

PREHISTORIC MAN AND KARST IN SOUTH-WEST TASMANIA

by

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Recent archaeological discoveries in karst areas have disproven previous theories that the inland of south-western Tasmania was not occupied by the original inhabitants of the island. Most of the sites reflect occupation during the cold climatic conditions of the late Pleistocene when the present heavy rainforest vegetation was restricted to specific refugia and a more open landscape permitted easier movement of man and game through the area.

Preliminary excavations in Fraser Cave have vastly advanced knowledge of the Tasmanian stone tool technology, which appears to be derived from the pre-Holocene industries of Greater Australia. The faunal remains indicate specific targetting after a style reminiscent of that of the glacial age hunters of northern Europe. As a number of factors are likely to have attracted pre-historic man to the karst areas, and as a result of the drowning of coastal sites by post-glacial sea-level rise, the inland karsts have assumed a particular importance to the study of the Earth's most southerly ice-age inhabitants. However the karst is largely confined to the valley bottoms which puts it at a specific disadvantage if hydro-electric dams are constructed in the region.

INTRODUCTION

Ethnographic sources contain few references to aboriginies in the rugged, often densely forested landscape of Tasmania's western river basins. This led Jones (1974) to conclude that the area was unoccupied at the time of European settlement. Similarly, Jones (1968) considered that in late glacial times the Tasmanians' occupation was tightly coastal. Both these viewpoints can now be challenged. Fundamental to this re-assessment is the recognition that the environment of western Tasmania has changed markedly during the late Quaternary due to climatic changes. The human habitation of Tasmania is known to have extended back nearly 23,000 years, following work on archaeological deposits in an abandoned sea cave on Hunter Island off Tasmania's north-west corner (Bowdler 1975). The original settlers crossed Bass Strait via a land bridge exposed during the low sea level of the late Last Glacial Maximum. Glaciers developed in the central West Coast Range shortly after 18,800 years ago (Kiernan 1980 a) diminished slightly about 1,000 years later, and had vanished from the highlands by about 10,000 years ago (Macphail and Peterson 1971). The present rainforests of western Tasmania all postdate about 11,500 years B.P. (Macphail 1981). The previous vegetaion of the western valleys is likely to have been considerably more open than that which exists today. A cave site in the Florentine Valley dated at about 20,000 years B.P. reflects these previously more open conditions quite unlike the densely forested environment which greeted the first Europeans less than 200 years ago (Murray, Goede and Bada 1980).

ARCHAEOLOGY IN WESTERN TASMANIA

Scattered surface artefacts dominate among Tasmania's prehistoric sites. Their frequency on the coast indicates dense coastal occupation during postglacial time. Until recently there had been a dearth of archaeological investigation of more inland areas and the viewpoint that aborigines did not occupy the inland had become a self fulfilling prophecy. In 1979 David O'Brien and Kevin Kiernan located burnt and split macropod bones, and stone tools in a limestone cave in the Nelson River Valley just inland of the West Coast Range (Kiernan 1979). This material appeared to be the product of human butchering (P. Murray pers. comm.) and was sealed beneath angular limestone rubble which was interpreted as being the product of mechanical weathering during the late Last Glacial Maximum. On these sedimentological grounds the probable cultural material was interpreted by Kiernan (1980a; in press (2)) as shortly predating the Last Glacial Maximum.

Corbett (1980) subsequently published descriptions of surface sites on the industrially denuded ridges around Queenstown and further finds in this area were recorded by Kiernan (1980a) and Stockton (1982). It has since become known that unpublicized stone tools from this area had been collected decades before and were housed in the vaults of Launceston's Queen Victoria Museum. Corbett (1980) hypothesised that the Queenstown sites immediately postdated the Last Glacial Maximum because the stone tools over-lapped glacial moraines, but Kiernan (1980a) showed that these moraines dated from an earlier glaciation and therefore provided no useful dating framework. However, most of the landscape of western Tasmania is vastly different to the scarred and eroded hills of Queenstown. Where the vegetation is dense and thick peat has accumulated, similar artefact scatters are unlikely to be found on the ground surface. This area provides the least archaeological visibility of any in Australia. However, peat and dense vegetation seldom penetrate far beyond the threshold of limestone caves in this area. Moreover, caves may serve as a focus of human activity such that archaeological remains are concentrated rather than dissipated across the landscape.

