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Warfare in Rapa Nui (Easter Island)

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Introduction

Evidence of massacre, trauma on human skeletal remains, finds of used weapons, depictions of fighting on rock carvings and pottery, destruction of monuments, built defensive structures such as earth forts, and descriptions of warfare and violence in oral traditions point to the existence of organised warfare in pre-text societies (Kolb and Dixon 2002). The aim of this chapter is to review and discuss the evidence of warfare and violence in pre- and protohistoric Rapa Nui (Easter Island) using data from oral traditions, the analysis of material culture and information from human skeletal remains.

Rapa Nui is a small and remote island situated in the East Pacific (Figure 4.1). Archaeological research shows that a Polynesian population settled the island around 700–1000 years ago (DiNapoli et al. 2020; Hunt and Lipo 2006; Martinsson-Wallin and Crockford 2002). The Western world's first knowledge of Rapa Nui came when the Dutch Captain Roggeveen sighted it on Easter Day 1722 CE. Diamond (2005) has since portrayed Rapa Nui as a place of precolonial societal and ecological collapse. This image has recently been challenged by research that suggests that Rapa Nui was a nonviolent society (Hunt and Lipo 2011) and was highly resilient (Haoa Cardinali et al. 2017). Instead of social collapse from ecological degradation, it has been argued that European colonial activity caused unrest and the decline of traditional Rapa Nui society (Delsing 2004; Griffiero 1998:365–367; Martinsson-Wallin 2007).

Based on archaeology, oral traditions and early historical accounts, Rapa Nui was probably a largely isolated society in prehistory. Archaeological and geological investigations (Martinsson-Wallin 2004; Mieth and Bork 2010; Wosniak 1998) have shown that the land was covered by an extensive endemic palm forest which was gradually cut down, in part so that agriculture and ceremonial sites could be built. This, in tandem with agriculture, caused soil erosion and environmental degradation. Traditional history collected in the nineteenth and early twentieth centuries point to competition and conflict over resources that set off warfare, violence and societal collapse (Métraux 1940; Routledge 1919; Thomson 1889).

Figure 4.1. Map of Rapa Nui with main locations mentioned in text.

Rectangle marks the location of the Poike Ditch.

Source: Helene Martinsson-Wallin.

Archaeological excavations and surveys from the 1950s CE onward indicate extensive destruction of ceremonial sites, the rebuilding of monuments, and a special type of obsidian ‘spearhead’, called *mata’a* (Figure 4.2) that is distributed on or close to the surface. Heyerdahl and Ferdon (1961) interpret this artefact as evidence for violence that involved destruction of the monuments (a phase known as *huri moai*) and community raiding. However, recent use-wear analysis of *mata’a* suggest that these tanged obsidian blades were probably multipurpose tools used for cutting, scraping and peeling plant material, and therefore their use as a spearhead in interpersonal conflict is unlikely (Church and Ellis 1996; DiNapoli et al. 2020; Hunt and Lipo 2011:96–99; Lipo et al. 2016).

Figure 4.2. Two *mata’a* showing tanged attachment and crescent-shaped cutting edge.

Source: Helene Martinsson-Wallin.

The collapse theory of Diamond (2005), focused on environmental degradation, precolonial endemic warfare and societal collapse, is the subject of current debate. There are several lines of evidence to support the view that precolonial Rapa Nui experienced environmental degradation and internal fighting, but also that the traditional society showed high levels of resilience until it was severely impacted by European colonial encounters (Martinsson-Wallin 2007; Wallin and Martinsson-Wallin 2010). The prehistoric Rapa Nui society might not, therefore, have

been such a violent place as previous research suggests. Hostility and fights have undoubtedly occurred, but the question is whether precolonial Rapa Nui organised and engaged in regular conflict and warfare or not.

The massacre of the ‘Long Ears’—Oral tradition and archaeology

Oral tradition

A well-known legend narrates the massacre of the group called *Hanau eepe* (‘Long Ears’) by the *Hanau momoko* (‘Short Ears’). The former group is said to have chased the latter into the so-called Poike Ditch, which was then set on fire and the people killed (Métreaux 1940:69–71). The massacre of the ‘Long Ears’ and the battle of the Poike Ditch, written in the nineteenth century, could indicate that a massacre and internal warfare or violent actions occurred in ancient Rapa Nui. Legends and vernacular history can accurately record past events that are, however, often rephrased in a metaphorical way, which differs from the concept of history based on a linear chronology of events. Fader Sebastian Englert (1974) thought that the Poike battle was a real event, which he dated with genealogies to the end of the seventeenth century CE. However, the story has been interpreted in different ways. Thor Heyerdahl thought that the ‘Long Ears’ were the original settlers from South America, named for their extended ear lobes. The expansion of ear lobes also prevailed in the precolonial Marquesas Islands and Heyerdahl stressed a connection between pre-Columbian South America and East Polynesia during his one-year visit to Marquesas in 1937–1938 (Heyerdahl 1974). Heyerdahl further thought that the ‘Long Ears’ in Rapa Nui were subsequently conquered and slaughtered by the ‘Short Ears’ who came to Rapa Nui from Polynesia in a second migration (Heyerdahl 1961). Heyerdahl writes (1961:33) that local traditions recorded by Palmer in 1868 CE indicate two different groups of people on the island. Palmer was a surgeon aboard the British battleship *Topaze*, which took a statue (*Hoa hakananai’a*) from a house in Orongo. Since then, the British Museum has displayed this statue, but there are currently indigenous attempts to return it. The *Topaze* visited the island around the time when the first missionaries came to Rapa Nui and there are textual records about life and culture by several (Eyraud 1864; Roussel 1926 (1869); Zumbohm 1879–1880). Métreaux (1940:74) thought that the Poike massacre was a ‘fairly recent theme’ and discussed the ‘short and long ear’ groups as different societal classes. Thus, he interprets the massacre as an internal ‘revolution’ by the ‘commoners’ to overthrow the ruling chiefs (Martinsson-Wallin 1994; Métreaux 1940:70; Van Tilburg 1994:38). Métreaux (1940:73) also suggested the story was ‘partially an etiological myth’.

