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Practical defensive features in Palau's earthwork landscape

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Introduction

The massive earthworks shaped into the volcanic portions of the Palau archipelago in the Western Carolines of Micronesia are considered integral ideological symbols of competition and territoriality between and within the districts they define (Liston 2013; Liston and Tuggle 2006). The spatial patterning of the imposing monumental earth structures suggests that Palau's rival groups may have largely competed by symbolic posturing rather than outright combat, a common tactic in warfare and violence throughout the Caroline Islands (Younger 2009).

During the period of earthwork construction and occupation (c. 2400–1100 cal. BP), there is no direct evidence for conflict in the form of military weapons or human burials showing trauma. Furthermore, there are very limited references in traditional narratives that associate earth structures with warfare. However, earthworks have been considered to contain a practical defensive component since their first documentation by Cheyne (1864 in Parmentier 1987:30), an English trader in Palau in the mid-1800s, who interpreted the square hills, or 'crowns', surrounded by a deep and wide ditch atop the unoccupied terraces, as forts. Most scholars continue to conclude that the primary purpose of the crown and ditch complexes is defence while the function most commonly attributed to the remaining terraces is agricultural (Butler 1984; Gumerman 1986; Lucking 1984; Masse et al. 1984; Osborne 1966, 1979; Snyder et al. 2011).

Disentangling the multifaceted, simultaneous and evolving ideological and practical functions of individual earthwork components is a complex undertaking. While acknowledging that symbolism plays a crucial role in the emergence, construction and use of Palau's earthworks, this chapter examines the structural components most commonly categorised as defensive—crowns and ditches—for their practical use as primarily defensive features. A type of earthwork complex, the Type III, is proposed to play a role in the practical aspects of Palauan competition and warfare. As only a single earth wall, a potential defensive component, is documented in Palauan earthworks, the feature type is not included in this discussion. Also not assessed is the relative height of step-terraces and other earthworks, a likely structural mechanism used in defence.

Earthworks in Palau

Archaeological evidence suggests that earth architecture supported the majority of community activities for more than 1200 years of Palau's history, a period extending from c. 2400 to 1100 cal. BP, labelled the Earthwork Era. An estimated minimum of 64 km² (20.4 per cent) of

the volcanic island of Babeldaob, Palau's largest island, was shaped into earth structures.¹ This relict landscape is composed of 10 clusters of contiguous modified terrain with each cluster ranging in size from about 8 to 27 km². Scattered and smaller earthworks are found in the buffer zones separating each cluster.

Within each cluster are morphologically diverse earthwork complexes. These complexes are composed of various combinations of at least 12 structural components, each of which is represented by varied forms and a wide range of sizes. Most apparent in the step-terraces rising up to 5 m high, these structural components are often far larger than needed to perform their primary practical function.

Palau's earthworks appear to have operated as an integrated system (Masse et al. 1984), an engineered landscape that supported the full range of community activities. They held burial grounds and habitations; were used for water management, trails, cultivation and other infrastructure; contained defensive elements; and played ceremonial and ritual roles. Although supporting these practical uses, the distributional patterning, enormity and elaboration of these earth structures suggest that, taken as a unit, they primarily functioned to symbolise the relative status of the hereditary unit or leader that occupied each earthwork complex and district (Liston and Tuggle 2006). The districts, as well as the individual complexes and components, transformed in function, meaning, spatial patterning, morphology and size as Babeldaob's society evolved over the millennium of the Earthwork Era.²

Crowns

Palau's most distinctive earthworks are the crowns,³ small hills whose summits are difficult to access due to some combination of being encircled by a ditch or a precipitous scarp, artificially steep slopes of ≥ 65 degrees, and heights of up to 10 m. Until recently, a separate type of earthwork feature, the levelled hill, was not differentiated from crowns. The crown and the levelled hill are entirely different categories of earthworks that are distinguished by form, size, distributional patterning, and associated earthwork components, stonework and artefacts (Figure 7.1). These two significant types of earthworks coexisted on the landscape but served different practical functions and were hence likely embedded with distinct meanings. Crowns, rather than levelled hills, are discussed here.

Although some crowns retain an apparently natural rounded appearance, others are sculpted into steep-sided and flat-topped forms. Crown surface area ranges from about 80 to 2000 m². With a surface area of about 3800 m², the potentially minimally shaped hill of Ngerulmud far exceeds the size of other crowns (Kaschko 1998; Liston et al. 1998; Welch 2002). The hill is categorised as a crown due to the ditch encircling its middle slope. Ditches bisect the two ridgeline approaches to Ngerulmud.