The likelihood that proposed hydro-electric storages in the Gordon-Franklin Rivers area would impinge upon karst areas of unknown significance, stimulated a series of exploratory ventures under the banner of the Sydney Speleological Society from 1974 onwards (Middleton 1979). Earlier visits to the area had been undertaken by the Tasmanian Caving Club but interest had waned (Goede, Kiernan, Skinner and Woolhouse 1974), and subsequently by wilderness conservationists concerned for the future of the region (Kiernan 1977). An archaeologist accompanied the 1975 party but no archaeological discoveries were forthcoming (Stockton 1975). By 1979 it was becoming obvious that the carbonate rock outcrop of this area were very extensive indeed (Kiernan 1979b).

During the late 1970's Tasmania's Hydro Electric Commission promoted some scientific research in the region as part of its campaign for the Lower Gordon-Franklin hydro-electric development. When dissatisfaction was expressed that caves and karst had not been examined a Commission geologist was dispatched to the task. The subsequent report (Naqvi 1979) has been strongly criticised as

superficial and inadequate (Kiernan 1980b, Southern Caving Society 1979, Jones 1981). While arm-chair contemplation of bone deposits noted in Fraser Cave since the time of its discovery had raised the question as to whether they might be of archaeological origin (Kiernan 1980b) the H.E.C. survey, which professed to have included Fraser Cave, had concluded that "nothing of archaeological significance has yet been found in any of the caves" (Naqvi 1979).

Two years later the National Parks & Wildlife Service conducted two archaeologists to the Nicholls Range karst area. A fortuitous discovery of several stone flakes was made near the confluence of the Denison and Gordon Rivers where a large tree had collapsed into the water. The discoveries expressed the viewpoint that this site was of glacial age, but sedimentological evidence and radiocarbon dating now indicates a late Holocene date, approximately 300 years old (Ranson and Jones, prep.). The same party excavated a small rockshelter in the same area, apparently without success, but subsequent examination of soil samples from the site has revealed the presence of stone tools (R. Jones, pers. comm.). The site is undated but the sediments suggest a Holocene age (Kiernan 1982a). The following month Kevin Kiernan led a party from the Tasmanian Wilderness Society to several caves along the Franklin River, and recognised the archaeological origin of the Fraser Cave site, which he considered to be of glacial age on sedimentological grounds (Kiernan 1981a). The T.W.S. and N.P. & W.S. combined forces to excavate in Fraser Cave the following month (Kiernan, Jones and Ranson, in press). An additional rockshelter site in the same vicinity was recognised in March 1981 (Kiernan 1981b). Several further rockshelter sites were recorded in the lower Franklin in early 1982 (Harris, this vol.; Kiernan 1982b : Jones, Ranson, Kiernan and Head, in prep.).

KUTIKINA CAVE (Fraser Cave)

The name Kutikina ("spirit") has recently been given to Fraser Cave by the Tasmanian Aboriginal Community. Kutikina Cave is a small outflow stream cave 30m from the bank of the Franklin River and consisting of about 180m of passage. It lies 50m above sea level. The alluvial sediments indicate a progressive reduction in the competence of the cave stream. This is likely to have been due to inwashing of a destabilised slope mantle clogging the cave streamways as the surface vegetation was disrupted by climatic factors or by human firing. The entrance facies were sampled from a pit of less than 1 square metre which reached bedrock at a depth of 2.3m and required 24 excavation units to complete. The lowermost radiocarbon date of $19,770 \pm 850$ B.P. (A.N.U. 2785) comes from excavation unit 20, which includes abundant bone fragments in fine gravels. A single stone flake and rounded cobble occur at greater depth in an horizon (unit 23) which was incised by the stream channel into which the unit 20 gravels were deposited. The most dense archaeological deposits occur in a limestone rubble zone. This rubble is similar to that in the Nelson River Caves. The uppermost date, only 3-5 cms from the top of the deposits is $14,840 \pm 930$ (A.N.U. 2781). (Kiernan et al, in press).

ANTIQUITY

The dates from Fraser Cave indicate that humans have been present in southwestern Tasmania for nearly twice as long as they can be demonstrated to have occupied sites at equivalent latitudes in South America (Bird 1969 - reported by Ortiz-Troncoso 1981; Rubin & Berthold 1961). They occupied Fraser Cave for 5,000 years, then abandoned it 5,000 years before the prehistoric artists of Spain adorned the walls of the Altamira Caverns with their paintings. In contrast the total human occupation of New Zealand probably stretches back little more than 1,000 years.

