TRIANGULAR MEN ON ONE VERY LONG VOYAGE:
THE CONTEXT AND IMPLICATIONS OF A HAWAIIAN-STYLE PETROGLYPH SITE IN THE POLYNESIAN
KINGDOM OF TONGA

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Exploration and settlement of the far distant islands of the Polynesian triangle are feats of unmatched difficulty within the history of human settlement of the globe. Encompassing an area over 51 million sq. km, and substantial open water sailing distances between many of the islands, one must conclude the presence of a sophisticated maritime technology and well-honed navigational skills (Fig. 1). Despite this initial florescence and consequent assumptions, maritime interactions appear to have waned not long after. There is, for example, only limited archaeological evidence to indicate sustained contact between the ancestral homeland islands of West Polynesia in Tonga and Samoa and the different archipelagos of East Polynesia. The transfer of goods between East Polynesian archipelagos also declined abruptly after the mid-15th century AD with several island groups becoming isolated (Irwin 2006, Rolett 2002). This is most apparent in Hawai‘i and Easter Island where sailing canoes for long distance open-ocean voyages appear to be absent by the time of first European contact (Finney 2006: 144, Rolett 2002).

Data from a recently discovered petroglyph site at Houmale‘eia on Foa Island in the Ha‘apai Island Group of Tonga are provocative relative to the East/West Polynesian interface and a continued argument for extensive sea-going voyages in later prehistory. The Houmale‘eia motif suite has no developmental precedent in Tonga or West Polynesia. Rather, it is typical of Hawaiian rock art dating to the approximate interval AD 1400 to 1600. In the following paper we provide an account of this site, its motifs, and its comparative milieu. The site is further contextualised within traditional histories for Tonga and Hawai‘i, and implications for long distance voyaging between West and East Polynesia are examined.
Figure 1. Voyaging paths for the settlement of Polynesia based on Kirch (2000: 131). Inset map is of central and southern Tonga. Arrows indicate sites identified in text.
THE HOUMALE‘EIA PETROGLYPH SITE

The Houmale‘eia petroglyph site is situated on the northeast bay on the northernmost peninsula of land on Foa Island (Fig. 1). Houmale‘eia is the name given the area by local residents and translates roughly as point of land (houma) pushing or moving to one side (le‘ei) (Churchward 1959: 293), presumably in reference to the shifting sand along its beach. Foa Island is a raised coral limestone formation with a 15-19m maximum elevation occurring on its northern end. Relative sea levels for Foa were up to 1.8m higher than present at c. 900 BC when the first Lapita colonists settled the island (Dickinson, Burley and Shutler 1994). Stabilisation of land/sea relationships and development of the present day beachfront at Houmale‘eia is estimated by c. AD 1. The small bay in which the Houmale‘eia site is situated is protected on the windward side by fringing reef (Fig. 2). A cuspatel beach of coral sand covers the near shore reef surface. Beach rock also has formed over the eroded reef-flat in different areas along the shore and it forms the medium on which the petroglyph site was executed. Beach rock is a surface veneer of sand and other beach debris cemented by calcium carbonate precipitate (Crane

Figure 2. Houmale‘eia view to north. Upper petroglyph panel occurs on beach rock platform surface on left centre of photograph.
Figure 3. Houmale’eia site plan. Numbers identify outlier images illustrated in Figure 7.
1992: 60). Typically it incorporates bedding planes that, in later prehistory, facilitated its removal in blocks for use in tomb construction (Burley 1997). Three laminae surfaces are present in the beach rock of the Houmale’eia site. These tilt downward from shore to water and create a ramp merging with the reef platform (Figs 2 and 3). Houmale’eia site panels occur within tidal range and are completely submerged at high tide.

Burley (1992) conducted an archaeological survey on Foa Island in 1991, recording several sites associated with the late prehistoric Tongan chiefdom as well as a Polynesian Plainware ceramic period shell midden (c. AD 100-400) on the island’s north end. The petroglyph site was not documented, it likely being covered by coral sand at the time. Completely exposed tree root systems along the present shore inland of the site indicate recent removal and redeposition of the sand blanket by wave action. Exposure of the petroglyph panels is a consequence.

