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– ARTICLE –

Revisiting Warfare, Monument Destruction, and the 'Huri Moai' Phase in Rapa Nui (Easter Island) Culture History

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ABSTRACT

Warfare is widely accepted as a transformative factor in human history. However, as warfare is not inevitable in human groups, archaeologists must critically assess the empirical evidence for war and its importance in the past. Here, we reevaluate the culture history of Rapa Nui (Easter Island), often interpreted as a case of warfare resulting in social upheaval. Common accounts hold that, prior to European contact, clan groups eventually ceased making *moai* statues and statue platforms (*ahu*), battled with obsidian spears, sought refuge in fortified caves, and toppled rivals' *moai* in a prolonged period of internecine warfare termed the 'Huri Moai' phase. Examining this culture historical framework and evidence for warfare and monument destruction, we find a lack of support in archaeological or historical records for a pre-contact Huri Moai phase. Overall, these findings highlight how archaeologists must carefully evaluate assumptions about the prevalence of violence and war in the past given the evidence for each case. In the case of Rapa Nui, our prior understanding of the island's culture history is in need of fundamental revision.

Keywords: Cannibalism, collapse, fortifications, skeletal trauma, weapons

INTRODUCTION

Warfare is considered by many anthropologists to have played a central role in human history, from early human evolution, emergence of complex societies, to our recent history (e.g., Bowles, 2009; Carneiro, 1970, 1990; Choi and Bowles, 2007; Glowacki *et al.*, 2017; Gómez *et al.*, 2016; Keeley, 1996; Turchin, 2007; Turchin *et al.*, 2013; Zefferman and Mathew, 2015). Consequently, identifying warfare in past societies and its importance for societal change is a significant challenge for archaeologists (Kintigh *et al.*, 2014). The most common lines of archaeological evidence used to infer warfare are systematic patterns of skeletal trauma, defensive features, and weapons (e.g., Dolfini *et al.*, 2018; Keeley *et al.*, 2007; Martin and Harrod, 2015; Walker, 2001). In many regions of the world, this archaeological evidence overwhelmingly supports claims that warfare and violence were important drivers of social transformation (e.g., Arkush and Tung, 2013; Lambert, 2002; Maschner and Reedy-Maschner, 1998; Milner, 1999).

Critical reevaluations of archaeological and ethnohistorical evidence, however, have shown that the evidence for warfare in some cases that once seemed obvious are now proving to be less certain or more complicated than once thought (e.g., Andrushko and Torres, 2011; Arkush and Stanish, 2005; Fernández-Götz and Arnold, 2020; Kohler *et al.*, 2014; McCoy and Ladefoged, 2019; Scott and Buckley, 2014). In some cases, these new findings are leading to wholesale reinterpretations of warfare narratives (e.g., Fry and Söderberg, 2013; Jiménez, 2018; Smith-Guzmán and Cooke, 2018). While violence and warfare were demonstrably prevalent in the past, warfare is not an inevitable outcome of human social interaction (e.g., Glowacki *et al.*, 2017). Thus, we must critically evaluate the evidence for war from the available archaeological and ethnohistorical evidence. Here, we offer a critical evaluation of one popular, and controversial, case study where warfare has long been assumed a key driver of wholesale societal change – Rapa Nui (Easter Island, Chile; Figure 1).

In AD 1722, Europeans first encountered the remote island of Rapa Nui. As they reached the shore, they witnessed a puzzling sight: a mostly treeless environment with a human population they estimated to be only a few thousand. The Dutch visitors soon discovered that the inhabitants had constructed an impressive array of megalithic platforms (*ahu*) and hundreds of multi-ton stone statues

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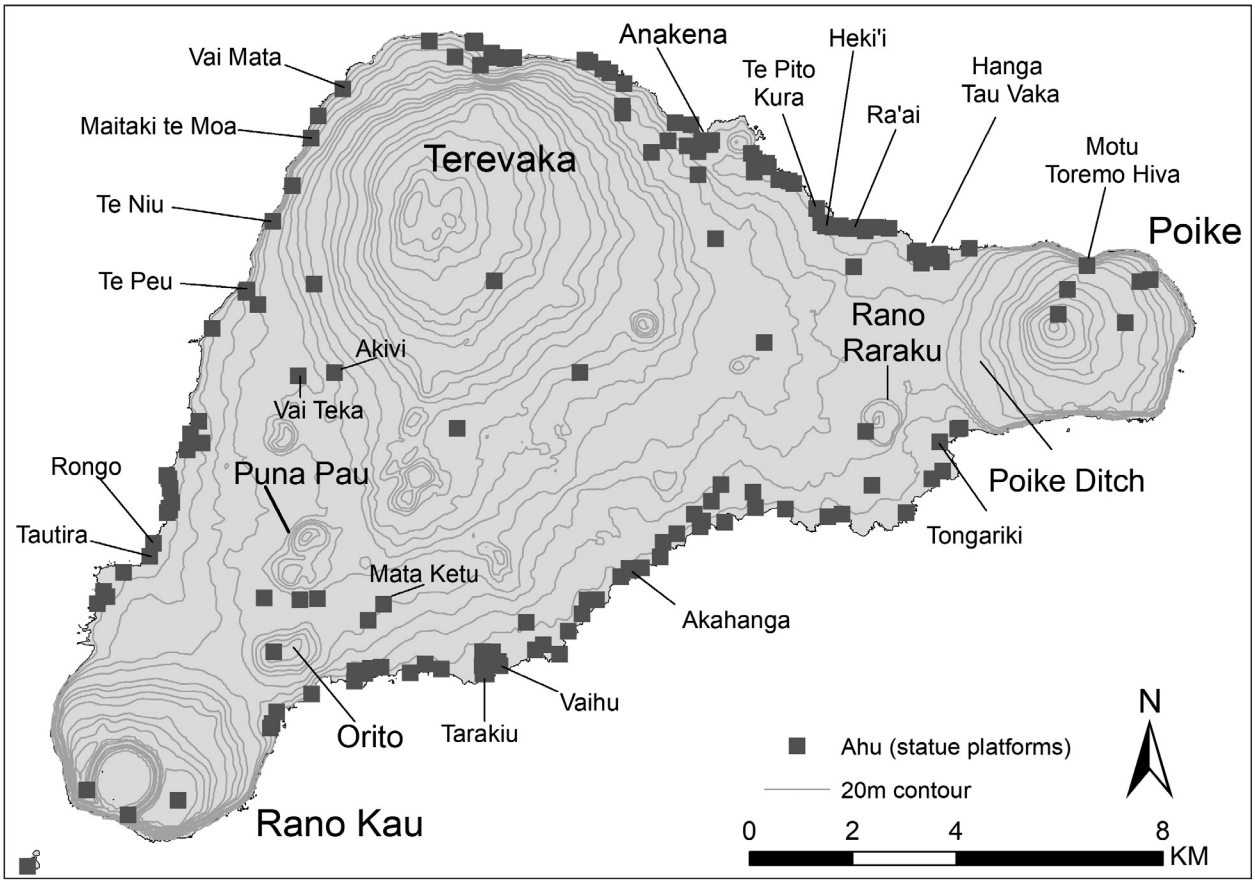

Figure 1. Rapa Nui showing locations mentioned in the text.

(*moai*) (Figure 2). These observations of contact-era Rapa Nui have engendered fascination and intense debate ever since. In a historic context, the paradox of the islanders' cultural achievements relative to the isolated and resource-poor landscape became popularly known as 'the mystery of Easter Island.' Early European explorers placed blame for the island's condition on its indigenous population (e.g., Forster 1774, quoted in Jakubowska, 2014). This account holds that naïve actions of ancestral populations ultimately led to the assumed devastated state of the island and its inhabitants at the point of contact. While Heyerdahl and Ferdon (1961) framed this action as the consequence of conflict between Polynesians and South Americans, more recent versions beginning with Mulloy (1974) hold the that pre-contact population was once much larger and lived under more prosperous environmental conditions. These narratives propose that Malthusian growth led to ecological catastrophe and population collapse (e.g., Bahn and Flenley, 1992; Diamond, 2007, 2005, 1995; Flenley and Bahn, 2003; Kirch, 1984). In these accounts, as the once richer environment was over exploited, *moai* and *ahu* construction ceased, and intense, lethal conflict broke out between the island's clan groups, who battled with obsidian spears (*mata'a*), sought refuge in fortified caves (*ana kionga*), destroyed chiefly houses (*hare paenga*) and *ahu*, and toppled each other's *moai* in a prolonged period of internecine warfare termed the 'Huri Moai' phase (Kirch, 1984; Lee, 1986; Smith, 1961a; Van Tilburg, 1986).

Despite the popularity of the story, over about the last 15 years, substantial empirical evidence has accumulated that raises doubt on many aspects of the collapse narrative, and instead points to Rapa Nui as a model case study for the resilience of populations faced with a risky and uncertain environment. There have been numerous and significant revisions to this narrative. First, there is no evidence for changes in land-use patterns that should characterize a demographic collapse (e.g., Mulrooney, 2013; Mulrooney *et al.*, 2009; Stevenson *et al.*, 2015). Second, there have been reassessments of the timing, causes, and consequences of deforestation (e.g., Hunt, 2007, 2006; Hunt and Lipo, 2009; Hunter-Anderson, 1998; Orliac and Orliac, 2008; Rull, 2020a). Third, studies of *moai* and *pukao* demonstrate that trees were not needed nor used to transport monuments (e.g., Hixon *et al.*, 2018; Lipo *et al.*, 2013). Fourth, monument construction appears to continue up to, and potentially beyond European contact in AD 1722 (DiNapoli *et al.*, 2020; Sherwood *et al.*, 2019). Fifth, we now know that cultivation practices improved the island's productivity through lithic mulching (e.g., Hunt and Lipo, 2013; Ladefoged *et al.*, 2010; Rainbird, 2002; Wozniak, 2018). Sixth, the archaeological

Figure 2. Aerial images of Ahu Vaihu and Ahu Akahanga with fallen moai (top and middle), and recently reconstructed Ahu Tongariki (photos by R.J. DiNapoli).

record lacks evidence for a high degree of settlement/social hierarchy or elite control of resources (e.g., Lipo *et al.*, 2010; Lipo and Hunt, 2005; Morrison, 2012; Simpson *et al.*, 2018; Simpson and Dussubieux, 2018). Seventh, there is no evidence for widespread lethal weapons or skeletal trauma resulting in mortality (e.g., Gill and Stefan, 2016; Lipo *et al.*, 2016; Owsley *et al.*, 2016). Finally, critical reexaminations of ethnographic and ethnohistoric accounts point to a misunderstanding of the island stemming from the impact of European diseases, slave raids, and island-wide

sheep ranching (e.g., Boersema, 2018, 2015; Hunt and Lipo, 2011; Lipo and Hunt, 2009; Mulrooney *et al.*, 2009; Peiser, 2005; Pollard *et al.*, 2010; Rainbird, 2002).

