

4

The Hawaiian Military Transformation from 1770 to 1796

In *How Chiefs Became Kings*, Patrick Kirch argues that the Hawaiian polities witnessed by James Cook were archaic states characterised by:

the development of class stratification, land alienation from commoners and a territorial system of administrative control, a monopoly of force and endemic conquest warfare, and, most important, divine kingship legitimated by state cults with a formal priesthood.¹

The previous chapter questioned the degree to which chiefly authority relied on the consent of the majority based on the belief in the sacred status of chiefs as opposed to secular coercion to enforce compliance. This chapter questions the nature of the monopoly of coercion that Kirch and most commentators ascribed to chiefs. It is argued that military competition forced changes in the composition and tactics of chiefly armies that threatened to undermine the basis of chiefly authority. Mass formations operating in drilled unison came to increasingly figure alongside individual warriors and chiefs' martial prowess as decisive factors in battle. Gaining military advantage against chiefly rivals came at the price of increasing reliance on lesser ranked members of ones' own communities. This altered military relationship in turn influenced political and social relations in ways that favoured rule based more on the consent and cooperation of the ruled than the threat of coercion against them for noncompliance. As armies became larger and stayed in the field

1 Kirch (2010), p. 27.

longer, the logistics of adequate and predictable agricultural production and supply became increasingly important and the outcome of battles came to be less decisive.

The structure of coercion

Most 19th-century ethnographers state that Hawaiian armies were constituted from general mobilisations of the *mō'ī's* subjects. As in most Polynesian societies, all adult males were potentially eligible for military service.² In reality, it appears that the brunt of any fighting fell upon a relatively small cadre that was occasionally supplemented by levied forces. In a battle drill witnessed by George Vancouver in 1793, two distinct types of combatant were apparent. *Maka'āinana* opened the exercise with disorganised skirmishing. When they had finished, well-drilled columns of men brandishing long spears came forward to spar. This confirms David Malo's distinction between half-trained, lightly armed troops, and other, more competent troops. Malo also noted that the latter included a distinct body of men known as *papa kaua*, who were armed with long spears and who probably guarded their 'king' in battle.³ Samuel Kamakau's description of the armies of Ka'eokulani of Kaua'i and Kahekili of Maui in 1791 provides a further insight into the composition of Hawaiian armies during this era. According to Kamakau, Ka'eokulani's force consisted of 'chiefs, warriors, and paddlers', while Kahekili set out from Maui 'with his chiefs, both high and low, his warriors, the children of the chiefs, and among them *Ka-niu-ula*, *Ke-po'o-uahu* the *pahupū*, and other soldiers newly picked from O'ahu'.⁴

Hawaiian sources in general make it clear that every *ali'i* of any standing gathered around him a retinue, including many who constantly trained in the use of weaponry.⁵ These chiefly retinues formed the nearest equivalent that the Hawaiians had to standing armies. Relatives were an important part of any retinue. *Ali'i nui* entered into sexual unions outside of political marriages designed to produce high-ranking offspring. The offspring of these secondary unions, and even offspring from secondary unions

2 William Ellis, *Polynesian Researches* (Tokyo: Charles E. Tuttle Company, 1969 (1859)), p. 149.

3 Vancouver (1801), bk 3, pp. 252–58; and Malo (1951), pp. 197, 294.

4 Kamakau (1961), p. 159.

5 For example, see Malo (1951), pp. 59, 191, 194, 196; I'i (1959), p. 66; and Beckwith (1937), p. 124.

of the incumbent's parents, were often known as the 'backbone of the chief', in reference to their importance to their lord's fortunes. For those lacking lineage affiliations to influential chiefs, the prospect of becoming connected to an ali'i's retinue was an attractive proposition. The women's relatives, therefore, welcomed the amorous advances of ali'i towards maka'āinana women.⁶

While the power and authority of the mō'i was considerable, it was based on the loyalty of coercive forces drawn from lower ranked followers. These consisted of the kaukau ali'i, on which Kanalu Young's groundbreaking study focused, who were lesser ali'i associated with the ruling ali'i and the offspring of such liaisons with women not until then connected to the chief's line. The term kaukau ali'i was used by Kamakau as a collective term for the lowest five of the 11 chiefly ranks. The six highest chiefly grades filled roles as members of the chief's advisers and council, and acted as leaders of battleline sections during complicated moves, such as flank attacks, that required coordinated actions between units. The core of the fighting contingents, however, were made up of kaukau ali'i.⁷

Young notes that the legendary reformer 'Umi-a-Liloa, who is regarded as a crucial figure in the evolution of chiefly power in Hawai'i, came from the ranks of the kaukau ali'i. 'Umi was an ali'i noanoa, the offspring of a union between someone from the three highest ali'i nui ranks and a country person of no rank.⁸ Through skills and proven ability he was able to rise to prominence as probably the most influential ruler of his generation. Young also notes that he was, however, exceptional in his ability.⁹ In addition, kaukau ali'i had connections with each other beyond their loyalty and empowerment as members of chiefly retinues. Young notes:

6 Malo (1951), p. 81; Levin (1968), p. 410; Valeri (1985a), p. 159; and Sahllins (1985), pp. 24, 130.

7 Young (1998), p. 34; and Samuel M. Kamakau, *Ka Po'e Kabiko: The People of Old* (Honolulu: Bernice P. Bishop Museum, 1964), pp. 4–6, 73–74, 80. See also Valeri (1985a), pp. 86–93, where he compares and contrasts relations between chiefs and their retinues with European feudal relations and orientalist conceptions of Hawaiian power.

8 Young (1998), p. 43.

9 Young (1998), p. 90.

Significant for the kaukau ali'i story is that as lineages from west Hawai'i and east Maui continued to maintain their own lower level connections ... The chiefly servers [i.e., kaukau ali'i] from the Moana kāne line followed the lead of their ranking superiors by engaging in noho [to stay, sleep, remain with] that were inter-island in scope.

Young goes on to note the potential implications of such relations beyond the chiefly retinue as:

[If] too many of a particular lesser lineage were to noho with siblings or engage in the act of ho'i [a sexual union of cousins], a challenge to Ali'i. Nui supremacy might be suspected. A challenge to Ali'i. Nui paramountcy could result if enough familial support for a strategic action was mustered.¹⁰

In his case study of the Moana lineage of kaukau ali'i, Young notes how Moana women linked their group into powerful warrior lineages across moku boundaries – linking dryland agriculture-based Kona in eastern Hawai'i to Maui and to the powerful and numerous I clan of Hilo in windward Hawai'i, which commanded a powerful warrior force.¹¹ While archaeologists emphasise the logistical base for the evolution of Hawaiian political power, contemporary and past scholars of Hawaiian history emphasise the importance of blood ties and sociopolitical ties.

'Umi's road to power involved usurpation of an unpopular ruler by someone of lower rank by demonstrating leadership ability. This popular support was legitimised through engaging in noho with women of ali'i nui rank and demonstrating the mana of Kū through achievements in battle or, more correctly, 'well organised, consensus-based, protocol-mandated acts of violence'.¹² A great deal of ability was required to make this transition. Inferior blood links and the inability to mobilise battle support from many quarters kept the vast majority of kaukau ali'i out of contention for such usurping of power.¹³ By the same token, however, the same need to mobilise and command the support from many quarters meant that ali'i nui could not afford to alienate their followers with

10 Young (1998), pp. 48–49, 52–53.

11 Young (1998), pp. 56, 59, 64; and Edith Kawelohea McKinzie, *Hawaiian Genealogies: Extracts from Hawaiian Language Newspapers*, Ismael W. Stagner (ed.), no. 2, vol. 1, The Institute for Polynesian Studies (Lā'ie: 1983), p. 44.

12 Young (1998), p. 49.

13 Young (1998), p. 50.

oppressive or unpopular actions. Ali'i nui had the right to put kaukau ali'i to death for poor service, but this seems to have been rarely exercised in a relationship that was mutually beneficial.¹⁴

Retinues were bolstered from further afield. According to Malo, mock battles like the one witnessed by Vancouver were used, in part, 'to show the chiefs beforehand who among the people were warriors, so that they might be trained and brought up as soldiers'.¹⁵ The use of the term 'people' is ambiguous in terms of distinguishing between ali'i and maka'ainana, although elsewhere Malo refers to 'commoners' who lived with the chief and did not desert him in battle. Such men were called kanaka-no-lua-kaua (men for the pit of battle). This epithet was also applied to ali'i who demonstrated similar loyalty. Malo claims that warriors who distinguished themselves in battle were sometimes rewarded with feather cloaks.¹⁶ Such cloaks were usually a symbol of chiefly status. Even if there was social mobility, the conveying of specific titles and regalia still suggests that social distinctions between ali'i and maka'ainana within retinues were retained.

Hawaiian terminology distinguishes between commoners who cultivated the land (maka'ainana) and landless commoners (kanaka) who became clients or servants of an ali'i. Nineteenth-century sources suggest that many of these were 'adventurers' who moved between different polities in search of service in the retinue of a lord under whom their personal fortunes would be enhanced.¹⁷ It should be noted, however, that there was a marked increase in mobility after the unification of most of the archipelago in 1796. Such mobility may not have existed prior to this. On the other hand, it may explain the apparently contradictory image of generally passive and settled maka'ainana moving on if their overlord alienated them. It was perhaps the support of kanaka, and not maka'ainana, that rulers needed to retain. Maka'ainana were ill suited to traditional Hawaiian warfare, if James King's poor opinion of their physique is correct. They would have lacked the necessary muscle to cope with the rigours of combat at close quarters. Hawaiian chiefs often asked David Samwell who were the 'tata toa' (kaua-koa) or fighting men among Cook's expedition, assuming that 'none are such but those who are tall and stout, the same as they are among them'.¹⁸

14 Young (1998), pp. 98–99.

15 Malo (1951), p. 66.

16 Malo (1951), pp. 61, 77.

17 Valeri (1985a), pp. 156, 159.

18 Samwell, in Beaglehole (1967) 3:2, p. 1193.

The most skilful warriors were the higher ranked ali'i. Kamehameha, for example, was famous for his prowess in parrying and dodging spears. Important young chiefs received rigorous training in the arts of war.¹⁹ The greatest contemporary warrior-chief on Hawai'i, Kekūhaupi'o, trained Kamehameha. Kekūhaupi'o belonged to the powerful Moana people of Ka'awaloa in Kealakekua Bay, who also supplied the war leaders for mō'i of the leeward coast. Abraham Fornander mentions that Kualoa in windward O'ahu was noted as a place where young ali'i received training in the arts of war and peace.²⁰ Ali'i figure prominently in traditional accounts of battles, with the death of an important ali'i often deciding the conflict. Vancouver found that many of his former chiefly acquaintances had died in the time between his first visit to the islands as a member of Cook's expedition and his return just over a decade later. He was told that most had died as a result of warfare.²¹

Ali'i had much to motivate them to risk their lives in the pit of battle. Their mana and secular power were at stake. Sacred status alone could not attract adherents. The fortunes of the members of chiefly retinues were obviously linked to those of their lords. Decisive victory might mean a share in the division of the lands of the vanquished. Noticeable acts in battle might enhance an individual's status within the retinue – all would be aware of how past warriors had won immortality through their acts of courage and skill, and this knowledge served to inspire each new generation of young warriors. For maka'āinana, the benefits of victory were less direct. Some might fight well enough to secure a place in the retinue. For most, the end of hostilities would have meant a return to their fields regardless of the outcome, providing they could avoid being killed in the interim. Other, more general influences probably shaped the attitudes of all combatants to varying degrees: social conventions concerning manliness, kin-group and retinue loyalties, the fear of losing face in front of one's associates, priestly claims of supernatural support, and the consequences of defeat.

