

# Stone Axes as Grave Markers on Kiwai Island, Fly River Delta, Papua New Guinea

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## ABSTRACT

Measuring up to 54 cm in length and 8.29 kg in weight, stone axes recovered from ethnographic and archaeological contexts on Kiwai Island at the mouth of the Fly River of southwest Papua New Guinea are amongst the largest stone axes in the world. Detailed investigation of ethnographic accounts and associated museum collections made by colonial administrators, missionaries, and anthropologists from the 1890s-1910s reveals that these huge axes had a singular ceremonial function, mostly as grave markers. Initial petrographic assessment of Kiwai axes supports ethnographic recordings that owing to the stoneless character of the Trans-Fly region, all Kiwai axes must be imports, probably from Torres Strait. Information gleaned from ethnographic museum collections in Australia and England provide the basis for framing future archaeological research questions on Kiwai axes, such as determining the antiquity of axe manufacture and use, the range of contexts of use and deposition, and ceremonial axe biographies in terms of initial use as tools.

*Keywords:* ceremonial stone axes, grave markers, museum collections, Kiwai Island, Papua New Guinea

## INTRODUCTION

‘Our monuments lie beneath the ground and that is where we must seek them’  
(Herman Mandui 2006:379)

A year or so before his untimely death, Herman Mandui and I were discussing the possibility of visiting the Fly River delta region of the Western Province (Papua New Guinea) to explore the potential of archaeological research with local communities. While considerable ethnographic information is available on various horticultural-hunter-fisher societies who inhabit the swampy lowlands of southwest Papua New Guinea (e.g. Landtman 1927; Williams 1936; Ohtsuka 1983; Eley 1988; Eden 1993; Knauff 1993; Hitchcock 2004), archaeologically the region is essentially a tabula rasa. Archaeological excavations are limited to a test pit (without associated dating) within a small limestone cave at Dogwa on the Oriomo Plateau west of the Fly River mouth in 1966 (Lampert 1966:6), and a series of ‘trial pits’ and a ‘trial trench’ (again without associated dating) within a mound-and-ditch cultivation feature at Waidoro located northeast of Mabuduan in 1981 (Harris and Laba 1982; Barham and Harris 1985:269–271; cf. Hitchcock 2010) (Figure 1). With a resurgence of archaeological research in Torres Strait to the south and

the Gulf of Papua to the east in recent years, the need for archaeological insights into the intervening region of the Trans-Fly region is again back on the agenda. Kiwai Island at the mouth of the Fly River is an obvious place to commence such research for two reasons (Figure 1). First, ethnographically the island was a regional population centre with major social and economic (especially exchange) links to Torres Strait (Landtman 1927; Lawrence 1994). Second, over the past 150 years extensive ethnographic collections of Kiwai material culture have been made by missionaries, anthropologists, and government administrators and deposited in museums in Australia and Europe (Lawrence 2010; Davies 2011). These collections include ethnographically-known stone axes of huge size, some over half a metre long, used as grave markers. This paper expands McNiven *et al.* (2004) to further explore the ceremonial function of these visually impressive objects based on museum collections in Australia and England, with a view to generating research questions to structure future archaeological investigations.

## LARGE KIWAI AXES

McNiven *et al.* (2004) designate stone axes, particularly large stone axes with a near complete ground smooth surface and teardrop shape, known for Kiwai Island and other parts of the Fly River delta, the *Kiwai ‘type’ axe*. Outside of the hundreds of Kiwai ‘type’ axes recorded across the Trans-Fly region centring on Kiwai Island, the only other areas where similar axes have been recorded, albeit in much smaller numbers, are Torres Strait to the south,

