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Inspiration in the detail: documenting *upeti fala* and *upeti* at Canterbury Museum

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ABSTRACT

One wooden and four textile *siapo/tapa* design boards provenanced to Samoa, known as *upeti* and *upeti fala* respectively, from Canterbury Museum's collections are thoroughly described, documented and illustrated. Relevant literature is reviewed and evaluated against the findings of this material culture analysis. The implications of the new information about *upeti fala* and *upeti* are discussed and potential areas of new research are suggested.

KEYWORDS

upeti fala; *siapo*; *tapa*; barkcloth; Samoan textiles; gender; design tablets; Pacific design

INTRODUCTION

Amongst collections of Samoan material culture, design tablets called *upeti fala* remain largely undocumented. *Upeti fala* are made from layers of pandanus (*Pandanus sp.*) leaf strips to which raised elements of pandanus leaf, coconut (*Cocos nucifera*) fibre cordage (sennit), and coconut leaf riblets are sewn. Like their later wooden counterparts called *upeti*, they were once commonly used as templates in the decoration of barkcloth traditionally called *siapo* in Samoa. *Siapo* was made from the bark of the paper mulberry tree (*Broussoneta papyrifera*) and

is more widely recognised as *tapa* by non-Polynesian speakers.

Researchers have documented the manufacture, choice of materials, use of *upeti fala* and *upeti* and traditional techniques used to apply patterned decoration to *siapo* (Buck 1930; Kooijman 1972; Neich 1985; Mallon 2003). Buck (1930, p. 308) provided both a description and an explanation of a typical example of *upeti fala* manufacture. He argued that the raised design elements were stitched to a single layer of pandanus leaf, and when the decoration was completed this layer was then joined to another layer of pandanus leaf by stitching through the sennit cord elements of the design, commenting that:

The stitches of the pandanus strip therefore keep the leaves of the upper layer together while those of the cords bind both layers together (Buck 1930, p. 308).

Four different techniques used to apply decoration to *siapo* – stamping, painting, ruling and rubbing – have been documented in Samoa (Kooijman 1972). *Upeti fala* were used in the rubbing method. In the most frequently used method, overlapping strips of plain *siapo* were placed over the *upeti fala* and *loa* (or *o`a*), a red dye (from the juice of bishop wood, *Bischofia javanica*, bark) was rubbed into the sheets with a pad of bark cloth. The

raised designs on the *upeti fala* were embossed onto the *siapo* and the resulting patterns appeared on the upper surface against a lighter toned background which was only superficially coloured (see Buck 1930, pp 306-308, Kooijman 1972, pp 218-224, Neich 1985, pp 47-48). Simultaneously, the overlapping layers of *siapo* were glued together with arrowroot paste (*Tacco sp.*) to form a single sheet.

Observations have been made concerning changes through time in the design boards, techniques for applying decoration, and of the designs themselves. Painting and rubbing are thought to have been the most frequently employed techniques used to apply designs in Samoa (Neich and Pendergrast 1997, p.24). Buck (1930, p. 308) recorded that during the late 1920s both of these techniques were practised, and freehand painted designs were more popular (see Neich 1985, p. 50). By 1980, it was recorded that freehand *siapo* had almost disappeared but painting techniques were still used to embellish patterns made with wooden *upeti* (Neich 1985, pp 50-51). Most significantly, during this time period *upeti fala* were replaced by *upeti* made from wooden planks, a process which appears to have been relatively rapid. In the late 1920s, only a few *upeti fala* were observed still in use in Samoa, and by 1980 they had become completely obsolete and apparently long forgotten (Buck 1930, p. 308; Neich 1985, p. 51). The production of *siapo* itself and changes to the traditional naturalistic designs are argued to have also been influenced by European ideas, such as those stemming from the church and relating to the organisation of work, and introductions such as imported patterned textiles (see Mallon 2003, pp 64-73). From a gender perspective the switch from *upeti fala* to *upeti* is also significant for understanding change. While *upeti fala* are argued to have been customarily designed, made and used by women, *upeti* made from wooden planks had surface designs carved by men. However, Neich (1985, p. 51) argued that male designers replicated the earlier *siapo* motifs developed by women and created rudimentary designs, leaving large scope for infilling and over painting by women.

