SOME OBSERVATIONS ON THE MATERIAL CULTURE OF ABORIGINAL FISHING IN THE MORETON BAY AREA: IMPLICATIONS FOR ARCHAEOLOGY

IAN WALTERS
Anthropology & Sociology
University of Queensland

INTRODUCTION

Assessments of suites of material culture items have often been used to characterize various aspects of human behaviour and cultural development. This has particularly been the case with regard to assessments of prehistoric fisheries (e.g. Anell 1955, Reinman 1967, Kirch 1982, Colley 1983:4-7). This paper presents some observations on the material culture of Aboriginal fishing in and around Moreton Bay, south-east Queensland, which derive from written and oral history relating to the eighteenth, nineteenth and twentieth centuries. They allow implications to be drawn about the way the fishery may have operated in the prehistoric period.

Material culture is defined according to Satterthwait (1980:4) as constituting "the physical entities that people modify, make, use or ascribe meaning to and the behaviours and ideas associated with these entities."

THE MATERIAL CULTURE OF FISHING

In streams flowing into the Bay, eels were caught in times of drought when the water level was low, by men muddying the water and feeling for the fish with their feet (Petrie 1975:74).

Many early records attest to Moreton Bay Aboriginal use of dolphins as aids in driving fish towards waiting fishermen (Hall 1982:86). Despite some scholarly scepticism that these observations represent a confusion of cause and effect (Bowdler 1976:250), Hall (1984b:18) has recently gathered "at least five eye-witness accounts of this cooperation" from the early literature. For present purposes arguments about the directions of cause and effect are polemical. Whether serendipitous or not, it is clear that the fishermen did use dolphin behaviour in fishing, and according to Satterthwait's definition, the use of these mammals has to be acknowledged as part of the local material culture. The fish were eventually brought to hand by spear or net after the dolphins had played their part in running them inshore.

Spears were used (Colliver and Woolston 1975:95). Sometimes they would have "three or four prongs which were all tied firmly to the centre handle" (Petrie 1975:74). Gaiarbau, an Aboriginal man born at Kilcoy in the 1880s, also recalled fishing spears having four prongs (Winterbotham n.d.:50).

Poison was used to get fish in fresh water. Petrie (1975: 73-74) reports that this was done,

> ...by poisoning the water with a certain plant (Polygonum hydropiper). This plant - °tanggul' - which is not very large, and grows on the edge of scrubs or in swampy places, was pounded up with sticks, and then thrown into the waterhole, and the water stirred up with the feet. Soon after the fish would seem to be affected, and would rise to the surface wrong side up, when they would be caught with the hands and thrown on to the bank.

Winterbotham (n.d.:50) relates Gaiarbau's notes on poisons. He was familiar with its use in ponds or in "very still water". It was derived from a "pink weed" which was crushed in the hand by "three or four men who dived", taking it to the bottom. The fish rose to the surface "where other men were waiting to catch them before they recovered." The leaves of this plant contained an irritant. It was usually handled in a wrapping of "gympie bark", and the men who used it were "very careful afterwards to clean their hands thoroughly with charcoal, mud and clay."

At the time of European invasion, hook and line fishing was not practised from the Keppel Islands in the north to about Newcastle in the south (Colliver and Woolston 1975:95, Sullivan 1978:107, Petrie 1975:73, McBryde 1978:179). Interestingly hooks and lines were taken up enthusiastically after European contact (Winterbotham n.d.:50, McBryde 1978:182, 195). This seems to militate against environmental reasons being the cause of their prehistoric absence from the fishery. It appears that the locals were either unaware of this form of gear, a proposition I find unlikely, or had rejected it for other reasons. Given the vast visiting and trade networks of people in this area, it seems most unlikely that local fishers would not have known about the hooks and lines being used indigenously around the Keppel Islands area to the north (Massola 1956) and the Newcastle area to the south (Dyall 1982). Petrie (1975:72-73) described the use of stake and brush traps for fishing creeks in conjunction with hand nets, presumably tow rows. In a similar fashion people,

> would dam a small portion of water with mud banks, leaving openings in each wall, and then, when the eels (or fish) went through, the holes would be blocked and small hand nets used to scoop up the fish; or they were speared (Petrie 1975:74).

Stake and brush traps were also used on tidal flats. At Woody Point in 1799 Flinders (in Steele 1972:19) noted that,

> Upon the shoal near the house, there was more than one inclosure of a semi-circular form, and the sticks and branches of which it was made were set and interwoven so close that a fish could not pass between.