The proportion of the total population involved in warfare is difficult to ascertain. The information that is available, however, tends to support the idea that armies mainly consisted of chiefly retinues. All references to the size of armed forces pertain to Hawai'i and may not be representative

19 Pierre Francois Peron, *A Frenchman in Hawaii, 1796*, Virginia Day (trans.) (Honolulu: White Knight Press, 1975), p. 6.

20 Kamakau (1961), p. 126 ; Fornander (1969), p. 278 ; Sahlins (1995), p. 48.

21 Vancouver (1801), bk 2, pp. 405–06.

of other islands in the chain. Sometime in the 18th century, prior to the arrival of Cook, Alapaʻinui, the ruler of Hawaiʻi, attacked Maui. Kamakau records that his army numbered 8,440 men. The Russian explorer Urey Lisiansky was told that Kamehameha's invasion force on Maui in 1790 numbered 8,000 men and travelled in 2,000 canoes. Lisiansky's source was John Young, who served Kamehameha from 1790 onwards. Young also informed traders Captain Charles Bishop and John Boit Jr that Kamehameha raised an army of 10,000 men on Hawaiʻi, and a fleet of 1,200 canoes for the conquest of the rest of the chain in 1795. Young told Lieutenant William Broughton of Vancouver's expedition that the army numbered 16,000 men, however, although the figure of 10,000 men is more consistent with the size of other Hawaiian armies.²²

Fleet sizes were another indication of military strength. In 1791 the trader Joseph Ingraham recorded seeing a force of 700 canoes in which he estimated that there were 20,000 fighting men.²³ While an estimate taken from hundreds of canoes is of dubious value, the figure of 700 canoes is feasible given fleet sizes mentioned elsewhere. In January 1779, Cook's expedition witnessed the return of the Hawaiʻi ruler Kalaniʻōpuʻu from a campaign on Maui at the head of 150 canoes. While this fleet size is well below those of Alapaʻi and Kamehameha, it is important to note that Kalaniʻōpuʻu had left a garrison in east Maui. Furthermore, just prior to Kalaniʻōpuʻu's return, Samwell counted 150 large sailing canoes among an estimated 1,000 canoes in Kealakekua Bay.²⁴ Given such sailing canoes were used to transport troops, it would thus appear that Kalaniʻōpuʻu had by no means fully mobilised his resources.

Figures for specific areas of Hawaiʻi are in keeping with the previously suggested total of 8,000 to 10,000 men for the island as a whole. The island consisted of six districts. Fornander suggests that each of Kamehameha's four major chiefly supporters could muster at least 1,000 spears in battle. Their lands centred on two populous districts, Kona and Kohala. The Kona aliʻi, Kameʻeiamoku, was accompanied by 1,000 men

22 Kamakau (1961), p. 74; Urey Lisiansky *A Voyage Round the World in the Years 1803, 4, 5 and 6* (New York: De Capo Press, 1968 (1814)), p. 129; Michael Roe (ed.), *The Journal and Letters of Captain Charles Bishop on the North-West Coast of America in the Pacific and in New South Wales 1794–1799* (London: Cambridge University Press for the Hakluyt Society, 1967), p. 141; and John Boit Jr., *The Journal of a Voyage Round the Globe 1795 and 1796*, University of Hawaiʻi microfilm 2890 no. 1, n.d.

23 Ingraham, in Kaplanoff (ed.) (1971), p. 86; and Hommon (1975), pp. 151–57.

24 Hommon (1976), p. 303, citing Rickman. See also, King, in Beaglehole (1967) 3:1, p. 511; and Samwell, in Beaglehole (1967) 3:2, p. 1158.

when he visited Vancouver at Hawai'i in 1794.²⁵ Accounts of casualties resulting from the explosion of Kilauea volcano suggest that the army of Kamehameha's rival, Keōua, numbered perhaps 1,200 men at the time. One of Keōua's three columns was wiped out. William Ellis put the losses at 80 'warriors', the missionary James Jarves calculated 400 'human beings', Fornander counted '2,000 men', and missionary Sheldon Dibble refers to 400 'fighting men'.²⁶ At the time, Keōua controlled the Ka'ū and Puna districts. In addition to this force he had almost certainly left others to guard Ka'ū, and to control recently conquered Hilo. He was also nearing the end of a series of prolonged campaigns fought to defend his domains from the increasingly powerful Kamehameha.

As we have seen, the total size of the Hawaiian population at European contact has generated considerable debate. Robert Schmitt's and David Stannard's figures for the island of Hawai'i are 90,000 and 340,000 respectively. As neither figure is conclusive, it is appropriate to work with both. A fighting strength of 10,000 men would represent 11 per cent of Schmitt's estimate and 2.9 per cent of Stannard's figure.²⁷ Most studies of pre-industrial societies face similar problems concerning accurate measurements, but historian Michael Wood echoes the general consensus when, speaking of Bronze Age Greece, he asserts that '[T]he idea that anything near 10 per cent of a pre-industrial society could be mobilised for war is probably far-fetched'.²⁸ In such societies, an army of a few hundred well-armed men was a significant force, and expeditions of a few thousand men were considerable achievements both logistically and politically. If this is a correct assessment, then either Schmitt's figure errs on the low side, or late 18th-century Hawaiian society was more militarised than most other pre-industrial societies. References to the replacement of casualties suggest that full fighting strengths were rarely mobilised. In the 1770s, Kalani'ōpu'u is said to have lost 800 of his best fighters in one day's fighting on Maui. Yet, he soon after again attacked Maui at the head of a

25 Fornander (1969), pp. 315, 338.

26 John F. G. Stokes, 'Dune Sepulture, Battle Mortality and Kamehameha's Alleged Defeat on Kauai', *45th Annual Report of the Hawaiian Historical Society for the Year 1936* (Honolulu: 1937), pp. 36–39; and Fornander (1969), p. 324.

27 R. C. Schmitt, 'New Estimates of the Pre-censal Population of Hawaii', *Journal of the Polynesian Society*, vol.80 (2), 1971, 237–43. See also Table 1, Chapter 2.

28 Michael Wood, *In Search of the Trojan War* (London: Facts on File Publications, 1985), p. 158.

strong army. After the battle of Koapapa in the early 1790s, Kamehameha delayed his pursuit of the retiring army of Keōua to replace his losses. A few months later, Kamehameha invaded Keōua's territory.²⁹

Although women accompanied Hawaiian armies, and some female ali'i fought in battle, most combatants appear to have been men.³⁰ If it is assumed that approximately half of the population was female, then a 10,000-man army represents 22 per cent of Schmitt's male population and 5.8 per cent of Stannard's. Obviously, as a percentage of healthy adult males, this figure would be even higher. In the case of Schmitt's figure, fighting forces would almost certainly have required the inclusion of maka'ainana, ali'i and kanaka. The evidence, therefore, suggests that the Hawaiian population was larger than Schmitt's estimate.

Maka'ainana levies certainly did march with chiefly retinues on some occasions. The degree to which maka'ainana were mobilised varied according to the nature of the undertaking, or the seriousness of the threat posed. Kamakau relates that, when an O'ahu army invaded Moloka'i in the mid-part of the 18th century, it was not until the fifth day of fighting that every able-bodied man within range of the battlefield came out of his house to fight.³¹ Maka'ainana levies were almost certainly more useful defending their own localities than bolstering forces invading other polities or other islands for logistical reasons. Practice varied. Vancouver was told that just the principal chiefs of O'ahu and their warriors had gone to Moloka'i to prepare to fight Kamehameha in the early 1790s. Yet, in 1779, King was informed that most of the men in the Waimea area of O'ahu had accompanied the O'ahu ruler, Pelei'ōhōlani, to Moloka'i to fight against the forces of Maui.³²

Success in war enhanced the ruler's control over his maka'ainana subjects in a number of ways. By protecting the heartland of his lands from aggressors, the mō'i shielded its inhabitants and crops from the ravages of war. By carrying war to his enemy, the mō'i could limit his demands upon his population through living off the lands of his enemy and, perhaps, even increasing his resources by incorporating enemy land into his own

29 Kamakau (1961), pp. 85–88, 152; Fornander (1969), p. 324; and Thrum, vol. 5 (1918–19), p. 472.

30 Ellis (1969), pp. 103–04, 124–25; and Fornander (1969), p. 324.

31 Kamakau (1961), p. 70.

32 Vancouver (1801), bk 2, p. 36; and King, in Beaglehole (1967) 3:1, p. 585.

realm. By also limiting the use of *makaʻāinana* manpower in fighting forces, *aliʻi* helped maintain a coercive gap between their small, but well-trained and relatively cohesive retainers, and the general population.

Most *mōʻī* seem to have realised the value of courting the loyalty of their subjects. The overuse of coercion might not lead to *makaʻāinana* rebellions, but it did threaten to undermine the rule of the paramount by inducing sympathy for rival *mōʻī* or rebellious subordinate *aliʻi*. The rebellion of the Puna *aliʻi* *Īmakakoloa* in the early 1780s against his paramount, *Kalaniʻōpuʻu*, is said to have served as a rallying point for subjects disgruntled at excessive demands for provisions from *Kalaniʻōpuʻu*'s court. The rebellion did not spread beyond Puna but, after his defeat, *Īmakakoloa* was assisted by his people to evade capture for one year. *Īmakakoloa* was eventually betrayed and captured when *Kalaniʻōpuʻu* began to ravage Puna to induce the local population to surrender him. *Īmakakoloa* was sacrificed to *Kū*, but Puna remained a source of sullen dissent to overlords from beyond its borders for years to come.³³

Makaʻāinana support was sometimes given to invaders who treated them well. When *Kamehameha*'s brother, *Kalanimalokuloku-i-Kapoʻokalani*, invaded east Maui in the mid-1780s, he won the goodwill of local *makaʻāinana* by respecting their property. As a result, when *Kahekili* of Maui defeated him soon after, local inhabitants helped hide him from his pursuers until he could escape to *Hawaiʻi*. This raises questions about the relationship between *Kahekili* and his east Maui subjects. A few years earlier his army had exhausted local food resources in a prolonged siege of the stronghold of *Kaʻuiki Head* at the eastern end of Maui following a period of Hawaiian control.³⁴

Hawaiian *aliʻi* must have been aware of their potential vulnerability as a small ruling elite. While no *makaʻāinana* levy could resist drilled columns of chiefly retainers in hand-to-hand combat, the *makaʻāinana* fighting elite witnessed by *Vancouver* in battle exercise used missile weapons. Such weapons could be great levellers. Many centuries before, Spartan hoplites – using similar tactics to those recorded by *Vancouver* – had been decimated by swarms of lightly armed Athenian skirmishers on the island of *Spacteria*. The skirmishers had refused to close with the Spartans and fight on their terms. Instead they had pelted them with a barrage