Despite these intriguing observations, there has not been any sufficiently detailed material culture analysis of the *upeti fala* and *upeti* themselves to allow comparative studies between collections, to determine temporal and regional provenance or to quantify technological or artistic change. Kooijman (1972, pp 218-221) did

provide a brief mention of *upeti fala* and *upeti* from the Rijksmuseum voor Volkenkunde (now Museum Volkenkunde) in Leiden and hinted that pandanus strips used as foundations for the designs could in fact form a pattern or base for influencing the overall design elements, but other research has clearly focussed on *tapa* itself – the end product – either through time, looking at contemporary revival, or considering details of the production sequence from particular regions or artists (see Mallon 2003, pp 68-71). The inadequacy of the analysis of *upeti fala* design and manufacture also complicates any systematic attempt to document and examine the impact of both the technological and social processes that occurred in Samoan *siapo* production during the late 19th and early 20th centuries.

By contrast with other traditional Polynesian technologies, sewing remains under researched (for comparison see Wallace 2006, p. 79 on Maori sewing). However, sewing is a key component in the manufacture of *upeti fala* and as such offers an important subject area for enquiry. Detailed descriptions of techniques used for the manufacture of *upeti fala* can be compared with other similar textile traditions through time and space.

Many questions also remain about the apparent gender transfer of responsibility for *siapo* designs that occurred as the manufacture of *upeti fala* declined. Can design changes be explained by a simple switch of raw material brought about by the availability of wooden boards and metal tools (see Buck 1930, p. 309)? Or was this connected with the changing roles of women in the organisation of work, as discussed by Mallon (2003, p. 71) which gave them less time for traditional arts as they engaged more in employment away from village and family? Or was this a result of pre-existing perspectives of gender roles in daily life? Is it possible at all to gain information about gender roles from *upeti fala* and *upeti* themselves?

Gaps in research can be attributed in part to an absence of evidence. *Upeti fala* are relatively uncommon compared with their more durable wooden counterparts (*upeti*). Being composed of fibre it is assumed they would have quickly deteriorated, a process exacerbated by their repeated rubbing when in use. It is therefore reasonable to assume that compared with *upeti*, *upeti fala* would have been discarded and replaced more frequently. This in turn would have provided greater opportunity to innovate with new stylistic designs,

thereby acting as an inherent driving stimulus and impetus for artistic change. In contrast, did the durability of wooden *upeti* in fact contribute to their reuse for a longer duration, and therefore result in the retention and replication of women's earlier designs by males as observed by Neich (1985, p. 51)? Did the arrival of *upeti* actually remove the previous dynamic elements of innovation from *siapo* design, rather than perpetuating them?

By utilising the collections at Canterbury Museum, this study addresses gaps in *siapo* research through detailed analysis of the construction and designs of four *upeti fala* (E97.5a, E97.5b, E166.401 and E138.361) and one wooden *upeti* (E138.362) securely provenanced to a period of considerable material cultural change in Samoa during the first half of the twentieth century (Table 1). An assessment is made of the rarity of *upeti fala* in other museum collections and possibilities for future avenues of research are proposed. While conclusive answers to the myriad of social questions relating to tradition, technology, resource exploitation, gender and change are not yet possible, the detailed documentation of the *siapo* design boards in Canterbury Museum will contribute to a greater understanding of these transformations. The potential for comparative research into the naming and use of designs between *siapo* and other design forms such as tatau (Samoan tattoo) and amongst Pacific sewing technologies is assessed. Comparison between the design boards themselves and also with the end product, *siapo*, is highlighted as an essential goal of future research. The intention is to provide stimulus for a research driven re-analysis and re-evaluation of *upeti fala* and *upeti* held in museum collections internationally.

UPETI FALA AND UPETI AT CANTERBURY MUSEUM

Canterbury Museum's collection of *upeti fala* and *upeti* (Table 1) are presented as a case study to provide a point of reference for the ongoing analysis of *siapo*. The temporal and spatial provenance of these objects is presented followed by a detailed discussion of their construction, use and design elements.