Figure 4. Houmale’eia western half of upper petroglyph panel, view to south. Photograph was taken at night with side-light shadowing.
The petroglyph site has two principal panels or image clusters with additional examples of outlier images (Fig. 3). Site images generally are oriented north/south with most facing the water. Beach stone is softened when wet and execution of surface grooves through abrasion was accomplished without the investment of substantial effort. Softness of the base material has led to surface erosion and many of the image grooves are now shallow, subtle and difficult to see in normal daylight. Further erosion is anticipated through the twice-daily wash of tide and coral sand. To document the site, image groupings were traced onto clear plastic sheets with indelible markers. Sheet orientations and locations were positioned on a base map. Side lighting with a battery powered torch, and night light photography further allowed image definition and transcription (Fig. 4). Traced images were re-mapped and scaled down in the laboratory both individually and as panel groups (Figs 5, 6 and 7). Overall the motif suite appears minimalistic but figurative and rigidly formal in stylised designs. This stylistic homogeneity speaks of a single or small group of artists working over a limited period of time.

Figure 5. Houmale‘eia upper (western) panel images.
The western upper panel is positioned on upper and intermediate beach rock layers (Figs 2, 3 and 5). Broken images on the inland edge of the beach rock and damage on the periphery of two large cupules indicate that portions of the panel are now destroyed. The panel incorporates upward of 40 images including 22 complete or partial anthropomorphs. The density and clustering of anthropomorphs seemingly document an event in which a group of people was aggregated. A bird motif and what may be a snare suggests the chiefly sport of pigeon snaring, an activity known to have occurred at a pigeon snaring mound approximately 100m to the northwest (Burley 1996). If the panel is taken as an integrated unit, however, other of the motifs are difficult to reconcile, including two open bodied turtles, a lizard, a fish with arms, a human foot in outline, a pair of feet intaglio, two cupules and a depiction of an exotic female form. The only apparent superposition of images is the fish with arms overlying the possible snare.
Figure 7. Houmale‘eia outlier images. Fig. 3 provides image locations.
The eastern panel occurs on the lowest exposed plane of beach rock (Figs 3 and 6). Panel imagery integrates ten dogs, three pairs of human feet in intaglio, a closed body turtle, possible clubs and three complete or partial anthropomorphs, with one of the latter possibly being a turtle/human transformation. The repetition and grouping of motifs again suggests the depiction of an event, though one hard to decipher. The clustering of dogs, clubs and a turtle could indicate the killing of a turtle with symbolic connotations in the human/turtle transformation image. Meaning, nevertheless, can be no more than speculation, and the panel could as easily constitute a series of unrelated depictions immersed in metaphorical symbolism.

The six outlier glyphs (Figs 3 and 7) include a human foot, isolated anthropomorphs to the south and west of the principal panels, and two anthropomorphs with associated abstract motifs to the east. One of the anthropomorphs is clearly a male with lengthened phallus. This image raises the question of gender identification based on the presence and characteristics of pecked dots between legs or at the body/leg intersection. In three cases the dot is cupule-size and potentially depicts a vulva, an interpretation sometimes offered in Hawaiian rock art studies (Lee and Stasack 1999). In most others, the dots could equally illustrate male or female genitalia.

THE CONTEXT FOR HOUMALE‘EIA (OR LACK THERE-OF) IN WEST POLYNESIAN ROCK ART

First settled by Lapita “peoples” (after Kirch 1997), Tonga, with Samoa, Futuna and ‘Uvea, formed an ancestral Polynesian homeland within which a Polynesian cultural template developed over the subsequent millennium or longer. By c. AD 500–600, the template was transported eastward as the remainder of Polynesia was populated (Kirch 2000). Kirch and Green (2001) provide an extensive reconstruction of ancestral Polynesian culture employing historical linguistics, comparative ethnography and available archaeological data. A discussion of rock art in any form is significantly absent. A general paucity of recorded rock art sites in West Polynesia creates this situation. The few existing sites also cannot be positioned or characterised within an ancestral framework for petroglyph origins in East Polynesia (Wilson 1998: 181-82).