Winterbotham (n.d.:50) recorded Gaiarbau's descriptions of the use of log traps:

> They would secure a hollow log, preferably of the silverleaf ironbark tree, because its centre always decays quickly. The log would be 8 or 9 feet long and about 2 feet in diameter. Then they collected wet moss from the rocks in the gullies, and worked and packed it all round the inside of the log. This had a peculiar smell which attracted the fish, and they came
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> to feed on it. A lawyer cane rope was tied to the centre of this log, and by means of this the log was let down into still water. While this was being done, one of the men dived down in order to place the log properly. One end of the log had been plugged with bark, and next morning before hauling it up the other end was closed in a similar way. In this trap they would catch freshwater jewfish, eels, and turtles.

Stockton (1974, 1975, 1979) reported a stone wall fish trap from the northern coast of Moreton Bay, and though no definite evidence points to it being built or used in pre-European times, there is evidence of it being used as an Aboriginal fish trap into this century, and elsewhere a case is argued for its prehistoric antiquity (Walters 1985).

Nets are commonly referred to in the early records of Moreton Bay. Flinders speculated that the characteristics of the fishing ground, being shoal for a considerable distance from the shores, made netting, "especially the setting and scoop nets" (Steele 1972:35) an appropriate method. Uniacke (in Steele 1972:95) wrote that the "nets used for fishing are made by the men from the bark of the kurrajong (hibiscus heterophyllus), a shrub which is very common in the swamps." In a house which stood on the west side of Woody Point on the Redcliffe Peninsula, Flinders' party of 1799 found a seine net with large mesh (Steele 1972:19), but the description fits that given by Petrie (1975:67) for dugong nets, and in fact was called such by Watkins (1891:45). It remains unclear whether seines were used to get fish. Gaiarbau also is unclear. He says (Winterbotham n.d.[1959]:50) that "long set nets" were not used in rivers, only hand nets. It is most likely that these hand nets were not seines, given his description of the technique involved:

> Four men would sneak up to a likely spot near the roots of a tree that was in the water. Each would have two nets in his hands and all would enter the water and surround the chosen spot. Then one would make a noise to frighten the fish which would then try to make for the deep water, but would be caught by the waiting men. Mullet were often in shoals then in the river, and these would be driven down to a narrow part by throwing stones. Here others would be ready with hand nets waiting to catch them (Winterbotham n.d.:50-51).

Hand nets were used for mullet, and were made of bark of the "native cotton tree...Hibiscus tiliaceous" which went by the local name "Talwalpin", and "other fibrous plants" (Watkins (1891:44) such as those "of wattle bark with which was incorporated an even stronger fibre secured from a vine which had a brown bark" (Winterbotham n.d.:50). These fibres were twisted together and gum was used to bind them. The "framework of the 4 foot opening" was made of two sticks, "the longer of

which was extended into a handle which, for stability, was bound onto the forearm with ti-tree bark" (Winterbotham n.d.[1959]:50). These small "heart-shaped" nets "about 1.2 m across" (Colliver and Woolston 1975:95), usually used in pairs, remain the most well known of the local net varieties: these are the so-called tow rows. Besides being used in streams such as the North Pine River (Petrie 1975:73) for such fish as eels and mullet, they were also used on the coast where fishermen would wade out from shore to gather their catches (Petrie 1975:72).

Gaiarbau's experiences of using these nets to catch mullet in Deception Bay are worth quoting in full:

> One man kept watch in the top of a tree, probably a quarter of a mile away. He remained hidden from view behind a shield of vines and leaves cut from the adjacent scrub, for if he had not been screened, the mullet would have seen him and not come into shallow water. On the branch itself where he stood, there was placed a wallaby skin, so that he could have something soft to stand on.
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> The rest of the men were placed at a distance beyond him, sitting down and waiting for his signal. As soon as he saw fish he put one hand up. Gradually he would lower it, and when he brought it right down to his side the fishermen would know that the mullet had come past his tree. Then he would raise the other hand, and slowly lower it as they got beyond this sight. The signalling was taken up by another man who was in the water fairly close to the waiting fishermen. If this man stood up, then the others knew that the school was in the deep water, and they remained sitting and let that school pass, and waited patiently until a school came along that was in water shallow enough for their purpose. If the tree watcher sat down they would know that a school of mullet was coming into shallow water. But if he saw that the fish were in deep water he would not lower his arm below half way, so that the next man could see how the fish were travelling. The latter kept a wet sand-ball, as big as a cricket ball, in his hand. When the conditions were right, he would throw the sand-ball underhand about 10 yards out into the sea. The purpose of this was to cause the mullet to stop. He would then throw a second ball about five yards out to induce them to come in and see what caused the splash, and then he would throw a third sand-ball into water knee deep. All this time he was squatting down in the water so as not to be prominent. In the meantime the fishermen who had been alerted would all sneak up to within about 20 yards of him and quietly enter the water in a half circle, closing in to complete a full circle as soon as the fish got into water that was shallow enough. They then proceeded to catch them. Each man carried two nets, one in each hand (Winterbotham n.d.:51-52).