Provenance

Various editions of *Guide to the Collections in the Canterbury Museum* (Hutton 1895, 1900; Waite 1906) along with old card indexes, original accession ledgers and catalogue books held by Canterbury Museum are used in conjunction with knowledge of collectors to define the temporal and spatial provenance of the design boards. Table 1 summarises the provenance of the Canterbury Museum's Samoan *upeti fala* and *upeti* collection by providing known time periods and locations in which these objects were originally collected. Table 1 also demonstrates when and where these design boards were likely to have been manufactured and used.

E97.5a and E97.5b are the oldest *upeti fala* in the collection. They were originally accessioned as "*tapa* printing frames from Samoa" (Canterbury Museum Ethnology Register No. 1, p. 43) by Canterbury Museum on 11 February 1897, along with a wooden box (Tokelau), stick (Savai'i) and wooden fan (Samoa), donated by TB Curack-Smith Esq, His British Majesty's Consul, Apia. Confirmation of the accession date is provided by comparing editions of the *Guide to the Collections in the Canterbury Museum*. Both *upeti fala* are mentioned in later editions (Hutton 1900; Waite 1906) but not in the first edition (Hutton 1895).

Table 1. Provenance of *upeti fala* and *upeti* at Canterbury Museum 2011

Catalogue No.	Type	Collector	Time period	Location
E97.5a	<i>Upeti fala</i>	TB Curack-Smith Esq.	pre 1897	Apia, Savai'i
E97.5b	<i>Upeti fala</i>	TB Curack-Smith Esq.	pre 1897	Apia, Savai'i
E166.401	<i>Upeti fala</i>	Rev Colin Bleazard	1892-1901	Western Samoa
E138.361	<i>Upeti fala</i>	RS Duff	1935 -1937	Upolu
E138.362	<i>Upeti</i>	RS Duff	1935 -1937	Upolu

It can therefore be safely ascertained that these two *upeti fala* were collected from Apia on the island of Savai'i prior to 1900.

E166.401 possibly overlaps in age with E97.5a and E97.5b. It was accessioned by Canterbury Museum on 27 June 1966 as a:

Rubbing sheet of pandanus leaf and coconut mid-ribs and textile. Fragmentary and in poor condition. Used for tapa cloth designing and were stretched over rounded log base Upeti Lau fala (Canterbury Museum Ethnology Register No. 7, p. 311).

Records show that this *upeti fala* was part of a large collection of ethnographic material from Western Samoa (and also Fiji and Melanesia) presented by Miss Valasi Bleazard, which was collected by her father, Rev Colin Bleazard, a Methodist Missionary in Western Samoa from 1892 until 1901. Provenance of this collection can be confirmed from the records of the Western Australian Museum, Perth, to which, on 30 March 1903, Rev Bleazard himself gave a large collection of ethnographic items that he had collected in Western Samoa between 1892 and 1901 (Bolton and Specht 1985, pp 357-358). This gift, however, contains no *upeti fala*; these were presumably retained by Rev Bleazard and later handed to his daughter. The collection provenance of E166.401 can therefore be narrowed down to Western Samoa between 1892 and 1901.

E138.361 and E138.362 are the most recent design boards in the collection. They were accessioned by Canterbury Museum on 20 April 1938 by Roger Duff as part of a collection of ethnographic material chiefly from Samoa, but also from Tokelau, Niue and Fiji, collected by Duff himself (Canterbury Museum Ethnology Register No. 2, p. 43). Duff was appointed Ethnologist at Canterbury Museum and commenced to upgrade the Ethnology catalogues in January 1938 (Burrage 2002, pp 97, 99). The catalogue entry for E138.361 in Duff's writing reads:

flexible tapa stencil (Upeti) made from pandanus leaf, with ribs of coconut, Upolu (Canterbury Museum Ethnology Register No. 2, p. 43).

Between 1935 and 1937 Duff held a cadetship in the civil administration of Western Samoa with the New Zealand Government's Department of External Affairs. Canterbury Museum Archives hold a number of folders relating to Duff's activities in Samoa, containing lecture notes on Samoan customs and observations

about shortcomings of the New Zealand administration, but unfortunately no account of his field collections (Canterbury Museum Records Series 4/2). However, acknowledgement of his gift is recorded by the Director's report in the Museum's Annual Report (Falla 1938, p. 20). It can be assumed, then, that Duff collected these two design boards on the island of Upolu between 1935 and 1937.