Ditches, some of whose outer berms remain, are found separating adjacent crowns, and ring-ditches encircle or partly encircle many crowns to magnify the height of the hill. Where only a partial ring-ditch is present, a steep cliff often forms one or more sides of the crown. A millennium of erosional events have infilled the ditches so a substantial number of ring-ditches are no longer visible on the surface.

1 This estimate is low, as about 63 per cent of Babeldaob's volcanic landscape has yet to undergo archaeological survey and was not included in the calculation, which was derived from pedestrian survey and geospatial analysis of historic aerial photographs.

2 Additional research is needed to ascertain the chronological trajectory and temporal relationship of specific structural types, complexes and clusters.

3 The term 'crown' originated with Osborne (1966:150–151), who followed the terminology used by Captain Cheyne (1864). Embankments around ring-ditches at the bases of crowns are called brims, as in the brim of a hat.

Figure 7.1. Aerial view of the Type II Ngermedangeb complex and the Ngermelkii crown and ditch in the Ngatpang (1969-6-2-53).

Source: Jolie Liston, based on 1969 aerial photo.

Recent excavation shows that the summits of many crowns were shaped into one or two deep basins by cutting and adding encircling berms (Liston 2013; Phear 2007). Where not purposefully infilled, most of the surrounding berms have eroded back into the basin so that they are now only identifiable on the surface as shallow depressions. Some crowns support earth knobs or embankments that appear to have been added late in the crown's use-life, after the basin was infilled, and contain burials of high-ranking individuals (Liston 2013; Tuggle 2011). Possibly once supporting more stonework than currently present, the relatively few stone surface features associated with crowns include small pavements, large slabs, edgings and monoliths. Cobbles embedded in the sides of crowns indicate some of them were faced in stone for soil stabilisation and symbolic decoration.

Very few crowns are solitary structures, as most are topographically integrated into an earthwork complex—not imposed or reworked on it—to form the high point overlooking the complex or a portion of the earthwork cluster. Other crowns are lower in the earthwork complex to oversee a specific space. Even low crowns are very prominent on the topography and often dominate other structures in their immediate vicinity.

Crowns have long been considered defensive features due to the difficulty in accessing their summit. What the crowns were defending is difficult to determine, as they are too small to support even a small community and, as yet, there is no evidence of water or food storage. In addition to symbolic roles, crowns have therefore been hypothesised to have served as sentry posts, lookout positions, places of refuge, or communication towers (Lucking 1984; Osborne 1966).

Ditches

Substantially sized ditches are strategically placed within Palauan earthwork complexes.⁴ They are found bisecting ridge crests, extending down the length of complexes, circling the base of a crown as a ring-ditch, between adjacent crowns and occasionally splitting a crown (Figures 7.1, 7.2, 7.3 and 7.4). Gullies, a common earthwork component placed to descend the slopes of step-terrace systems and levelled hills, particularly in Type II complexes, are substantially wider and shallower and served a different practical function than ditches (Figure 7.1).

Figure 7.2. A ridge-cut impeding access to the Ngetilai crown, a Type IIIa complex in Ngardmau.

Source: Jolie Liston.

Figure 7.3. Infilled ring-ditch around base of the Oratelruul crown in Ngiwal.

Source: Jolie Liston.

⁴ Not included in the discussion of large ditches are the small field ditch features, now deeply buried by erosion or construction fill. These small ditches were identified during excavations on step-terrace treads at Nkebeduul and in a gully at Ked-era Aranguong (Liston 2013).

Figure 7.4. A ditch bisecting a levelled ridge crest at Ked ra Ikerbeluu in Ngatpang (1976-4-217).

Source: Jolie Liston, based on 1976 aerial photo.

The soil from ditch construction often formed a steep embankment to deepen the ditch. Few of these embankments remain on the landscape as they have eroded back into the ditch. Many of these infilled ditches are now only recognisable as shallow dips in the landscape or by vegetation differences, while others remain apparent at 2 to 10 m deep even with long-term erosion. Excavation has identified that the constructed depth of ditches—without the added height of an embankment—can range from 2 to 6 m. They can be up to 8 m wide although their original width was likely substantially narrower with expansion due to natural degradation processes.