Initial visits by European navigators in the eighteenth century and their writings made the enigmatic Rapa Nui known across the globe. Knowledge about the island increased with the number of ship visits in the eighteenth and nineteenth centuries. Foerster and Lorenzo (2015) have collected extensive data on travel logs from protohistoric visits by whalers, slave traders, and from military, scientific and commercial ship visits from the eighteenth century onwards. This data shows that there were a large number of ship visits, which affected the Rapa Nui in profound and mostly negative ways. The population size diminished drastically due to slave raids, diseases and hostility, and the demographic decline probably affected the cultural reservoir of traditional history, which might have led to unwillingness to part with indigenous knowledge. The impact of external contacts since the eighteenth century certainly caused trauma in the society and could be one of the reasons that contributed to the onset of Rapa Nui warfare and the destruction of ceremonial sites, including the toppling of *moai* statues. There are several historical reports that the Rapa Nui were throwing stones at European arrivals in the nineteenth century when they

tried to come ashore. The missionary Eyraud also noted in 1864 CE that he had to flee for his life due to hostilities when the time of Mataveri (the birdman cult) started at Orongo. The impact of colonial contact might also have created room for the invention of new cult activities or the hybridisation/creolisation of old traditions (Wallin and Martinsson-Wallin 2010).

In the period between 1877 and 1886 CE, Alexander Salmon, who was a half-Tahitian resident engaged by the Tahitian Maison Brander farm, recorded traditional history. He and a local Rapa Nui, Juan Tepano Huki (born c. 1876 CE), became the two most important informants about Rapa Nui oral history, including providing information about the massacre at the Poike Ditch. Their information has been used repeatedly by researchers, but has been interpreted in different ways (e.g. Heyerdahl 1961:33; Van Tilburg 1994:33). The English Commander Clark made the first-known interview with Salmond in 1882 CE (Heyerdahl 1961). Thomson (1889:528–529), a paymaster in the US Navy who visited the island in 1886 CE, was the first to record the story of the ‘Long Ears’. The information was obtained from Salmon: in one narrative the ‘Long Ears’ arrived during the rule of the third *ariki* (high chief), and in another version the two groups arrived together during the initial colonisation by *Hotu-matua*, who was the ancestor of the ‘Short Ears’, and *Hinelilu*, who was the ancestor of the ‘Long Ears’.

According to Métraux (1940:71), the ‘Short Ears’ tilled the soil and planted food, and it was the ‘Long Ears’ who built the *moai* and *ahu* monuments. Thomson (1889:528–29) states that the two groups were from different races and the ‘Long Ears’ settled the eastern part of the island and lived on Poike and in Hanga-nui in boat-shaped houses with stone foundations (*hare paenga*). The ‘Short Ears’ lived on the western part of the island at Hangaroa, Mataveri, Vinapu and Vaihu, and had houses made with a light frame and straw, but also lived in caves. Martinsson-Wallin (1994:132–133) suggests that the *Hoto-matua* legend could be a late influence from Mangareva from the time when the missionaries returned a large group of Rapa Nui, which resulted in hostilities involving commercial use of the island as a sheep and cattle farm.

Archaeological evidence

Excavations of the Poike Ditch by Smith (1961) did not find human remains consistent with a massacre, but he did report several charcoal horizons. Smith excavated six test pits in two segments of the ditch and mound/rampart running in a north–south direction at c. 60 m above sea level on the western slope of the Poike peninsula (Smith 1961:386; Reainer and Ryan 2003:217, Figure 7). All test pits yielded charcoal and one of the pits that contained the most was extended to a c. 30 x 1.5 m trench traversing the ditch and mound/rampart in an east–west direction. Two charcoal samples provided dates of 1570 ± 100 BP and 280 ± 100 BP. Heyerdahl and his team interpreted the older determination as representing the earliest human occupation of the island (Heyerdahl 1961). This date was refuted on stratigraphic grounds by Martinsson-Wallin (1994) and Martinsson and Crockford (2002:245, 249, Table 1), but the early age persisted in scholarly work until Wilmshurst et al. (2011) concluded that Rapa Nui was probably colonised as late as the fourteenth century CE. Radiocarbon dates generally support an initial colonisation around the twelfth–thirteenth century CE, although the radiocarbon sequence is yet to be finalised (Martinsson-Wallin and Crockford 2002; Martinsson-Wallin et al. 2013). The more recent date of 280 ± 100 BP from the Poike Ditch could indicate human activities around the sixteenth or seventeenth centuries CE, as suggested by oral traditions, but when calibrated (at 2 sigma) the radiocarbon result has a broad range of 1450–1890 cal. BP. Smith adds that there were no finds of *mata’a* in the excavations, but three sling stones were found in the Poike Ditch excavations:

the absence of the *mataa*, or obsidian spear head used in warfare, suggest that the war between the Hanau Eepe and the Hanau Momoko marked the end of the Middle period when the *mataa* seems to have been unknown or rare, and the beginning of the Late Period [c. 1680 CE] when it is common. (Smith 1961:391)

Excavations by Vargas in 1991 CE suggests the ditch may date to around the twelfth century CE (Bahn and Flenley 1992:168; Van Tilburg 1994:78), but the estimate is not supported by published radiocarbon dates. Additional excavation and dates on new charcoal samples would shed more light on the age and extent of burning at Poike. Smith later revised his interpretation of the Poike Ditch and argued that the charcoal derived from a massive earth oven that was made to feed the workers in the nearby *moai* quarries at Rano Raraku (Smith 1990). Digital mapping of the trench by Reainer and Ryan (2003:207–221) showed that the ditch and mounds/banks stretch over 300 m in a north–south direction along the western slope of the Poike peninsula.