Canterbury Museum's collection of design boards has a secure provenance spanning approximately forty-five years between 1892 and 1937. This encompasses the time period when bark cloth design boards made from pandanus leaf strips with applied designs were replaced by wooden boards with carved designs. Similarities and differences between late nineteenth century *upeti fala* (E97.5 a and b, E166.401) and the *upeti fala* and wooden *upeti* collected thirty years later will be examined in order to contribute further information to the resolution of questions about changes in the techniques used to apply decoration to *siapo*, and the design motifs themselves.

Manufacture

All of the *upeti fala* and the *upeti* discussed herein are rectangular in shape. The *upeti fala* are all manufactured in the same manner, by sewing together two layers of pandanus leaf strips to create upper and lower layers with well defined margins or borders. Attachment devices for connecting these flexible objects to *papa elei* (wooden platforms) to provide an anchor for the rubbing process are also present. The process of manufacture of *upeti fala* can be traced through analysis of the stitching, the construction of the body (both upper and lower layers), the back surface, and the attachment devices and borders. A detailed analysis of the only wooden *upeti* is also provided. It must be noted that *upeti fala* E166.401 is in a fragile condition, making handling, close inspection and identification very difficult, and as a result of deterioration some details are now obscure. Table 2 summarises the main characteristics of design boards while Figures 1-7 illustrate design elements through drawings, and manufacturing elements through photographs and a detailed section drawing.

Upeti fala sewing and stitching

Couching stitches, defined in embroidery as fixing a thread to a fabric by stitching it down flat with another

Table 2. Manufacturing details

Catalogue No.	E97.5a	E97.5b	E166.401	E138.361	E138.362
Dimensions	589 x 284 mm	775 x 440 mm	695 x 320 mm	1000 x 450 mm	799 x 286 x 18 mm
Attachment loops remaining	4	8 (originally 9)	unknown	8 (originally 9)	N/A
Lower layer	6 longitudinal	8 vertical	7 vertical	12 vertical	N/A
Lower layer strip width	45-55 mm	85-145 mm	65-115 mm	75-115 mm	N/A
Upper layer	14 vertical	4 longitudinal	2 longitudinal	4 longitudinal	N/A
Upper layer strip width	37-56 mm	85-110 mm	160 mm	80-140 mm	N/A
Stitching	white fibre thread (possibly <i>fau Hibiscus</i> sp.), two-ply plaited sennit, brown bast fibre (possibly <i>fau Hibiscus</i> sp.), two-ply sennit	brown bast fibre thread, two-ply plaited sennit, twisted double strands of fibre thread	single and double twisted bast fibre threads, two-ply plaited sennit (fragmentary), two-ply sennit cord	machine manufactured twisted white cotton string (two thicknesses), brown bast fibre and double twisted strands of sennit, two-ply sennit cord	N/A

thread, are used to join the main components of *upeti fala*. The layers of *upeti fala* E97.5a (Fig. 1) are sewn together around the margins with parallel rows of white fibre thread (possibly fau Hibiscus sp.) drawn in a continuous couching stitch. This same stitching also holds in place a raised two-ply plaited sennit decorative border that defines the margins of the upper design surface. Similarly, a continuous couching stitch through both layers of the base holds the border in

place on E97.5b (Fig. 2). However, in this *upeti fala* a single row of unidentified brown bast fibre thread is used. E166.401 (Fig. 3) is also sewn together around the margins, as well as along the centreline and through the design elements, with single and double twisted bast fibre threads, drawn in a continuous couching stitch through both layers of the base.

The youngest *upeti fala* E138.361 (Figs 4 and 5) is sewn together around the margins and along the