As part of the Bayard Dominick expedition to Tonga in 1920 and 1921, Thomas W. McKern spent seven months carrying out a survey and recording the myriad of archaeological site types found throughout the length of the archipelago. While understating the rarity of rock art, he (1929: 78-80) reports two petroglyphic types. Numerically the most dominant type is a diagonal and parallel line design carved on facing stones in several of the chiefly tombs at Lapaha, the 13th through 19th century capital of the chiefdom (Fig. 8). To our
knowledge, this type of petroglyph is without comparative form in Oceanic rock art (Monnin and Sand 2004: 269-80, Wilson 2003), is exclusively related to tomb architecture and has an independent Tonga origin.

McKern’s other petroglyphic type occurs in a single site on the small island of Telekivava‘u and perhaps at another locale on Tonumea Island, both in the far south of the Ha‘apai Island Group. Although images were not illustrated, the Telekivava‘u site is specifically described as having figurative imagery, including a triangular body anthropomorph (McKern 1929: 78). A cadastral land surveyor, Larry Wordsworth, sketched the Telekivava‘u petroglyphs in 1957 (Wordsworth, per. comm. 2009). The site was situated on beach rock within the tidal zone and he was able to locate the images only after sunset employing a hurricane lamp for side-lighting. Later published by Palmer (1965), Wordsworth’s sketch depicts two anthropomorphic figures both identical to
anthropomorphs from Houmale'eia. (Fig. 9). An associated use of a cross with one of the Telekivava’u anthropomorphs is also replicated at Houmale'eia. The Houmale'eia and Telekivava’u artist(s) may be one and the same.

Numerous archaeological surveys throughout Tonga have been undertaken since McKern’s pioneering study, including systematic and intensive coverage of several of its widely dispersed islands (Burley 1998: 343-48); only one new rock art site has come to the fore. This occurred in 1991 when Burley (1994a) found an engraved foot on a facing stone in the royal tomb Mala’e Lahi on ‘Uiha Island in Ha’apai (Fig. 1). Also present at this tomb is a separate facing stone with the parallel line design reported by McKern. The foot was interpreted as an intentional marker symbolising the act of moemoe’i, an ultimate sign of chiefly respect in traditional Tongan society through the touching of a high chief’s soles (Gifford 1929: 118). Foot petroglyphs are known across Oceania (Monnin and Sand 2004: 267), but they are especially abundant on the island of Hawai’i (Lee and Stasack 1999: 186). They also are the third most abundant motif category at Houmale’eia. The act of moemoe’i may still be the intent for petroglyphic display of a foot at Mala’e Lahi, but the foot’s origins can be re-evaluated. Rather than a direct execution, it seems possible if not probable that the petroglyph had been cut into a beach

Figure 9. Telekivava’u petroglyph panel sketched by Larry Wordsworth in 1957. Scale and north orientation are unrecorded. Reproduced with permission of Larry Wordsworth.
rock surface that, later, was quarried for stone tomb construction. This type of quarry occurs in a number of locales in Ha‘apai, including one recently discovered to the front of the Houmale‘eia site.

The limited evidence for a rock art tradition in Tonga is mirrored in the archaeological record of Samoa and elsewhere in West Polynesia. In Samoa, petroglyph sites are reported only in American Samoa (Clark and Herdrick 1993, Kikuchi 1964, 1967). The largest of these is in the lagoon at Leone village on Tutuila. Although a small number of figurative images are present, the motif gallery is dominated by small cupules enclosed within a circle of cupules (Kikuchi 1964: 164). The use of enclosing cupules is also the case at a smaller site on Ta‘u Island. Samoan figurative glyphs include two possible octopus images at Leone, single examples of turtles at Leone and Faga‘itua as well as a single possible rectangular-bodied anthropomorph at Leone (Kikuchi 1964, 1967). Encircled cupules occur across Oceania, though they are profuse at the Pu‘uloa site on Hawai‘i Island (Lee and Stasack 1999: 186). None of the Samoan figurative images, with the exception of the closed outline form of a turtle at Faga‘itua, are comparable with Houmale‘eia. Petroglyph sites of any type are absent in both Futuna and ‘Uvea in West Polynesia.