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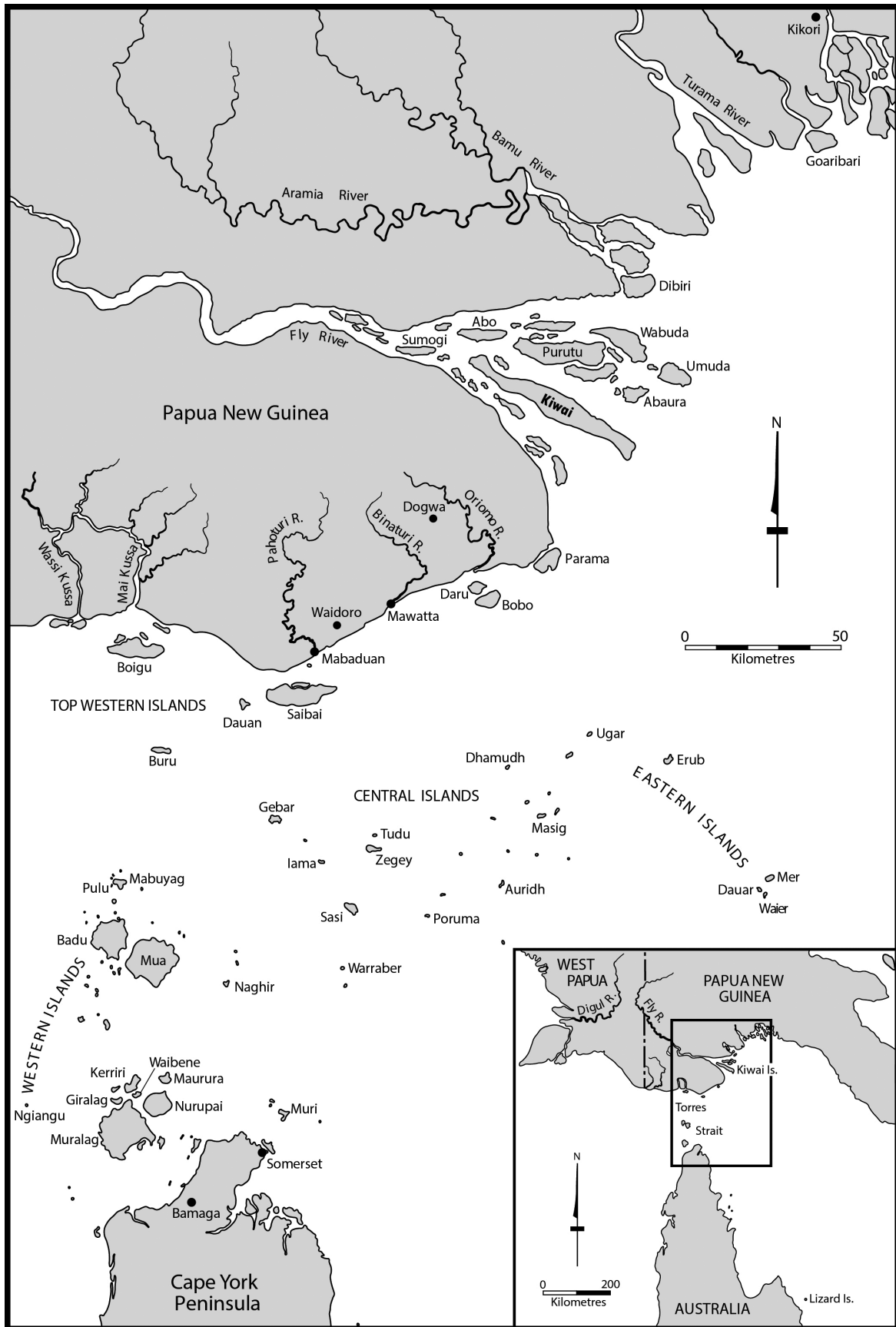


Figure 1. Map of study area.

and Marind anim territory to the west in the far southeast corner of West Papua (Swadling 1983:142; McNiven *et al.* 2004: 279, 282). The earliest example of a Kiwai ‘type’ axe in a museum collection known to the author was collected by William Macleay during the *Chevert* expedition to southern New Guinea in 1875 and is now housed in the Macleay Museum, University of Sydney. Although the specific collection circumstances of the axe are unrecorded, it was likely obtained from the Katow (Binaturi) River people (located 80 km southwest of Kiwai Island) where the expedition spent nearly two weeks collecting items, including ‘implements’, before bypassing the Fly River mouth and heading across to Yule Island in the Papuan Gulf (Macleay 1875a, 1875b). The axe measures 32.0 cm (max. L.), 9.8 cm (max. W.) and 5.3 cm (max. Th.) (Jude Philp pers. comm.).

### Common occurrence

The numerous and unusually large stone axes of Kiwai Island caught the attention of early European anthropologists and colonial administrators of the late 19th and early 20th centuries. In September 1898, Alfred Haddon and the famous ‘Cambridge Anthropological Expedition to Torres Straits’ visited Kiwai Island. Haddon (1901:108) wrote that ‘In this island a number of very large, well-shaped, polished stone implements are found in the bush’. In 1906, Colonel Kenneth Mackay travelled along much of coastal British New Guinea as part of the Papuan Royal Commission. At Daru Island located immediately southwest of Kiwai Island, Mackay (1909:173–174) noted seeing ‘On either side of the steps leading up to the resident magistrate’s bungalow a row of stone-axes stood, edge up. Some must have been over fourteen inches [36 cm] long, and all were beautifully made’. Mackay (1909:174) was informed by Jiear (Resident Magistrate for the Western Division at Daru) that ‘he got them on the beaches of the Fly River’. In another instance, a local ‘storekeeper and trader’ informed Mackay (1909:174) that ‘he had a lot [of axes] in his boat as ballast’. Between 1910 and 1912, Finnish anthropologist Gunnar Landtman undertook detailed research on Kiwai Island and noted that stone axes could be ‘acquired’ in ‘great numbers’ (Landtman 1927:33).