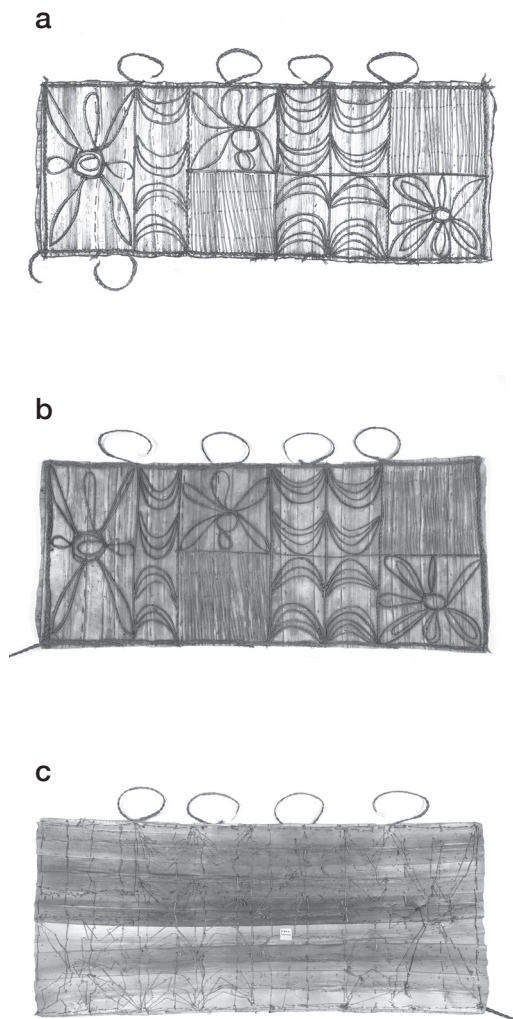


Figure 1. E97.5a, *upeti fala*, a – drawing; b – photograph of front; c – photograph of back

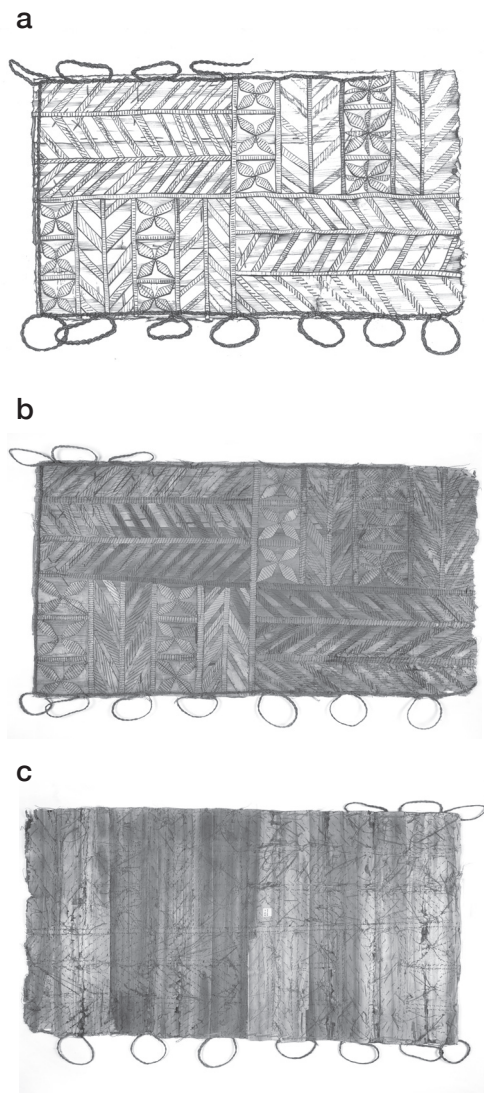


Figure 2. E97.5b, *upeti fala*, a – drawing; b – photograph of front; c – photograph of back

centre line with double, and sometimes triple, rows of European machine-manufactured twisted white cotton string, drawn in a continuous couching stitch through both layers of the base. Two different thicknesses of fine string have been used in construction, although this appears not to have any functional application. At several points around the margins an unidentified brown bast fibre and double twisted strands of sennit remain visible and appear to be the original threads holding the layers together, as the string stitching always overlies this traditional fibre. From the alignment of this stitching visible on the underside of the base, it also appears to hold in place the plaited sennit decorative border that defines the margins of the upper design surface.

Couching stitches are also used in the formation of the upper layer. In E97.5a the vertical strips are sewn together along each overlap with an unidentified brown bast fibre (possibly *fau Hibiscus* sp.) drawn in a continuous stitch through both the overlapping edges and the longitudinal lower strips. In E97.5b, where visible, two of the overlapped edges of strips have been sewn together with a brown bast thread, through both the overlapped edge and the lower layer. There is only one overlap in the upper layer strips on E166.401, and