Many, however, continue to present a collapse narrative in one form or another as if it were fact (e.g., Bahn and Flenley, 2017; Brandt and Merico, 2015; Kirch, 2017; Kolb, 2020; Ramírez Aliaga, 2019; Reuveny, 2012; Roman *et al.*, 2018, 2017; Scheffer, 2016). While some recent claims (e.g., Nunn *et al.*, 2007; Rull, 2020b, 2016; Rull *et al.*, 2013) hold that its cause was climatic in origin rather than anthropogenic, the notion that the island suffered from a cultural catastrophe before European contact remains popular. Central to these claims is the notion that prior to the arrival of Europeans, islanders engaged in extensive and lethal group-level violence as the result of competition over diminished resources and social upheaval. The idea that warfare was both common and intense on late pre-contact Rapa Nui persists in even some of the most recent academic literature (e.g., Bahn and Flenley, 2017; Kirch, 2017; Kolb, 2020, 2012; Ramírez Aliaga, 2019; Wallin and Martinsson-Wallin, 2011; Younger, 2008) as well as popular culture (e.g., Kristof, 2018; Lowy, 2020). For example, in his review of warfare in Polynesia, Younger (2008, p. 929) identifies Rapa Nui as a place where intergroup violence was 'chronic: warfare essentially continuous.' In his recent treatise on monumental architecture, Kolb (2020, pp. 207–208) argues that, '[s]ometime after 1500 (and maybe as late as 1770), profound sociopolitical and religious changes in Rapa Nuian [*sic*] society resulted in the cessation of statue carving and significant modification or destruction of most *ahu* platforms. *Moai* statues were intentionally toppled over…The reason behind such a drastic change is under debate, the most likely reason being the rise of internecine warfare tied to a generalized degradation of the environment, population pressure, and/or rising social tensions.' Likewise, in a recent overview of Polynesian prehistory, Kirch (2017, pp. 236–237, 304) insists that 'intertribal raiding and warfare became pervasive, during what has been called the Huri Moai Period, from about A.D. 1500 to 1722' based on claims that 'the rise of endemic warfare is clear from the late pre-contact archaeological record,' and that the use of lethal spear-like weapons is evident from 'considerable ethnohistoric information' (see also Ramírez Aliaga, 2019).

It is not our goal here to revisit the collapse debate in its entirely (see, for example, Hunt and Lipo, 2018, 2011, 2007; Larsen and Simpson, 2014; Lipo *et al.*, 2018; Mulrooney *et al.*, 2010; Rainbird, 2002; Tainter, 2006). Rather, we focus our attention on the claims about widespread warfare and monument destruction, particularly in light of new evidence to the contrary. We critically review the main arguments that have been used to support the notion that warfare was prevalent in pre-contact Rapa Nui, especially during the so-called 'Huri Moai' phase. We examine archaeological and ethnohistoric evidence typically claimed for warfare, including oral traditions, historic accounts, lethal skeletal trauma, weapons, fortifications, and the chronologies of *ahu* construction and *moai* toppling. The evidence reveals little empirical justification for pre-contact warfare or monument destruction, nor does it provide necessary or sufficient criteria denoting a culture historical phase, leading us to conclude that Rapa Nui's culture history needs fundamental revision.

RAPA NUI CULTURE HISTORY AND THE 'HURI MOAI' PHASE

Following the traditional practice of culture historical periodization (Dunnell, 1971; Lyman *et al.*, 1997), early researchers divided Rapa Nui's archaeological sequence into discrete phases. The concept of 'phase' in an archaeological context is generally used to denote a distinctive configuration of features that existed for a period of time and some finite space. The interpretation of phase, however, often goes beyond this definition. For example, Willey and Phillips (1958, p. 49; also Rouse, 1955 for a similar view) suggested that 'the equivalent of phase ... ought to be 'society." While early scholars tended to be more cautious about the culture/phase equivalence (e.g., Abbott, 1972; Brain, 1978; Phillips and Willey, 1953), phases are often reified as cultural entities rather than simply measurement tools.

On Rapa Nui, the use of phases was initially driven by the need for culture historians (particularly Carlyle Smith) to create a chronology for the island's history. Using an *ad hoc* set of features that describe *ahu* construction, culture historians associated with Heyerdahl's 1950s expedition (Heyerdahl and Ferdon, 1961; Smith, 1961a), separated 'early' (the beginning of *ahu*/*moai* construction) features of the archaeological record from 'late' (i.e., post-*ahu*/*moai* construction) forms and added a 'middle' phase that effectively captured most of the pre-contact occupation of the island. Smith (1961a) designated the early phase as 'Ahu Moroki,' referring to the initial building of *ahu* characterized by the construction of a dressed-stone seawall. Following Englert (1948), Smith (1961a) termed the middle period 'Ahu Moai,' referring to when *moai* statues and other architectural elements were added to *ahu*. For the late phase, Smith (1961a, p. 184) introduced the term 'Huri Moai,' or literally 'statue-overthrowing,' which he linked to a hypothesized battle of AD 1680 (discussed below). Over time, these basic phases have remained, though their meanings have changed to reflect new interests. For example, Mulloy (1974) later tied this chronology to changes in the island's ecology. Ayres (1974) then relabeled the basic chronology into phases of 'settlement and developmental,' 'expansion,' 'decadent,' and 'protohistoric' – terminology that is consistent with cultural neo-evolutionary (orthogenetic) concepts popular at the time for the New Archaeology (see Dunnell, 1980). Following Ayres, Kirch (1984, see also 2000, 2017) adjusted the phases to be 'initial settlement' and 'Ahu Moai' separated from a late pre-contact 'decadent/Huri Moai' phase.

In this way, Rapa Nui's phases have become associ-

ated with notions of cultural 'stages' rather than simply denoting chronological arrangement of cultural patterns, an interpretation that far exceeds their original purpose (Mulrooney *et al.*, 2009; Van Tilburg, 1996). Rather than simply measurement tools for parsing chronology, phases have become integral to archaeological narratives of the island, particularly as stages of progressive or orthogenetic development followed by cultural regression/collapse. Like elsewhere around the world, phases have come to be treated as real cultural phenomena that are the subject matter for explanation rather than the tools that culture historians originally intended (Lipo, 2001).

Fundamentally, the logic embedded in the chronological framework of Rapa Nui's phases consists of three known facts. First, Polynesian voyagers colonized the island from somewhere in central East Polynesia, now thought to have occurred around the 12th-13th centuries AD (DiNapoli *et al.*, 2020; Hunt and Lipo, 2006; Schmid *et al.*, 2018; Wilmshurst *et al.*, 2011). Second, Rapanui people initially began to invest in *moai* that were placed atop *ahu* platforms at some point after settlement, and this activity continued until some point when people stopped making *ahu* with *moai*. Third, Europeans arrived in 1722. It is upon these fundamental aspects of the chronology that layers of interpretation have been added to account for the proposed 'phases.' Specifically, the cessation of *ahu* and *moai* construction has become associated with the consequence of an increased intensity of monument building assumed to have led to resource exhaustion until the society began 'a downward spiral of cultural regression' and eventually 'crashed devastatingly' (Kirch, 1984, p. 264). Thus, the phase of *moai* and *ahu* building (Ahu Moai period) resulted in ecological catastrophe, followed by cessation of *ahu* and *moai* construction, and then leading to a period of warfare, 'starvation, a population crash, and a descent into cannibalism' (Diamond, 1995, p. 62). Some have imagined that during this late pre-contact time the islanders no longer engaged in the construction of *ahu* and *moai*, but instead the island saw internecine warfare, social disintegration, and population loss (e.g., Englert, 1970). While some scholars have been more circumspect about the evidence for group-level conflict, many posit that warfare was widespread. Van Tilburg (1994, p. 93), for example, argued that, '[w]arfare, although still poorly understood in terms of extent and type, became the rule.' Some view this period of chaos ending at some undefined time around the arrival of the Dutch in 1722 and subsequent European contacts (the 'proto-historic' phase). Lee (1986) and Van Tilburg (1986) continued with this tradition, firmly embedding it in the literature. Stevenson (1997) narrowed the 'decadent' phase to a shorter period of 'warfare and fragmentation' that immediately precedes European contact. Other authors (e.g., Bahn and Flenley, 2017; Kolb, 2020, 2012) have adopted this general chronological framework (Figure 3).

A temporal scheme for Rapa Nui that includes a late pre-contact 'decadent' or 'Huri Moai' phase is commonplace, including Diamond's popular narratives (2007, 2005, 1995), Kirch's (2017) most recent review of Pacific archaeology, and in recent syntheses of monumental architecture in the Pacific (e.g., Kolb, 2020, 2012; Martinsson-Wallin, 2014).