Due to the oral tradition of a massacre, the Poike Ditch was mentioned by Routledge (1919:281) in a footnote that interprets the ditch as a natural geological formation, while the upslope mounds of soil along the ditch might have been the remains of a fortification. DiNapoli et al. (2020:8) dismiss the Poike Ditch as an earthwork fortification and state that: ‘there is not a single recorded instance of such a feature on Rapa Nui’. Furthermore, they indicate that: ‘its form is likely geologic in origin’ without discussing the mound/rampart stratigraphy resulting from excavation of the ditch (Smith 1961:Figures 97 and 98).

The geologist Chubb (1933) notes that the Poike peninsula is geologically different from the rest of Rapa Nui and is the oldest volcanic formation. The ditch is probably a remnant of a rugged coastline when Poike was an ancient islet (Chubb 1933), which only later fused with the Terevaka lava flow and was incorporated into Rapa Nui. Subsequently the trench filled with erosion soil from the steep slopes of Poike, and survey indicates the ditch is 20 m above the base of the lower slope (Reainer and Ryan 2003).

The traditional history stating that the stone foundation houses (*hare paenga*) should only occur in the east side of the island and thus only belong to the ‘Long Ears’ is clearly not true. These types of house foundations occur all over the island, but only in close relationship with ceremonial sites such as *ahu* (see for example Håkansson 2017). The inland areas display other types of house foundations, especially around Vaitea and towards the hills of Terevaka (Stevenson 1997). It is true that there are fewer *hare paenga* houses in Hangaroa, but since all the people were forced to move there during the European colonial times, the area has been subjected to urban development. There are, for example, records that a large *ahu* with cut stones in Hangaroa harbour was demolished (Englert 1974) and stone foundation houses have likely been destroyed by development.

Recent surveys at Poike (site visit and oral information by Sonia Haoa Cardinali in November 2017) showed the area appears to have been intentionally cleared of stones, since it looks different from other parts of the island where stones frequently occur on the surface. Some ‘fields of stones’ in other parts of Rapa Nui are agricultural inventions, so-called ‘rock gardens’ that cover the ground to keep it moist and fertile for agricultural purposes (Stevenson and Haoa 2008). Archaeological remains are few on Poike and in a ruined state. Large-scale soil erosion is evident on the south side across from Moto Marotiri and there are traces that monuments close to the cliff edges have fallen into the sea or are actively eroding (Cauwe et al. 2006). The monuments in the area on the north-west side of Poike, like Ahu Mahatua (one of the larger monuments on the island), have also been largely destroyed.

Archaeological evidence does not support the massacre of ‘Long Ears’ from fire at the Poike Ditch. However, stone ‘crematorium’ structures, which are attached to the majority of ceremonial sites, do contain burnt human remains. Dates for crematoria show that this burial custom may have a lengthy history on Rapa Nui (Martinsson-Wallin In prep; Martinsson-Wallin and Crockford 2002; Martinsson-Wallin et al. 2013). Evidence of human cremation is found all over the island at or near ceremonial sites. Cremations could be a traditional burial custom, but Palmer (1870) thought that the cremated human bones found at the two-headed statue at Vinapu were offerings,

while oral traditions suggest that cannibal activities and cremation were connected (Heyerdahl 1961:73). From a settlement pattern perspective, the crematoria might be seen as representing 'waste' since they were placed on the sea side of the ceremonial site. On the other hand, the area on the sea side of the ceremonial sites that is between the land and sea was a liminal zone controlled by the *ariki*, which was *tapu* at certain times of the year (Ayres 1975). The crematoria were carefully built structures that were lined with small rounded *poro* stones, red scoria and coral, which is not consistent with 'waste' deposition of cannibalised human remains. Sometimes cremated bones are found in small stone cists in the wing of the *ahu*, as for example at Ahu Ra'ai (Martinsson-Wallin et al. 1998). Ayres (1973) reports that there were cremation pits and small cists in the ramp at Ahu Ko-te Riki in Tahai. Crematoria and the cremated bones they hold have not been studied in any detail and have often been interpreted as the result of cannibalism.

A second site that may have been fortified/defended is a small hill called Maunga Auhepa at Anakena. The hill has a levelled summit with a lower terrace around it, 1 m below the top and 2 m wide, that connects with an entrance ramp to the east. The artificial nature of the hill was recognised by Routledge (1919:295 and Figure 97) and Brown (1924:59, 213), but Métraux (1937:137) thought it natural. Test trenching of Maunga Auhepa showed that the lower terrace was made by the cut-and-fill technique, with some fill derived from levelling the summit. Smith (1961:278) suggested that the terrace may have been defensive and the hill possibly used as a refuge.

Oral traditions and evidence of other forms of hostility and violence

Yet another frequently cited legend points to constant hostilities and raids among clan groups that belonged to the Ko-Tu'u (western side) and Hoto-iti (eastern side) of the island, respectively (Métraux 1940:74–86).