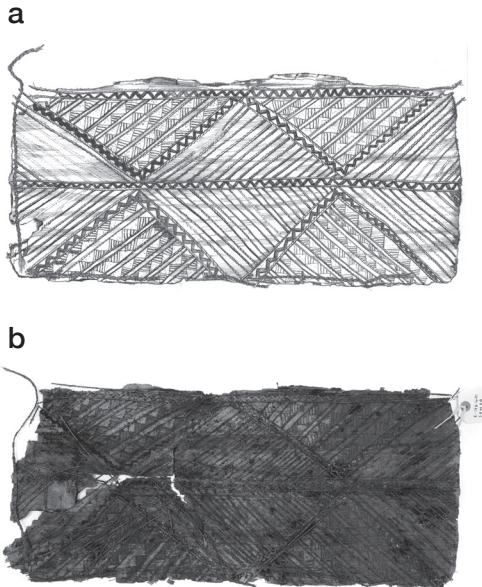


Figure 3. E166.401, *upeti fala*, a - drawing and b - photograph of front

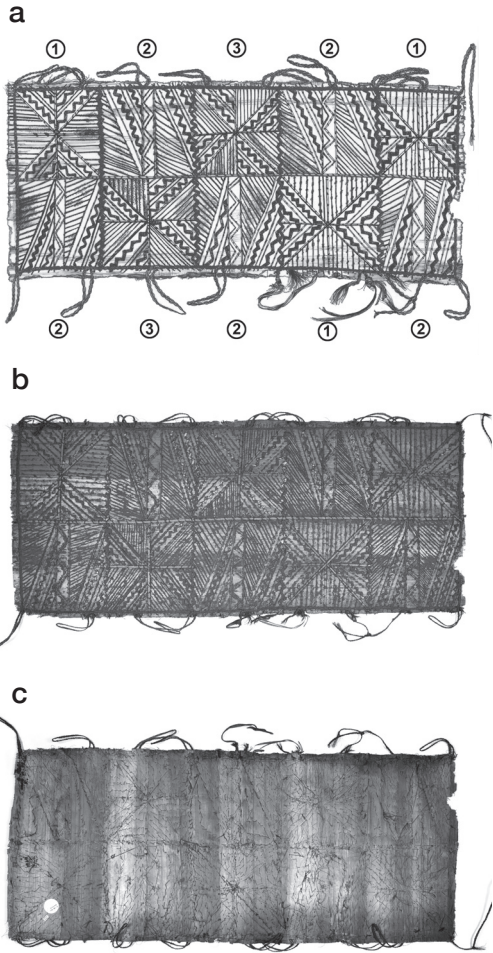


Figure 4. E138.361, *upeti fala*, a – drawing indicating Design One, Design Two, and Design Three; b – photograph of front; c – photograph of back

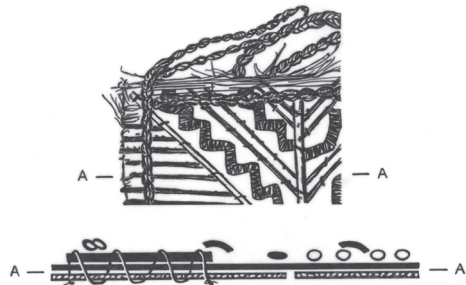


Figure 5. E138.361, *upeti fala*, enlarged schematic section through Design One showing construction

this is held in place with a row of couching stitches of bast fibre. Further details on the stitching used in the upper layer are discussed below.

Four different types of thread are used. Thin strips of unmodified bast were used on all the late nineteenth century examples (E97.5a, E9735b and E166.401) to secure overlapping edges and borders. On E97.5a an unidentified white thread of fine twisted or rolled fibres was used both to stitch the raised two-ply sennit border in place and as a design element itself. Sennit was used on all *upeti fala* both as single or double twisted threads of various thicknesses. Single threads were tightly coiled around the raised wooden design elements on two of the nineteenth century examples (E97.5a, E166.401, Fig. 6). The function was obviously to give texture to the wooden surface to facilitate the rubbing process. Double twisted threads were also deliberately used as exposed stitches on the same two *upeti fala* to enhance designs.

The back surfaces of *upeti fala* are clearly functionally different from the upper design surface but nevertheless reveal important additional details about sewing.