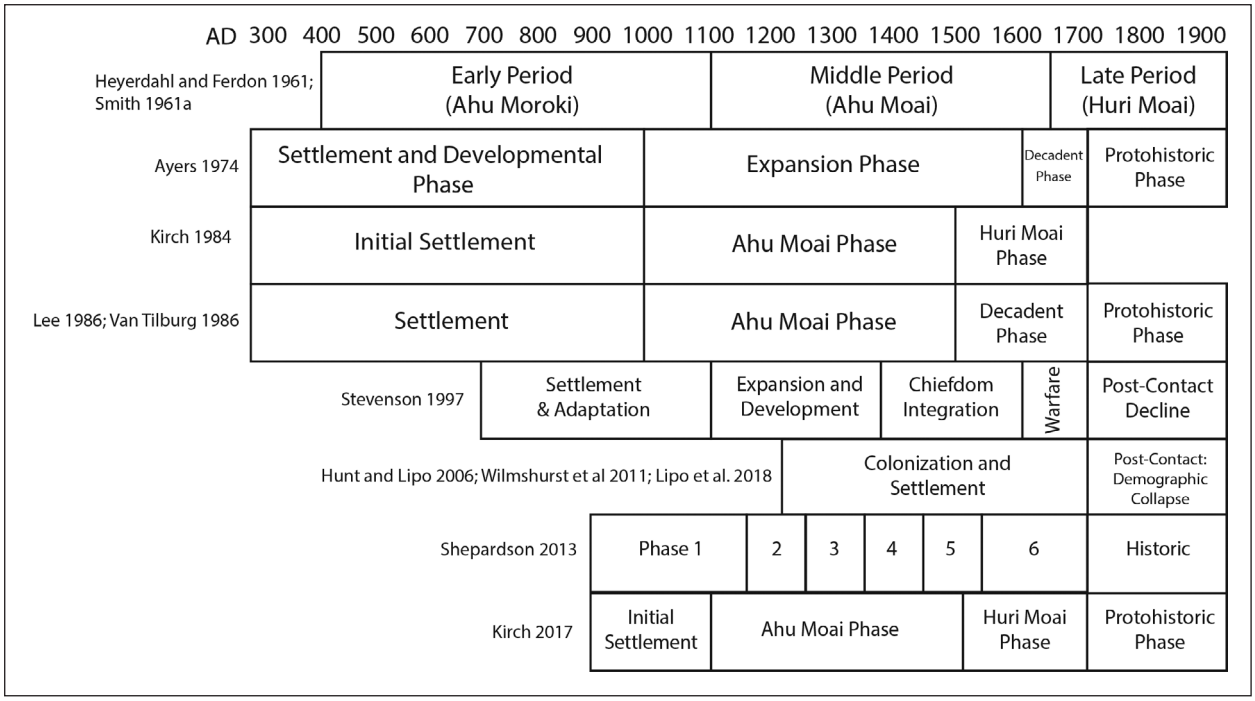

Figure 3. Cultural historical phases used for Rapa Nui. Figure adapted from Lee (1986) and Shepardson (2013:211).

The idea that late pre-contact groups engaged in warfare in competition over diminished resources holds appeal to those who believe that our own history is likely to follow a similar pattern (essentially, a microcosm of Earth's current problems of overharvesting resources, taxing the environment, overpopulation). Consequently, the 'Huri Moai' phase has resulted in a bit of a cottage industry of non-archaeologists attempting to model the island as if these events were a certainty and a parable for what could happen to the earth as a whole (e.g., Basener and Ross, 2004; Bologna and Flores, 2008; Brander and Taylor, 1998; Brandt and Merico, 2015; Cazalis *et al.*, 2018; Dalton and Coats, 2000; de la Croix and Dottori, 2008; Erickson and Gowdy, 2000; Reuveny, 2012; Reuveny and Decker, 2000; Roman *et al.*, 2017; Uehara *et al.*, 2010).

An important part of the rationalization and timing of the 'Huri Moai' phase comes from the assumption that around AD 1680 – some 42 years before the arrival of the Dutch – the island experienced tremendous upheaval (e.g., Bahn and Flenley, 1992, p. 180; Flenley and Bahn, 2003, p. 170; Stevenson and Haoa, 2008; Vargas *et al.*, 2006, p. 233). Englert (1948) initially proposed this date when he speculated a pre-contact timing for a battle described in oral traditions between two groups known as the Hanau Eepe and the Hanau Momoko (Thomson, 1891, pp. 528–532). The names of these groups are often translated into English as 'Long Ears' and 'Short Ears' (respectively), though 'fat or heavy-set people' and 'thin, slender people' may be a more accurate translation (Mulloy, 1993; Mulrooney *et al.*, 2009, p. 94). Speculation has it that this battle took place at the base of Poike where a long linear depression exists, the so-called 'Poike Ditch' (Figure 1; see Reanier and Ryan, 2003; Smith, 1990, 1961a, 1961b). Frequently mentioned in late 19th and early 20th century ethnohistoric accounts (e.g., Métraux, 1940; Routledge, 1919; Thomson, 1891), Englert treated the battle as a historic event that took place prior to Roggeveen's arrival in AD 1722. Believing the battle occurred during late pre-contact times based on genealogies he recorded, Englert reasoned that the event occurred around AD 1680 (Englert, 1970, p. 134, 1948, p. 157; see Mulrooney *et al.*, 2009, p. 95).

While based in speculation, the AD 1680 date became a fixture in the literature and for years researchers have continued to use this point in time to distinguish a 'Huri Moai' or 'Decadent' phase from previous temporal units during which platform *ahu* were constructed and the iconic *moai* were carved and transported (e.g., Ayres, 1974; Bahn, 1993; Flenley, 1998, 1996, 1979; Horrocks and Wozniak, 2008; Lee, 1992; Martinsson-Wallin, 2014, 2004, 2000; Martinsson-Wallin *et al.*, 2013; McCoy, 1976; Nunn, 2000, 1998, 1997; Nunn *et al.*, 2007; Nunn and Britton, 2001; Stevenson, 1997, 1984; Stevenson and Haoa, 2008; Stevenson and Haoa-Cardinali, 1998; Van Tilburg, 1994; Wallin and Martinsson-Wallin, 2011). Some contemporary researchers, however, have challenged the reality of an AD 1680 event given problems with radiocarbon dates thought to be associated with this event (e.g., Boersema, 2015; Lipo and Hunt, 2009; Mulrooney *et al.*, 2009). Yet, many continue to assume that late prehistory was a period of dramatic transformative change marked by some combination of environmental and sociopolitical shifts (e.g., Bahn and Flenley, 2017; Kirch, 2017; Kolb, 2020, 2012; Puleston *et al.*, 2017; Ramírez Aliaga, 2019; Rull, 2020b, 2018, 2016; Rull *et al.*, 2018, 2013; Shaw, 2000a, 2000b; Vargas *et al.*, 2006).

Common in Huri Moai narrative accounts is the idea that the key consequence of environmental change was social strife that escalated into systematic inter-group violence, with earlier traditions such as *ahu* and *moai* ceasing to be a central part of the society. The reasoning for this narrative comes from a variety of sources. Aside from simple speculation, the most common lines of evidence cited are the abundance of obsidian implements, called *mata'a*, assumed to be spearpoints, misinterpretations of calibrated radiocarbon dates, the fact that all *moai* at *ahu* were eventually no longer standing, cave features modified with stones from 'elite' houses, and oral traditions collected in the late 19th and early 20th centuries. Below, we critically evaluate each of these lines of evidence.

REVISITING EMPIRICAL EVIDENCE FOR WARFARE

While there is a spectrum of variability in the form and scale of violence in human populations (e.g., Younger 2008; Zefferman and Mathew 2015), drawing on the anthropological literature, we distinguish two ends of the scale of violent interaction: (1) interpersonal violence; and (2) warfare. Physical anthropologists commonly define interpersonal violence as occurring between a small number of individuals, who may be of a similar group affiliation, and includes personal fights, homicides, assassinations, domestic violence, and revenge killings (e.g., Arkush and Tung, 2013; Fry and Söderberg, 2013; Younger, 2011, 2009). Warfare, in contrast, is defined as organized violence, often lethal, at the scale of groups that conflict over differences in affiliation rather than individual attributes or actions (e.g., Arkush and Tung, 2013; Baustian *et al.*, 2012; Milner, 1999; Thorpe, 2003; Younger, 2009; Zefferman and Mathew, 2015). Warfare is thus group-to-group violence at the scale of alliances, political communities, or other groups that share identity (Tefft and Reinhardt, 1974, p. 154; Younger, 2008). While this class of interaction includes lethal violence between individuals, the mechanisms leading to between-group conflict are distinct from those where a single individual might attack another – interpersonal violence might lead to warfare, but the latter occurs as a function of coordinated and cooperative effort between sets of individuals (Glowacki *et al.*, 2017; Younger, 2011; Zefferman and Mathew, 2015). Here, we focus our treatment of warfare on scholarly assumptions about the 'Huri Moai' narrative for Rapa Nui: cases where the outcome was large-scale loss of life and monument destruction as a result of group-scale violence.

Discerning the occurrence of warfare from the archaeological record is fraught with ambiguities. Simple observations of isolated instances of violence or weapons, for example, are insufficient evidence to claim warfare, as they may be more appropriately explained as interpersonal violence. Likewise, a lack of any single line evidence for warfare, such as skeletal trauma, fortifications, or weapons, may be insufficient to claim that warfare was absent. The *absence* of significant evidence to support the archaeological identification of warfare, however, would raise questions about the assumption that systematic violence *must* have been present. Such a determination requires evaluating multiple lines of evidence from multiple sources explained only in the context of violent activity at the group, rather than individual-scale. Given the persistent claims for large-scale inter-group warfare during the purported pre-contact 'Huri Moai' phase, it is our purpose here to consider existing evidence for warfare from a number of archaeological sources including skeletal evidence and material culture in the form of weapons, fortifications, and destroyed architectural features.