The western tribes attacked the eastern or vice versa. When one party felt that it was overwhelmed and that victory (*ao*) was with their adversaries, the warriors fled and tried to take refuge in caves (*he opo ki roto ki te ana, he pipiko*) or on the rocks or islets off the coast. The old men, the woman, and the children scattered and hid in caves or in deserted places. (Métraux 1940:150)

Routledge's (1919:289) informant, Kariera, suggests these events occurred in the eighteenth century CE, but the conflict chronology is unclear. According to oral traditions, the onset of these 'wars' seems to centre on cannibal activities and fighting between the Tupahotu and Miru clans (Métraux 1940:74–84). There are two versions of the story of hostilities and they both focus on a man called Kainga (a synonym for an extended family group glossed as 'people who eat together'). The geographical areas where conflict occurred appear to be close to Poike, Tongariki and the islet of Morotiri, but the legends also narrate that areas of the Miru clan were raided and people had to flee to the Moto Kaviti and Moto Nui on the west side of the island (Figure 4.1).

Elsewhere, I have suggested that the clan areas Ngatimo and Ngaure may be relatively recent divisions with the territorial fractioning tied to raids and hostilities (Martinsson-Wallin 1994:103). Based on dating of ceremonial sites in the La Perouse area it has been suggested that primary and secondary ceremonial sites were associated with senior and junior chiefs who engaged in conflict over land (Martinsson-Wallin and Wallin 2014; Wallin and Martinsson-Wallin 2008). Disputes over access, power and utilisation of resources are likely to have contributed to hostility and violence among kinship groups (Martinsson-Wallin 1994:105).

Figure 4.3. The statue *Paro* at Ahu Te Pito Kura.

Source: Helene Martinsson-Wallin.

The destruction of the Rapa Nui monuments and the statues also indicates violent social activity and the possibility of warfare. However, erosion and cyclones have also caused damage to ceremonial sites. For example, a tsunami hit Ahu Tongariki in 1960s, but in that instance photos of the site prior to the tsunami show already toppled statues. Based on historical data from eighteenth-century accounts of early navigators, compared with nineteenth-century accounts like those of Kotzebue (1821) in 1817, Petit-Thouars (1841) in 1837 and the first missionary accounts (Eyraud 1864), the last standing statue must have been pulled down between 1838 and 1864 CE (Métreaux 1940:86), well after European contact. An informant of Routledge (1919:173) told her that the large statue called *Paro* (Figure 4.3) at Ahu Te Pito Kura was the last left standing. The Rapa Nui refer to the protohistoric toppling of the *moai* and destruction of *ahu* as the *huri moai* time. Oral traditions that include hostility and fighting often mention raids and revenge for stealing food, and include stories of cannibalism and the use of fire. Métreaux (1940:149) writes that:

there was constant rivalry between the tribes, particularly between those of the eastern and western part of the island ... The first act of war was to burn the hut of one's opponent.

Thomson (1889:475) stated that 'every able-bodied man was supposed to be a warrior', but accounts by Routledge (1919:224) and Métreaux (1940:138) indicate that there were men called *matatōa* (*toa toa*) who were the leaders of ordinary fighters (*paoa*). The fighters threw stones and used obsidian spears (*mata'a*) and wooden clubs (*ua*, *paoa*).

Métreaux (1940:149) reports that young children learned the art of war through mock fights using a blunt blade. Barthel (1958) visited the island in 1957 CE and give a detailed account of the legends and use of the *mata'a*. The *matatōa* at times took over the role of the *ariki* (chief) of the clan and this might have happened when statues were toppled as a result of intercommunity raiding and during the rise of the birdman cult (Wallin and Martinsson-Wallin 2010).

The missionary Roussel (1926 (1869)) gives an account of a war party who painted themselves black and spent a sleepless night before combat, hiding their belongings before leaving. Women and children accompanied the war party with chants and stayed on the side of the nearest hill to witness the battle. The warriors ambushed their enemies, damaged huts and sugar cane plots, and carried away the defeated. The defeated were struck with cudgels, buried alive, cooked in earth ovens, cut up with axes and some were trodden on and beaten until they died. Thomson (1889) mentions that while there were frequent hostilities there were relatively few victims in battle, but the robbing of women and killing of children and the disabled occurred. Thomson (1889), Routledge (1919) and Métraux (1940) also note that survivors hid in caves and remote places.

Examination of ceremonial sites demonstrates that monuments are complex as they have often been destroyed and rebuilt, with features added over time (Martinsson-Wallin 1994). Elsewhere I have argued that the protohistoric *huri moai* time is not the initial phase of statue and monument destruction in Rapa Nui (Martinsson-Wallin 2000). This is because the restructuring of ceremonial sites included the incorporation of already mutilated smaller statues concealed inside the *ahu* or incorporated in the *ahu* wall. The excavations of Ahu Nau Nau at Anakena (Skjølsvold 1994) yielded such statues from the inside of the *ahu* platform and another example is seen at Ahu Tongariki (Martinsson-Wallin 2000). Ayres et al. (2014), who excavated *ahu* Ura Urenga te Mahina, close to Akahanga, argued that the fallen *moai* were still venerated after toppling and were intentionally ‘buried’ by covering them with stones.

It is common for symbols from a belief system to be incorporated and amalgamated with new symbols when belief systems change. External factors and culture contact often trigger a change in symbols that indicate significant societal change. It is not unlikely that there was more than one external pre-European contact on Rapa Nui. Martinsson-Wallin et al. (2013) have argued that the monument-building of the *ahu* is earlier in Rapa Nui than that of *marae* in the Society Islands, even if the early colonisers who settled Rapa Nui came from Polynesian islands such as Mangareva, the Austral Islands or the Tuamotus (Martinsson-Wallin and Crockford 2002; Martinsson-Wallin and Wallin 1999). We argue that the typical *marae/ahu* complex could have developed first in Rapa Nui and the concept spread to the Society Islands sometime in the fifteenth century CE (Martinsson-Wallin et al. 2013). The current radiocarbon dates for ceremonial sites in Rapa Nui and Central Polynesia support this idea and challenge the current opinion that there was a single colonisation event and that ancient Rapa Nui was a remote isolated island with no external contacts after initial colonisation.