33 Fornander (1969), pp. 201–02.

34 Fornander (1969), pp. 216–17, 229; and *Kamakau* (1961), p. 143.

of missiles. The Spartans suffered heavy losses in the open and retreated to a fort at one end of the island. Here they eventually surrendered once they realised that their position was hopeless.³⁵

When the ali'i Kukeawe abused his position as Kahekili's regent on Maui during the latter's invasion of O'ahu in the 1780s, he was confronted by local contingents and soundly defeated. The nature of the fighting is not mentioned, but it may be significant, given the course of events at Spacteria, that, after the initial encounter, Kukeawe retreated and fortified a position for refuge. When Kahekili's son, Kalanikūpule, returned from O'ahu in response to this disruption, order was soon restored peacefully. Kalanikūpule was popular with the people of Maui. He agreed with the just nature of their grievance against Kukeawe and took no punitive action, thereby enhancing the rule of the Maui ruling family.³⁶

Ali'i and maka'āinana generally stopped short of open confrontation. The limits of sacred power was ambiguously defined by fears and perceptions rather than sharply defined by confrontation. The pervading ideology elevated ali'i above maka'āinana by associating them with the gods and linking their sacred status to the wellbeing of the population as a whole. The latent threat of punitive measures was probably also a consideration in deterring maka'āinana from openly questioning this worldview too vigorously. As long as their lives were reasonably comfortable according to the norms they were accustomed to, and better alternatives were either not envisaged, or not seen as realistic possibilities, maka'āinana seem to have accepted their lot. For their part, the ali'i generally exercised restraint in their dealings with commoners

Coercion played a prominent role in relations between ali'i. The requirement of proving favour with the gods meant that the relative secular power of ali'i was exposed through physical confrontation. According to Hawaiian genealogical rules, the most suitable successor to any ruler was the eldest son of his highest ranking wife. In reality, the complex social relations between ali'i nui usually ensured a pool of several candidates with valid and comparable claims to the leadership. The incumbent did not always designate a successor and, if he did, the nominee was not necessarily his eldest son by his highest ranking wife.

35 Thucydides, *History of the Peloponnesian War*, Rex Warner (trans.) (rev. edn) (Middlesex: Penguin, 1972), bk 4, pp. 26–41.

36 Fornander (1969), p. 227; Kamakau (1961), p. 142.

The designation of an heir by the incumbent did not necessarily ensure a smooth transition of government. The legitimacy of any candidate depended upon proving their ritual and secular efficacy.³⁷

A war of succession was always possible as rival candidates asserted their claims. Power became legitimacy. Kalani'ōpu'u perhaps acknowledged this in his designation of two heirs to succeed him. His son Kīwala'ō was bequeathed the kingdom, while his nephew Kamehameha inherited the old ruler's war god Kū'kā'ili-moku.³⁸ Indeed, the designation of an heir may have served only as a signal of the incumbent's wishes to his own retinue after his death to boast the secular power base of his favoured candidate for the ensuing succession struggle. Candidates had to secure a substantial power base to succeed. Supporters might begin to choose between potential candidates well before the death of the incumbent. The temptation to cover all options had to be balanced against the possibility of faring poorly in the eventual victor's division of rewards among his followers. The most longstanding and loyal supporters tended to receive the best lands to administer, while the vanquished faced the possibility of land loss, exile, relegation to *maka'āinana* status, or death.

In the absence of a designated heir, the followers of the incumbent ruler faced a difficult choice. Their position depended on continued exhibitions of loyalty to their lord, yet they also had to give consideration to their future as the ruler aged. Structural tension, therefore, existed between the incumbent and his supporters, and potential successors and their supporters. The danger of usurpation by potential successors was probably a major reason why some sons of *mō'i* were raised outside of their father's domains in the court of rival rulers. Because of widespread polygyny among *ali'i nui*, the various sons of a *mō'i* tended to have different mothers. Valerio Valeri notes that this often meant that each drew his support base from his matrilineal kin. Patrilineal kin would have conflicting loyalties and might end up as supporters of rival candidates.³⁹

Traditions pertaining to the 18th century suggest that the various factions usually soon polarised into two opposing camps, each supporting a rival candidate for *mō'i*. The stability of these unions was not necessarily

37 Levin (1968), pp. 403–18; Valeri (1985a), pp. 90–91; Marshall Sahlins & Dorothy Barrere, 'William Richards on Hawaiian Culture and Political Conditions of the Hawaiian Islands in 1841', *Hawaiian Journal of History*, vol. 7, 1973, 18–19.

38 Valeri (1985a), p. 91; and Levin (1968).

39 Valeri (1985a), pp. 90–91.

guaranteed beyond their immediate purpose, the defeat of the rival camp. Although warfare tended to be mostly directed against other polities as the new paramount consolidated his rule, the possibility of internal dissent was ever present, as the following prayer to Kū suggests:

-E molia aku [curse]
 -I na kipi u waho ao
 luko ho'i [The rebels without and within]
 -I ke ka 'ili'aina [who wish to seize the land]⁴⁰

While the conquest of one polity by another might result in significant changes in personnel, new *mō'i* were rarely in a position to immediately impose their will. Hawaiian warfare rarely resulted in the decimation of the losing army. Existing power relations tended to be modified rather than overturned. To endure, the allocation of tenure rights and administrative positions required a subtle balance between attempts to put trusted followers in favoured positions and localities, and the need to recognise pre-existing power relations among *ali'i*.

There was usually a body of powerful *ali'i* who presided over territory made up of number of *ahupua'a* within each *moku*. These divisions were known as *'okana* or *poko*.⁴¹ Important *ali'i* who survived to reach old age were usually skilled warriors heading substantial retinues. Such men could not be ignored. Powerful *ali'i* families, such as the Mahi and I families of Hawai'i, had estates that had been in their control for decades, if not centuries. Social scientist Stephanie Levin suggests that, prior to 1796, supporters of successful candidates were given lands contiguous to their traditional family lands, which, in effect, consolidated their holdings. Fornander distinguishes between hereditary estates and '[A]ll other lands' which 'were subject to change in the grand council of division' that marked the accession of a new ruler. Fornander goes on to state that such lands were not redistributed if 'their previous owners were of the court party or too powerful to be needlessly interfered with'.⁴² In reality, there were probably few major changes in tenure, with the *hale nauā* ceremony and land redistribution serving mainly to regroup the chiefly elite closer to the new ruler by excluding more distant relatives.

40 I'i (1959), p. 37.

41 Malo (1951), p. 192; Handy & Handy (1972), pp. 46–48; and Hommon (1975), p. 18.

42 Fornander (1969), p. 300; and Levin (1968), pp. 418, 420.

The personal retinue of contending candidates in succession disputes generally only formed a small part of their forces. This was particularly true of younger candidates. Any coalitions required the support of older, more established ali'i. For example, when most Kona and Kohala ali'i threw their support behind Kamehameha to be the successor to Kalani'ōpu'u, he only controlled his family estate at Halawa in Kohala and some land granted to him in Kona and Hāmākua by Kalani'ōpu'u. The Kona/Kohala faction emerged out of fear that their rivals in Hilo and Puna would exercise more influence than they would over the other contender, Kīwala'ō. Hawaiian traditions suggest that both Kamehameha and Kīwala'ō were willing to compromise but that some of the older, more powerful ali'i backing them pushed them into war. Conflict became inevitable when Kīwala'ō's powerful and high-ranking uncle, Keawemauhili, influenced Kīwala'ō's land distribution to ensure that he prospered, while the Kona/Kohala ali'i, and even Kīwala'ō's brother, Keōua, were disadvantaged.⁴³

Around the same time, the unpopular ruler of O'ahu, Kumahana, was overthrown and a 'council of chiefs' 'elected' Kahahana as his successor. This move bypassed Kumahana's children and eroded any entrenched power his family may have built up. Kahahana was the son of the prominent 'Ewa ali'i Elani. He may have been chosen because of the fact that he had been brought up outside of O'ahu at the court of the Maui ruler Kahekili and, therefore, did not have a personal power base on O'ahu, as Kumahana had. As an outsider, he may have provided a suitable compromise to rival O'ahu ali'i within the assembled council.⁴⁴

Once a successor had been decided, the realm was divided up into administrative units. Usually these seem to have conformed to the district boundaries, which were largely fixed and stable by the late 18th century. The court of the mō'i crowned the previously described hierarchical administrative structure. The court contained a considerable number of councillors, specialists and other retainers, including a body of warriors. The court favoured certain localities over others, such as Waikiki and Kailua on O'ahu, Wailua on Kaua'i and Wailuku on Maui. These areas tended to be the fertile heartland of the moku, although the court did move around the ruler's land to ensure that the task of feeding its numbers did not always

43 Fornander (1969), pp. 300–03, 306–07.

44 Kamakau (1961), pp. 2128–29.

fall upon any one locality.⁴⁵ These tours also allowed the mō'i to assess the state of his lands and reaffirm his relationship with the subordinate ali'i on whom he depended for district and local administration. As the mō'i could not be in all places at once, messengers were used to convey orders and to act as the ruler's eyes and ears. They travelled by canoes and along a network of trails. As well as being trustworthy, messengers needed to have speed and stamina for conveying messages overland. When travelling by sea, they were provided with the best canoes and paddlers available. Some, perhaps even most, were of ali'i rank.⁴⁶

Even at the peak of any mō'i's career, power remained essentially decentralised. No professional bureaucracy loyal to the ruling mō'i had emerged to supplant subordinate ali'i and their retinues' experts as administrative agents. Sources suggest that the mō'i's retinue numbered anywhere from a few hundred to a few thousand men.⁴⁷ Malo mentions that subordinate chiefs also gathered warriors. At least four of Kamehameha's chiefly supporters could muster over 1,000 men in battle.⁴⁸ Their contingents were possibly agglomerations of the retinues of less powerful ali'i, given that the battle witnessed by Vancouver engaged sides of only 150 men. Certainly King believed that the frequency of Hawaiian warfare gave 'weight and consequence to many lesser chiefs'.⁴⁹

After a decade as ruler of the leeward areas of Hawai'i, and impressive victories against his rivals Kahekili and Ka'eokalani, Kamehameha still acted with caution when dealing with his important subordinate ali'i. Vancouver noted tensions among Kamehameha's main chiefly supporters on a number of occasions. In 1794 Vancouver was led to believe that Kamehameha had returned all but one of the knives recently stolen from him because it had been given to a 'person of much consequence, over whom Tamaahah did not wish to enforce his authority'. A few years earlier,

45 On mō'i retinue, see Malo (1951), pp. 59–64, 187–95; Beckwith (1932), pp. 124–34; and Kirch (1984), pp. 258–59. On Kalani'ōpu'u's administration, see Kamakau (1961), p. 79. On a tour by Kalani'ōpu'u, see Fornander (1969), pp. 200–01.

46 On messengers, see Hommon (1975), pp. 103–08; and Kirch (1985), p. 266. On modes of travel, see Handy & Handy (1972), pp. 489–91; and Hommon (1975), pp. 161–70.