Skeletal Evidence

Systematic and widespread physical evidence from skeletal material with perimortem injuries that likely caused death is one class of information used to identify warfare (e.g., Baustian *et al.*, 2012). For example, cranial fractures, facial fractures, bone-embedded projectile points, and defensive wounds such as cut-marks on phalanges, radii, and ulnae might be used to infer warfare (e.g., Kelly, 2013, p. 161; Martin and Harrod, 2015). The presence of these attributes would have to be sufficiently numerous, indicating a group-level pattern, to distinguish the incidence of warfare from occasional interpersonal violence (Baustian *et al.*, 2012, p. 104).

Skeletal Trauma

Skeletal trauma on human remains is perhaps the clearest archaeological evidence for violence and warfare in past populations (Arkush and Tung, 2013; Martin and Harrod, 2015; Walker, 2001). Healed or unhealed skeletal fractures are strongly indicative of sublethal or lethal violence, with unhealed cranial injuries providing the strongest evidence for violent death. It is important, however, to distinguish between skeletal trauma resulting from smaller-scale interpersonal violence and the high percentage of lethal trauma expected from widespread warfare. Such evidence for war is abundant, for example, in the archaeological records of North and South America (e.g., Arkush and Tung, 2013; Lambert, 2002; Milner, 1999; Tung, 2007) and Europe (e.g., Boldsen *et al.*, 2015; Dolfini *et al.*, 2018; Guilaine and Zammit, 2008; Thorpe, 2003).

Given the claims for widespread warfare expressed by some archaeologists and the mentions of warfare in Rapa Nui oral histories, one would expect abundant evidence for lethal skeletal trauma. In a series of studies, Owsley and colleagues (Gill and Owsley, 1993; Owsley *et al.*, 2016, 1994) analyzed a large sample of human remains collected and excavated from caves, *ahu*, and *avanga* (burial features) on Rapa Nui. Though not all samples or deposits are well-dated, the available radiocarbon dates on teeth from these burials indicate that most date to ca. post-AD 1650, though some are considerably earlier (Commendador *et al.*, 2014, 2013; Owsley *et al.*, 2016, p. 225). In addition, the overall lack of European artifacts from the burials suggests that most are pre-contact (Owsley *et al.*, 2016, p. 225). Therefore, the available skeletal evidence likely dates to the period when warfare is thought to have been most intense by many scholars. To date, a total of 4,169 craniofacial bones, comprising an estimated 476 cranial vaults, have been examined for signs of trauma. Of these, 3.1% of the individual bones show signs of traumatic injuries, and of the 476 cranial vaults, 112 (23.53%) show some evidence of trauma, but only 11, or 2.31%, exhibited lethal injuries (Owsley *et al.*, 2016, p. 239). Males exhibited double the amount of cranial fractures as women (Owsley *et al.*, 2016, p. 237), and notably nearly all post-cranial fractures had healed. Overall, most injuries are relatively minor, and healed, blunt force traumas, rounded or ovoid in shape, to the frontal and parietal cranial bones. Trauma resulting from sharp-edged weapons (e.g., *mataʻa*) are rare, and there are only two observed cases of healed fractures with obsidian embedded in bone (Owsley *et al.*, 2016, p. 236).

The available bioarchaeological evidence does not support a conclusion that lethal violence was ever widespread (Gill and Stefan, 2016). Although the Rapa Nui skeletal sample does exhibit relatively high incidences of cranial trauma, few of these resulted in fatalities. In comparison to elsewhere in the Pacific, the frequency of lethal cranial trauma in the Rapa Nui sample is higher than a Hawaiian sample, but less than New Zealand, Tonga, and New Guinea, and far less than areas in Europe or the Americas with purported large-scale warfare (Keeley, 1996, pp. 88–94; 196–197, Table 6.2; Owsley *et al.*, 2016, pp. 242–246; Scott and Buckley, 2014, p. 342). Nor is there evidence from the skeletal remains that *mataʻa* or other lithic implements were commonly used as weapons. While Bahn and Flenley (2017, pp. 191–192) may be correct in their claims that *mataʻa* injuries were common, as suggested by some early European accounts (see discussion below), these were likely minor as they appear to have left little skeletal evidence. If lethal wounds from *mataʻa* were common, then we should see more than the few cases of sharp-edged trauma observed in the relatively large Rapa Nui skeletal sample. The common blunt force fractures to the skull are small and usually healed, which Owsley *et al.* (2016, pp. 245–249) suggest 'are consistent with injuries that would be caused by throwing rocks, a practice extensively documented in Rapa Nui ethnohistories' and that 'a near absence of facial bone fractures suggest that most confrontations did

not involve hand-to-hand combat,' and instead 'that most injuries resulted from frequent personal confrontations, family disputes, or occasional small-scale conflict where the intention was to harm, but not necessarily to kill.' Thus, the available skeletal evidence documents cases of violence on Rapa Nui, but these rarely resulted in death.

Cannibalism

Many claiming pre-contact warfare on Rapa Nui have also assumed that famines and violence among the islanders escalated to the point of cannibalism (Diamond, 2005, 1995; Englert, 1970; Kirch, 2000, p. 274; Ramírez Aliaga, 2019; Skjølsvold, 1994, p. 112; Van Tilburg, 1994, p. 109; cf. McLaughlin, 2005). In Diamond's (2005, 1995) account, for example, ecological catastrophe meant the loss of resources necessary to support the island's population, a condition that lead to intense competition, the emergence of skirmishes of greater and greater violence, followed by constant warfare, and finally rampant cannibalism and chaos. Diamond (2005, p. 109) writes, '[i]n place of their former sources of wild meat, islanders turned to the largest hitherto unused source available to them: humans, whose bones became common not only in proper burials but also (cracked to extract the marrow) in late Easter Island garbage heaps. Oral traditions of the islanders are obsessed with cannibalism; the most inflammatory taunt that could be snarled at an enemy was 'The flesh of your mother sticks between my teeth." Kirch (2000, p. 274) has similarly claimed that the island's midden deposits 'have a sickeningly high frequency of charred and fractured human bones.'

While such stories present a horrific late pre-contact history for the island, there is simply no unambiguous archaeological evidence to support these claims (Hunt and Lipo, 2007; McLaughlin, 2005; Mulrooney *et al.*, 2010). Owsley *et al.* (2016, p. 246) point out that the large assemblage of human remains demonstrates 'a lack of convincing physical evidence for the practice of cannibalism, such as a cache or assembly of burned bones or bones with chops and cuts characteristic of dismembering and defleshing.' The Rapa Nui skeletal assemblage also lacks modifications argued to be consistent with cannibalism elsewhere in the Pacific (e.g., Degusta, 1999). In addition, Mulrooney *et al.* (2010, p. 145) note that occurrence of small amounts of human bone, burnt or otherwise, is consistent with cultural practices of cremation and using human bone for manufacturing artifacts, such as fishhooks and needles. Thus, we are left with only hearsay, likely embellished European accounts, and mentions in oral traditions collected in the late 19th and early 20th centuries argued in support of cannibalism (e.g., Bahn, 1997; Fischer, 2005, pp. 55, 79, 1992; Flenley and Bahn, 2003, p. 156; McLaughlin, 2005).

Material Culture

Given that the human skeletal data for Rapa Nui lacks clear indications of group-level lethal violence, we turn to material archaeological evidence to examine group-level aggression. We would expect several kinds of material culture in the archaeological record if warfare was prevalent in the past. For example, one line of evidence for warfare is defensive structures: constructed features that required group cooperation and investment that afforded defense to the group members within. Examples of defensive structures include modified hilltops, walls/palisades, moats, and ditches. These can take the form of locations where populations retreat when threatened or locations where a group lives (e.g., a fortified settlement, such as a Māori pā) (e.g., Best, 1927; McCoy and Ladefoged, 2019). Other expressions of culture related to warfare include weapons, iconography, and systematic destruction of monuments, domestic settlements, agricultural features, etc. We emphasize again that no one line of evidence may be sufficient to clearly identify the presence or absence of warfare, but given claims surrounding the Huri Moai narrative, one would expect to see multiple lines of evidence converge towards a conclusion of large-scale intergroup violence.

Fortifications

One of the hallmarks of inter-group aggression and warfare in the archaeological record is fortified, defensive features (Keeley *et al.*, 2007; Parkinson and Duffy, 2007). As Kirch (1984, p. 207) has noted, 'archaeological evidence for prehistoric warfare in Polynesia consists of occasional weapons (slingstones, spear points, etc.) found on the surface or in excavations, and of fortifications. Of these two classes of evidence, the second is far and away the most important, providing critical data on the age, development, and degree of armed conflict.' If warfare was widespread on Rapa Nui, we would anticipate patterns in the archaeological record similar to elsewhere in the Pacific where warfare is more evident (DiNapoli *et al.*, 2018; Field, 2008; Field and Lape, 2010). We would expect Rapa Nui examples to include features such as ditch-embankment complexes or modified hilltops in the most defensible places (e.g., the higher elevation of Rano Kau, Terevaka, Rano Raraku, Poike, Maunga Orito, etc.) (Figure 1). Such features are common, and indeed focal, aspects of the settlement pattern elsewhere in the Pacific, such as New Guinea (e.g., Roscoe 2008), Fiji (e.g., Field, 2004; Smith and Cochrane, 2011), Rapa Iti (Kennett and McClure, 2012), Sāmoa (Best, 1993; Cochrane and Mills, 2018), Tonga (e.g., Clark *et al.*, 2018; Parton *et al.*, 2018), and New Zealand (e.g., Best, 1927; McCoy and Ladefoged, 2019; Walter *et al.*, 2006). Critically, however, *there is not a single recorded instance of such a feature on Rapa Nui*, nor are there historical accounts of anything resembling a defensive feature of this nature (e.g., no palisaded areas). Arguments that the 'Poike ditch,' a

series of elongated depressions on the interior base of the Poike peninsula, represents a defensive feature (Figure 1; Smith, 1961c, 1961b) have found little support; instead its form is likely geologic in origin (e.g., Lipo and Hunt, 2009; Métraux, 1940, p. 72; Mulrooney *et al.*, 2009; Reanier and Ryan, 2003; Routledge, 1919, p. 281; Smith, 1990).