The intentional destruction in the late prehistoric and protohistoric phase of the ceremonial sites and toppling of statues (considered as gods and *ariki*) was very likely tied to the inter-group hostility and endemic warfare mentioned in oral traditions. However, both internal and external factors likely contributed to these conflicts. The abundance of obsidian tanged *mata’a* found on the surface or close to the surface in Rapa Nui have been taken as evidence for hostility and fighting (see discussion below). Another sign of warfare is the possible occurrence of fortifications. In Rapa Nui, there are no ring forts and only one possible hill fort at Anakena. Instead, it seems that many caves have served as forts/refuges and the small islets (*motu*) were also places of refuge. It is not clear whether inland parts of the island also served as refuges as in Tahiti. The Poike Ditch and mounds/embankments discussed above may have been a linear fortification.

Weapons in oral traditions, historical accounts and archaeology

Beechey (1831:49) writes that when he tried to go ashore, the Rapa Nui threw stones with great accuracy and several of the new arrivals received severe blows from stones thrown from the shore. The blow was less severe if the stones were thrown underhand (*patu raro*) compared with an overhand throw (Métreaux 1940:165). Métreaux (1940:165) thought that the sling (*maea-taea*) was a new invention brought from Tahiti in protohistoric times. Some human bone remains from various burial sites in Rapa Nui show trauma that results from precolonial violence. Owsley et al. (2016) conducted osteological analysis on human remains that indicated blows from stones or clubs were present on several skulls.

Longer clubs called *ua* (c. 1.5–2 m long) had a face with inlaid eyes of bone and obsidian with carved long ears at the club end (Métreaux 1940:168). The *ua*, according to Thomson's (1859:475) informant, was a sign of authority and parade staff for a chief, but could also be used as a weapon according to Roussel (1926 (1869):426). Shorter clubs (*paoa*), usually with a carved head of a human or a lizard at one end, are said to have been used in raids and warfare while the wooden swords called *puhi* are suggested to be recent (Métreaux 1940:169–170). Métreaux (1940:171) examined similar items in other parts of Polynesia and concluded that staffs were signs of authority. The *paoa* had similarities with the *patu* of the Maori in New Zealand according to Cook (1777:291) and Forster (1777:536), but Métreaux (1940:172) thought the resemblance coincidental. The short club has also been discussed by Ramirez (1990/1991:53–54) as similar to the South American war club (*clava*) of the Mapuche.

The obsidian spearhead—*mata'a*

The main type of weapon indicative of warfare in late prehistoric and protohistoric times is the obsidian spearhead with tang for hafting called *mata'a* (Figure 4.2). These artefacts are found on or close to the current ground surface. The only morphological studies by Lipo et al. (2010, 2016) concluded that:

Blade shape, it appears, freely varied and was probably conditioned by the happenstance of the flake selected for the artefact in the first place. This pattern suggests that *mata'a* were not used extensively as weapons given the lack of a specific pattern in shape driven by the function of stabbing or inflicting other serious injuries. (Lipo et al. 2010:2560)

Lipo et al. (2010) also suggest that their seriation analysis shows differences in craft tradition at different locations and this suggests there was not a large-scale social network on the island. The *mata'a* analysed by Lipo et al. (2010, 2016) were mainly from museum collections and were not found in stratigraphic sequences and thus no radiocarbon dates can be used to assess artefact age. Smith made the only chronological analysis of *mata'a* based on archaeological excavations in the mid-1950s. In the excavation of two habitation caves, Smith found:

The most important discovery is the correlation of the *mataa* and European trade goods with the final occupation in both sites Puapua II and O-hae II. In earlier occupations, Puapua I and O-hae I European trade items are absent, the *mataa* is rare or absent, and other artefacts appear in slightly different proportions. (Smith 1961:270)

Routledge (1919:223) writes about the *mata'a*:

Legends tell of continual wars between Hot-iti and Kotuu. In recent times, general fighting seems to have been constant and took place even between members of one clan. A wooden sword, or *paoa*, was used, but the chief weapon was made from obsidian, and took from it the name '*mataa*'.

When I surveyed *ahu* structures around the island in 1991 CE (Martinsson-Wallin 1994), I could see *mata'a* distributed on the ground everywhere. Thus, archaeological excavations and survey have shown that this type of artefact is tied to the last prehistoric and the protohistoric phase and occurs across the island.

According to Thomson (1889:474) and Métraux (1940:165–168), there were two types of spears used in conflict; a throwing spear or javelin (*kakau*) that was used as a missile and a thrusting spear or pike for close fighting (*vero*). According to Routledge's informant, there were 14 different shapes of spearhead; one of which was named 'tail of a fish', another 'backbone of a rat' and a third 'leaf of banana'. Based on Skinner (unpublished manuscript), Métraux (1940:168) provided six morphological types of *mata'a* and also noted that the *mata'a* is depicted on rongorongo plates. Barthel's (1958) account mentions the *mata'a* have important social and magical aspects and gives detailed accounts of how the obsidian spearhead was attached, along with techniques used in handling and throwing hafted weapons.