While most ditches are only as long as needed to circle a crown or bisect a ridge crest, some lengthy transverse ditches were cut through level terrain. These features may be World War II-era anti-tank ditches associated with the Japanese Imperial Army's fortification of Babeldaob in preparation for an American invasion of the island that never materialised. Ditches currently measuring roughly 3–6 m wide, 2 m deep, and up to 126 m long are documented in Aimeliik, Ngardmau and Melekeok, where they are interpreted as anti-tank ditches (Butler and Snyder 1991; Grant 2007; Liston 2011). These ditches should be reassessed within a landscape perspective for their potential association with the Earthwork Era, as an over 150 m long ditch at the base of a Ngiwal earthwork complex is decidedly not a Japanese defensive feature and indicates lengthy ditches were an earthwork component.

Universally, ditches are used for defence, water control (irrigation, drainage, aqueducts, moats) and to produce soil for construction (Bayliss-Smith 2007). The defensive aspect of many of Palau's ditches is identified in those blocking passage down a ridgeline or onto a crown. Palauan terms for transverse (*klaidebangel*, 'hole dug as a trap') and lateral (*chomedoilmach*, *omdok uach*, 'to catch a foot') ditches reflect their defensive function.

Complex and extensive landscape engineering techniques were used in the Earthwork Era for erosion and water management (Liston 2013). Gullies and some ditches controlled and directed water flow and fertile erosional soil away from inhabited areas and more unstable architectural elements and onto step-terraces and basins built as cultivated plots and pondfields (Liston 2008, 2013; Lucking 1984; Lucking and Parmentier 1990:129). Additionally, those ditches that facilitate rather than impede access to specific places may have identified intra-complex boundaries or been long-used parts of the extensive trail system that criss-crossed Babeldaob on levelled ridge crests and artificial earth causeways (Liston 2013; Liston et al. 2002) (Figure 7.5).

Although some of Palau's ditches may have served a single practical purpose, others were likely multifunctional features. For example, a ditch between two adjacent crowns on Toimeduu inhibits access to the steep-sided crown and drains into Tabelmeduu's large cultivation basin located directly below (Liston 2008).

Figure 7.5. Aerial view of a lateral ditch (lower ditch in photo) that may be a trail or water control feature leading to a crown in Aimeliik (1976-6-2).

Source: Jolie Liston, based on 1976 aerial photo.

By comparing the mechanical and geometric characteristics of ditch forms with potential functions, Keeley et al. (2007) maintain that V-sectioned ditches are ineffective for any purpose other than defence. The geometry of triangular ditches makes them challenging obstacles to cross yet comparatively difficult to excavate, inefficient sources of earth for ramparts or revetments, and more prone to erosion when filled with moving water than other ditch forms. It is the steep sides and narrow base, rather than their dimensions, that produce an effective barrier, as ancient Roman army units commonly fortified their encampments with curtained V-sectioned ditches measuring only 1.0 m deep and 1.5 m wide (Keeley et al. 2007:61). This does not preclude ditches with other base forms from serving a defensive function, nor suggest that V-sectioned ditches did not serve a symbolic purpose, but suggests that those triangular ditches of a metre or more deep are inefficient and inappropriate for any purpose other than defence (Keeley et al. 2007:57).

The V-sectioned ditch is a component of an *enceinte*, a barrier preventing access to and generally obscuring vision of a specific place. In addition to the three universal and unambiguous earthwork defensive features of V-sectioned ditches, defended gates, and bastions presented by Keeley et al. (2007),⁵ *enceintes* can also contain curtains formed from palisades, ramparts or walls to shield the defenders. However, in contrast to the three features, the primary function of these curtains may not have been defence (Keeley et al. 2007:57). They could serve to monitor channels for goods or people entering and exiting a space, block access to sacred areas or ensure the privacy of those within.

The few Palauan ditches that have been cross-sectioned reveal rounded and occasionally V-shaped bases. The Ngebars and Engol crown and ditch complexes provide examples of ditch forms, sizes, period of use and association with like archaeological features.

5 Neither defended gates nor bastions occur as earthworks in Palau.

Engol crown and ditch

Ditches partially enclose the low Engol crown in Melekeok (Kashko 2007:107–127; Welch 2002). The crown rises 3.5 m above the base of the infilled ditches. The surrounding gentle slopes do not appear to have been shaped into earthworks although 36 m from the hill a ditch bisects a north-east extending ridge. A 50 cm high berm crosses the centre of the levelled 750 m² summit.

The Engol crown descends sharply into the ditches on the south and west sides and a scarp on its north edge. To the north-east is the narrow ridge, while to the south-east the hill slopes gently into the forest below. The 4 m wide, 23 m long western ditch forms a T-shaped intersection with the 4.4 m wide, 19 m long southern ditch.