These items of fishing gear fit comfortably into the scheme suggested by Royce (1972:285) (Table 1). This is a classification designed to cover all types of gear regardless of where, when and by whom it was used, and so is useful for making comparisons of material culture kits used in catching. From the original I have omitted gears unique to modern industrial fisheries such as explosives and power

operated machinery. It is worth noting that all major categories were represented in Moreton Bay at the time of European contact with the exception of hook and line. In terms of these major categories of gear anyhow, the fishery appears to have been as diverse in its material culture as any fishery could be expected to be. This is explored further using the scheme shown in Table 2, which follows a method of analysis used by Kirch (1982). This type of classificatory scheme employs data on habitats and is useful for emphasizing the material culture focus of the fishery. It is in this sense more subtle than Royce's classification and indicates the inshore emphasis of the fishery and the complete absence of deep water material items such as long lines, trolling gear, and elaborate lure hooks. It also shows the lack of things such as octopus lures used in some Oceanic situations.

Other items of material culture were less directly involved in catching, in that they did not actually contact fish in the way nets and spears for instance did. These were nevertheless part of the process and seem worthy of mention. Apart from the items discussed above, they include "the stones and sticks in great quantities" (Petrie 1975:72) that people from shore threw to seawards of schools of fish to frighten them towards waiting nets. Colliver and Woolston (1975:95) noted boomerangs and waddies being used to strike the water, apparently for similar purpose. On other occasions fish were driven shorewards to nets by people in canoes (Colliver and Woolston 1975:95). According to Welsby (1917:120-121) particular flight patterns of certain species of hawks were used to signal the opening of the mullet season. Other signs, such as the flowering of plants, correlated with various states of the fishery (Hardley 1975:145).

So by Satterthwait's (1980:4) definition, the boundaries of the material culture associated with catching techniques seem to be extensive to say the least. This is particularly so when consideration is given to the necessary prerequisites for fish catching: such things as the houses people built for use during the fishing seasons, the vantage points used for observing movements of fish schools, the pathways that allowed quick access to mobile fish schools, the fires and other methods used to maintain these tracks, tides, currents, shoals and banks, channels and times of the moon, good fishing spots, the rules appropriate to places and who could fish them, ownership of aquatic territory (cf. Akimichi 1978, Johannes 1981:64, Dye 1983).

IMPLICATIONS FOR ARCHAEOLOGY

These observations reveal the diversity of the fishery in the European era. Archaeological investigations can be used to assess the prehistoric continuities or changes. There was, at the time of these records, a complex relationship between the particular items of material culture or fishing gear, and the types of fish constituting the catches. While particular strategies are noted for particular situations and target taxa, the resultant catches often bear the marks of serendipity. This seems to characterize fishing in contemporary ethnoarchaeological studies (e.g. Akimichi 1978, Dye 1983). The archaeological samples excavated to analyse the prehistoric fishery will need to be considered in this context.

The historical records indicate a fishery that operated inshore. One of the interesting insights offered by the archaeological analysis will be to determine the antiquity of this pattern and look for continuity or change. Identified fish remains can be used to ascertain

Table 1. Classification of principal fishing gears *

1. Hand diggers and collectors
   - Manually operated rakes or digging equipment for molluscs, crustacea or other burrowing animals
   - Trained mammals or birds

2. Spears
   - Hand-held spears on a shaft
   - Harpoon (shaft with detachable head)

3. Stupefying aids
   - Poisons

4. Hooks on lines
   - Hand-held casting lines
   - Trolling lines towed from boat
   - Set lines

5. Stationary entangling nets
   - Gill nets with single wall of mesh
   - Trammel nets with multi-walled mesh

6. Stationary enclosures
   - Large net enclosures, corrals, true traps
   - Small net enclosures, fykes, bag nets
   - Brush or rock enclosures
   - Rigid pots

7. Mobile enclosing nets
   - Trawls towed along bottom or at mid-depths
   - Seines pulled along bottom to a fixed point
   - Purse seines
   - Falling nets, cast nets
   - Lift nets

* After Royce (1972:285). The original has been modified by omitting all methods unique to modern industrial fisheries.

Table 2. Fishing techniques recorded in early literature by habitat.

	Habitat				
Fishing technique	Stream	Mudflat, mangrove fringe	Inshore bar, sandflat	Surf beach	Pelagic
Hand collection	X				
Poison	X				
Spear	X	X	X	X	
Nets	X	X	X	X	
Traps	X	X	X		
Dolphins		X	X	X	

the fishing grounds utilized in the Moreton Bay area, and so reveal the relationship between campsite location and fishing range.

As stated above, hook and line fishing was not practised "in the old days" according to these observations. Archaeological investigation may be expected to turn up evidence of the antiquity of this tradition. Such items have been linked elsewhere to social and cultural changes and this is an implication to be pursued elsewhere (see above).

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