Some have argued that the island's many caves may have served a defensive purpose, or as refugia in times of war (Bahn and Flenley, 2017; Kirch, 2017; Ramírez Aliaga, 2019). Indeed, there are several instances of caves exhibiting modified entrances that, in some cases, act to obscure or conceal the entrance. Some of these modifications include the use of *paenga* stones, which are rectangular, dressed basalt slabs including one or more cylindrical holes. *Paenga* stones usually occur as the foundations of domestic features called *hare paenga*, assumed to be elite houses. The occurrence of *paenga* stones within these modified caves is often associated with the destruction of elite dwellings during times of war and their reuse in so-called 'fortified' caves. Kirch (2017, p. 237), for example, has recently claimed that, 'the rise of endemic warfare is clear from the late precontact archaeological record. The finely worked basalt foundation slabs of elite houses were pulled apart and used to fortify subterranean lava tubes and caves' (see also Ramírez Aliaga, 2019). This observation, however, overlooks the common reuse of *paenga* stones in a range of archaeological features, including *umu* (ovens), *manavai* (gardens), *tupa* (observatories), and even *ahu*. Figure 4 shows the reuse of a *paenga* stone within the seaward wall of Ahu Te Peu, a large image-*ahu* on Rapa Nui's west coast. This is not an isolated instance, *paenga* stones are often incorporated into earlier building phases of *ahu* (Smith, 1961a, p. 214). The reuse of *paenga* stones in the construction of image-*ahu* is significant in showing that stones from *hare paenga* were reused prior to when *moai* were supposedly toppled (i.e., the Huri Moai phase). The assumption that this indicates 'destruction of elite dwellings' is unnecessary and simply represents a widespread pattern of stone reuse (Figure 4).

Furthermore, it is incorrect to call these features 'fortified,' for while they often have modified entrances, they lack the common characteristics of fortifications found in the Pacific (e.g., Field, 2008; Field and Lape, 2010) and indeed elsewhere in the world (Keeley *et al.*, 2007). More accurate descriptors might be simply 'hiding places' or 'refugia,' and Stevenson *et al.* (2019) argue that the caves served as

Figure 4. Reuse of paenga stones in a range of archaeological features. Clockwise from top-left: intact hare paenga; Ahu Te Peu with paenga built into seawall; umu (oven), tupa (observatory), and umu with paenga; modified cave with paenga near Ahu Vai Mata. Photos by R.J. DiNapoli.

locations of ritual activity. One possible function as 'hiding places' is offered by McCoy (1976, p. 36) who suggests they may have simply been modified for protection from the elements: 'Partially sealed entrances are a rather common modification contributing to dark interiors [of the caves]. They are a marker of probable seasonal habitations occupied during the colder, wetter period of the of the year...Stone walls were constructed below the drip line the entire breadth of the cave mouth except for a low, narrow crawlway used for entry. The wall acted as a buffer against the penetrating cold air and blowing rain.' McCoy (1976, pp. 36–37), however, also suggested a refuge function for some modified caves. Importantly, if these caves were refugia, then they likely would not be effective for hiding from people intimately familiar with the island's geography (Hunt and Lipo, 2011, p. 99). Similar to elsewhere in Polynesia, Rapanui people likely had an intimate knowledge of their landscape, including caves, so even if cave entrances were obstructed by rock walls, their locations would still likely be known to others. Modified caves, however, would have been very effective hiding places from outsiders, such as Europeans or Peruvian slave raiders who repeatedly captured Rapanui people throughout the 19th century (Fischer, 2005; Hunt and Lipo, 2011, p. 99). Significantly, while the chronology of use of these modified caves has only recently been explored, recent evidence suggests their use is predominately post-contact (Mulrooney *et al.*, 2010; Stevenson *et al.*, 2019), also supported by the presence of European artifacts in these caves (Lipo and Hunt, 2009, p. 313).

Weapons

One of the most common artifacts found on Rapa Nui are flaked obsidian tools with wide blades and narrow stems called *mataʻa* (Figure 5). The common assumption has been that these implements are weapons, specifically 'spearheads' (e.g., Bahn and Flenley, 2017; Diamond, 2005; Kirch, 2017). If warfare and lethal conflict were widespread, one would expect strong engineering constraints on effective weaponry (e.g., Mika *et al.*, 2020). This selective pressure would lead toward a dominance of pointed, thin shafts well-suited for lethal penetration of internal organs. While similar to stemmed obsidian tools found elsewhere in the Pacific, *mataʻa* are unlike the darts, arrows, or spearheads found elsewhere in the world. In a geometric morphometric analysis of 423 *mataʻa*, Lipo *et al.* (2016) demonstrated that, on the whole, the distal end of *mataʻa* bear little resemblance to a pointed spearhead with few unifying characteristics other than a stemmed base and a sharp edge. Additionally, historical collections of *mataʻa* demonstrate that they were not often hafted onto anything resembling a spear-shaft but instead on short handles (Figure 5). In other words, *mataʻa* lack the formal characteristics expected for a systematic lethal weapon.

Recent use-wear analyses of *mataʻa* by Torrence *et al.* (2018) and Kononenko *et al.* (2019) reach similar conclusions and point to evidence that *mataʻa* were used for a variety of tasks. Four of the 12 *mataʻa* analyzed by Torrence *et al.* (2018) may have been used for cutting of 'soft, elastic material,' such as fish, meat, flesh, or skin, which they argue may reflect *mataʻa* use in occasional interpersonal violence, though these patterns may also be consistent with butchering animal foods (e.g., rats, chickens) or 'scarification or tattooing in ritual practices or medical practices, as speculated by Lipo *et al.* (2016:184)' (Torrence *et al.*, 2018, p. 11). The remaining eight *mataʻa* analyzed by Torrence *et al.* (2018) either did not show clear use-wear patterns or exhibited use-wear consistent with the processing of plant materials or shell. An expanded use-wear analysis of 22 *mataʻa* from a south coast cave deposit by Kononenko *et al.* (2019) yielded similar results indicating *mataʻa* were used as multipurpose cutting and scraping tools, with plant processing the most common use inferred. With the findings of previous analyses of *mataʻa* form and use attributes (e.g., Ayres *et al.*, 2000; Church and Ellis, 1996; Church and Rigney, 1994), these recent studies indicate that the archaeological evidence for *mataʻa* is simply not consistent with their centrality in warfare as has been often claimed.

Kirch (2017, p. 304 emphasis added) has recently argued that while '[i]t has been claimed that the *mataʻa* were not weapons at all but agricultural implements *...considerable ethnohistoric information refutes this*.' While Kirch offers no direct evidence to support this claim, we note comments made by Cook and later visitors who commonly assumed that the hafted obsidian tools they observed could have been weapons (e.g., Cook 1774, cited in Ruiz-Tagle, 2007, p. 168; see Ramírez Aliaga, 2019), likely a reflection of their own anxieties. Yet, as we discuss below, there are no historically documented cases of violence carried out with *mataʻa*, whether against Europeans or among Rapanui, and early European accounts consistently document limited weapons or violence. The human skeletal evidence and use-wear analyses of *mataʻa* support these accounts and indicate they were multipurpose cutting/scraping tools. Moreover, obsidian hydration dating, although problematic in an absolute sense (Anovitz *et al.*, 1999), suggests no association between the chronology of *mataʻa* use and periods of supposed intense warfare (Stevenson and Williams, 2018).

Aside from *mataʻa*, the other potential weapons used by Rapanui are wooden clubs (*paoa*) and rocks. Early European accounts document the presence of *paoa*, though there are few direct observations of them used in violence (e.g., Richards, 2008, p. 54), and even fewer cases of skeletal trauma that can be attributed to them (Owsley *et al.*, 2016). Indeed, observations by La Perouse in AD 1786 suggest that these objects were not weapons, but rather status symbols (Boersema, 2015, p. 74). The weapon most commonly reported by historic visitors to the island, and the one attributed to most of the cases of skeletal trauma, are simple and abundant rocks.

Figure 5. Examples of mata'a from archaeological contexts. Bottom right is a hafted example from ethnographic collections (courtesy of the British Museum). Photos by C.P. Lipo and T.L. Hunt.

The Chronology of *Ahu* Construction and *Moai* Toppling

Today the only standing *moai* on the *ahu* are those restored in the 20th century (Figure 2). A particularly important event in the Huri Moai narrative is the destruction of image-*ahu*, where, as the island's clans descended into warfare, they would knock down the statues of enemy clans (Bahn and Flenley, 2017; Kirch, 2017, 1984). Other possible explanations have been offered. Edwards *et al.* (1996), for example, argue that image-*ahu* would have been particularly susceptible to earthquakes, known to occur on the island and could easily cause *moai* to fall. Although the evidence for pre-contact earthquakes awaits further research, Edwards *et al.* (1996) present evidence for differential fall patterns consistent with the consequences of seismic activity. For example, in their study of 24 of the largest image-*ahu* having a total of 111 *moai*, Edwards *et al.* (1996, p. 13) found that, 'in all cases, the fall of the statues was caused by a loss of leverage of the basal structure, and 80% of the statues fell inland. This occurred because the most vulnerable point of the building is the fragile and unstable front slab wall...that would tend to burst open with minimum effort, letting the rubble filling spill out and thus destabilizing the megalithic stone statues.' Furthermore, they found that roughly 80% of *moai* fell in a west-northwest direction, which they argue is consistent with falling from an earthquake.

Cauwe (2016, 2014) has recently speculated that *moai* were intentionally toppled, but during non-violent ritual activity. This interpretation is based on the observations that most *moai* on image-*ahu* fell inland in a prone position, that a relatively small portion of them are broken, and that there is little evidence for the destruction of *ahu* platforms, which he argues would be inconsistent with aggressive destruction. Volcanic tuff, a relatively weak material of which the majority of *moai* are made, would be expected to break more frequently if they were violently toppled (Cauwe, 2014).