47 Kamakau (1961), pp. 7, 134, 156. See also Fornander (1969), p. 315; Dixon (1968), p. 78; Sahlins & Barrere (1973), p. 21; and Hommon (1975), p. 116.

48 Malo (1951), p. 194; and Fornander (1969), pp. 315, 338.

49 King, in Beaglehole (1967) 3:1, p. 614.

in 1790, Kamehameha had felt the need to take a considerable force with him to claim a European vessel and its sole survivor from his ali'i vassal a Kame'eiamoku after the latter had attacked and overwhelmed it.⁵⁰

The mō'i had to be both politician and warrior, maintaining his support base among his chiefly backers while successfully leading his followers against the forces of rival rulers to maintain his mana. Open dissent within the realm had to be dealt with before the flames of rebellion could take hold. Yet the excessive assertion of central authority raised the risk of alienating the population. The consolidation of power was also sought through marriage alliances between various collateral kin of the ruling house and other powerful families. Kamehameha married into the family of his slain rival, Kīwala'ō, to effect a reconciliation, and also to increase the status of his family by linking it with such a high-ranking family.⁵¹

Marriage unions could bestow significant influence on high-ranking female ali'i. High-ranking women might have many partners in their lifetimes. The formidable high-ranking Kaua'i ali'i Kamakahelei played a crucial role in deciding the leadership of Kaua'i in the 1770s and 1780s through her choice of, and influence over, marriage partners. Other chiefly women exercised significant influence in Hawaiian politics in this period. Kamehameha's favourite wife, Ka'ahumanu, had much influence with her Maui kinsmen and also attended Kamehameha's councils.⁵² Some ali'i women even fought beside their spouses in battle. One such woman was Kalola, the wife of Kahahana, who joined her spouse's ill-fated stand against Kahekili's invading army at Nu'uanu on O'ahu in 1783.⁵³ Chiefly women, just like their male equivalents, controlled status symbols such as cloaks.⁵⁴ Given this evidence of female ali'i nui exerting significant political influence and fighting in battle, the possibility that such women controlled armed retinues of their own cannot be dismissed.

While some rulers, such as the Maui ruling line, entrusted important administrative posts to immediate family members, others gave these posts to affinal relations to keep power away from close, consanguineous relatives.

50 Fornander (1969), p. 230. See also Vancouver (1801), bk 3, p. 215 for 1790; and Vancouver (1801), bk 5, p. 26 for 1794.

51 Valeri (1985a), pp. 165–66, 168.

52 Sahlins (1985), p. 22. On Kamakahelei, see Valeri (1985a), p. 166. On Ka'ahumanu, see Sahlins (1981), p. 61; and Kame'eleihiwa (1987), pp. 107–08. On brother–sister bonds, see Ralston (1987), p. 117.

53 Fornander (1969), p. 224; and Ellis (1969), pp. 124–25.

54 Linnekin (1988), pp. 269–70.

This seems to have been particularly true of Hawai‘i, where traditions abound about the usurpation of the leadership by junior collateral kin. On Maui, in contrast, the same line had ruled for generations and seems to have been relatively untroubled by serious internal strife in the period under consideration. The only dissent noted occurred around 1783, when some Maui ali‘i fought against Kahekili during a rebellion on O‘ahu.⁵⁵

The formation of full-time military units loyal to the ruler has usually been crucial to the formation of centralised states in most parts of the world. There are strong indications that, by the 1770s, units of military specialists existed alongside chiefly retinues. Traditions pertaining to this decade refer to Kahekili’s army consisting of ‘chiefs, fighting men and left-handed warriors whose sling shots missed not a hair of the head or a blade of grass’, as well as the po‘ouahi (smoke head) and niu‘ula (red coconut) ‘divisions’. This force defeated and expelled Kalani‘ōpu‘u’s army from Maui, prompting the Hawai‘i ruler to spend a year reorganising his forces. He is said to have organised six brigades, with ali‘i forming a bodyguard called keawe, and ‘nobles’ constituting two other units known as the alapa and pi‘ipi‘i respectively. The alapa were armed with spears and are said to have numbered around 800 men.⁵⁶

By 1783, Kahekili’s forces also included men known as pahupū (cut in two) because of their distinctive tattooing which covered one side of their body. Kahekili was also tattooed in this way.⁵⁷ Vancouver saw many of Kahekili’s subjects with this pattern of tattoo and was told that it had been adopted recently with the purpose of intimidating enemy soldiers in battle.⁵⁸ The fact that Kahekili’s nephew, Kīwala‘ō, had his back tattooed like his uncles while visiting his mother, Kalola, on Maui dates this practice to at least as far back as 1781.⁵⁹ There appears to be no other record of this type of tattooing outside of Kahekili’s realm. Kamakau distinguishes pahupū from chiefs and warriors when describing Kahekili’s army in 1791. The ali‘i Koi, Kuala-kia and Manu-o-kaniwi, are listed as ‘leaders’ of pahupū on O‘ahu, which suggests that the tattoos signified membership of an organised body rather than functioning merely as an

55 Sahlins (1981), pp. 61–62; Levine (1968), p. 417; and Fornander (1969).

56 Kamakau (1961), p. 85; Thomas G. Thrum ‘Hana of Historic Tradition and Romance’, in Thomas G. Thrum (ed.) *The Hawaiian Almanac For 1919* (Honolulu: Thos. G. Thrum, 1919), p. 66; and Fornander (1969), p. 151.

57 Kamakau (1961), p. 135. Greg Denning, *History’s Anthropology: The Death of William Gooch*, (Lanham, Maryland: University Press of America, 1988), pp. xvii, 10, 93.

58 Vancouver (1801) bk 3, Ch 8, p. 347.

59 I‘i (1959), p. 9.

instrument of terror in battle. In a reference concerning 1783, Kamakau lists the pahupū alongside the Po‘o-uwahi and Ka-niu-‘ula and labels them collectively as ‘warrior companies’⁶⁰ led by chiefs.

It is unclear whether these units were kept together in times of peace or whether they were merely specialists from the various retinues assembled together in times of war for military advantage. Both Kahekili and Kalani‘ōpu‘u were powerful, established rulers by the 1770s and may have been able to create such power bases independent of their ali‘i vassals. The threat of invasion by the other may have helped justify such a move. Kalani‘ōpu‘u’s reforms seem, however, to have been more a reorganisation of his chiefly fighting force rather than the creation of a new power base. The fact that Maui had been unified under a stable dynasty for centuries may have allowed Kahekili to make more substantial moves towards increasing his military capacity relative to his vassals. For all rulers, the continued importance to chiefly status of martial prowess remained a barrier to the expansion of their power base through the large-scale incorporation of maka‘āinana into their military forces.

The ability of any ruler to maintain a sizeable military force of his own was also restricted by the structure of the Hawaiian political economy. The existing military power of his more important vassals, and an economy geared to the needs of an essentially dispersed population, worked against such a concentration of power. Mō‘ī had direct control over only a limited amount of land. Kamehameha’s most noted landholding, for example, was Kuahewa in the upper Kailua area of Hawai‘i Kona. It consisted of eight ahupua‘a, and was approximately 13 kilometres long. Kamehameha also had lands in the fertile Waipi‘o Valley of Hāmākua district, and his family estate in Kohala district.⁶¹ While Hawaiian dietary staples could be preserved in a relatively compact, transportable form to feed the substantial armies that were brought together for war, for most of the year warriors remained dispersed among the various chiefly retinues of the polity. The staggering of crop harvests to ensure reasonable production for much of the year reduced the need to maintain stores of preserved food for the lean months of the harvest cycle.⁶²

60 Kamakau (1961), pp. 135, 159.

61 Thrum vol. 5 (1918–1919), p. 478.

62 Hommon (1976), pp. 115–18; Peebles & Kus (1977), pp. 425, 426; and Kirch & Sahlins (1992), p. 28.

Excessive expropriation of stored food for military campaigns endangered the community's ability to cope with natural disasters, such as droughts, and risked alienating the population. Much of the surplus production beyond subsistence needs was reserved as offerings to the gods. Propriety demanded that such offerings were not blatantly used for other purposes. The *mō'ī* maintained his own retinue through the production of his own lands and from specific rights to other resources. His retinue included expert fishermen whose sole job was to provide the court with fish. The court could call upon the produce of *kō'ele* lands and fishponds that were used solely to feed *ali'i* and chiefly retainues. Part of the harvest from the lands farmed by *maka'āinana* households was set aside as tribute to their overlords. Most tribute from the more remote holdings of chiefs consisted of pigs, dogs and salted fish rather than vegetable staples. The ruler reserved a portion of the first fruits offered to Lono during the *makahiki* for later redistribution. These rights and resources seem to have allowed *mō'ī* to maintain retainues of a few thousand men at most. Such retainues did not confer enough of a relative advantage upon the ruler to allow him to govern without the consent of the majority of his *ali'i* vassals. Ultimately, the most important bond between the ruler and his vassals was probably their perception that it was in their own interests to support him or her.⁶³

Indeed, the political coherence of the *moku* rested upon the diffusion of power. Powerful constraints operated to curtail the consolidation of power in the hands of one individual, or even one coherent group within a *moku*. *Maka'āinana* obedience to the *mō'ī* rested upon the latter's perceived sacred status and the expectation of benefits, in return for contributions of produce and labour. The loyalty of vassal *ali'i* to their *mō'ī* rested heavily upon the expectation of rewards for services rendered. Logistical and political considerations limited the potential to concentrate armed forces in one body and meant that the threat of punitive action alone would not ensure compliance.

These internal constraints acted as powerful incentives for the pursuit of *mana* outside one's own *moku*. Battle against the forces of rival *mō'ī* and the conquest of enemy lands were preferable to contests over the division of limited resources within the *moku*, or the application of pressure on one's own *maka'āinana* to increase production. The same forces that

63 Valeri (1985a), p. 159; Beckwith (1932), p. 150; Malo (1951), pp. 145 ff.; and King, in Beaglehole (1967) 3:1, pp. 517–18.

pressured those in power to look beyond their own territory also served, however, to limit their ability to convert the spoils of war into enhanced power bases. Nevertheless, relations between moku were an important part of the structure of power. It is to these relations that we now direct our attention.

The nature of warfare

Hawaiians fought for a variety of reasons. Fornander asserts that a ruler attacked rivals 'as much for the purpose of keeping his warriors and fleet in practice and acquiring renown for himself, as with a view of obtaining territorial additions to his kingdom'.⁶⁴ He also cites the desire to control resource areas as a cause of war. The need to avenge insults and injuries to maintain mana played a prominent role in ali'i actions. The desecration of ancestral bones was particularly offensive. Grudges might be harboured for generations. The Maui mō'i Kahekili's decimation of O'ahu ali'i who revolted against him in the 1780s was partly driven by a desire to avenge the abuse of the bones of his ancestor Kauhi by O'ahu ali'i. Pelei'ōhōlani of O'ahu slaughtered many of the chiefly elite of Moloka'i for the killing of his daughter there. When Vancouver sought to punish the killers of two Europeans on O'ahu in the 1790s, local chiefs were hesitant to hand over the culprits for fear that their killer's relatives would seek revenge.⁶⁵

Hawaiians seldom commenced hostilities without first seeking supernatural sanction. Kahuna would pray and sacrifice to the gods and seek omens. The construction of a luakini heiau preceded most hostilities. This activity served to forewarn rivals of aggressive intent, although not the precise timing of attacks. Sometimes formal embassies were sent to announce the intention to attack and arrange a mutually acceptable place of battle. This was not always the case. Kahekili's invasion of O'ahu in 1783 seems to have caught its ruler Kahahana by surprise and forced him to give battle before he was fully mobilised.⁶⁶ The mobilisation of a rival's

64 Fornander (1969), pp. 280–81.

65 Fornander (1969), p. 300. See also Kamakau (1961), pp. 215–18, 232–33. On the desecration of bones, see Fornander (1969), p. 208. On revenge, see Vancouver (1801) bk 3, pp. 343 ff.; and Denig (1988), p. 19.