CONTEXTUALISING HOUMALE‘EIA IN THE REALM OF HAWAIIAN ROCK ART IMAGERY

The relative poverty of rock art in West Polynesia and the apparent absence of a petroglyphic tradition in ancestral Polynesian culture emphasise the anomalous position of the images at Houmale‘eia in Tonga. As witnessed in Houmale‘eia motif replication, the imagery represents a well-developed, stylised figurative form where the artist clearly had a culturally patterned if not intentionally learned template of motifs. Many of the Houmale‘eia motif subjects broadly occur within other Oceanic regions from the Bismarck Archipelago in the west through East Polynesia. Notable here is the widespread appearance of anthropomorphs, cupules, footprints, turtles and the occasional lizard, dog or bird, some with roughly similar forms (Monnin and Sand 2004: 267-80). Melanesian island groups to the west, nevertheless include a great diversity of associated forms not present in Tonga. In stylistic variations, Houmale‘eia clearly relates to East Polynesia in general, but most specifically to the suite of petroglyphic motifs found in Hawai‘i. Indeed, the vast majority of Houmale‘eia motifs can be formally classified within a typological system designed for Hawaiian rock art by Lee and Stasack (1999) and the use of associated cupules and appendages as well as transformational and abstract images have distinct parallels in Hawai‘i (Fig. 10). This implies a discrete cultural knowledge.
Figure 10. Comparative forms for Houmale‘eia and Hawaiian anthropomorphs and other images. Hawaiian images are drawn out of context and presented without scale. They are meant only to illustrate homogeneity of style between Houmale‘eia and one aspect of Hawaiian rock art. a - bottle torso anthropomorph; b - anthropomorph with headdress; c - bottle torso form (Ka‘u); d - anthropomorph with headdress (Ka‘u); e - transformational image; f - open body turtle; g - transformational image (Ka‘u); h - open body turtle (Pua); i - anthropomorph surfing; j - anthropomorph with cross (Pu‘u); k - anthropomorph surfing (Lua); l - anthropomorph with cross; m - anthropomorph with bent legs; n - anthropomorph with bent legs (L&S); o - anthropomorph with bent legs (Pu‘u). Hawaiian site abbreviations Ka‘u = Ka‘ūpūlehu, Hawai‘i Island; Pua=Puakō, Hawai‘i Island; Lua=Luahiwa, Lanai; Pu‘u=Pu‘uloa, Hawai‘i Island; L&S = image form used to illustrate triangular open based anthropomorph type 11410 in Lee and Stasack (1999:176).
Anthropomorphs at Houmale’eia constitute the dominant category of motif. Some variation occurs in body form and degree of angle, leg/foot arrangement, arm position and head designation, yet all have a triangular torso with open base within the Lee and Stasack classificatory system. The triangular torso is a defining feature for mid-sequence Hawaiian anthropomorphs and it is believed to be virtually, if not completely, exclusive to Hawai‘i (Cox and Stasack 1970: 60-61, Lee and Stasack 1999: 10). In respect of this, several of the Houmale’eia anthropomorphs are indistinguishable from images presently recorded in Hawai‘i. Four have a bent knee configuration as found in Hawai‘i (Lee and Stasack 1999: 176) with one of these seemingly riding a surf board. Another has a Hawaiian-type feathered headdress that is present in two percent of Hawaiian triangular torso forms (Lee and Stasack 1999: 75, 190). Feet, both intaglio and in outline, are further paralleled in Hawai‘i. At Puakö on Hawai‘i Island, 201 foot prints are reported; Lee and Stasack (1999:16) described them as a “prominent” motif. Most are “fully pecked out”, some occur in outline form with “toes carefully delineated”, and some are present in pairs.