According to the Rapa Nui, these weapons were increasingly effective when treated with magic (*tohu*), and if a weapon killed someone the obsidian point received the title of *mataa ika* (Barthel 1958:17). Martinsson-Wallin and Wallin (2001) noted that human sacrifices to the gods were called *ika* (fish) with the body hung by the mouth with a large fishhook. The number of windings with the *hau* fibre, which attached a spearhead to the haft, could be used to mark clan identity. This made it easier to identify particular weapons and obtain revenge (Barthel 1958:17). To make it ready for war, the owner of a *mata'a* weapon attached two feathers to the hafting on each side of the spearhead and with the assistance of the *aku aku* (family spirit), told the weapon the reason for the approaching fight/war.

Recent study of use-wear on *mata'a* in museum collections indicates the artefacts were probably used as multipurpose tools and their use as interpersonal weapons is questionable (Church and Ellis 1996; Hunt and Lipo 2011:96–99). Barthel (1958:18) note that it is likely that the initial use of the *mata'a* was as a multipurpose tool, which subsequently transformed into a weapon.

Osteological analysis by Owsley et al. (2016) found few traces of trauma on human skeletal remains that might have been inflicted by *mata'a* and therefore question the use of the *mata'a* as a weapon in large-scale warfare and massacre, but add that lethal cuts and wounds inflicted by a *mata'a* would be unlikely to leave a mark in skeletal remains. The Spanish who visited and annexed the island in 1770 CE reported that:

We observed sundry wounds on the body, which we thought to have been inflicted by cutting instruments of iron or steel, we found that they proceeded from stones which are their only defence and offense, and as most of these are sharp edged they produce the injury referred to. (Ruiz-Tagle 2005:63)

Hunt and Lipo (2011:96–107) have a lengthy discussion about the lack of evidence for warfare in Rapa Nui and instead picture the island as having a mostly peaceful past. They state that the *mata'a* is not suited for combat since they have an asymmetric shape that makes them unfit to be used as projectiles or stabbing tools (Hunt and Lipo 2011:97). Based on a quantitative analysis of measurements of a sample of 118 *mata'a* and an additional 249 measurements from photos of *mata'a*, Lipo et al. (2016:182) conclude that obsidian artefacts were not used as lethal weapons in warfare. Lipo et al. (2016:180) also suggest that 'there is in essence no evidence that *mata'a* blade shape was constrained by functional performance, location or obsidian source'.

In contrast to Hunt and Lipo (2011:96–99) and Lipo et al. (2016), Barthel (1958:17–19) mentions that the Rapa Nui were very skilled in the art of using various types of hafted *mata'a* in raids between clan groups and the use of such weapons involved ritual and magic. An oral account obtained by Sonia Haoa Cardinali (pers. comm. 24 January 2019) says the *mata'a* were

used as projectiles in a dangerous game where an individual had to catch the *mata'a* between the palms of the hand or between the cheek and the palm of one hand. Even if the sample of *mata'a* reported by Church and Ellis (1996) served as multipurpose tools it cannot be ruled out that they were also used as weapons in interpersonal conflict and raids. In her study of pre-state European warfare and warriorhood, Vandkilde (2013:43) stresses that function is both variable and independent of material form.

Evidence of cutting and scraping on *mata'a* may be connected with the defleshing of human bones as a mortuary practice or may be the result of cannibalism, as many traditional societies engaged in ritual cannibalism (Obeyesekere 1992). The use-wear analysis of Church and Ellis (1996) that indicated cutting and scraping of plant material could be from the reuse of *mata'a*, just as a coral eye once used in a *moai* statue was reused as an oil lamp (Martinsson-Wallin 1996). Other types of material culture said to be connected to war and warriors on Rapa Nui were the *Hau kurakura*, which was a small crown of red (*kura*) feathers made from the feathers from a rooster's neck (Métraux 1940:223).

Evidence of warfare and weapons in rock carvings and rongorongo plates

Extensive survey of rock carvings by Lavachery (1935) and Lee (1992) shows they depict anthropomorphic figures, birdmen, birds, marine creatures, terrestrial creatures, ceremonial objects and ornaments, watercraft, items of material culture, plants and celestial phenomena. Lee (1992:28–43) made an analysis of rock art patterns and their spatial distribution by placing carvings in 12 different groups. There are no carvings that depict war scenes, but some designs resemble *mata'a* and perhaps show a hafted axe. On the rongorongo boards there are designs that might show a person holding a spear, club or axe (Métraux 1940:401).

Evidence of warfare and trauma on human skeletal remains

Injuries in human skeletal remains can be indicative of regular warfare and violence such as intra-family fights, feuding and homicide. It can be difficult to identify what kind of hostile acts have caused a particular trauma, since periods of intensified war often coincide with increased interpersonal violence (Vandkilde 2013:52).

Owsley et al. (1994) studied human skeletal remains from Rapa Nui in the late 1980s, with an extended study by Owsley et al. (2016) containing detailed data on bone trauma and injury. The more recent study shows that in comparison to a reference group of individuals from other Polynesian islands, the people from Rapa Nui had a higher percentage of bone injuries and these injuries could result from interpersonal violence (Owsley et al. 2016: 244). The analysis was based on a large sample of human skeletal remains from museum collections collected in the nineteenth and twentieth centuries CE, but some derive from archaeological excavations in the 1950s–1980s. Dates on the bones, and obsidian hydration dates, indicate the majority of the skeletal remains derive from the late prehistoric and protohistoric phases (after 1647 CE) with only a few dating older. Cranial bones make up a large part of the sample, reflecting colonial collecting strategies (Owsley et al. 2016:228). Of the 4169 analysed craniofacial bones, around 3.1 per cent display traumatic injuries, with the majority of injuries involving the frontal bone (Owsley et al. 2016:231). Blunt force trauma was the main injury identified and was probably caused by thrown stones, while a few crushing injuries were probably from clubs (Owsley et al. 2016:235).