An additional explanation could be that *moai* perched on top of stacked rocks that form the basis of *ahu* fell over time simply due to lack of attention and maintenance following the population loss and cultural changes that occurred after European contact (Hunt and Lipo, 2011, p. 153).

Precisely what caused the *moai* to fall remains unclear. What is clear, however, is that most certainly fell post-contact (Figure 6; Edwards *et al.*, 1996; Fischer, 2005, p. 80; Pollard *et al.*, 2010). The first two European visits by the Dutch in AD 1722 and Spanish in AD 1770, for ex-

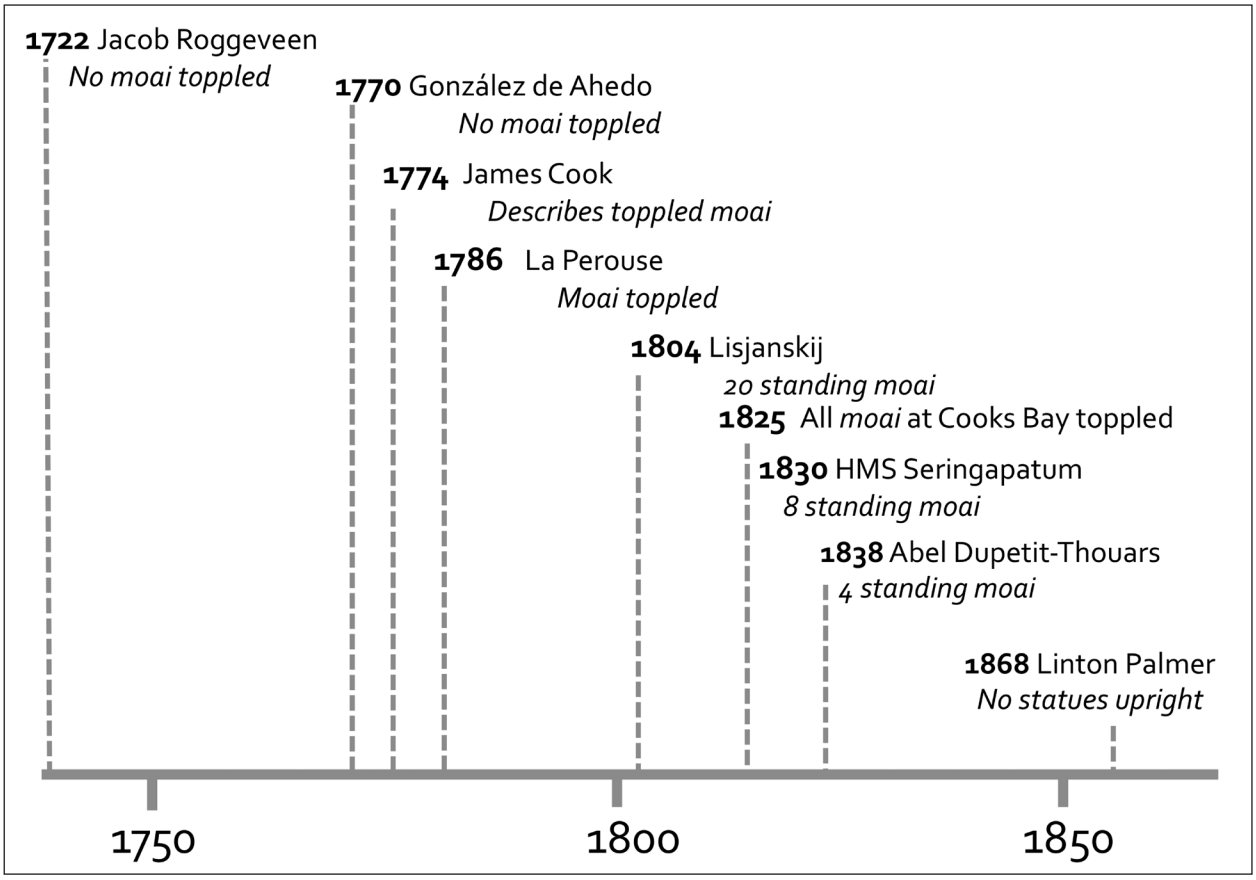

Figure 6. Timeline of European reports regarding the status of moai suggesting that statues fell post-contact (i.e., after AD 1722).

ample, make no mention of fallen *moai,* and in fact the Dutch and Spanish observed rituals performed at image-*ahu*. In 1722, Roggeveen documented that, 'what the form of worship of these people comprises we were not able to gather any full knowledge of, owing to the shortness of our stay among them; we noticed only that they kindle fire in front of certain remarkably tall stone figures they set up; and, thereafter squatting on their heels with heads bowed down, they bring the palms of their hands together and alternately raise and lower them' (Corney, 2010, p. 15). On the same visit, Behrens similarly observed, '…we could see great numbers of heathen idols erected on shore…They kindled many fires by their idols, either by way of offerings or for the purposes of prayer. In the early morning we looked out and could see from some distance that they had prostrated themselves towards the rising sun and had kindled some hundreds of fires, which probably betokened a morning obligation to their gods' (Corney, 2010, p. 133). In 1770, Spanish visitor Don Francisco Antonio de Agüera y Infanzon, Chief Pilot in the Gonzalez expedition, makes no mention of fallen *moai* but offers several descriptions of tall standing statues, and he observed 'statues or images of the idols which the natives worship…called *Moày* by the natives, who appear to hold them in great veneration, and are displeased when we approach to examine them closely' (Corney, 2010, pp. 93–95). Agüera then observed rituals performed at an *ahu* with a *kopeka* (or perhaps *paina*) effigy (Corney, 2010, p. 95; see also Fedorova, 1994; Métraux, 1940, pp. 343–345; Van Tilburg, 1994, p. 84). These accounts highlight that image-*ahu* and *moai* were still the focus of religious activity by 1770 (Boersema, 2015, pp. 89–90; Mulrooney *et al.*, 2010; Pollard *et al.*, 2010, p. 565). Four years after the Spanish visit, Cook noted that some statues had fallen (Ruiz-Tagle, 2007). Over the ensuing decades the number of reported *moai* still standing declines, and by 1868, Palmer (1870) notes that all the statues had fallen. The historical record indicates that widespread 'statue toppling' cannot be attributed to a pre-contact period.

As with the chronology for statues falling, our new understanding of the chronology of *ahu* construction demonstrates that this activity continued into the post-contact period. Recent Bayesian chronological modeling provides no support for the cessation of *ahu* construction *ca.* AD 1500–1680 – a central tenet of the Huri Moai narrative in Rapa Nui's culture historical scheme (DiNapoli *et al.*, 2020). Instead, the results of this chronological modeling demonstrate that platform *ahu* construction continued at least until European contact in AD 1722, and possibly even further into the historic era (DiNapoli *et al.*, 2020). Figure 7 shows the cumulative number of dated *ahu* construction events along with the hypothesized timing of the Huri Moai period. These results show that at least 10 *ahu* construction events, or ~30% of the total sample of dated contexts, occur within this time frame. Coupled with ethnohistoric accounts, these results provide important falsifying evidence to previous claims that platform *ahu* construction ceased during a 'destruction phase' (Martinsson-Wallin, 1994, p. 142; Martinsson-Wallin *et al.*, 2013, p. 417, Figure

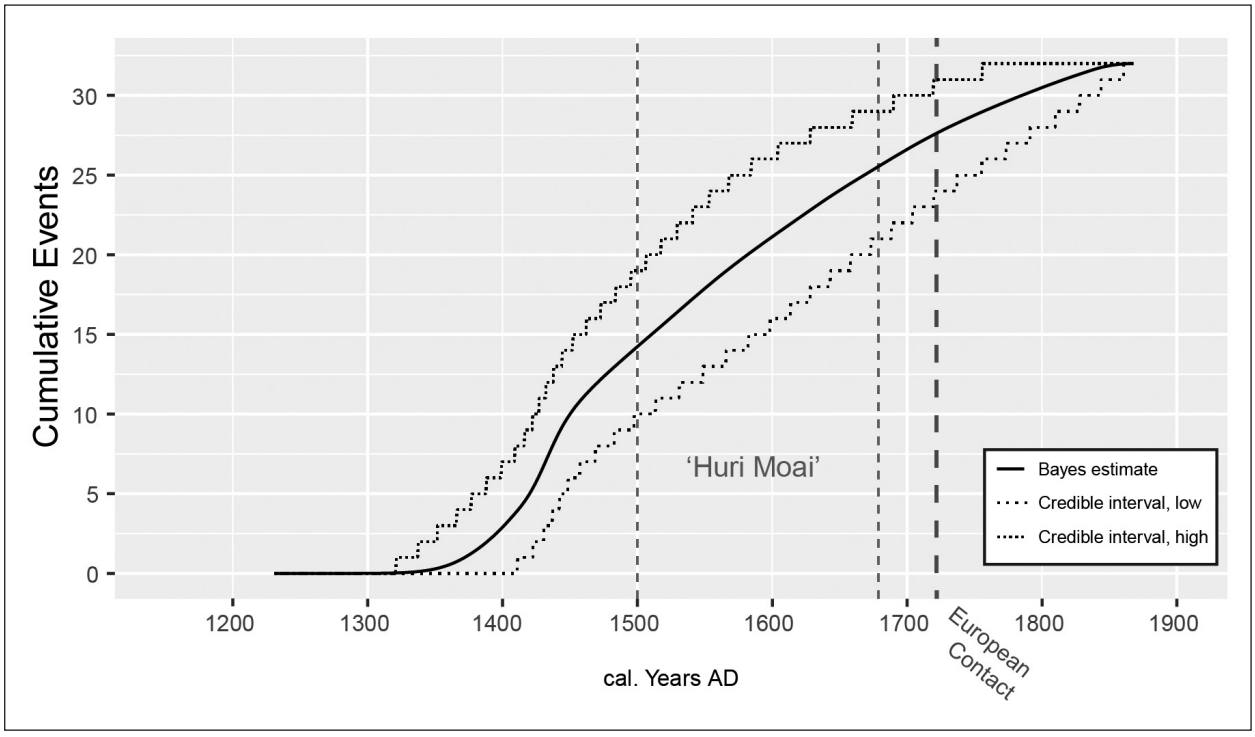

Figure 7. The chronology of statue platform construction. Light grey vertical dashed lines indicate the time range that has been previously proposed for the onset of the Huri Moai phase. Figure adapted from DiNapoli et al. (2020).