### Size range

The first published account of the enormous size of some Kiwai axes is Haddon (1901:108) who reported that ‘the largest I have seen [1898] was in Mr. Chalmers’ house [LMS missionary stationed at Saguane village, Kiwai Island] – it measured 18¾ inches [47.5 cm] in length’ (see also Lovett 1902:452). Mackay (1909: xiv) described the stone axes as ‘Titanic’. Landtman (1927:34, Fig. 36a) recorded an axe on Kiwai Island that measured 53.5 cm in length, the largest Kiwai axe documented to date. This huge axe may be Kiwai axe VK4902:529 collected by Landtman and measuring ‘almost 54 cm in length’ and weighing 8.29 kg held by

the National Museum of Finland (Lawrence 2010:136; Heli Lahdentausta pers. comm.). The next largest axe known to the author is 49.5 cm in length and is held by the Plymouth City Museum and Art Gallery in England (see below). Landtman (1927:34) recorded that the size range (length) of Kiwai axes is 6–54 cm. The size (length) range of Landtman’s collection of Kiwai axes in the National Museum of Finland is 8–54 cm, of which three are >40 cm in length (Landtman 1933:46; Lawrence 2010:137). The size range of Kiwai axes discussed by McNiven *et al.* (2004) is 9.2–46.5 cm (max. L.), 5.0–12.7 cm (max. W.), 3.1–8.7 cm (max. Th.), and 333–6767 g (weight) (Figure 2).

### Exotic origins

It has long been known that stone axes found on Kiwai Island must have been imported owing to the lack of suitable tool stone across the Trans-Fly region. Haddon (1901:108) stated that ‘As no stone occurs *in situ* for a distance of many miles, and none of this kind is known in the district, the implements have in all probability come down the Fly River’ (for a similar view see Beaver 1920:187). Alternatively, Arthur Lyons (1914:188), Resident Magistrate of the Western Division on Daru 1912–1921, recorded that ‘Before the white man came, large stone axes which seem to have been made for use by hand, were the means for barter and payment throughout the districts in the Fly River estuary and the Bamu River. These stone axes came from some island in Torres Straits, and were called Emoa. A few of them are to be found in the possession of some old men on Kiwai Island’. Landtman (1927:33–34) similarly argued that Kiwai axes resulted from ‘the extensive traffic in various articles that in former times was carried on between Kiwai country and the islands in Torres Strait’. Yet Landtman (1933:45) rightly noted that ‘No memory of the trade in stone implements seems to be preserved any longer among the Torres Strait Islanders’ (see also Haddon 1935:76). Petrographic examination of 20 axes from the Fly River delta held by the Queensland Museum and in private collection revealed that 18 or 90% of the axes are made mostly from intrusive (plutonic) igneous rocks (e.g. microgranite, microdiorite, microgabbro) with known or possible outcrops within Torres Strait, with one gabbro axe sourced to either Cape York Peninsula or the PNG Highlands (McNiven *et al.* 2004). McNiven *et al.* (2004) hypothesised that the exchange relationship between Kiwai Islanders and Torres Strait Islanders was ‘symbiotic’ such that peoples at the mouth of the Fly River relied on stone axes imported from Torres Strait to manufacture large canoes which were traded to Torres Strait Islanders who needed the canoes for their maritime lifeways. It is within this exchange context that large stone axes may have come to play a special ceremonial role amongst peoples of the Fly River mouth who were renowned canoe makers living in a world naturally devoid of stone (McNiven *et al.* 2004:284).