STONE TOOLS

Only a handful of stone tools had previously been recorded from all the Tasmanian Pleistocene sites combined, certainly less than two or three dozen. But from the small excavation in Fraser Cave over 80,000 stone tools and flakes were recovered. Yet this probably represents less than 1% of the total artefact bearing deposit. The assemblage includes steep edged scrapers, domed core scrapers with edges at right angles, and thumbnail scrapers. These are similar to near contemporary mainland industries such as those at Lake Mungo and tend to confirm the view of their common origin. There was little development of this technology in Tasmania following the closure of the landbridge. Most of the tools were produced from siliceous glacial outwash gravels in the

bed of the Franklin River, but a noteworthy exception is Darwin Glass, an impactite associated with a meteorite crater in the tributary Andrew River Valley 30km to the northeast. The earliest of these glass tools occurs in excavation unit 14, shortly before the first ochre (unit 15) and just prior to the richest part of the deposit (unit 12). Only one unit later we find some collection of small brachiopod and bryozoan fossil fragments, rounded, friable, and presumably gained for non utilitarian purposes.

BONE DEPOSITS

Over 90% of the bones are of the wallaby *Macropus rufogriseus* indicating a tight targetting strategy totally different to the general foraging of the coastal Tasmanians. This bears comparison with the tight targetting on reindeer of the European ice age hunters. Bone points in Fraser Cave may have been used for sewing skins, but evidence from elsewhere suggests that they ceased to be produced after about 3,500 B.P. (Jones 1971). No megafaunal species have been recognised in the Fraser Cave deposits (Kiernan et al, in press).

MAN AND KARST IN THE SOUTH-WEST

Exploration in the wake of the Fraser Cave discoveries has revealed about 6 further archaeological sites. The most noteworthy of these lies in Biglandulosum Cave, a high level cave with about 300m of known passages (Harris, this vol.; Kiernan 1982b). This cave is second only to Kutikina (Fraser) in the richness of its archaeological deposits of these newer discoveries, the sites which lie in the limestone caves back from the river appear on sedimentological grounds to be of Pleistocene age, but at least one surface site on the river edge appears to be of late Holocene age. With the postglacial rise in sea level having probably drowned most coastal sites of Pleistocene age, the wild river karsts of western Tasmania now seem particularly important to the study of the earliest Tasmanians. During the last ice age the hunters of western Tasmania lived in a more open, windier and drier environment than that which exists today, with mean annual temperatures about 6° C lower than at present. Under such conditions caves are likely to have provided welcome shelter to a people subject to considerable thermal stress. Because the limestone is more susceptible to erosion than the hard metamorphic rocks which dominate the south-west, the karst occurs as elongate lowlands which trend north-south between the more resistant uplands.

The karst belts therefore provide logical access corridors by means of which prehistoric man could have moved large distances following the grain of the landscape. In addition, while cold climatic conditions would generally have favoured a more open vegetation, the high base status of the limestone might be expected to have particularly favoured grasslands, favourable to both humans and their marsupial quarry. Even under Holocene conditions the vegetation of the karst country tends to be slightly more open than that upon the other rock types. A number of factors may therefore have particularly attracted humans to the karst (Kiernan in press b). It is noteworthy too that the Nothofagus rainforest bears stands of eucalypts as possible testimony to fire in those areas revisited by the aborigines in recent millennia.

Today the lifestyle of an almost unknown people remains preserved within the darkness of the Franklin Caves, intact but for a little erosion of the deposits by trickling water as a doubling of rainfall accompanied the post glacial rise in temperature to a mid Holocene maximum about 2°C higher than at present. As the glaciers withdrew the rainforests spread once again from their glacial refugia, and humans withdrew coastwards before the forests, just as other people were being forced back by the rising postglacial seas. A populated landscape became once again an unknown wilderness, but for isolated pockets of humanity in more open areas. Within the last 3,500 years the forests have begun once again to contract. At present we have no evidence of man during the intervening millennia.

Now the government of Tasmania proposes to dam the waters of the natural highways through the region - the Gordon and Franklin Rivers arguing that this would inundate only 1% of the wilderness. But that 1% contains most of the karst, and also the archaeological caves now known. We may yet see the ultimate irony of the state destroying the greatest monument to the first Tasmanians, in pursuit of the same developmental strategy as 150 years ago led to the demise of their descendants.

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