66 Ellis (1969), pp. 150–52; Fornander (1969), pp. 223, 334; and Kamakau (1961), p. 135.

forces was always cause for concern, as rival polities were never more than a few days' march or a day's sail away in good weather, and the loyalty of subordinates could not always be relied on.

When war was imminent, messengers would travel around the moku to inform subordinate ali'i of the number of men they were required to mobilise. This would vary depending upon the nature of the threat posed or enterprise envisaged. Those called up were expected to arm and supply themselves and assemble at designated places. These calls to arms were generally rapidly responded to. Evasion of the call to arms carried the threat of severe punishment. Ellis claimed that those caught evading the call up had their ears slit and were led to camp by ropes tied around their waists. In May 1791 European merchants witnessed the power of the call to arms while trading off Waikiki on O'ahu. When a single canoe arrived with news of war, the Hawaiians present left immediately and some did not even wait to receive payment for the trade goods they had brought out to the European vessel.⁶⁷

Hawaiian armies were equipped with a variety of wooden weapons. Although battles usually began with an exchange of projectiles, the issue was generally decided at close quarters. The polulu, a long hardwood pike of up to six metres in length, was a favoured weapon. Another popular weapon was the pahoa, a hardwood dagger measuring up to 60 centimetres long. The Hawaiian arsenal also included various types of short wooden clubs that were used as bludgeons. Some clubs were edged with shark's teeth and could inflict vicious wounds. Finally there was the ihe, a short spear measuring from two to 2.5 metres long that could be used to thrust or parry, and could also be thrown like a javelin.⁶⁸

The sling was the main projectile weapon. Made of plaited twine, Hawaiian slings could hurl stones the size of hens' eggs with great force. A number of traditional accounts mention ali'i being disabled by slingstones. These accounts imply slingstones wounded or stunned opponents rather than killed them outright. With enemy warriors in hand-to-hand combat range, however, being momentarily stunned or distracted by injury could have fatal consequences for individuals hit by slingstones. Sometimes stones were thrown by hand. One type of club, known as a pikoi, was used

67 Ellis (1969), pp. 152–53; and Ingraham, in Kaplanoff (1971), p. 89.

68 See Clerke, in Beaglehole (1967), 3:2, p. 1322; Cook, in Beaglehole (1967), 3:1, p. 282; Samwell, in Beaglehole (1967), 3:2, p. 1182; Malo (1951), p. 194; Ellis (1969), p. 156; and Buck (1964), pp. 417–64.

as a throwing club to bring down fleeing enemy. The bows possessed by Hawaiians were flimsy devices made from slender reeds and tipped with bird or human bone, which were used by ali'i to shoot rodents for sport. Kamakau refers to Kahekili's army including experts with the bow and arrow in 1783, but there is no reference to the use of the bow in battle.⁶⁹

It was relatively easy to equip large armies with this military technology. Slingstones were available from a number of sources, such as streambeds, while the koa and kauila wood preferred for spears and clubs was found in the upper reaches of the dry forest that covered the lower slopes of the islands' mountains. Indeed, koa was the predominant tree of the forest zone. Koa was also the wood preferred for the hulls of war canoes.⁷⁰ Hawaiian fleets contained hundreds or even thousands of double- and single-hulled canoes. Double-hulled canoes were a major investment in resources, exceeded only by luakini heiau in terms of the commitment of manpower and raw materials required for their construction. Only important ali'i could commission and own double-hulled canoes.⁷¹ They consisted of two parallel hulls of equal size, connected by crosspieces that supported a central platform. They were paddled or propelled by a light triangular sail made of matting connected to a mast and boom. Some were up to 21 metres long. The trader John Turnbull witnessed canoes being paddled at speeds of 17 to 19 kilometres per hour. Cook and his officers were impressed with both the sailing skills of the Hawaiians and the quality of their canoes.⁷²

Warfare was also a major undertaking in terms of the effort required to feed an army. The large size of Hawaiian armies has already been noted. In addition, their ranks were often further swelled by non-combatants.⁷³ Between January 1778 and December 1797 open conflict occurred in 13 out of 20 years. Even when fighting did not break out, the threat of attack forced the mobilisation and concentration of sizeable armies for

69 Kamakau (1961), p. 135.

70 Malo (1951), pp. 20–22; Kirch (1985), p. 29.

71 Malo (1951), pp. 20–21, 125–29; King, in Beaglehole (1967), 3:1, pp. 522–23; Clerke, in Beaglehole (1967), 3:1, p. 593; Samwell, in Beaglehole (1967), 3:2, p. 1167.

72 Clerke, in Beaglehole (1967), 3:1, p. 598; King, in Beaglehole (1967) 3:1, p. 626; Samwell, in Beaglehole (1967), 3:2, pp. 1183–84; Clerke, in Beaglehole (1967), 3:2, p. 1321; Hommon (1975), pp. 149–50; and John Turnbull, *A Voyage Round the World in the Years 1800, 1801, 1802, 1803 and 1805* (Philadelphia: Benjamin and Thomas Kite, 1810), pp. 165–67.

73 Ellis (1969), pp. 103–04, 124.

substantial periods, particularly in the early 1790s on Maui and Hawai'i. Most mobilisations, however, seem to have lasted only a matter of a few weeks or a few months (see Appendix 1).

Armies must be fed enough to perform effectively. There have been virtually no studies of the diet of non-Western chiefly armies, despite a wealth of anthropological and archaeological studies of subsistence patterns. Modern nutritional studies can also shed light on this topic. A healthy diet requires a balance of organic compounds. The four main classes of organic compounds found in living matter are carbohydrates, lipids, proteins, and nucleic acids. Carbohydrates are the source of energy for the body. Digested carbohydrates are converted into a usable form known as glucose, and circulated through the bloodstream to various parts of the body. Glucose excessive to immediate needs is converted into glycogen in the liver and muscles. If there is too much glucose present for storage as glycogen it is synthesised into body fats. Fats and fat-like substances are known as lipids. Proteins are the building blocks of the body, and consist of complex combinations of amino acids. The body is built up from the amino acids it obtains digesting food proteins. Nucleic acids control the process of heredity by which cells reproduce their proteins and themselves. An adequate diet must, therefore, include not only enough carbohydrates to fulfil energy needs, but also sufficient proteins to provide the amino acids needed for growth and maintenance, as well as all the required minerals, vitamins and liquid intake for good health.⁷⁴

The most suitable food for troops in the field is one that is compact, portable and durable. It must answer nutritional needs and preferably not require cooking, as fuel and water are often not available in the field. Grain crops, such as wheat, maize and rice, fit many of these requirements. When eaten in their wholegrain form, they are rich in protein, minerals and the B-vitamin group. With the exception of rice, however, grain crops do not grow well in wet, tropical areas. Root crops, such as taro, thrive in damp tropical conditions and can produce prolific yields with very little cultivation. They tend to be low in proteins, however, do not store well once removed from the ground, and are

74 Konrad B. Krauskopf & Arthur Beiser, *The Physical Universe* (5th edn) (New York: McGraw Hill, 1985), pp. 419–26.

bulky to transport. While 28 grams of polished rice will provide 100 calories of energy for the body, it takes 70 grams of taro to provide the equivalent amount of energy.⁷⁵

Nutritional needs vary in accordance with energy expended. While battle and forced marches require a great deal of physical exertion, warfare also involves a great deal of inactivity. The US National Academy of Sciences' recommended energy intake for healthy males between the ages of 15 and 50 with an average weight 70 kilograms is between 2,700 and 2,900 calories. The human body can, however, function on much less than this caloric intake. A study of famine-stricken Ethiopian villagers suggested that a reduced work rate could be sustained on an average caloric intake of only 1,475 calories for adult males, and 1,950 calories for adult females. The villagers concerned displayed none of the usual symptoms of victims of starvation victims, such as significant weight loss, increased death rates, or physical and mental lethargy.⁷⁶ As little as 56 grams of protein a day will suffice for an individual, providing that it contains all the necessary amino acids. Meat, fish, eggs and milk are good, well-rounded sources of protein, while humans have traditionally relied on grain or root crops for their bulk carbohydrates to provide daily caloric requirements. Unlike animal products, plant proteins do not usually contain all the body's required amino acids.⁷⁷

Well-nourished humans can sustain short periods of undernourishment by breaking down existing skeletal muscle to provide the amino acids needed to process essential proteins from foods. When skeletal muscle is lacking or used up, lean body tissue must be resorted to. Weight loss and a marked decrease in resistance to disease and infection soon result. A clinical experiment using well-nourished subjects recorded a 24 per cent reduction in body weight over a six-month period on a diet of 1,578 calories. Most famine victims die as a result of their reduced resistance to diseases such as pneumonia and dysentery, rather than undernourishment.⁷⁸

75 Smith (1976), pp. 85–87; Alland (1980), pp. 329–30; and Massal & Barrau (1956), p. 9.

76 National Academy of Sciences, 'Recommended Dietary Allowances', in D. A. Wenck et al., *Nutrition* (2nd edn) (Reston Publishing Co., 1983), pp. 630–34; D. S. Miller & J. Rivers, 'Seasonal Variations in Food Intake in Two Ethiopian Villages', *Proceedings of the Nutritional Society*, vols 31, 32A, 33A, 1972.