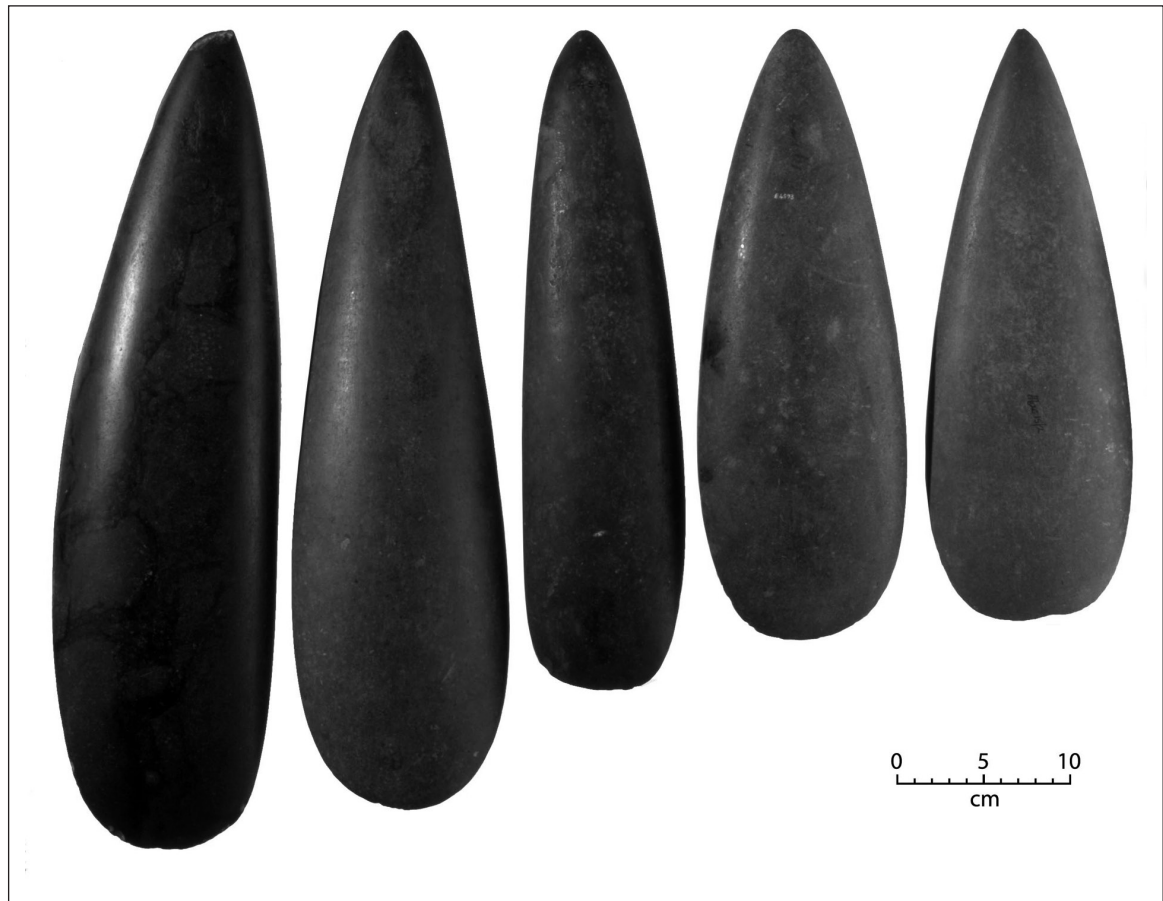


Figure 2. Large examples of Kiwai ‘type’ axes from the Queensland Museum (with maximum length and weight). (L to R): E1774 (46.5 cm, 6767 g), M3 (44.7 cm, 4629 g), E4589 (37.9 cm, 3158 g), E4593 (34.7 cm, 3961 g), M2 (33.6 cm, 2309 g) (see McNiven *et al.* 2004:Fig. 3).

### Ceremonial use

The following detailed investigation of ethnographic recordings and historical information associated with Kiwai ‘type’ axes held by various museums in Australia and England reveals that large Kiwai axes had a singular ceremonial function, mostly as grave markers.

*Bingham Hely.* Hely was Resident Magistrate for the Western Division of British New Guinea between 1888 and 1899. He noted that: ‘The Kiwaians and other natives positively affirm that their stone axes are never used for any other purpose than to decorate graves; yet it cannot be more than a couple of generations ago since they were the only means the people had of hollowing out canoes, house building, &c.’ (Hely 1894: 59).

*Ralph Thompson.* Rev. Ralph Wardlaw Thompson was foreign secretary of the London Missionary Society (LMS) between 1881 and 1914. The British Museum holds six axes (Oc1894,-.107 to Oc1894,-.112), each described as a ‘grave-stone’ provenanced to the ‘Fly River (mouth of)’ (BM online catalogue). One axe (Oc1894,-.107) is associated with

additional information, sourced to ‘Christy Correspondence–LMS–Things from Mouth of Fly River’: ‘Emoaiopu–stones used in placing at head and foot of graves–obtained in ancient times from Yaru [Daru] and Saibaibut [Saibai?]; it is not now known what they were used for in the long ago. Now we use them to place at head and foot of graves and sometimes all round’ (BM online catalogue). The six axes formed part of a collection of 80 objects provenanced to either ‘Kiwai Island’ or the ‘mouth of the Fly River’ that were ‘collected by the London Missionary Society’ and ‘purchased’ by the British Museum from Thompson in 1894 (BM online catalogue) (Table 1). Thompson did not collect the objects himself as his first visit to British New Guinea was in 1897 (Langmore 1974:150, footnote 92). However, LMS missionary James Chalmers established a mission station on Kiwai Island in 1892 and it is likely that he collected the axes and other objects and assisted with their cataloguing after he arrived in England in June 1894 for a two year visit (Lovett 1902: 395–399). The following year, one of the axes was illustrated and published by Edge-Partington (1895 – see Miller 1996: II198). The illustrated axe is sourced to the ‘Mouth of the Fly River’ and of large size (17½ inches [44 cm] in length), and is de-



Table 1. *Kiwai Island axes used as grave markers.*

Museum*	Reg. No.	Max. L (cm)	Max. W (cm)	Max. Th (cm)	Wt (g)
BM	Oc1894,-.107	44.5	12.0	6.5	4575
BM	Oc1894,-.108	34.0	12.5	7.0	4088
BM	Oc1894,-.109	32.0	11.5	5.5	2669
BM	Oc1894,-.110	30.0	11.5	7.5	3155
BM	Oc1894,-.111	19.5	8.0	4.0	999
BM	Oc1894,-.112	11.5	7.0	3.0	352
PRM	1905.63.30	32.5	12.6	6.7	3358
PRM	1910.59.1	40.8	10.9	6.9	2661
PRM	1910.59.2	34.6	11.3	6.4	2678
PRM	1910.59.3	37.3	12.6	9.0	4100
PCMAG	1909.440x	36.6	13.0	7.4	–
PCMAG	AR.1980.71	39.4	10.5	–	–
PCMAG	AR.1980.92	33.2	13.4	8.4	–
SAM	A7944	44.7	10.9	5.5	3482
SAM	A7945	41.8	11.9	7.1	4508
SAM	A7946	36.6	11.3	6.9	3543
SAM	A7947	29.5	9.1	6.0	2013
SAM	A7948	36.1	14.0	8.8	5788
SAM	A7949	36.8	15.2	9.3	7048
SAM	A7950	41.1	13.6	7.9	5984