For example, the back surfaces of both E166.401 and E138.361 show that their lower layers are sewn together along each overlap with a few widely spaced couching stitches of unidentified brown bast fibre (Figs 3 and 4). This stitching is concealed on the upper surface beneath the raised design elements. In both E97.5a and E97.5b the stitches are roughly finished on the back surface with loose and tied-off ends, but they clearly reflect the distribution of patterns on the design surface (Figs 1 and 2).

Upeti fala lower layer

The numbers of pandanus strips used to manufacture the lower (or base) layer appear to correspond with the final dimensions of the design board. The smallest *upeti fala* E97.5a had the smallest strips by width, however the second smallest *upeti fala* E97.5b had one very large strip with a width of 145 mm while the rest were between 85 and 100 mm. Individual strips were overlapped to create the lower layer. Strips were most frequently laid out vertically on the lower layer, except for E97.5a where they were laid longitudinally.

Upeti fala upper layer

As per the lower layer, the wider the strips the fewer were used. The components of these design tablets, details

of sewing and design elements are all visible to certain degrees on the upper surface which forms the working surface of *upeti fala*. Stitching, while used to secure components together, is also used in the formation of design elements and at times is concealed so as not to influence the design.

In E97.5a the couching stitches which join together the upper layer strips are the only clearly visible stitches on the upper surface and appear as parallel lines of stitches at variable intervals. With all other stitching emerging onto the design surface, care has been taken to conceal them by incorporation into the raised design elements. The overlapping edges of the upper layer strips are difficult to distinguish in E97.5b and are mostly concealed beneath longitudinal design elements. Instances where the overlapped edges of strips are sewn together are randomly visible on the design surface, and some stitching appears to have been added during the application of the raised designs to tighten the construction. The proliferation of twisted double strands of fibre thread couching stitches used to attach the raised design elements to the design surface are placed in such a manner as to enhance the surface detail of the designs, and also function as the principal method of binding the two pandanus layers of the base together. The upper layer of E166.401 has two large longitudinal strips with a single overlap running approximately along the centre line of the design surface. The row of couching stitches which attach these strips together, as mentioned above, is held in place by bast fibre stitching that also secures the central raised design element formed of a folded zig-zag strip of pandanus leaf. In E138.361 the overlaps are clearly sewn in place with a couching stitch through both layers of the base. These are not visibly sewn together except where elements of the raised design correspond with the seams.

Upeti fala borders and attachment devices

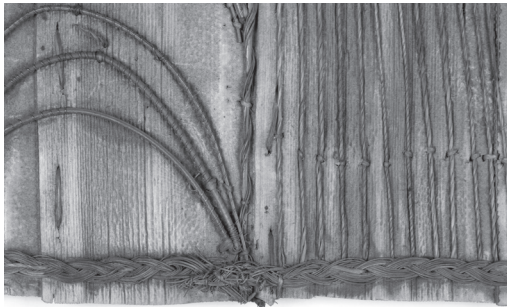
Individual *upeti fala* exhibit varying surviving evidence of their original borders comprised of two-ply plaited sennit and attachment devices in the form of loops. Like stitching, the raised borders were an integral component used to define design spaces, but would have also provided strength for the attachments and contributed to the structural integrity of the entire design board.

One edge of E97.5a has four loops formed from the continuous plaited sennit border, stitched in place with

white fibre thread at equal intervals along the length of the *upeti fala*. Evidence of a corresponding set along the opposite edge still remains. A tag of two-ply sennit stitched in place with white thread extending from the decorative border at one corner is evidence of a once longer coil traditionally laced through the loops to secure the *upeti fala* to the rubbing board.

In comparison, E97.5b has seven loops of two-ply plaited sennit remaining along the length of one edge. An eighth appears to have been present on the corner which is damaged. Three intact loops and evidence of three that have broken off remain on the opposite edge. These points of attachment are formed by looping the raised sennit border during its application, and held in place by several closely spaced couching stitches in the sequence holding the border in place. The border of E97.5b only remains intact along three edges. This border has been superimposed over the main raised relief designs, which continue under and slightly beyond to the end of the *upeti fala*.