Faunal images at Houmale’eia are similarly close to Hawaiian types but, on their own, are less conclusive than the anthropomorphs. Turtles, for example, are minimally represented in Hawaiian rock art but include two dimensional outlines with both open and closed bases as occurs at Houmale’eia (Lee and Stasack 1999: 21, 35). Birds and lizards are even more rare than turtles but dogs are reasonably represented in petroglyph sites on the island of Lana‘i. Most of the Hawaiian dogs are stylistically varied from the dog images at Houmale’eia. Cox and Stasack (1970: 64) nevertheless illustrate a stick figure dog that, in its simplicity and curled tail, mirrors the Houmale’eia form.

Various other motifs at Houmale’eia equally could fall within a Hawaiian petroglyph panel and not be out of context or raise questions. The three images interpreted as clubs in the lower petroglyph panel, for example, bear striking resemblance to a poi pounder illustrated by Cox and Stasack (1970: 63). Even the possible pigeon snare motif of the upper panel could be interpreted alternatively as a kapu stick within a Hawaiian petroglyph context (Lee and Stasack 1999: 98). Kapu images symbolise sacredness or presence of a chief, perhaps that being the anthropomorph with headdress immediately to its side.

Of the imagery at Houmale’eia suggestive of Hawaiian cultural knowledge, a large figure in the northeast corner of the upper panel is worthy of note (Fig. 11). Initially the motif was referred to as “scary lady” for, within a flowing outline form, it incorporated appendages with three-pronged digits, a double crescent head and a vulva-like depiction at the base. These attributes are comparable in design to a female figure present at the Puakö site on the island of Hawai‘i (Cox and Stasack 1970: 50). There are two additional
features, however, that stand out—the larger scale for the image and an ovoid truncated by the body but extending across the left arm. The truncated ovoid, broad square shoulders, the three-pronged digits and size consequentially draw comparison to Lono figures in Hawai‘i (Cox and Stasack 1970: 34-35). Celebrated annually at the Makahiki festival, Lono is the Hawaiian god of fertility, peace and rebirth of the land (Sahlins 1985). Hays-Gilpin (2004: 163) asserts, “Lono and his wife renew the fertility of the land through intercourse”; a vulva depiction in this context may well be appropriate.

**CHRONOLOGY**

Contextualising the petroglyphs at Houmale‘eia within a Hawaiian rock art style has been straightforward. The absence of significant variation from Hawaiian motifs, and the implication thereof for implicit cultural knowledge, provides the strong possibility for their execution by a Hawaiian(s) in Tonga or a Tongan(s) who was well schooled in Hawaiian rock art form. Determining when this took place is of critical importance for its implications of pre-European interactions between Hawai‘i and Tonga, either directly or circuitously via other islands in East Polynesia. Direct dating of rock art by

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Figure 11. Female figure with Lono-like characteristics. Body outline grooves are computer enhanced.
radiocarbon or other measurement is fraught with problems and extremely limited in application (Bednarik 1996). At Houmāle‘eia where the site is scoured daily by sand and tidewater, it is impossible. Any estimate of age for the Houmāle‘eia petroglyphs, therefore, must be relative and largely dependent upon stylistic positioning within proposed rock art sequences for Hawai‘i.

Stylistic change and development of a relative chronology for anthropomorphic images has been an on-going concern in Hawaiian rock art since the 1960s (Cox and Stasack 1970). In part this has been accomplished through the recording of overlapping images, through patterns of intra-site spatial distribution, through comparative assessments of patina, through dating of lava flows on which rock art occurs, through dated stratigraphic associations with specific motif inventories, and through attempts to directly date images using AMS radiocarbon measurement (Lee and Stasack 1999: 11).

The consequence is a generally agreed upon sequence of stylistic transformation (Fig. 12). Arguing that petroglyph-making occurs shortly after first settlement in Hawai‘i, Lee and Stasack (1999: 11) outline the principal variations up to the historic era.

It appears certain that the first figure type for anthropomorphs was a linear archaic style called stick figure. Over time, the style for depicting a human form evolved in Hawai‘i, and a triangular-torso body type developed… (a stylistic evolution that did not happen in the Marquesas). The triangle figure may have appeared around AD 1400-1600.…

The next progression in figurative representation was the addition of muscles. Muscled figures clearly are later…. Some have all the extremities muscled; a few also have muscles shown across the chest…. Many exhibit very fine pecking and nuanced edges suggesting that skillful craftsmen were at work.
… the apparent final phase in petroglyph making was ‘copperplate’ lettering…. The source of this kind of lettering is obvious; it resembles the early printed material brought to the island by missionaries.