\* BM = British Museum, London; PRM = Pitt Rivers Museum, Oxford; PCMAG = Plymouth City Museum and Art Gallery; SAM = South Australian Museum, Adelaide.

scribed as ‘*Emoaiopu*. Large stone in form of an adze blade for placing at head and foot of graves’ (Miller 1996: II198). The largest axe in the Thompson collection (Oc1894,-.107) is 44.5 cm long and weighs 4.58 kg (Jill Hasell and Polly Bence pers. comm.) (Table 1).

*Alfred Haddon*. Haddon recorded the use of large stone axes on Kiwai Island based on a short visit in 1898 (1901:108). He also collected 19 stone ‘axes’ and ‘adzes’ from ‘Kiwai’/‘Kiwai Island’ which are housed in the Cambridge University Museum of Archaeology and Anthropology (CUMAA online catalogue). Haddon (1901:108) observed that ‘A small stone adze-head (*tapi*) was bought at Iasa, and when I asked who made it, I was gravely informed, “He make himself he stop along ground all time.”’ Regarding the ‘large’ stone axes, Haddon commented that they ‘are so cumbersome and heavy that it is difficult to understand how some of them could ever have been used, and I suspect the largest ones were in reality symbols of wealth or possibly of authority’. In this connection, Haddon observed that ‘These stones are now placed at the head and foot, or all round the graves, and the natives do not appear to know anything about their former use’. Haddon

(1901:108) added that ‘It is quite possible that stone implements have been out of use in this district for perhaps a century, owing to natives getting iron from wrecks and passing ships, and then bartering it to their neighbours; thus in two or three generations the knowledge of the use of stone implements would easily die out’.

*Charles Seligman*. Seligman collected a number of stone axes from Kiwai Island in his capacity as anthropological leader of the 1903–1904 Cooke Daniels Expedition to British New Guinea. These axes were subsequently donated to the British Museum, Pitt Rivers Museum (PRM), and Horniman Museum (museum online catalogues; Hicks 2013: 535). The PRM Accession Book entry for axe 1905.63.30 states: ‘Presented by Major W. Cooke Daniels, 1905. For Oxford–30. Stone, Fly River, alleged grave-stone’ (PRM online catalogue) (Table 1). This entry was based on information provided by Charles Seligman (Heather Donoghue pers. comm.). As Kiwai Island was the only location on the Fly River visited by the expedition (Heather Donoghue pers. comm.), it is likely that axe 1905.63.30 was obtained on Kiwai Island.

*Albert C. English*. English was Acting Resident Magistrate of the Western Division of British New Guinea based in Daru during the first half of 1900, and collected seven large axes from Kiwai Island which he sold to the South Australian Museum (SAM) in Adelaide (A7944–A7950) in 1916 (Hale 1956:126; Barry Craig and Michael Quinnell, pers. comm.). A copy of English’s catalogue (typed up by the SAM) and which may date to 1916, states: ‘Huge grey diorite adzes measuring from 12" to 18" in length, and vary from 4½ to 15 lbs in weight: elegantly shaped and beautifully finished. No record for what purpose have been used. Probably ceremonial purposes and for currency. Washed out of human graves on Kiwai Island Fly River, Estuary. Fly River’ (SAM archives). A near identical copy of this catalogue was obtained by the Australian Museum (AM) in the 1920s. The 1897 AM register entry for ‘Fly Riv. Dist. Papua’ (Fly River district) axe E7142 donated by Sir William Macgregor has the following annotation: ‘These so called adze blades of large dimensions, were not used as tools. They probably formed an object of ceremony or made for ceremonial purposes. Most of these known were derived from Kiwai Island, being washed out of natives graves by erosion of the river banks. – A.C. English’. The wording of this annotation is very similar to the copy of English’s catalogue of clubs and axes obtained by the SAM in 1916, and it is more likely that the AM obtained the information directly from English in the 1920s. In December 1926, English wrote to the AM requesting that they provide a ‘typewritten copy of the description of my collection of clubs [and axes], which you handed to your Mr Thorpe [AM ethnologist]; that being the only catalogue I had’ (English 1926). In April 1927, the AM posted a typed copy of the catalogue to English (Secretary 1927). As such, the

A.C. English annotation to the Macgregor axe registered in 1897 was probably added in the late 1920s. Even though the AM typed copy of the catalogue is signed and dated ‘A.C. English 23/4/25’, it is clear from SAM records that information in the catalogue dates to 1916 and probably earlier. A 1930 newspaper article on a new collection of Kiwai axes in the Australian Museum mentions that ‘they had been removed from the graves of natives by successive floods’ (Anonymous 1930). A search of the AM register and archives failed to locate any axe/adzes provenanced to either Kiwai Island or the lower Fly River obtained by the AM in the period 1925–1935. As such, the reference to erosion from graves most likely refers to information provided to the AM by English in the 1920s.