77 Krauskopf & Beiser (1985), p. 426; and Wenck et al. (1983), p. 630.

78 Nevin S. Scrimshaw, 'The Phenomenon of Famine', *American Review of Nutrition*, 7, 1987, 7–13.

The main staples of the Hawaiian diet were taro (*Colocasia esculenta*), 'uala (sweet potato, *Ipomoea batatas*) and fish. Irrigated taro fields tended to dominate in areas with permanent streams, while dry-field taro and 'uala prevailed elsewhere. The only exception to this pattern was reliance on 'ulu (breadfruit, *Artocarpus altilis*) in a few limited areas, like Puna in Hawai'i. Although all three crops are highly perishable and it is necessary to stagger plantings and practice preservation to ensure year-round supply. While there was seasonal variation in diet, the quantity of food available at any time of the year seems to have been reasonably regular, and ample for the needs of a population dispersed to suit localised production regimes.⁷⁹

Irrigated taro is an extremely productive and useful crop. Mature wet taro can be kept in flooded taro patches for months without rotting. When steamed, mashed and pressed into hard dry cakes (pa'i'ai) it can be kept 'almost indefinitely'.⁸⁰ Pa'i'ai was a compact, durable food for armies, which simply required mixing with water to form edible poi (cooked and mashed corm of taro with water added). Dry-field taro is more seasonal than wet taro. In areas of heavy rainfall, such as Hilo on Hawai'i, dry taro can be planted at any time but, in drier areas like Ka'ū on Hawai'i, it was generally planted at the beginning of the rainy season to reduce the possibility of desiccation through drought. Tests on modern variants of the types of taro used by Hawaiians produced 1.23 to 2.46 tonnes of edible tubers per acre per year. Under optimum, irrigated conditions, output can be as high as 3.28 tonnes per acre per year or more. Kirch cites even higher yields – 40 tonnes plus per hectare per year for irrigated taro compared to only 10 tonnes per hectare per year for dry-field taro. Unprocessed taro weighing 2,495 kilograms would be needed to provide the average daily requirement of 2,800 calories for one man. Kirch notes that 100 grams of edible taro produces 153 calories.⁸¹

Hawaiian 'uala can tolerate drier conditions than taro and generally matures much faster – in three to six months as opposed to nine to 15 months for most varieties of taro. Minimum requirements tie it to areas of at least seasonal rainfall. At the other extreme, wet soil tends to cause 'uala to rot and heavy rain could force an early harvesting of the crop. In drier areas it was advisable to wait until the ground had received

79 Handy & Handy (1972), pp. 75, 101, 134, 276; Malo (1951), p. 206; and B. Currey, 'Famine in the Pacific: Losing the Chances of Change', *GeoJournal*, vol. 4 (5), 1980, 457.

80 Handy & Handy (1972), p. 75.

81 Handy & Handy (1972), pp. 75, 104; Massal & Barrau (1956), pp. 7–9; Purseglove (1972a), p. 64; Kirch & Sahllins (1992), p. 28; and Kirch (1994), pp. 92–93.

several good showers of rain at the start of the rainy season before planting, while in areas of higher rainfall it was advisable to plant at the end of the rainy season and hope for a relatively dry summer. Cook noted that 'uala obtained at Kaua'i in 1778 lasted only 10 days at sea in an unpreserved state. The drying of harvested 'uala helped stave off deterioration. 'Uala could also be cooked and mashed to form poi (poi 'uala), although it tended to ferment after only a few days. Some 'uala fields produced prolific yields. Cook's expedition was particularly impressed with the productivity of the fields above Kealakekua Bay on the leeward coast of Hawai'i. King noted that 'uala were so plentiful here 'that the poorest natives would throw them into our ships for nothing'.⁸² Studies by French medical specialist Emile Massal and ethnobotanist Jacques Barrau suggest an acre of sweet potato produces approximately 60 per cent of the caloric value of an acre of taro.⁸³

The productivity of breadfruit groves and fishing expeditions was also impressive. Breadfruit trees can bear 50 to 100 fruit a year, which equates to 60 to 177 kilograms of fruit annually. Kirch suggests that average densities for breadfruit per hectare would produce between three to five tonnes of fruit per hectare per year.⁸⁴ Marine resources were abundant, despite winter storms and seasonal kapu restricting offshore fishing. Schools of aku (bonito or skipjack (*Katsuwonus pelamis*)) could contain up to 1,000 fish. Nineteenth-century Hawaiian sources imply that it was not unreasonable to expect a catch of 100 aku in a day. In 1810, a European resident of Honolulu knew of a day's expedition that produced 10 to 12 canoes deeply loaded with fish caught in nets. As a generalisation 2,400 calories roughly equates to 2.722 kilograms of fish. Small aku weigh between 2.268 and 5.433 kilograms, while some can weigh up to 9.979 kilograms. Even allowing for weight reduction due to gutting and drying, a moderate catch of aku represented a significant food resource.⁸⁵ The fishponds of the ali'i represented a highly concentrated and easily accessible marine resource. A study of Hawaiian fishponds at the turn of

82 King, in Beaglehole (1967), 3:1, p. 618.

83 Handy & Handy (1972), pp. 75, 127–34; Kirch (1985), p. 51; Malo (1951), p. 205; Cook, in Beaglehole (1967), 3:1, p. 277; Beaglehole (1967), 3:1, p. 618, n. 1; and Massal & Barrau (1956), pp. 7–9. I am indebted to Marie Toussaint of the Ecole des Hautes Etudes en Sciences Sociales, Centre Norbert Elias – Marseille for the information on Massal's disciplinary background and training.

84 Kirch (1994), p. 92.

85 Campbell (1967), pp. 140–42; Hommon (1975), p. 142; and Patricia Price Beggerly, 'Hawaiian Initial Settlement – A Possible Model', in *Micronesian and Polynesian Voyaging – Three Readings*, Pacific Islands' Program – Miscellaneous Work Papers (Honolulu: 1976), p. 99.

this century found average yields of 166–365 kilograms of fish per acre. Cured fish, preserved by drying and salting, were obtained by Cook at Ni‘ihau in 1778 and found to keep well and to be very good to eat.⁸⁶

Massal and Barrau put the annual production of one acre of dry-field taro at 5,200,000 calories, one of irrigated taro at 6,930,000 calories, and one acre of sweet potato at 5,800,000 calories. According to these figures, the annual production of around 6.47 hectares of dry taro, 5.36 hectares of wet taro, or just over 5.67 hectares of ‘uala could sustain 1,000 men for a month.⁸⁷ These figures were arrived at by multiplying 1,000 (men) x 2,800 (daily caloric intake) x 30 (average days in a month), divided by each crop’s annual caloric output per hectare. Archaeological measurements of the dry-field system of the South Kona area of Hawai‘i suggest it measured around 139 square kilometres.⁸⁸ In other words, the main logistical problem for waging war was not growing enough food to feed armies, but rather ensuring that enough food was available at a specific locality at a specific time.

While ali‘i maintained storehouses of food, Ellis implies that those who were called up were expected to bring their own provisions. The main provisions carried were various types of poi and dried fish and calabashes of water. Poi and fish were often wrapped in edible taro leaves. Accounts of campaigns reveal that armies also lived off the land. Just prior to the battle of Moku‘ōhai in 1782, for example, ali‘i sent their men into nearby uplands to collect taro. The degree to which armies relied on preserved food stores as opposed to food taken in the field is uncertain. The evidence suggests that the latter played a more significant role. Stockpiles of preserved food needed to be partially maintained as a safeguard against famine. In Ka‘ū, rat damage to stored provisions was a problem. Rats could devastate an entire crop and have been recorded in American Samoa as eating 117.27 kilograms of a 362.874-kilogram sweet potato harvest. Although preserved food was compact, the amount of food and water combatants could carry with them was limited. Canoes could carry considerable loads but there were no beasts of burden. Women sometimes accompanied husbands to war, and were probably weighed down with provisions on the march. Ellis mentions that they often waited at the

86 Kirch (1985), p. 213; Cook, in Beaglehole (1967), 3:1, p. 279.

87 Massal & Barrau (1956), pp. 7–9.

88 Kirch (1985), p. 225.

rear of battlefields with food and water to boost their husbands' strength during combat. The women of Maui and Hawai'i carried heavy loads of food and water from upland fields during peacetime.⁸⁹

Supplies were occasionally sent between islands to armies based beyond their own territory. The longer an army remained in the field, the more the war zone was stripped of provisions. Any mobilisation that lasted more than a few months placed severe strains on the economy. After a prolonged siege of Ka'uiki Head in east Maui, the besieging force had to withdraw from the devastated neighbourhood to another locality and plant a food crop. In 1793, the Maui ali'i Komohomoho told Vancouver that Maui, Moloka'i and Lāna'i were suffering under the strain of supplying an army on Maui for the last two years to guard against the threat of invasion by Kamehameha. Famine occurred on O'ahu in 1796 because of the continued presence of Kamehameha's 10,000-man army situated there from 1795.⁹⁰

The problems of maintaining an army in the field, and the danger of rebellions at home while the ruler was absent, meant most mobilisations soon resulted in armed clashes. Nineteenth-century ethnographies suggest battles were rather formal affairs. There is some support for this in Hawaiian traditions and eyewitness accounts. In 1790, Kamehameha sent a messenger to his rival Kahekili to arrange a mutually suitable place of landing and field of battle for Kamehameha's intended invasion of O'ahu. It is uncertain whether this was more of a taunt than a serious proposal, for Kamehameha was forced to return to Hawai'i before he could launch his attack.⁹¹ In February 1796, the trader Captain Charles Bishop witnessed two armies on Kaua'i encamped on opposite sides of a valley with only a small stream separating them. By mutual agreement a temporary kapu on fighting was in place. Bishop noted that:

89 Ellis (1969), pp. 124, 153; Malo (1951), pp. 195, 219; Kamakau (1961), pp. 238–39; Handy & Handy (1972), pp. 133–34, 276; Currey (1980), p. 447; and Peter S. Bellwood, *A Settlement Pattern Survey, Hanatekua Valley, Hiva Oa, Marquesas Islands*, Pacific Anthropological Record no. 17 (Honolulu: Bernice P. Bishop Museum 1972), p. 27.

90 Handy & Handy (1972), p. 491; Fornander (1969), pp. 216–17; Vancouver (1801), bk 3, pp. 295–96; Broughton (1967), pp. 40, 71; and R.C. Schmitt, 'Famine Mortality in Hawaii', *Journal of Pacific History*, vol.5, 1970, 111.

91 Malo (1951), pp. 196–97; Ellis (1969), pp. 155–56; and Fornander (1969), p. 237.

As Soon as the Taboo is Proclaimed in one camp, for one, two, or three days, it immediately takes place in the other for the like time – In this time, these intervals of war, they sit on the opposite banks of the stream conversing with each other as friends.⁹²

When terrain allowed, troops were usually drawn up in a crescent-shaped formation known as *kahului* with the crescent's horns pointing towards the enemy. Sometimes the opposing forces would simply be drawn up in line facing each other. This formation was known as *kukulu*. According to Ellis, slingers and javelin men were distributed along the whole battleline. In a battle exercise witnessed by Vancouver, many in the remainder of the battleline were armed with *polulu*. When broken terrain ruled out these formations, armies fought in small, flexible groups. Such a battle order was known as *makawalu*. The 1782 battle of Moku'ohai was fought in such a manner on rough lava fields dissected by deep gulches.⁹³

The Hawaiian Islands had relatively few sites suitable for unimpeded large-scale manoeuvring prior to the rise of European plantation agriculture in the late 19th century. Much was virgin forested uplands or lava flows, and most of the flat land around the coasts was settled and covered with dwellings, flooded taro fields and dry-field systems. In a description of a council of war, related by Kamakau, advisers expressed their preference for a battlefield with enough open ground unimpeded by cultivations to manoeuvre their troops; and where any advantage of high ground lay with them.⁹⁴ Battle sites from this era were generally not suited to unimpeded movement by large bodies of men. Most were also very narrow, suggesting that Hawaiian armies were reasonably small, especially for battles fought in open order.