7) or '[d]egeneration of ceremonial sites' in a shift from an Ahu Moai to Huri Moai phase (Wallin and Martinsson-Wallin, 2008, p. 154). The fact that statue platforms were built and modified throughout the supposed Huri Moai phase suggests that the *moai* statues erected upon them were also carved and transported during this timeframe as well. Moreover, radiocarbon results recently reported for Rano Rararku show that activities at the *moai* quarry continued much later than previously assumed, possibly into historic times (Sherwood *et al.* 2019; see also Skjølsvold and Figueroa, 1989). In short, European accounts and archaeological evidence provide no support for claims of pre-contact monument destruction that define the Huri Moai phase.

ETHNOHISTORIC ORIGINS

Given the absence of archaeological evidence of warfare, what is the origin of assumptions that the island must have been the site of tremendous violence and fighting? Like elsewhere in the Pacific (e.g., Kolb and Dixon, 2002; Younger, 2008), much of the basis for warfare on Rapa Nui derives from interpretations of historic and ethnohistoric accounts recorded after European arrival.

Historical accounts

The accounts of the first European visitors provide valuable information on Rapa Nui culture when the Huri Moai phase is purported to have been well underway. However, as detailed above, the defining feature of this phase – the 'toppling' of the *moai* – did not occur until well after European arrival. Early European accounts, from the first visit in 1722 through the arrival of Eyraud in 1864, include very few mentions of warfare or a violent society. In fact, most historical accounts comment on the peaceful and nonviolent nature of Rapanui – except when they resist the ravages of European whalers and slave raiders. The available documents from the Dutch, Spanish, English, and French visits in the 18th century consistently express views that the Rapanui were non-violent and appeared to possess few weapons (Boersema, 2018, p. 161, 2015, p. 73). In AD 1722, Bouman, a captain on Roggeveen's Dutch visit, states several times that the Rapanui possessed no weapons and observed that '[t]hey did not even know what one can do with a knife until we showed them. They cut bananas with a sharp small black stone around the stem' (von Saher, 1994, pp. 99–100), which appears to reference use of an obsidian tool (e.g., *mataʻa*) in plant processing as suggested by use-wear analyses discussed above. On the same visit in 1722, Behrens similarly observed that, '[t]he people had, to judge by appearances, no weapons' (Corney, 2010, p. 136). In 1770, Spanish visitor Agüera noted that, '[t]here was not the least appearance of hostility, nor the implements of war about them' (Corney, 2010, p. 93), and that, 'I made a bow and arrow, duly strung, by way of experiment, and on handing it to one of those with the scars he instantly stuck it on his head as an ornament, and then hung it round his neck with much joy, being totally ignorant of its use and effect. They did the same with a knife and with a cutlass, which they took hold of indifferently by the point or by the hilt' (Corney, 2010, p. 99). Agüera also noted that, 'in some we observed sundry wounds on the body' which he interpreted as resulting from 'stones, which are their only [weapons of] defense and offense, and as most of these are sharp edged they produce the injury referred to' (Corney, 2010, p. 99). While Ramírez Aliaga (2019, p. 369) claims that this interpretation by Agüera supports 'the function of Rapanui *mataa* as deadly weapons,' a more reasonable inference is that if *mataʻa* were occasionally used as weapons, then this account suggests the violence was non-lethal as Agüera observed *healed* 'sundry wounds.' Following the Spanish, Cook in 1774 and later visitors continued to interpret hafted obsidian implements as weapons (Ramírez Aliaga, 2019), though there are no first hand observations of them being used for this purpose. As noted elsewhere (e.g., Fischer, 2005), most violent acts documented in historical accounts are against Rapanui by Europeans.

With the increasingly frequent visits of Europeans, who often used their firearms against Rapanui for 'thievery' and other perceived infractions, accounts of violent acts by the islanders also increase in frequency. However, these are chiefly against Europeans. After the most heinous act of violence against the Rapanui – the Peruvian slave raids (Maude, 1981) – the first Catholic missionary, Eyraud, arrived in 1864. In his nine month stay on the island, the longest by any European at that time, he does mention that the Rapanui had 'spears' though he offers no accounts of people using them against others: 'I have noticed that the Kanacs are very careful not to spill blood...Even though they have had knives since the arrival of the Peruvians, they never use them in their feuds. If they want to send someone into the next world, they find it simpler to use stones... The natives don't often resort to violence. I have seen them have noisy arguments and burn down each other's huts but without, nevertheless, coming to blows' (Lee *et al.*, 2004, pp. 24–26). A key point is that by AD 1864, nearly 150 years since contact, there are no documented cases of intergroup violence among the Rapanui, whether with *mataʻa* or other weapons, in the historical record.

Beginning in AD 1869 with the writings of the Catholic missionary Roussel, however, there is an abrupt change to accounts of a society at war that alters the narratives for the island. Roussel highlights the degree of cannibalism and interpersonal violence among the islanders, stating, 'Cannibalism was practiced for a very long time and only disappeared entirely with the introduction of Catholicism… the natives hid their deceitful, violent and sometimes ferocious characters. I cannot count the times that I have seen a man attacking the face or the head of his wife with a knife to kill her or mortally injure her' (Lee *et al.*, 2004, p. 50). Roussel's descriptions of war are vague, however, as they

do not detail any specific event. Roussel (Lee *et al.*, 2004, p. 44) went on to opine '[s]o that is how things stood when the missionary arrived,' suggesting he did not witness such violence first-hand. The precise reasons for this dramatic shift in the narrative are unclear, though it is possible that Roussel imagined, or fabricated, the past prevalence of war to legitimize his conversion of the Rapanui to Christianity (Schávelzon and Igareta, 2017, p. 315). Indeed, Roussel later adds that, 'Thanks to the Religion, exercising his influence over the natives, he [Roussel] was able to put an end to these raiding parties.' (Lee *et al.*, 2004, p. 44).

Roussel's influence on the island seems to have been substantial for Europeans and Rapanui alike. With his previous experience in Mangareva and as a fluent speaker of Pa'umotu (the language of the Tuamotu Islands) – largely intelligible to Rapanui speakers – Roussel was treated as an authority on Polynesian traditions even to islanders (Fischer, 2005). The fact that his writings of Rapa Nui history, filled with secondhand accounts, starkly contrast with those of previous observers suggests he took liberties when reporting about the island's past, embellishing them to suit his goals as a missionary. While based simply on his assumed authority on the topics, including violence, his accounts may have influenced the islanders' own traditions. Thus, his accounts of the 'savagery' and warfare among the Rapanui became entrenched.

Later in 1872, Pierre Loti, who spent four days on Rapa Nui and popularized aspects of the Huri Moai narrative with his writings and drawings of war and *moai* toppling (Figure 8; Schavelzon, 2014), noted that, 'There was a terrible time, in the past, that is still spoken of with awe by the old people of today. There were too many islanders on Rapa Nui and many of them starved to death on this island that nobody was able to leave. As a result, great wars erupted among the tribes, with wholesale massacres and cannibalism...*when Vancouver landed on the island*...he was still able to see traces of armed camps on all the mountains and remains of fortification barriers on the slopes of all the craters' (Lee *et al.*, 2004, p. 93 emphasis added). In addition to his writings not being first-hand observations of intergroup violence and laden with his preconceptions of the Rapanui as 'savages' (Schavelzon, 2014), we are unaware of any writings by Vancouver about Rapa Nui. Vancouver did, however, visit Rapa Iti in the Austral Islands, well-known for its fortified settlements (Anderson, 2012), so it is likely that Loti's assumptions about Rapa Nui were the result of a confusion between the two islands. Nevertheless, the speculative accounts of Roussel and Loti were then treated as historical facts continuously reiterated by later European visitors (e.g., Geiseler 1882, in Ayres and Ayres, 1995; Métraux, 1940; Routledge, 1919; Thomson, 1891), and have been erroneously accepted by contemporary scholars.

Oral histories

Oral histories and traditions provide invaluable sources of information regarding a vast range of issues of interest to archaeologists. The first detailed ethnographic research on Rapa Nui began in the late 19th and early 20th centuries (e.g., Englert, 1948; Métraux, 1940; Routledge, 1919;

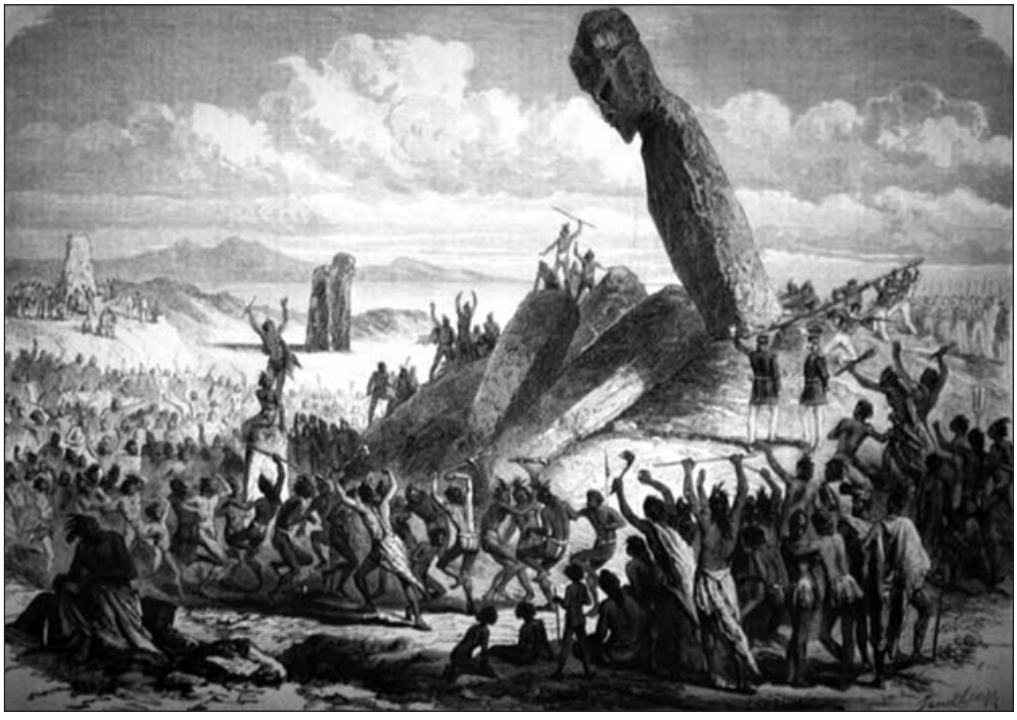

Figure 8. Engraving of speculative sketch made by Loti in 1872 depicting moai toppling (From Schavelzon 2014:2).