*Henry Dauncey.* Rev. Henry (Harry) Moore Dauncey worked for the London Missionary Society in British New Guinea between 1888 and 1928. His extensive collection of New Guinea objects was purchased by the Plymouth City Museum and Art Gallery (PCMAG) in England in 1909. The Dauncey Collection contains three axes (440.09) described as ‘three memorial axeheads, Fly River’ (Catalogue card). These three axes have since been re-designated 1909.440x, AR.1980.71, and AR.1980.92, and range in length from 33.2 cm to 39.4 cm (Tabitha Cadbury pers. comm.) (Table 1). Four other axes (1923.44.14 to 1923.44.17) similarly described as ‘Stone Axe. Memorial’ (Accession register) but with no provenance are of Kiwai ‘type’ axe form (PCMAG online catalogue photos) and thus probably also derive from the Fly River mouth. They range in length from 20.3 cm to 47.0 cm (Tabitha Cadbury pers. comm.). A further four of Dauncey’s stone axes provenanced to the ‘Fly River’ were purchased by the Pitt Rivers Museum (PRM) from the PCMAG in 1910 (1910.62.32 and 1910.59.1–1910.59.3) (Cummings 2013: 281–282; Hicks 2013: 535). Axe 1910.62.32 (max. L. = 30.0 cm) has no associated details on use or function (PRM online catalogue). In contrast, the PRM Accession Book Entry for the remaining three axes – 1910.59.1, 1910.59.2, and 1910.59.3 – states: ‘3 very large almond-shaped stone celts, used only as grave stones’ (PRM online catalogue) (Table 1).

*Gunnar Landtman.* Landtman collected numerous stone ‘axes’ and ‘adzes’ provenanced to ‘Kiwai’/‘Kiwai island’/‘Mouth of Fly River’ that he subsequently donated to various museums such as Cambridge Museum of Archaeology and Anthropology (n=1), Horniman Museum (n=1), and National Museum of Finland (n=33) (online catalogues; Lawrence 2010). Catalogue entries for Landtman’s 33 Kiwai axes in the National Museum of Finland make no mention of function or collection context (Heli Lahdentausta pers. comm.). In terms of technological function of axes, Landtman surmised that while hafting was feasible for the smaller axes, the larger axes would have had to be held in the hands (Landtman 1927: 34). Landtman (1927: 35) stated that while he ‘never saw a stone axe or adze actually used,’ he

found that ‘memory’ of the use of the axes ‘remained remarkably fresh and clear’ amongst the older Kiwai men who were born well before sustained contact with Europeans began in the 1870s. The smaller axes were hafted onto wooden handles and were used in the manufacture of dug-out canoes (Landtman 1927: 209, 1933: 46). Landtman collected a number of hafted axes/adzes which had been retained by Kiwai men (1927: Fig. 36, 1933: Plate XV) (Figure 3). In contrast, the larger axes had ‘very great value’ and could represent a large part of the payment for a bride or a canoe. According to Landtman (1927: 34), the ‘unwieldiness’ of the larger axes was consistent with their ‘ceremonial’ use. Intriguingly, Landtman (1927: 35) further surmised that ceremonial use of stone axes increased after introduction of metal blades, whereby large axes were ‘often kept on graves or at water holes, stuck in the ground in an upright position’ (Landtman 1927: 35).

*Wilfred Beaver.* Beaver was Resident Magistrate of the Western Division of Papua based in Daru 1909–1913. He prefaced his views on the use of large Kiwai axes with ‘The former use has been forgotten, and the only answer to be obtained, if you ask them, is that “They are old-time things”. That they were ever actually used is not admitted by the people, but for a very long time past Kiwai has obtained iron by trade and so the knowledge of their former use can easily have been lost. Stone tools have scarcely been used for generations’ (Beaver 1920: 187; cf. Baxter Riley 1925: 112). In terms of the larger axes, Beaver (1920: 187) followed the reasoning of Haddon and Landtman, stating: ‘Some of these axes are so large that I have been inclined to regard them as once of a ceremonial nature’. He added that ‘At the present day the large stone axes which may be occasionally seen in Kiwai or Fly River villages are supposed



Figure 3. Hafted small stone adze from Kiwai Island collected by Gunnar Landtman in 1910–12. National Museum of Finland (VK 4902: 528) (Photograph: Sirkku Dolle).

to be agricultural charms, which possibly reflects his own observations (Beaver 1920:187).