Ali'i usually led their own contingents into battle, unless prevented by old age or illness. The *mō'i* was usually stationed in the centre of the battleline. Leading from the front was necessary for chiefly *mana* and also served to stiffen the resolve of followers, but diminished the role of generalship in battle. Tactical plans needed to be agreed on beforehand. The use of reserves in battle suggests, however, that some degree of behind-the-lines coordination occurred during combat. The battlefield role of the

92 Bishop, in Roe (1967), p. 146.

93 Ellis (1969), p. 155. On *makawalu*, see Malo (1951), p. 109. On Moku'ohai's terrain, see Kamakau (1961), pp. 120–22; and Fornander (1969), pp. 309–11.

94 Kamakau (1961), p. 50.

kalaimoku and other war councillors is uncertain. There may have been sub-commanders within each retinue in the form of the ka'a-kaua, which are mentioned in passing by Malo.⁹⁵

Battles were preceded by appeals to the gods for support, and the search for favourable omens in front of the assembled forces. Ali'i encouraged their followers with speeches, while orators, brandishing spears in front of the battleline, spurred their side on to deeds of valour. Important ali'i were accompanied into battle by images of their war gods carried by kahuna.⁹⁶ Ellis was led to believe that Hawaiian battles 'were most commonly a succession of skirmishes, or partial engagements'.⁹⁷ Battles often began with single combat between champions. Much importance was placed on drawing first blood, and then securing the corpse for immediate sacrifice on the field of battle. This was seen as an indication of divine favour, and could have a decisive effect on the morale of both sides. The impression of battle as a series of individual duels is consistent with Ellis's observation that the wives of warriors were present to provide food and water for their husbands. For this to occur, individual contestants had to be able to temporarily disengage and move to the rear, or the women had to be free to move around the battlefield without disrupting the battle. Group formations acting in unison would have prevented these actions.

Some fights were decided by the clash of massed battlelines, however, as at Aiea in 1794. A hail of projectiles generally preceded the collision of the two sides. On at least one occasion a heavy barrage of projectiles was enough to cause one side to break and flee. Unless one side dissolved rapidly, combat probably broke into a series of individual duels. Gavan Daws vividly portrays this type of battle as 'a war of daggers and clubs and even bare hands' where 'life or death depended on swiftness of hand and foot, and, in the last moments spine-breaking brute strength'.⁹⁸ Most casualties probably occurred when one side broke and fled, exposing their backs to their antagonists close at hand.

Fighting did not only consist of set battles. The Hawaiians had terms for ambushes (poi-po) and night attacks (moemoe). I'i relates how Kalani'ōpu'u concealed his forces in dense vegetation alongside a narrow

95 Ellis (1969), pp. 155, 159; and Malo (1951), pp. 59, 196.

96 Ellis (1969), pp. 155, 157–58; Kamakau (1969), p. 211; Fornander (1969), p. 236; and Valeri (1982), p. 16.

97 Ellis (1969), p. 159.

98 Daws (1968a), p. 31; Kamakau (1961), p. 87; and Clerke, in Beaglehole (1967), 3:1, p. 594.

trail through the forest of Paiei and ambushed the forces of Alapa'i as they came along the trail. Alapa'i's men were surrounded and slaughtered. Some years later, Kalani'ōpu'u's forces fell victim to a similar tactic. In 1775, a special unit known as the alapa advanced too far ahead of the main body of Kalani'ōpu'u's forces and was ambushed and all but wiped out in sandhills south-east of Wailuku on Maui.⁹⁹

Naval operations were usually restricted to transporting troops and supplies, but there are also scattered references to other types of naval activity. In a comprehensive survey of Hawaiian traditions, Robert Hommon found three references to naval battles, one to a battle on Moloka'i where an O'ahu force was attacked from the sea and mountains simultaneously, and one to the successful repulse of an attempted naval landing on O'ahu. Double-hulled canoes were not modified for fighting at sea until the introduction of cannon. Naval engagements consisted of exchanges of projectiles, followed by attempts to board opponents' canoes. Hawaiians spent much time training in canoes and were extremely skilled in their use.¹⁰⁰

Battle dress was the same for battles on land and sea. Ali'i usually wore distinctive capes and feathered caps. While Ellis doubted their practical value, Cook believed they were capable of absorbing the impact of projectiles and spear thrusts. They also served to distinguish ali'i, possibly to preserve the general kapu on ali'i–maka'āinana interaction in the heat of battle. The grisly fate of the maka'āinana who accidentally injured an ali'i in a spear exercise has already been noted, although such propriety may not have extended to enemy ali'i. Differences in cloaks distinguished ali'i status. According to King, the longer the cloak the greater its wearer's rank. The shorter cloaks of the lesser ali'i were also less colourful than the magnificent yellow and red cloaks of ali'i nui.¹⁰¹ Most other combatants wore little more than a piece of cloth, known as a malo, around their waists. Hawaiians used wetted mats as shields against the musket fire of British marines at Kealakekua Bay in 1779. Mats were more awkward and cumbersome than chiefly cloaks, and were used by 'inferior people' only.¹⁰²

99 Malo (1951), p. 196; I'i (1959), pp. 3–4; Kamakau (1961), pp. 85–88; and Thomas G. Thrum, 'Some Noted Battles of Hawaiian History', in Thomas G. Thrum (comp.), *Hawaiian Almanac and Annual for 1889* (Honolulu: Press Publish Co, 1889), pp. 59–60.

100 Hommon (1975), pp. 176 ff.; and Ellis (1969), p. 155; and Vancouver (1801), bk 3, pp. 211–12; and I'i (1959), pp. 130–31.

101 Clerke, in Beaglehole (1967), 3:1, pp. 594–95; Ellis (1969), pp. 156–57; Sahlins (1985), pp. 130–31; and Linnekin (1988), p. 276.

102 Clerke, in Beaglehole (1967), 3:1, pp. 594–95; and Malo (1951), p. 251.

The main defensive asset of Hawaiians was their ability to dodge and parry blows and projectiles. In February 1787, for example, the trader Nathaniel Portlock was given an exhibition on board his vessel during which an ali'i had spears hurled at him 'with the utmost force' from only 10 metres range. The first spear was:

avoided by a motion of the body, and caught it as it passed him by the middle: With the spear he parried the rest without the least apparent concern; he then returned the spears to his adversary, and armed himself with a Pa-ho-a; they were again thrown at him, and again parried with the same ease.¹⁰³

Kamehameha was also observed by the Frenchman Pierre Francois Peron dodging spears thrown in quick succession, confirming Hawaiian sources' praise of his exceptional ability. Kamehameha's instructor, Kekūhaupi'o won renown for his duel with the Maui slinger Oulu when he avoided all his adversary's slingstones despite the fact that they were only 11 metres apart.¹⁰⁴ These skills served ali'i well as long as Hawaiian warfare remained centred on individual prowess. Battle provided a dramatic stage for the exhibition of the courage and skill on which so much chiefly status rested. Indiscriminate, mass volleys of projectiles and the use of drilled formations acting in unison could, however, undermine this system. It was exactly these two tactical trends that signalled the beginning of modern warfare in Europe in the late medieval period. Accounts of battles, drills witnessed by Vancouver and the formation of units of specialists demonstrate that a similar transformation was underway in Hawai'i in the late 18th century. The old ways still predominated but, in the atmosphere of intense rivalry that prevailed, the temptation to bend conventions and improve fighting effectiveness must have been great.

This suggestion of a tension between old and new ways is supported by a comparison of information on casualties and the duration of engagements. Information on casualties is limited. Hawaiian traditions tend to mention prominent figures killed in battle rather than total casualties. Ellis and Dibble claimed Hawaiian battles were usually only prolonged skirmishes with few casualties. In February 1779, Captain Charles Clerke learnt that a recent battle in Kaua'i had cost the victors only one man, while they had killed 26 of their rivals, including three ali'i. In 1793, Vancouver was told that a revolt on Kaua'i had just been

¹⁰³ Portlock (1968), pp. 188–89.

¹⁰⁴ Peron (1975), p. 6; and Thrum, vol. 5 (1918–19), pp. 452–56, esp. 454.

crushed in a battle involving no losses to the victors and the death of two rebel ali'i and five of their followers. Some others had been wounded, but had managed to escape into a nearby forest.¹⁰⁵ The fact that both battles involved internal disputes on Kaua'i means, however, that caution must be used in generalising from their example.

Traditions mention at least three occasions when the vanquished were virtually wiped out. These occasions were the two ambushes cited above, and Kahekili's execution of the garrison of Ka'uiki Head after their surrender to him following a long siege. Actual numbers killed are unclear beyond the fact that the Alapa unit ambushed in 1785 numbered 800 men. Kamehameha's greatest victory, the battle of Nu'uaniu in 1795, cost the vanquished somewhere between 300 and 500 men.¹⁰⁶ Their total strength is unknown, but it probably numbered many thousand given that it was the last stand of the Maui line against Kamehameha's 10,000-man army.

While naval battles seem to have been decided on the same day as conflict was joined, fighting on land could last for several days before one army retreated or was routed. Both the battle of Kawela on Moloka'i in the middle of the 18th century and the battle of Moku'ohai on Hawai'i in 1782 were decided on the fifth day, after four days of indecisive skirmishing.¹⁰⁷ This coincidence may indicate the use of a standardised expression to designate a hard or long struggle, as is common in oral traditions. But it is supported by Ellis and Dibble's comments on warfare, and by Hawaiian traditions. The destruction of the alapa in 1775 was just one incident in fighting that ranged over many kilometres in the course of a number of days. The battles of 'Iao in 1790 and Aiea in 1794 were also the culmination of days of fluid skirmishing and smaller engagements. Although no definite conclusions can be drawn, it appears that Hawaiian battlefields were not yet the concentrated killing grounds that the triumph of drill and discipline over individuality and discretion has caused elsewhere. Missionary Hiram Bingham was told that, between 1780 and 1795, Kamehameha's losses numbered 6,000, while his opponent's had lost double this. Many of these casualties were the result of starvation and sickness in the wake of the depletion of local food resources rather than due to direct violence.¹⁰⁸

105 Clerke, in Beaglehole (1967), 3:1, pp. 577–78; and Vancouver (1801), bk 7, pp. 369–70 (Mar. 1793).

106 On Ka'uiki, see Stokes (1937), pp. 35–36; and Fornander (1969), pp. 215–16.

107 On Kawela, see Kamakau (1961), p. 71. On Moku'ohai, see Kamakau (1961), pp. 120–21.

108 Stokes (1937), pp. 36–39.

The consequences of defeat in battle varied. Logistical problems and the ever-present threat of internal factionalism restricted the degree to which victory could be exploited. If the vanquished could evade their pursuers for long enough, they stood a good chance of rallying unmolested, providing sufficient confidence remained in chiefs seeking to revive their fortunes. The rate of recovery for localities serving as war zones varied according to the damage inflicted, local environmental circumstances, and subsequent involvement in political and military affairs. Armies passing through enemy territory generally plundered local resources and destroyed what they could not use or carry off. Invaders burned dwellings, wrecked canoes, cut down tree crops, destroyed fishponds, wells and irrigation ditches, uprooted crops and killed livestock.¹⁰⁹ The destruction of tree crops, such as breadfruit and coconut trees, were major losses as new trees take from six to eight years to produce fruit. Taro, however, if ruined by drought or deliberately uprooted can remain alive for months when kept in a damp place and cut with a generous portion of the crown intact. Both taro and 'uala produce crops in a matter of months rather than years. In the interim, famine foods in the forest might sustain the local population.¹¹⁰

