain where it was incised by the former channel of the "Frankland-Deep River".

The finds of submerged artifacts at Lake Jasper and on the floor of Broke Inlet suggest that Nornalup Inlet and other estuaries also have potential for archaeological sites. Acting on this possibility, two other WA Museum diver/archaeologists and I carried out a three-day, preliminary underwater archaeological survey at Nornalup Inlet in March 1991. "Hookah-towing" traverses along the floor of the estuary failed to reveal any former land features or archaeological sites. However, we found stone artefacts making up part of a stone flaking floor or quarry factory (S02721) on the northern shore of Newdegate Island (Figure 1) , which continued underwater on the estuary floor to a depth of ca. 1 m, implying that at least this part of the flaking floor pre-dates the formation of the inlet. This site warrants further study, as do other parts of the estuary floor.

Another terrestrial site dating to the last period of lower sea level is exposed on the open coast at Bellanger Beach (Figure 1), where in 1983 I located a 2 m-high stratified deposit featuring a calcareous freshwater lacustrine unit overlying a sandy horizon, which in turn overlies a buried sandy soil. Charcoal from the upper part of this buried soil yielded a radiocarbon date of ca. 8700 years before present. Although this deposit is not known to have any human associations, it is a useful palaeoenvironmental record, since it shows that sea level rise to modern height about 6000 years ago destroyed a landscape with freshwater lakes or swamps, leaving only remnants of the pre-inundation terrestrial/lacustrine deposits.

None of the sites in the Nornalup-Walpole National Park or in the general region seems under acute threat of development, though numbers of coastal sites, as ones near Conspicuous Beach, have already been severely damaged or destroyed by wind and water erosion, perhaps in some cases excacerbated by clearance, road-building or other development. Many of the as yet undiscovered sites presumably present in the region will eventually be affected by road building or other development involving earth-moving. Others can be assumed to have already been affected or destroyed by development. Predicting where sites may be present is not yet possible in this region, which, in terms of its archaeology, is very poorly known.

Unfortunately, some degree of damage to unrecorded sites, or even site-destruction in the region is inevitable, since even small-scale surface grading or earth moving by contractors or private land-owners can cause significant damage. Large-scale development can damage sites on a proportionately higher scale. Organisations such as CALM, which are sometimes engaged in relatively large-scale earth moving, therefore have a commensurably greater responsiblity for arranging site survey, and if necessary, monitoring and salvage, prior to and during projects liable to cause site damage.

The Lake Jasper Project

Archaeological orientation / instruction under the auspices of the Lake Jasper Project should be kept under review in order to avoid problems such as the site- tampering (i.e. the "spiking" of the deposit) that appears to have occurred during the Coalmine Beach excavation, and also at Black Point during the excavation there (Dortch n.d.). The problematical activity will always be excavation, since it is the most demanding, and for persons not inherently interested in archaeology, by far the least appealing aspect of field investigations. Bored people on-site are often a problem, and can spoil the atmosphere of concentration and earnest endeavour required.

However, various measures may be taken to avoid problems when working with untrained volunteers in excavations, or on other projects, archaeological or not, which require a degree of patience and concentration that may only be acquired through experience. For example, it will be necessary in excavations to have as many experienced persons on-site as untrained volunteers. If four youths (or other untrained persons) are present in the field with only two archaeologists (not including other adults), then there should be no more than two youths on-site at any time. This means that alternative projects must be on-going during excavations, enabling the four youths to work in pairs on shifts. More experienced and better motivated youths could work full-time; eventually they would be able to help supervise inexperienced individuals.

Suitable projects for the Lake Jasper Project youth group during the latter half of the 1992-1993 summer include sediment sampling at Lake Jasper, site survey in the shallows of Broke Inlet, and archaeological survey of Saddle Island. This last project would require the help of an experienced boat handler and the use of a boat large enough to transport a half-dozen persons to and from the island.

The Saddle Island survey is of particular interest since it has already been established that many of the offshore islands of south-western Australia were occupied by human beings during the period of glacio-eustatic low sea level when the islands were still part of the mainland (Dortch and Morse 1984; Dortch 1991). Discovery of prehistoric stone artifacts on Saddle Island would attract media interest, and would be a good way of providing valuable and positive publicity for the Lake Jasper Project, and for the state government bodies cooperating with it.

ARCHAEOLOGICAL RECOMMENDATIONS

1. CALM is advised to consult with the Registrar of Aboriginal Sites prior to carrying out any large scale entrenching or grading in the sandy soil in the vicinity of Coalmine Beach.

2. In the event of a decision by CALM to close down the Coalmine Beach viewing point, it is recommended:

(a) that CALM informs the Registrar of Aboriginal Sites;

(b) that no tree-planting or other land stabilising measures be carried out until the S02720 deposit can be re-investigated by the excavation of two to four additional 1 m squares.

3. It is recommended that CALM pays the field costs of excavations or other archaeological investigations as recommended in item 2b, including the costs of report preparation. Costs would be minimal if the work were to be arranged in the same way as the November 1992 investigations reported here.

4. It is recommended that CALM Regional Office, Manjimup consult with Lake Jasper Project administrators in considering future archaeological projects along the Southern Ocean coast, including ones taking place during the latter half of the 1992-1993 summer. Should the CALM boat kept at the Walpole District Office be available, it is requested that it be used to transport a survey team to Saddle Island during the late summer months in 1993.

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