## DISCUSSION

### Grave markers and agricultural charms

Ethnographic observations on the use of large axes from Kiwai Island and the lower Fly River region date mostly to a short period of a couple of decades (1890s-1910s) and concern ceremonial use (Table 2). Ceremonialism relates mostly to use as grave markers with early 20th century observations also mentioning use as agricultural charms and placement at water holes. All of these ethnographic observations are considered reliable given that they were made by colonial administrators (Hely, English, Beaver), missionaries (Chalmers, Dauncey), and anthropologists (Haddon, Seligman, Landtman) – all highly experienced ethnographic observers and recorders of peoples from the lower Fly River region. Unfortunately, no information is available on the symbolic meaning behind the use of the axes as grave markers. In contrast, Beaver's (1920:187) observation of use as 'agricultural charms' is consistent with the broader cultural tradition of stone charms associated with agricultural increase/decrease magic on Kiwai Island and the adjacent islands of Torres Strait (e.g. Landtman 1927: 74, 76–77; Haddon 1935:136–137; McNiven in press). Similarly, Landtman's (1927:35) observation that some axes were 'kept ... at water holes' is consistent with the broader cultural practice seen across the Trans-Fly and Torres Strait regions of using stones as rain charms, including placement at wells (e.g. Teske 1987:50–51; Williams 1936; McNiven in press). More recently, anthropologist David

Lawrence reported that near the village of Sagapadi on Kiwai Island is a large tree under which is found 'many large stone axe heads' associated with the travelling culture hero Sido (Lawrence 2010:78). Lawrence (2010:78) adds that 'The story of Sido remains the most important legend told by the Kiwai as it legitimises Kiwai occupation of the places named in the legend'.

### Singular ceremonial function?

An explicit assumption of ethnographic sources on Kiwai ceremonial axes is that they were once used as axes and that a technological function had given way to a ceremonial function following the replacement of stone tools with metal tools associated with European contact during the 19th century (Hely 1894; Haddon 1901; Beaver 1920; Landtman 1927). The notion that earlier technological use of the axes as tools had been forgotten was either implied (Hely 1894) or stated explicitly (Haddon 1901; Beaver 1920). Haddon (1901), Beaver (1920), and Landtman (1927) added that the unwieldy large size of some Kiwai axes suggested that they always had a singular ceremonial function. Yet Beaver (1920:187) placed a caveat on the large=ceremonial hypothesis, stating: 'I have seen some as large or even larger from the interior of south-western Dutch New Guinea fitted to their handles and I was told they were found in actual use'. Hafted chopping axe blades up to 39 cm in length (albeit relatively thinner and lighter than most Kiwai 'type' axes) are known for West Papua (formerly Dutch New Guinea) (Hampton 1999:63; Pétrequin and Pétrequin 2002). As such, it is doubtful that Beaver ever saw axes of the size of the largest Kiwai 'type' axes (40–54 cm in length) hafted and used as chopping tools.

Table 2. Summary of observed ceremonial uses of large Kiwai axes.

Quoted use	Nature of observation	Decade of observation	Reference
'used ... to decorate graves'	Ethnographic observation by Hely, probably on Kiwai Island	1890s	Hely (1894:59)
'for placing at head and foot of graves'	Ethnographic observation probably by Chalmers on Kiwai Island	1890s	Edge-Partington (1895 in Miller 1996: 11198)
'placed at the head and foot, or all round the graves'	Probable ethnographic observation by Haddon on Kiwai Island	1890s	Haddon (1901:108)
'memorial axeheads'	Probable ethnographic observation by Dauncey on Kiwai Island	1890s–1900s	Plymouth City Museum and Art Gallery catalogue
'used only as grave stones'	Probable ethnographic observation by Dauncey on Kiwai Island	1890s–1900s	Pitt Rivers Museum catalogue
'alleged grave stone'	Probable ethnographic observation by Seligman on Kiwai Island	1900s	Pitt Rivers Museum catalogue
'washed out of human graves'	Observation by English on Kiwai Island	1900s	South Australian Museum records
'kept on graves or at water holes'	Ethnographic observation by Landtman on Kiwai Island	1900s–1910s	Landtman (1927:35)
'agricultural charms'	Probable ethnographic observation by Beaver on Kiwai Island and lower Fly River	1900s–1910s	Beaver (1920:187)



### Axe-shaped grave markers?

From the forgoing discussion, it is probable that at least the largest (>40 cm in length) Kiwai 'type' axes were manufactured as ceremonial stone axes and were never used as chopping tools. Such a ceremonial function is well documented ethnographically across other parts of New Guinea where such axes are associated with status, wealth, and exchange (e.g. Hughes 1977; Battaglia 1983; Burton 1984; Hampton 1999; Pétrequin and Pétrequin 2002). While the attributions of status and wealth have been suggested for Kiwai 'type' axes (Haddon 1901; Landtman 1927), the grave marker function of Kiwai 'type' axes appears unique for New Guinea. Indeed, the grave marker function raises the nuanced question of whether or not the axes were manufactured as axes to be used as grave markers or manufactured as grave markers in the shape of axes. In this connection, Edge-Partington (1895 in Miller 1996: II198) described the axe collected by Chalmers as a 'Large stone in form of an adze blade for placing at head and foot of graves'. Is it possible that Edge-Partington was hinting at the possibility that large Kiwai axes were axe skeuomorphs, i.e. grave markers made in the shape of axes as opposed to axes made to be used as grave markers?