To the above summary, there are two important additions. The first is an open base triangular bodied anthropomorph illustrated by Cox and Stasack (1970: 60-61) as an intermediate type between stick figure images and closed triangular torso motifs (Fig. 12). The second is a sudden incorporation of European related images into Hawaiian rock art in late 18th and early 19th centuries (Lee and Stasack 1999, Millerstrom and Kirch 2004). Sailing ships, firearms, goats, horses, cows, cowboys, anchors and numerous other pictorials, along with copperplate lettering, vividly record contact and its impacts.

We have added the qualification of historic imagery to the Lee and Stasack description to emphasise an additional means by which Hawaiian petroglyphic panels are securely placed in time. This is important for, beginning in the last decade of the 1700s, Hawaiians were being engaged as seamen on European and American trading vessels throughout the Pacific. In fact, during the 1806 capture of the Port au Prince by the Tongan chief Finau ‘Ulukālala, no less than three “Sandwich Islanders” are documented in the immediate vicinity of Foa Island and Houmale‘eia (Martin 1991: 55-56). Since Hawaiian rock art persisted through this period, one might parsimoniously argue for Houmale‘eia as its product. Yet Hawaiian rock art by the early 19th century stylistically, figuratively and no doubt culturally was far removed from the imagery of Houmale‘eia.

Open based triangular anthropomorphic forms characterise the Houmale‘eia motif suite. These forms fall within the early part of a middle phase for Hawaiian rock art chronology, one subsequent to stick figure imagery but predating the widespread application of closed triangular and muscled bodied forms, the even later introduction of bas relief (Cox and Stasack 1970: 61), and the stated penchant for European representations. The approximate age of AD 1400-1600 given by Lee and Stasack for the emergence of the Hawaiian triangular torso type seems highly robust for Houmale‘eia.

A dated interval for Houmale‘eia in the 15th and 16th centuries AD brings it into a context and association with two other sites in the immediate vicinity which add to the richness of its place in a historical landscape. Most important is the pigeon-snaring mound Houmatala, a site situated approximately 100m to the northwest of the Houmale‘eia petroglyph panels (Burley 1992: 45-46). Pigeon snaring was a chiefly sport in which hunters were positioned on the top of large artificially constructed mounds employing small nets with “…a narrow opening affixed to the end of a rod about twelve feet in length” (Martin 1991: 380). Trained decoy pigeons on lines and pigeon calling by
the participants attracted wild birds to the locale. The aggregation of people, a bird flying overhead and the long pole with a net-like apparatus on its end depicted in the upper panel of Houmale‘eia seems not coincidental in these respects. Pigeon snaring mounds in Ha‘apai are dated to the mid 15th century AD; the sport was no longer practiced by the late 18th century (Burley 1996: 424). The second site is Api Matangi, a village-like settlement 80 to 100m inland and south of Houmale‘eia (Burley 1992: 47-51). The site incorporates a large chiefly bathing well, two élite tombs with beach slab rock retaining walls as well as other features. The tombs typically date between the 15th and 18th centuries AD in Ha‘apai, albeit the site has a much earlier origin (Burley 1994b: 396). The hamlet was abandoned before sustained European contact in the early 19th century and the traditional history of its chiefly line or its place within the later Tongan chiefdom is unknown.