Most of the bone injuries do not seem to have been the primary cause of death as only a few were classed as potentially lethal. Only two remains had obsidian embedded in the bone, with a few other injuries probably caused by *mata'a* (Owsley et al. 2016:236). Some of the postcranial

bones also show pre-mortem damage with most injuries to the lower arm bone (ulna). The analysis also shows that in relation to gender and age, the evidence for violence was mostly found in the remains of young males. According to Owsley et al. (2016) the injuries are not compatible with oral traditions of massacres and extensive fighting, but show that lethal violence could be inflicted by stones, clubs and obsidian blades especially in late prehistoric and protohistoric Rapa Nui society.

Archaeological investigations show that human remains were deposited in crematoria placed on the sea side of the majority of the *ahu* structures. Radiocarbon dates from 10 crematoria at various sites on the island indicate that this burial custom could have been part of *ahu* design by the twelfth–thirteenth centuries CE (Martinsson-Wallin In prep; Martinsson-Wallin and Crockford 2002:Table 1; Martinsson-Wallin et al. 2013; Navarro 2017). Only a few studies have examined cremated bone deposits and it is not known whether there are intentional injuries on the remains. Unfortunately, many of the crematoria are deteriorating and the human bones are weathering and eroding without any cultural management plan or archaeological investigation. A radiocarbon dating program on cremation inhumations and study of cremated bones for evidence of trauma could provide additional information about conflict and violence in Rapa Nui's past.

Warfare and violence in traditional societies

Researchers in sociology and anthropology have long discussed the role of warfare in human history and whether humans commonly resorted to lethal violence in the past. Vandkilde (2013:41) defines warfare as 'collective, violent social interaction, which is built upon cultural logic and waged against other groups'. She further notes that 'actions of war vary from raiding to large-scale military actions; its precise form and content depending on the specific societal setting'. Thorpe (2003:146) defines warfare 'as organized aggression between autonomous political units'. Current discussions on warfare are often tied to neo-Darwinian views and the idea that human culture and behaviour largely result from biological imperatives combined with adaptation to environmental constraints. A neo-Darwinian analysis by DiNapoli et al. (2018) uses economic dependability and costly signalling to compare the chance of conflict and warfare in Rapa Iti and Rapa Nui. They suggest that on Rapa Iti resources were highly defensible and led to the occurrence of fortifications on Rapa Iti, but not on Rapa Nui. This view assumes that the 'fortifications' on Rapa Iti were restricted to defence; a ritual function is not considered, as suggested by a shrine at Morongo Uta (Ferdon 1965:74–75).

According to Thorpe (2003:147), there are three basic ideas for why humans use violence and conflict: territorial disputes, reproductive competition and status competition. In a diachronic study of violence and warfare in the hunter-gatherer Jomon culture, Nakato et al. (2016) conclude that violence and warfare was never common, but a small increase in the frequency of violent death occurred when society moved towards greater complexity and people become more sedentary. Kolb and Dixon (2002), in their study of warfare landscapes in Hawai'i, identified four categories of architectural site that result from organised conflict: ritual structures (war temples), fortifications, defensive settlement patterns and places of refuge. Helbling (2006) suggests that to wage war is in certain instances a less risky strategy than peace as you cannot trust your allies. In the case of Rapa Nui and in other Polynesian societies, there is an in-built power struggle between senior and junior chiefs, and shifting allegiances between different groups were common (Martinsson-Wallin and Wallin 2014).

Several Polynesian societies, such as Tonga, Hawai'i, Society Islands and Samoa, have archaeological remains indicating organised warfare. Tonga has ring forts, while Samoa has defensive sites including modified hilltops and ridges that were strategic points of defence and/or served as places of refuge (Clark et al. 2016; Green and Davidson 1969). Kolb and Dixon (2002:512) argue that war temples and the creation of refuge places indicates warfare in precolonial Hawai'i. In Hawai'i, there are relatively few prehistoric human skeletal remains that have been examined and only a few artefacts are associated with war and hostility, but oral tradition and ethnohistorical accounts suggest warlike activity was relatively common. In Rapa Nui, and to some extent in Samoa, caves and lava tubes were places of refuge. It is possible that some of the large mounds (*maota*) in Samoa might also have served as ritual sites in times of war (Martinsson-Wallin 2014).

Kolb and Dixon (2002) suggest that some of the war temples in Hawai'i date to the fourteenth century CE and that large-scale warfare became more frequent in Hawai'i during the European contact era. The high chiefs (*ali'i*) managed and organised conflict, and groups of trained warriors mostly from the commoner class were led by junior chiefs (Kolb and Dixon 2002). The endemic wars of Hawai'i were, according to Kolb and Dixon (2002), highly ritualised events and included the conquest of land, raiding to obtain valuables and the capture of elite human sacrifices who were offered to the war god. The leeward islands of Hawai'i experienced a rise in the influence of the war gods (*Kuka'ilimoku* and *Kanevira*) consistent with expansionary warfare.

In Tonga, indications of ancient and European contact-era warfare are found in oral traditions as well as in a large number of earthwork ring forts, some of which date to the thirteenth–fourteenth century CE (Clark et al. 2018). In the Society Islands, the rise of the war god *Oro* and the associated cult involving human sacrifice at the *marae* temples, along with the rise of places of inland refuge, indicates escalating warfare around the sixteenth century CE (Wallin 1993). In Samoa, the rise of the chiefly title of *Mālietoa*, estimated by genealogies to date to the fourteenth–fifteenth century CE, indicates increasing warfare, which is mentioned in oral traditions that refer to constant fights over land and chiefly titles (Meleisea and Meleisea 1987).