### Ceremonial re-use of archaeological axes?

The reluctance or inability of Kiwai people to convey information on the origins of ceremonially-used axes raises the question of whether or not at least some of the axes represent re-use of archaeological finds, irrespective of original manufacture as utilitarian chopping tools or ceremonial objects. The issue of re-use of archaeologically-recovered objects in ceremonial and ritual contexts is a poorly understood phenomenon in archaeology (Bradley 2002; Lane 2013), but one that has been documented ethnographically in Papua New Guinea (e.g. stone mortars – Berndt 1954; Bulmer and Bulmer 1962; Torrence and Swadling 2008). That large Kiwai axes were eroding from archaeological contexts is indicated by Jear's comment to Mackay (1909:174) that he obtained numerous large axes 'on the beaches of the Fly River' and English's comment on axes 'Washed out of human graves on Kiwai Island' (see above). Indeed, English's observation raises the possibility that axes eroded from graves were re-used as grave markers.

### Axes or adzes?

Ground stone implements from Kiwai Island are described variously in the historical ethnographic literature as axes (e.g. Hely, Seligman, Dauncey, Beaver), adzes (e.g. Edge-Partington, English), or both (e.g. Haddon, Landtman). Most of these historical sources do not define either an axe or an adze so it is difficult to know the basis of the typological division. While in some cases the division may have been based on the cross-section symmetry of

the cutting edge (with axes featuring a symmetrical cross-section and adzes featuring an asymmetrical or bevelled cross-section), it is clear that designation of either axe or adze was somewhat arbitrary given ethnographic observations of Melanesian axe/adze use. For example, during the process of canoe manufacture at Hood Bay on the southeast coast of Papua New Guinea, Haddon (1901: 220) observed that 'the logs are hollowed out with stone adzes, the stone blade of which can be shifted round to any angle by turning the holder on the shaft'. Similarly, Landtman (1927: 34) was informed by Kiwai men that the 'two pieces of wood between which the blade is wedged can be easily turned halfway round in the lashing of the haft, enabling the edge to be used either as an axe or an adze as the occasion may require'. For Highlands ground stone implements, Bulmer (1964: 247–248) observed that 'there is no positive evidence as yet that there is any diagnostic feature of the blades, such as markedly asymmetrical bevelling or gripping, correlated with form of hafting' (see also Strathern 1965: 185). As such, Crosby (1977: 83) points out that from a Melanesian ethnographic perspective, functional differentiation of ground stone implements as either axes or adzes based on form is essentially meaningless given that the same implement can be hafted with its cutting edge oriented ranging from a classic axe (i.e. blade edge parallel to axis of the haft) through to a classic adze (i.e. blade edge perpendicular to axis of the haft). Previous archaeological researchers working along the south coast of Papua New Guinea have classified ground stone implements either typologically as axes or adzes, mostly depending on symmetry of the cutting edge (e.g. Allen *et al.* 2011; Irwin 1985: 217; McNiven *et al.* 2012; Vanderwal 1973: 127), or functionally as 'axe-adzes' or 'axe/adzes' in recognition of ethnographically-known hafting options (e.g. Rhoads 2010; Skelly 2014). In this connection, McNiven *et al.* (2004: 271) functionally categorised the mostly large ground stone implements of Kiwai Island as axes, 'with the acknowledgement that many axes may also have been employed as adzes'. The heuristic relevancy of this functional categorisation issue will change if use-wear and residue studies demonstrate that many of the large Kiwai axes used in ceremonial contexts (e.g. grave markers) were not used technologically as tools.

### CONCLUSIONS

Huge stone axes from Kiwai Island are one of the more intriguing items of material culture from Papua New Guinea. Such objects are amongst the largest stone axes in the world. This paper reveals that these axes caught the eye of a select group of early European visitors to Kiwai Island whose testimony and ensuing museum collections provide rare insights into the ceremonial function of these objects. Yet many questions remain unanswered. Four research questions of immediate archaeological interest concern the origin and source of Kiwai axes, the antiquity of



axe manufacture and use, contexts of use and deposition, and whether or not at least some of the large axes were used also as tools. Although McNiven *et al.* (2004) provide insights into the likely Torres Strait origin of Kiwai axes in the Queensland Museum, similar petrographic assessments are needed for Kiwai axes housed in other museums in Australia and overseas. Determining axe antiquity will require archaeological excavations on Kiwai Island, targeting contexts such as in situ river bank cultural deposits adjacent to recently eroded axes. Indeed, such excavations, complemented by site surveys, will help test whether the range of contexts of use and deposition extend beyond grave markers and ceremonial charms. A useful approach to determining whether or not large Kiwai axes were used also as tools is use-wear and residue analyses. In particular, use analyses of axes known from ceremonial contexts (e.g. grave markers) will test the hypothesis that ceremonial axes started their lives as chopping tools. More broadly, further investigation of ethnographically-collected large Kiwai axes in other museums is required to extend the Australian and English museum focus of this paper.

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