Stratigraphic trenches placed in the ditches reveal that both are triangular in cross-section and are 3–4 m deeper than the present eroded surface. When constructed, there would have been a c. 6–7 m ascent from the base of the ditches to the summit constituting an effective barrier to the top. Excavation also indicates the crown never supported a basin but was simply a levelled surface with a thin cultural deposit.

Three charcoal samples, two from the summit's cultural deposit and one from the infilling sediment layer in the ring-ditch, produced a combined radiocarbon date range of 1870–1330 cal. BP. The assays are almost identical to those indicating ditch use at Ngebars.

Ngebars crown and ditch

A variety of ditches were revealed in the imposing Ngebars earthwork complex in the interior of Ngermeduu Bay in Ngatpang during construction of the Compact Road, which sheared off the west edge of the complex's crown (Liston 2011:217–263) (Figures 7.6 and 7.7).⁶ The Ngebars complex is characterised by a series of high, wide step-terraces, capped by a 1600 m² crown that is connected to adjacent earthworks with modified ridges and a gully. The summit of Ngebars does not support knobs or an embankment and the road cut revealed it was never fashioned into a basin.

Figure 7.6. Section where the Compact Road has cut through east side of the Ngebars earthworks in Ngatpang.

Source: Jolie Liston.

⁶ The image shows the profile, which extends from halfway inside the tree line on the left side of the photograph, south across the crown, to halfway across the step-terrace beneath the crown on the right side of the photograph.

Figure 7.7. Profile of road cut through the Ngebars earthwork complex.

Source: Jolie Liston, adapted from Liston (2011:223, 258, Figures 32–34).

Road construction exposed five ditches over a 100 m span, only one of which was identifiable through variations in topography or vegetation prior to construction work. The complexity of interpreting earthwork landscape modification due to reconstruction events during the lengthy extent of their use and subsequent erosion is exemplified in the Ngebars profile.

Visible on the surface 30 m north of the crown is an 80 m long ditch bisecting the low ridge separating Ngebars from the Iksid earthworks to the north. The road cut exposed this ditch (Feature 1) as triangular in profile. The 2–3 m high banks of Feature 1 resulted in an original total ditch depth of c. 6 m, with a width of about 6–7 m. Closer to the crown, a semicircular-based ditch (Feature 2) was exposed in the inner margin of a deep step-terrace. Feature 2 is 10 m wide and had an original depth of at least 2.5 m, although if earth berms formed the feature's upper margins it could have been substantially deeper.

A ring-ditch (Feature 3) circling the base of the crown was only evident in profile. The north side of the ring-ditch (Feature 3a) occupies the entirety of what appears to be the second tier down from the crown and measures 8 m wide at the top and 5 m deep. The south side of the ring-ditch (Feature 3b) is at the base of the 7 m high crown and at the inner edge of a 9 m deep step-terrace that wraps around the west, north and south sides of the crown. Feature 3b is 8.0 m wide, tapering to 2.0 m wide at the base, and is cut 3.1 m deep into basal saprolite. There is no evidence of a berm as it appears to have eroded into the ditch. A burned *Pterocarpus indicus* post, interpreted as a component of a palisade, was revealed in the inner margin of the Feature 3b ditch.

As both Features 3a and 3b are actually on the same step-terrace, and Feature 3a is infilled with homogenous material, it appears the stepped nature of the upper reaches of the north side of the crown could result from partial collapse of the crown or a reconstruction event. Alternatively, Feature 3a and 3b could be two entirely separate ditches, a possibility suggested by the differing geometrics of the two profiles where Feature 3a is an asymmetric V and Feature 3b is semicircular in cross-section.

Feature 4/2 is a triangular ditch, or less likely a pit, placed in the inner edge of the summit's gradual slope to the south. The pit is 3.1 m wide at the top, tapering to 0.2 m wide at the base, and is 2.0 m deep. The ditch could have been the last line of defence to an earlier use of the hill, before Ngebars was fully shaped into a levelled and steep-sided crown.

Of the five ditches in the Ngebars profile, two are semicircular, two are triangular and one forms an asymmetric V in cross-section. All five ditches would impede access to the top of Ngebars. The three V-sectioned ditches form a certain ridge-cut (Feature 1), one side of the ring-ditch circling the crown (Feature 3a), and a ditch on the crown next to the summit (Feature 4/2). Ditch geometry and its placement in the landscape suggest the semicircular-based Feature 2 could have served as a water control feature as well as a barrier. The location of the semicircular ditch at the base of the crown and the presence of a palisade post embedded in its inner margin confirms that Feature 3b is primarily defensive.