**ON MARITIME CAPABILITIES AND THE PLAUSIBILITY OF HAWAIIAN/TONGAN INTERACTION BEFORE THE 17TH CENTURY**

We have argued that the petroglyphic panels at Houmale‘eia in Foa Island in the Ha‘apai Group of Tonga are foreign to West Polynesia and are identical in form and style to Hawaiian rock art dating to the interval AD 1400-1600. Stylistic homogeneity supports an argument for the site’s execution by a single or small number of related individuals within a limited period of time. An in-depth knowledge of the Hawaiian rock art motif inventory and its potential cultural context also appears present. A second petroglyphic panel in the small southern island of Telekivava‘u and a foot petroglyph on one of the facing stones for the royal tomb of Mala‘e Lahi in ‘Uiha are perhaps testimony of the mobility and societal acceptance of the artist(s). With Tonga 5,000 km to the southwest of Hawai‘i, the implications of Houmale‘eia for Hawaiian/Tongan interaction before European contact are substantial. It certainly raises the issues of long distance voyaging, maritime technologies and navigational capabilities in later prehistory as well as East/West Polynesian interactions and cultural exchange.

Tonga’s involvement in long distance voyaging and cultural engagement in the pre-European contact era is categorical. Tonga had developed an integrated Maritime Chiefdom by no later than the 13th century AD with widespread external contacts and periods of hegemonic expansion (Neich 2006: 230-33). Guiart (1963: 661) likens the Tongan polity to “un empire insular”, noting its extent and renown. Beyond Tonga’s borders, interaction or political control is well documented for Niue, Samoa, Tokelau, Lau, Futuna, ‘Uvea, Rotuma, Tuvalu, Vanuatu, Anuta and Tikopia (Burley 1998: 375). A record of these interactions can be found both in Tongan traditional history as well as those for the island groups with which interaction occurred. In
the extreme, such as the case of ‘Uvea, monumental architecture, the named landscape, political structures, linguistics and other aspects of culture attest directly to the intensity of engagement (Sand 1993).

Direct voyaging to Hawai‘i might be argued based solely on the nature of Tonga’s maritime tradition. Yet the question of Tonga’s maritime capacity in the AD 1400 to 1600 interval for return travel over a 5000km distance seems problematic. Tongan sea-going canoe technology through to the 17th century AD was the *tongiaki*, a vessel with “… two hulls of equal length, about 60-70 ft (18-21 m) long with the sides built up by planks stitched together with sennit, supporting a huge deck that carried a shelter for the passengers and a moveable fireplace” (Neich 2006: 231). Historic depictions of the *tongiaki* illustrate a two spar spritsail that, in a best case scenario, could sail to windward but with limited efficiency (Finney 2006: 152). Accordingly, then, the Tongan Maritime Chiefdom and its extensive record of interactions was largely to the north and northwest where southeast trade winds facilitated downwind outward voyages, and where distances of no more than 600 to 700km typify associated voyaging corridors. Return voyages required a much greater length of time and were largely accomplished by known and predictable wind reversals rather than cross wind sailing *per se* (Finney 2006: 152).

Hawaiian sailing canoes first encountered by European explorers were far more limited than those of Tonga, as noted in our introductory remarks. The principal voyaging vessel was the *wa’a kaulua*, a double hull construction outfitted with a crab claw variant of the spritsail. Rather than a sailing canoe as such, it was both sailed and paddled; paddlers were positioned in the dugout hulls giving them an additional ability to stroke inboard (Finney 2006: 144). The shallow draft and low riding gunwales raise obvious questions for open-ocean seaworthiness, despite Hornell’s (1936: 8) description of them as “good sea boats”. At the same time, Hawaiian oral traditions are replete with voyaging tales to and from Kahiki (Tahiti) with consequential impacts on Hawaiian society (Cachola-Abad 1993, Taonui 2006). At least limited archaeological evidence (Collerson and Weisler 2007, Kirch 1985) and linguistic data (Emory 1963) support these historical narratives for Tahitian contact. The *wa’a kaulua*, thus, is a modified variant of an earlier double hull canoe form that was capable of crossing the 2700km or more distance to Tahiti. Finney (2006: 143) estimates AD 1450 as the date when “La‘amaikahiki sailed back to his natal Tahiti to close the era of two-way voyaging between there and Hawai‘i”.