Thomson, 1891), nearly 200 years after initial European contact, and these works have been influential in structuring archaeologists' views on pre-contact Rapanui culture, ranging from issues of subsistence to social organization. According to these first ethnographers, mentions and comments of warfare in the past (i.e., prior to the missionaries), which sometimes also include accounts of cannibalism and *moai* toppling, were commonly reported by their informants (e.g., Métraux, 1940, pp. 74, 87, 149; Thomson, 1891, p. 476). Aside from brief comments about the past importance of warfare, these works overlap in their telling of two main large battles or wars, the first being a fight between Tu'u and Hotu iti, and the second the famous battle of the Hanau Eepe and Hanau Momoko.

These traditions of warfare, however, are at odds with the archaeological record and historical accounts detailed in previous sections. While we do not imply that these oral traditions are inauthentic, we must be cautious in assuming they are unembellished historical facts occurring during a pre-contact 'Huri Moai' or 'decadent' phase. The stark contrast between these oral histories – collected in the late 19th and early 20th century – with the pre-contact archaeological evidence and early (18th-19th century) historical accounts implies either that these events were very late (e.g., late 19th century) or they are legends of only recent antiquity.

Métraux (1940), who conducted the most detailed ethnographic work, notes that 'no mention of a real war is made in the story' of the battle between Tu'u and Hotu iti (1940, p. 85), and regarding the battle between the Hanau Eepe and Hanau Momoko he argues it is likely not a pre-contact event but suggests "very likely the fight between the Long-ears and Short-ears is a fairly recent theme"(1940, p. 74). A critical point is that Roussel (1869, in Lee *et al.* 2004) does not mention these two wars and given his descriptions of widespread warfare and violence, and the fact that he spent multiple years on the island, he almost certainly would have noted these events, again suggesting they are recent. Peiser (2005, p. 530) has noted that, 'the natives' recollections of warfare and violent conflict most likely belong to the hostilities in the wake of European attacks on the island' (see also Holton, 2004). Gill and Stefan (2016, p. 298) interpret the stark contrast between the bioarchaeological evidence for violence and the late 19th/early 20th century ethnographies as possibly indicating, 'these events occurred temporally late, and were within the recent 'folk memory' of the native informants.' Similarly, Mulrooney *et al.* (2009, p. 94) argue that these ethnographies, 'must be examined with caution due to the context in which they were recorded. The severe [post-contact] population decline would have resulted in the loss of traditional knowledge, and those stories that were collected may have been shaped more by the contemporary social context than the precontact period they were supposedly describing' (see also Stevenson *et al.*, 2002, pp. 213–214). Accounts of cannibalism in oral traditions are also not supported by direct ethnographic observation nor archaeological evidence, and the speculative claims of European visitors and missionaries are better interpreted in light of the misconceptions, prejudice, and ulterior motives of these individuals (Fischer, 1992).

DISCUSSION AND CONCLUSIONS

On Rapa Nui, where warfare has long been assumed a critical factor in societal change preceding European contact, we find few, if any, of the common archaeological correlates of it, such as large-scale lethal skeletal trauma, fortifications, or systematic production of lethal weapons. The fact that Rapa Nui lacks anything resembling the fortifications common elsewhere in the Pacific is significant, as we would expect if large-scale intergroup fighting was common (e.g., DiNapoli *et al.*, 2018; Field, 2008; Field and Lape, 2010). The reuse of house stones in modified caves is better interpreted as simply stone reuse rather than 'destruction of elite houses,' and the use of these caves better reflects habitation or ritual activity that likely dates largely to the post-contact era (Stevenson *et al.*, 2019). Based on European accounts, the Rapanui wielded wooden clubs and stones as weapons, the latter often used against European aggressors. The common claim that *mata'a* were weapons of war is not supported by archaeological evidence. The human skeletal evidence shows that there was a relatively high degree of interpersonal aggression, yet this fighting was largely non-lethal (Gill and Stefan, 2016; Owsley *et al.*, 2016). While the lack of either weapons, defensive features, or lethal trauma may in isolation not definitively demonstrate a lack of warfare, this suite of different lines of evidence casts considerable doubt on the claim that lethal, group-level violence was widespread on pre-contact Rapa Nui.

The historical accounts from the initial ca. 150 years of European visits are consistent with this archaeological evidence. While the late-19th and early-20th century ethnohistoric accounts discuss warfare, they are insufficient to support claims of a pre-contact Huri Moai phase. The abrupt shift in the historical narrative in the 1860s attributable to Roussel and Loti that followed the slave raids, deportations, and epidemics of the 19th century is best treated cautiously. The historical context of these late-19th century accounts is fraught with ulterior motives, prejudice, and reflects confusion of these visitors. Island-wide *moai* falling events and the cessation of *ahu* construction – the defining characteristics of the pre-contact Huri Moai phase – were post-contact phenomena likely a result of a number of factors.

Implications for Rapa Nui's Cultural Chronology and Phases

In summary, current evidence indicates that the conventional periodization of pre-contact Rapa Nui that includes a Huri Moai phase needs substantial revision. It now ap-

pears that characteristics of the 'Ahu Moai phase' (i.e., *ahu* and *moai* investments) continued into early historic times. This evidence finds historical support as the Dutch and Spanish observed ritual activity at *ahu* and that *moai* falling was largely a post-contact phenomenon. Archaeologically, chronological studies of land-use over time provide no indication of major changes in settlement patterns away from *ahu* (e.g., Mulrooney, 2013; Mulrooney *et al.*, 2009; Stevenson, 1986; Stevenson *et al.*, 2015; Vargas *et al.*, 2006). Furthermore, the available secure radiocarbon dates and settlement pattern studies suggest that *ahu* construction begins shortly following colonization in the 12th-13th centuries and remained the focal points of most settlements into historic times (e.g., DiNapoli *et al.*, 2020; Hunt and Lipo, 2018; McCoy, 1976; Morrison, 2012; Vargas *et al.*, 2006). Empirical chronological evidence for an end to *moai* carving and transport in pre-contact times is also equivocal or altogether lacking, again likely dating to the historic era (Graves and Ladefoged, 1995, pp. 166–167; Graves and Sweeney, 1993, p. 120; Sherwood *et al.*, 2019; Simpson *et al.*, 2018). In short, sometime soon after initial colonization we see the establishment of a dispersed, coastal settlement system organized around ritual architecture that continued into the historic era, with archaeological evidence pointing to relatively non-violent intergroup interaction on Rapa Nui. Thus, previous 'phase' schemes for Rapa Nui forwarded since Heyerdahl's 1950s expedition lack utility.

One implication of this conclusion is that rather than witnessing a society that had been transformed through the Huri Moai phase, the people encountered and described by the 18th century European visitors likely represent an accurate of reflection of late pre-contact Rapa Nui communities – relatively small-scale social groups dispersed around the island's coastline centered around ceremonial *ahu* structures. Decoupling the cessation of *ahu* and *moai* construction and use from a pre-contact Huri Moai phase turns our attention to details of the pre-contact archaeological record to explore events related to colonization, the island's ecological transformation, patterns of monument investment by communities, and the series of impacts that result from European arrival after AD 1722.

While violence and warfare were indeed key factors in the emergence and transformation of many human societies (e.g., Dolfini *et al.*, 2018; Guilaine and Zammit, 2008; Keeley, 1996; Turchin, 2007; Turchin *et al.*, 2013), claims about the past prevalence of war often need to be critically evaluated, as empirical data are not always consistent with historical assumptions (e.g., Fry and Söderberg, 2013; McCoy and Ladefoged, 2019; Scott and Buckley, 2014; Smith-Guzmán and Cooke, 2018). The evidence outlined here for Rapa Nui indicates a substantial revision of the island's culture history. This invites new avenues for exploring the fascinating history of this tiny and remote island and has implications for studies beyond archaeology. In particular, recent research treating the 'Huri Moai' phase and supposed collapse of Rapa Nui society as a model for catastrophe in our current globalized society is in need of critical reexamination (e.g., Basener and Ross, 2004; Basener and Basener, 2019; Bologna and Flores, 2008; Brander and Taylor, 1998; Brandt and Merico, 2015; Cazalis *et al.*, 2018; Dalton and Coats, 2000; de la Croix and Dottori, 2008; Erickson and Gowdy, 2000; Reuveny, 2012; Reuveny and Decker, 2000; Roman *et al.*, 2018, 2017; Uehara *et al.*, 2010). In retrospect, contemporary scholars who further the arguments made by individuals like Roussel simply perpetuate mid-19th century traditions of imposing myths on the island and its people to suit preconceptions. Far from being the prime example of over-use of resources, internecine warfare, and 'cultural regression,' Rapa Nui is better understood as a case study of human resilience in a marginal environment, the devastating impacts of European contact, and as a cautionary tale of uncritically accepting historical assumptions.

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