The majority of the 14 dated charcoal samples from the Ngebars complex originate from redeposited strata (construction fill and erosional material) that of necessity must be interpreted from the perspective of landscape modification. The dates directly associated with the crown and ditches indicate crown use by at least 1900 cal. BP and last use of the ring-ditch by about 1300 cal. BP.

Type III complexes

Of the four morphological types of earthwork complexes identified, Type III complexes invariably contain an arrangement of ditches and a crown⁷ whose pattern is suggestive of a defensive function. Type III earthwork complexes are characterised by a ridgeline cut by a ditch whose physical focus is the crown capping the highest point on the ridge (Figure 7.2). It appears that not all capping crowns on Type III complexes contain basins and it remains uncertain whether the occasional associated stonework is a later repurposing of the complex (see Tuggle 2011:218–227).

Type III complexes are found as a simple ridge-cut and crown on a ridgeline (Figure 7.8) and as two subtypes identified by additional earthwork components in a specific pattern. In all cases, the sides of the ridge either fall steeply without any apparent modification or are shaped into high step-terraces. In Type IIIa complexes, transverse ditches are found at the base of each of a series of levelled areas ascending the ridge. The deepest ditches are those located on one or both sides of the small diameter crown, as in the massive Type IIIa Ngulitel complex in Ngaraard.

Figure 7.8. A Type III earthwork complex in Ngardmau.

Source: Jolie Liston.

⁷ Although all Type III complexes contain crowns and ditches, these features are also frequently found separate from Type III complexes.

A Type IIIb complex is characterised by one or two ditches bisecting the ridgeline leading to step-terraces with high risers. The ridge is capped by a slightly larger diameter crown than found in Type IIIa complexes. Perhaps already effectively blocked by the ridge-cuts and height of the step-terraces, the crown on a Type IIIb complex is generally not contained in a ring-ditch. Roisingang in Ngaraard and Ngerkelalk in Aimeliik are typical Type IIIb complexes (Figure 7.9).

Often dominating the surrounding landscape, Type III complexes are found at the inland borders and in the middle of earthwork districts. Although many of these complexes are now heavily forested, the crown's summit would have provided a clear 360-degree view, be prominently displayed to adjacent earthworks, and be seen by distant earthworks. The ditches, high step-terraces, steep ridge slopes and crown served a defensive function by blocking access into or out of areas.

Figure 7.9. Ngerkelalk, a Type IIIb complex with ridge-cuts and high step-terraces leading to a crown in Aimeliik.

Source: Jolie Liston.

Discussion

Ditches, crowns and Type III complexes are evaluated for their use as fortifications. Ditches, as individual features, are more limited in purpose than crowns or Type III complexes of which they are a component part. Defence is expressed in a ditch's capacity as a barrier to obstruct human movement and to demarcate space. Some ditch features were strictly or simultaneously water management features. Others may have been long-used trails eroded below the surrounding topography by centuries of use that assisted rather than impeded movement.

To ascertain whether ditches simultaneously or strictly served as defensive rather than water control features or paths entails examination of each feature within its spatial context, its geometric form and its association with curtains such as palisades or embankments. Examples of strictly defensive ditches include the ridge-cuts bisecting the ancient trail systems. Other potentially strictly defensive ditches include those bisecting the ridge crests in Type III complexes and circling the base of crowns. In both cases, ditches blocked access to the crown site and the complex to fortify the site.

The sheer angle and height of most crowns, and their enclosure within ring-ditches, palisades, and natural barriers, impedes access to the summit to create a confined ritual or social space (Osborne 1966; Phear 2007; Liston and Tuggle 2006). The crown's small surface area ensured limited use by a select few. Effectively isolated from the surrounding landscape, crowns were hence fortified sites, places meant to protect or symbolically emphasise specific activities, resources, high-ranking people or kin groups.

The elements of ditches bisecting a high ridge, significantly steep ridge slopes, high step-terraces and crowns are all meant to block entrance onto the surface of Type III complexes. Type III complexes are thus fortified, where the entire surface of the complex and the crown, rather than

just the crown, are being fortified. The practical functions of crowns and Type III complexes almost certainly revolve around identical concepts of power, ritual and use by high-status individuals.

Those crowns containing basins, berms and knobs functioned as a fortified stage for ritual cultivation and burial grounds for likely higher-status individuals (Liston 2014; Tuggle 2011). However, the basins and earth embellishments were not present throughout the crown's long use-life, indicating the crown's practical function changed through time.