Rainfall and respite from invasion were crucial to recovery. In the 1790s, arid Lāna'i was still recovering from a raid by Kalani'ōpu'u in 1778 that had stripped the island of food.¹¹¹ In 1790, Kamehameha's forces moved through the Lahaina area on Maui, plundering or destroying cultivations and livestock. When Vancouver visited Lahaina in 1793 he found only limited taro cultivation in the immediate vicinity of the settlement. He wrote that 'By far the larger portion of the plain was in a ruinous state; the small part that was in a flourishing condition, bore the evident marks of very recent labour'.¹¹² This was despite the fact that the rulers of Maui were straining to feed troops who had been mobilised on the island for some years to counter the threat of another invasion by Kamehameha. By February 1796, European visitors were remarking on the excellent state of Lahaina's cultivation and the large area that was under cultivation.¹¹³ Kamehameha's victory over the Maui ruling family in 1795 had ended Maui's role as a battle zone, enabling local cultivators around Lahaina to rebuild their field

109 Kamakau (1961), pp. 51, 66, 70, 108; and Fornander (1969), pp. 133, 137, 141, 240.

110 Malo (1951), p. 43; Handy & Handy (1972), p. 94; Massal & Barrau (1956), p. 20; J. W. Purseglove, *Tropical Crops*, vol. 2: *Monocotyledons 2* (London: Longmans, 1972b), pp. 464–65; and J. W. Purseglove, *Tropical Crops, Dicotyledons 2* (London: Longmans, Green and Co., 1968), p. 382.

111 Hommon (1976), p. 157; and Schmitt (1970), pp. 110–11.

112 Vancouver (1801), bk 3, pp. 332–33.

113 Broughton (1967), p. 37.

systems and draw on the rainfall of the nearby mountains of west Maui. Table A1 in Appendix 1 demonstrates that most localities were not invaded frequently in this period. During the period covered in this study, Lahaina seems to have been pillaged only in 1790 and the previous time that it had suffered war damage was around 1750. The fact that Lahaina's coconut and breadfruit trees escaped destruction in 1790 suggests Kamehameha may have been confident of retaining control of the area.¹¹⁴

Victors attempting to occupy conquered territory might proclaim an amnesty to get the land back into production again. *Maka'ainana* were more useful as cultivators than as fugitives. Although Ellis claims they were enslaved and treated cruelly, such oppression ran the risk of alienating a population with uncertain loyalties, while their previous ruler might still be capable of mounting an effort to regain lost lands. There are hints that the Hawai'i ruler's control of the Hana and Kipahulu districts of east Maui in the 1770s and 1780s involved the retention of some local ali'i in administrative posts. With the rest of the island still controlled by the Maui mō'i Kahekili, the support of local inhabitants was important.¹¹⁵

Lesser ali'i might have a role in the conqueror's new administration, but prominent enemy ali'i would always pose a threat as potential rallying points for dissent. For prominent ali'i, defeat and capture meant death or a loss of mana. Kin ties or respect for high status saved some like Keawemauhili, who was released after being captured at Moku'ohai in 1783.¹¹⁶ Victory was often emphasised by the construction of a new heiau on the ruins of enemy heiau and, occasionally, by the incorporation of the enemy's god images into the new heiau's pantheon.¹¹⁷ The fate of a dead ali'i's retinue is uncertain. They were either hunted down and killed, or sought a new lord. Victorious and ambitious chiefs were always looking to bolster their retinues to control new territory and strengthen their position for internal power struggles. Kahekili, for example, left the governing of Maui to others while he moved to newly conquered O'ahu to personally oversee what turned out to be a troublesome consolidation.¹¹⁸

114 Vancouver (1801), bk 3, p. 295; and Cordy (1972), p. 398.

115 Ellis (1969), p. 152; and Hommon (1975), pp. 98–100.

116 Kamakau (1961), p. 122.

117 Valeri (1982), p. 6.

118 Fornander (1969), pp. 223–25.

Fortresses were rare in Hawai'i, despite the potential benefits as bulwarks against invasion and for consolidating conquest. Most fortified positions served merely as temporary refuges. If fugitives could not flee and hide in the forested uplands, or to the territory of sympathetic friends, their only means of evading capture was to reach a fortified refuge or sanctified places of refuge known as pu'uhonua. The most famous pu'uhonua was at Hōnaunau on the South Kona coast of Hawai'i. After appropriate rituals of purification, those who reached such sanctuaries were allowed to leave unmolested. Most fortified sites consisted of steep ridges modified by fosses, and occasionally strengthened with fighting platforms. Interestingly, the fortified ridge at Kawela on Moloka'i ended in a pu'uhonua. In some localities, fortified caves served as refuges, as possibly did a peninsula in Puuloa (Pearl Harbour) on O'ahu.¹¹⁹

The most prominent stronghold in Hawaiian traditions was Ka'uiki Head, a small steep-sided volcanic hillock on Hana Bay, east Maui. In the latter part of the 18th century, east Maui intermittently served as a battlefield between the forces of Maui and Hawai'i. Ka'uiki Head facilitated the occupation of the area by Hawaiian forces by providing a refuge in times of defeat until help could be sent. Ka'uiki's summit was reached by means of a ladder made of trees and vines. References to sorties by its besieged defenders and to the head being fortified suggest that another, more accessible passage to the summit also existed. Ka'uiki Head was not, however, an ideal position. It lacked defensible, sheltered anchorages and had limited space on its summit. Reliance on rainfall and springs at the base of the hill for drinking water was perhaps its greatest weakness. These shortfalls suggest it was more a refuge in desperate times than a stronghold from which to dominate the country around it.¹²⁰

There are scattered references to the construction of field fortifications. With one exception, all are associated with firearms. On 14 February 1779, Hawaiians at Kealakekua Bay threw up several stone breastworks in expectation of retaliation for the death of Cook. When Kamehameha invaded Maui in 1790, he encountered a fortified position at Pu'ukoae, probably in response to his firearms and cannon. Earthworks and trenches were constructed at Kāne'ohē on O'ahu in 1794 specifically to counter

119 Kirch (1985), p. 273; Kamakau (1961), pp. 110–11; Pogue (1978), pp. 36–38; I'i (1959), p. 97; McAllister (1933), pp. 35–36; and Ellis (1969), pp. 103–04.

120 Handy & Handy (1972), pp. 502–04; Fornander (1967), pp. 98–99, 108, 215–16; and Kamakau (1961), pp. 80, 115, 154.

the impact of firearms. In a battle on Hawai'i in 1791, warriors from Ka'ū squatted in small holes to avoid enemy musket fire. The one instance in which the construction of fortifications did not involve firearms is a reference to the forces of the Maui ali'i Kukeawe fortifying themselves strongly at Kapuoa in response to attacks from local forces. As was suggested earlier, this may have been a response to indigenous firepower.¹²¹

The distinction between war and peace was not always clear. Some conflicts ended in a formal peace ceremony sanctified with prayers and sacrifices, and celebrated through feasts and games. At other times, however, open hostilities were followed by uneasy stand-offs that sometimes lasted for years. In such circumstances, peaceful visits between ali'i were potentially tense affairs. Visitors might be treated with respect and courtesy, as the Maui ali'i Kahahawai was when he called on Kamehameha soon after defeating him in battle in 1782. At other times, their lives were endangered. When Kamehameha sent two of his most senior councillors, Keaweheulu and Kamanawa, to make overtures for peace with his enemy Keōua, Keōua's advisers recommended killing them. They were only spared because Keōua rejecting his councillors' advice, and accepted Kamehameha's overture. Keōua was struck down and sacrificed to Kū'kā'ili-moku when he arrived to meet Kamehameha. When Vancouver attempted to mediate between Kahekili and Kamehameha in 1793 and 1794, he found his efforts blocked by each party's fear that they would be killed if they went to talk with the other.¹²²

The tension noted by Vancouver needs, however, to be placed in perspective. It occurred at the height of a prolonged military struggle for power between Kamehameha and Kahekili that was more intense than anything experienced before in Hawai'i. Outside of such times of elevated tension, the importance of high-status marriage partners meant that ties among the upper echelons of the ali'i extended between districts and islands. Visits to relatives and the search for status marriages took ali'i out of their own polities. All chiefly dynasties traced their ultimate origins to the same divine ancestors, resulting in a fixed, archipelago-wide status hierarchy. Generally the oldest and most senior lines were found on the western islands of Kaua'i and O'ahu. Chiefs from Maui and Hawai'i

121 Samwell, in Beaglehole (1967), 3:2, p. 1205 (1779); Fornander (1969), p. 236 (1790); Menzies (1920), p. 193 (1791); and Kamakau (1961), p. 168 (1794).

122 Vancouver (1801), bk 3, pp. 261, 317–19; bk 5, p. 82; Fornander (1969), pp. 319, 331; and Kamakau (1961), pp. 155–58.

sought to enhance their status by seeking unions with members of the older lines of the western islands.¹²³ Inter-district and inter-island travel by ali'i seems to have been reasonably frequent, as the following passage from Fornander implies:

Following the custom of the times, Lonokahaupu set out from Kaua'i with a suitable retinue of men and canoes, as became so high a chief, to visit the islands of the group, partly for exercise and practice in navigation, an indispensable part of a chief's education, and partly for the pleasures and amusements that might be anticipated at the courts of the different chieftains where the voyagers might sojourn.¹²⁴

On this particular trip, Lonokahaupu visited Keawe, ruler of Hawai'i, and became one of the husbands of Keawe's wife Kalanikauleleiawa.

Most fighting in the late 18th century took place between moku rather than within them. Victory vindicated the mana of a ruler. External wars might also stifle or divert internal dissent. In 1794 Ka'eokulani, the ruler of Kaua'i, diverted an oncoming rebellion by proposing that his army immediately attack his O'ahu counterpart rather than return to Kaua'i.¹²⁵ Prolonged periods of peace created domestic restlessness among ambitious ali'i and retinue members anxious to display their worth in battle. Wars did not occur every year, however, and some polities saw no fighting for years on end. Yet, outside of succession disputes, most polities experienced limited open dissent. This suggests a higher degree of political acumen than has generally been allowed for.

Warfare was an integral part of chiefly relations by 1770 and provided an important means of enhancing status for some but not all ali'i nui, kaukau ali'i and maka'ainana. Consideration of the logistical and morale requirements to keep an army functioning in the field for any length of time, however, meant that the arts of peace – notably agricultural production and political consensus-building to maintain coherence, and a shared sense of identity and purpose – mattered as much as the arts of war. The next chapter details how Kamehameha's military victory and successful unification of Hawai'i in the last two decades of the 18th century rested on this vital combination of the arts of war and the arts of peace.

123 Sahlins (1985), pp. 20–21; and Kirch & Sahlins (1992), p. 23, citing Thrum, vol. 6 (1919–20), p. 244; and Fornander (1969) endpaper.

124 Fornander (1969), p. 296.

125 Fornander (1969), pp. 263–64; and Kamakau (1961), p. 168.

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