Conclusion

Oral traditions of the Poike Ditch massacre and fights between the Ko-Tu'u and Hoto-iti clans, as well as cannibalism, point to the presence of violence on Rapa Nui in late prehistoric and protohistoric times. These activities seem to have escalated in the seventeenth century CE. Based on osteological analysis of human remains and use-wear on *mata'a* artefacts, Hunt and Lipo (2011:98–107) suggest prehistoric Rapa Nui was a peaceful island. This view contrasts with oral traditions, extensive finds of *mata'a* and the widespread destruction of monuments. In bringing various types of data together we must ask whether a society like Rapa Nui, which was highly competitive, was at the same time peaceable? Early contact with Europeans almost certainly increased inter-group hostility and placed stress on the social system, with the rise of the birdman cult possibly an attempt to stabilise fragmenting social relationships (Wallin and Martinsson-Wallin 2010).

Revenge, food, women and competition between different clans/extended family groups (*kainga*) and frictions between chiefs and the *matatoa* (young warriors) seem to be important traditional factors that sparked hostility. Ethnohistorical accounts note that hostile actions could involve stone throwing, but also that the Rapa Nui had weapons including wooden clubs and spears with obsidian points. Archaeological data that indicate hostility and violence include the destruction of ritual sites and the toppling and mutilation of the large *moai* statues, as well as the mutilation and incorporation of smaller statues in ceremonial sites. The chronology of these events is unclear,

but radiocarbon and obsidian hydration dates from archaeological excavation and references to genealogies point to a late seventeenth century CE age, associated by the Rapa Nui with the *huri moai* (statue-toppling) phase, which continued during the protohistoric and colonial periods. This is supported by examples of small statues found mutilated and incorporated in *ahu* structures prior to the last *huri moai* events (Martinsson-Wallin 2000). When placed in a neo-evolutionary framework, the archaeological data for conflict suggest that it was less costly for the Rapa Nui to compete through conspicuous consumption than to invest in larger and more elaborate *moai* and *ahu* structures (DiNapoli et al. 2017). The initial construction of *ahu* sites on Rapa Nui dates to around the eleventh–twelfth century CE, with some structures showing at least three phases of construction/rebuilding. Destruction of smaller and stylistically more diversified statues that were incorporated in the *ahu* could point to early ‘*huri moai*’ in the fourteenth–sixteenth centuries CE. The obsidian tool/spearhead called *mata’a* is likely to belong to the late prehistoric and protohistoric era.

Human skeletal remains from different sites (mainly those connected with *ahu* sites) display injuries from fights and the effect of weapons. The frequency of such injuries is around 3 per cent of the skeletal sample. The majority of these injuries occur in the remains of young males, but many wounds were unlikely to have been lethal. The frequency of violence is however higher than in the other Polynesian reference groups. In general, the evidence to date does not point to massacres or instances of intensive warfare.

Turning to the *mata’a*, it was likely a multipurpose tool, including use as a spearhead/knife in raids and interpersonal combat. The recent use-wear analysis of the *mata’a* contrasts with vernacular history and traditions of *mata’a* being used by warriors. Further use-wear studies using a larger sample of this type of artefact is required.

Large-scale warfare is often connected with complex societies while violence in small-scale traditional societies is often associated with raids, threats and ritual warfare. In Hawai‘i, the rise of war gods and war temples suggests ritualised endemic warfare in prehistoric and protohistoric society. In Rapa Nui, there do not appear to be ceremonial sites exclusively dedicated to war or to particular war gods. The birdman cult and associated god *Make Make* is primarily a fertility cult that appears to be unrelated to war. However, the link between fertility and warfare is seen in the veneration of the god *Oro*, who became important in the Society Islands in the sixteenth century CE (Wallin 1993). Cannibal activities narrated in Rapa Nui oral traditions have probably occurred, but it is likely these activities were of a ritual kind associated with revenge and the usurping of a group’s *mana*. It is not clear whether cannibalism is associated with human remains found in crematoria at *ahu* sites. Current research suggests that crematoria could date to the initial building of *ahu* (Martinsson-Wallin In prep).

There are no formal fortifications on Rapa Nui, with the possible exception of the Poike earthwork and Maunga Auhepa, but there are many places of refuge. Several known caves have walls made to hide the entrance. The use of caves very likely indicates that they were hiding places for smaller segments of society as a result of raids and revenge between extended families (*kainga*). The use of caves and islets as hiding places and refuge is not necessarily an outcome of warfare, but does suggest that hostile activity and raids occurred.

There is no evidence for conflict from petroglyphs or on the rongorongo plates. This might be because the petroglyphs have a symbolic meaning and were used for ritual purposes in the communication between gods and people.

To conclude, endemic hostilities, raids and cannibal activities occurred in Rapa Nui especially in late prehistoric and protohistoric times. The archaeological material does not support large-scale massacres or highly organised warfare as narrated in oral traditions. Oral history narrates power

struggles over land and resources where the junior chiefs acted as warriors (*matatōa*). It is likely that fights involved power struggles between senior and junior branches of extended families in a clan as well as between different clans, which may have led to statue mutilation and toppling.

In comparison to other Polynesian societies such as Hawai'i and Tonga, the endemic hostilities and conflict on Rapa Nui seem to have involved a relatively small number of combatants and were less organised. The toppling of the *moai* statues is probably a sign of community defeat while stronger clans may have been able to protect their statues. Warlike activities are likely to be tied to societal stress when the Rapa Nui experienced competition and resource shortages from drought and social upheaval from external culture contact.

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