Rather than a direct Tonga to Hawai‘i crossing, or vice versa, we suggest indirect voyaging is a more probable context in which to explain Hawaiian/Tongan contact in the 15th or 16th century AD. Polynesian maritime technologies were capable of crossing distances beyond those
typically traversed in the Tongan Maritime Chiefdom, in spite of limitations for windward sailing. An understanding of westerly wind reversals and their predictability were critical in this respect (Finney 2006, Irwin 2006). Anderson et al. (2006) in fact attribute periods of voyaging intensity to El Niño southern oscillation events where the force of westerly winds and associated environmental conditions both stimulated and made possible long distance eastward travel. Using winter westerlies in July and August 1986, the experimental voyaging canoe Hokule’a was able to sail south and east from American Samoa to Aitutaki in the southern Cook Islands in a period of but 10 days while then taking 11 additional days to move through the southern Cook Islands to Tahiti (Finney 2006: 141).

The southern Cook Islands seem an attractive and probable waypoint through the East/West Polynesian boundary, respectively located 1200 and 1600km from Tahiti and Tonga. Archaeological and other evidence for East/West Polynesian interaction in this island group is thin, but revealing. For example, geochemical sourcing of adze blades and petrographic identification of ceramics suggest southern Cook Island engagement with both Samoa and Tonga in West Polynesia between the mid 13th and 15th centuries AD (Allen and Johnson 1997, Best et al. 1992, Walter and Dickinson 1989). Imported adze materials from various sources in the Society Islands equally position the southern Cook Islands into the Tahitian voyaging sphere, and traditional histories for Samoan and Tahitian voyaging to the Cook Islands provide further support (Allen and Johnson 1997).

The most informative documentary evidence for long distance voyaging and East/West Polynesian contact in prehistory come from Captain James Cook’s first visit to Tahiti in 1769. Engaging Tupaia, a Tahitian high priest navigator, Cook was informed of islands to the west some 10 to 12 days out requiring 30 days or more to return. He also was informed of westerly wind shifts in the summer, and of a “method of predicting the winds from the shifting curve of the Milky Way” (Salmond 2006: 261). Most importantly he provided Cook with positioning data and names for a widely dispersed range of islands across Polynesia with which he was familiar (see Di Piazza and Peartree 2007). Tupaia’s map identifies a number of the southern Cook Islands as might be expected given the above. It also, however, incorporates islands within Samoa and Tonga, importantly including ‘Uiha, the Ha’apai island south of Foa, in which the tomb Mala’e Lahi is located (Lewis 1994: 344-46). Salmond (2006: 262) states that Tupaia had visited 12 of the islands on his map personally, “including eight in the Society Islands, two in the Australs and two in the Tongan archipelago” (emphasis added). Tupaia’s chart does not include Hawai’i or other islands north of the Society group. In this, he was either ignorant or remiss in providing such knowledge to Cook.
Whether of direct or indirect voyaging, the implications of Houmale‘eia for East/West Polynesian voyaging in antiquity are substantive. Tupi‘a‘a’s map, scattered bits of archaeological data and a range of traditional histories are not only supported but given veracity within a cumulative context of evidence. Whether the nature of these interactions impacted or altered Polynesian culture history can only be speculated upon. Traditional histories in Tonga and Hawai‘i do speak of foreigners and their importance in reshaping political and social histories. In Hawai‘i, it was Pa‘ao, a high priest of Kahiki who introduced religious and political reform in the 15th century (Beckwith 1970). Pa‘ao was a navigator of repute whose voyages or even origins potentially involved Samoa. A foreigner, Lo‘au, similarly initiated redefinition of Tonga’s social and political landscape in the 12th and 15th centuries AD (Campbell 2001). Ka‘ili (2008) specifically identifies Lo‘au as Hawaiian.

The transformative stories of Pa‘ao and Lo‘au typically fall within anthropological constructs of the Polynesian “stranger king” (Sahlins 1985: 73-103). Rather than historical events, they are frequently interpreted as pan-Polynesian cosmological schemata through which change is rationalised. That conjunctures of historical reality and cosmology can occur in Oceania, nevertheless, are well attested (Sahlins 1985). A Hawaiian-style rock art site in Tonga in the pre-European era potentially bears witness to one such case. At the very least, it requires a serious reconsideration of long distance voyaging, East/West Polynesian interactions, cultural engagement and traditional seafaring narratives within the Polynesian triangle in later prehistory.

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