As crown summits are too small to shelter a substantial number of people, they are not strictly 'hill forts' but they may have served as temporary residences for healers, priests or rulers to solidify their importance to the community. Or crowns may have been places of refuge (or asylum), sites that play a prominent part in ethnographic accounts of Palauan warfare and are understood by all parties to be havens from attack. Places of refuge on Palau are described as small places (e.g. stone platforms) that serve as a safe space for individuals in conflict or as a boundary (e.g. a stone weir) that one must cross to be protected from attack. The small size of these places of refuge in ethnographic accounts suggests that the small diameter crown summits could have functioned as places of refuge.

Reinforcing their defensive role, both as individual features and within Type III complexes, are the crowns' commanding views over great expanses of the island and lagoon and their strategic placement around the perimeter and within earthwork clusters. With a clear line of sight between them, many crowns could serve as sentry posts for guarding the immediate area from an encroaching enemy, or for alerting distant allies with smoke signal communications. Within an earthwork district, guards on crowns could oversee the population's resource production and other activities. On the seaward edge of the polity, retainers stationed on high earthworks might have monitored fishing and gathering activities on the lagoon and reef. This ensured elite control of the subsistence base as well as reminding the population of their work responsibilities, their subordinate role and elite hegemony. Surveillance is an effective mechanism to both enforce and express the power of the elite (Simpson 2009).

Crowns also contained symbolic significance related to power and ownership to legitimise claims of land and other resources and elite or group posturing to re-enforce chiefly rule. In this capacity, the crown may be a location the enemy would strive to capture for symbolic reasons.

Unravelling the nature of the distributional patterning of these fortified stages on the landscape, within earthwork districts and in relation to the later period stonework villages will lead to a greater understanding of the practical and symbolic role of warfare and competition through symbolic posturing in early Palau. Documentation of Palau's earthworks is in its infancy with identification of the initial four earthwork types a recent development.

Figure 7.10 illustrates the frequency and distribution of currently known crowns and Type III complexes in the Ngaraard Earthwork District.⁸ The 20 crowns are dispersed across the entire district with five Type III complexes found along the highest hills in the district's central ridgeline. The summit of the majority of the crowns shown is difficult to access through a combination of steep sides, height and encircling ditches or scarps. Crowns and Type III complexes in other earthwork districts display a very similar frequency and distributional patterning.

For now, there is no discernible direct spatial relationship between the fortified sites and the coastal stonework villages which appeared at roughly 1000 BP. In Figure 7.10, nucleated stonework villages and their associated wetland taro patches are densely interspersed along the sandy shoreline and behind the mangrove forests.

⁸ Ngaraard is the only earthwork district with enough comprehensive data to produce a reasonably accurate map. The majority of the landscape shown on the map is shaped into earthworks.

Figure 7.10. Documented crowns and Type III complexes in the Ngaraard Earthwork District.
Source: Jolie Liston.

Conclusion

Examination of crowns, ditches, and the combination of these components within a Type III complex to ascertain their primary practical purpose shows that only those ditches placed solely as barriers to impede access served a predominantly defensive function. Crowns and Type III complexes are fortified sites whose primary practical function was the activity requiring protection.

Those ditches placed to bisect ridge crests and circle the bases of crowns served a primarily defensive function. Other ditches were used for water management and likely trails, and some ditches were multifunctional, serving as barriers and water control features simultaneously. The very definition of a crown and a Type III complex is an incorporation of the defensive elements—steep ridgelines, high step-terraces, crown height and slope angle, ridge-cuts, ring-ditches—that created their fortification. The fortified sites had concurrent practical and symbolic functions, whose purposes evolved over the millennium of the Earthwork Era.

However, the primary practical function of crowns and Type III complexes was not defence but the activity that occurred on the exclusionary space of the complex and crown summit.

Identification of the mechanisms involved, the leadership employed, and the particular players participating in the development of the Earthwork Era's politicised landscape remains a significant research objective. Identifying and interpreting the sequence of transformations in the symbolic and practical functions of Palau's evolving engineered landscape requires a significant amount of additional archaeological investigation. Excavation will illuminate the nature and timing of the various specific activities that occurred on the fortified sites and the chronology of the construction and remodelling events. A thorough geospatial analysis will reveal the distributional patterning of fortified sites within and between the earthwork districts. This landscape perspective, in combination with radiocarbon assays, can assist in developing models of the evolution of leadership strategies in the Earthwork Era.

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