a



b

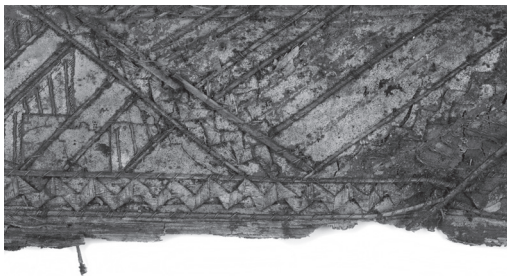


Figure 6. Close up photographs showing details of a - E97.5a and b - E166.401

a



b

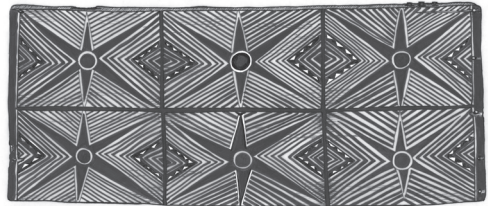


Figure 7. E138.362, *upeti*, drawings of a - surface 'a' and b - surface 'b'

The badly deteriorated E166.401 has no attachment loops now remaining, but a partially intact border of two-ply sennit fibre stitched along two margins with bast fibre probably once included folded loops as on other *upeti fala* in the collection. Similarly, the short tag of two-ply sennit cord extending from one corner was probably part of a much longer coil used to secure the *upeti fala* to a base board.

E138.361 now has eight loops of two-ply sennit cord evenly spaced along one edge. This would have had originally nine, as two adjacent loops that have broken in use have been roughly knotted together. There are eight loops along the opposing edge and a remnant tag of what would once have been a much longer cord for lashing both through the loops and the base board. These loops were also formed during the process of attaching the continuous two-ply sennit border to the design surface.

Manufacturing summary

From this close examination of *upeti fala* it is possible to begin to draw conclusions about the manufacturing process. Initially, each layer was sparingly sewn together along the edges of adjacent strips, then the two layers sewn together in the same manner around the vertical borders. On only two *upeti fala* (E97.5a and E97.5b)

is this stitching clearly visible anywhere on the upper design surface. On the remainder, care has been taken to distribute the stitches in such a manner as to be able to later conceal or incorporate them into the applied designs. This suggests that the intended design had already been conceived by the maker, and the various elements were deliberately spaced to conceal most of the regular overlaps.

The major structural integrity of the *upeti fala* comes from the numerous couching stitches used to apply the design elements. These stitches pass through or over each element and through both layers of the base. As seen on E166.401 and E138.361 the final step in the construction of all the *upeti fala* was the sewing in place of a continuous raised two-ply sennit border, superimposed over the margins of the other design elements. The borders incorporate evenly spaced loops along both longitudinal edges and a length of sennit cordage extended from one corner for attachment to a wooden base and also functioned to enclose the design surface of the *upeti fala*.

Upeti

E138.362 is a wooden *upeti*. The species has not yet been identified and therefore it is impossible to say whether it is a local indigenous timber or from an exotic imported source such as a piece of furniture. However, the presence along one edge of a row of three evenly spaced 'slot-head' iron screws eleven centimetres in from one corner and a series of three rust stained holes at the corresponding point at the other end of the same edge indicates that the *upeti* was recycled from a light wooden door, possibly from a cupboard. Both surfaces of the board are smooth, flat and level, indicating it has been machine gauged to size. A series of holes along either end

of the board suggest that decorative wooden mouldings may once have been attached across the top and bottom margins. There is no evidence of a latch or other fittings along the inner edge, but the remains of two iron nails, approximately three centimetres from either end may once have served as catches. The function of a sequence of four older rust stained nail or screw holes on the same edge is difficult to explain.

Use and repair

As summarised in Table 3 the Canterbury Museum examples of *upeti fala* and *upeti* show varying degrees of usage and wear. E 97.5a and 97.5b do not show any signs of having been used. The natural fibres in E138.361 were either used to temporarily hold the base pandanus layers together during the process of design application prior to strengthening the construction with string, or were reinforced with string when they perished in use. Of these explanations the addition of string as evidence for repair is preferred. This seems consistent with the observation that this *upeti fala* shows evidence of use from the presence of dye. One other *upeti fala*, E166.401, also shows a build up of dye and when considered in conjunction with its deteriorated condition it can reasonably be suggested that this object experienced a longer use-life as a design tablet.

A series of randomly distributed patches of surface damage, caused by either boring insects or dry rot on the *upeti* E138.362, occurred apparently while the board was in use. This may also be consistent with the raw material used having been recycled from an item of furniture. At some point a decision was made that the furniture was no longer required, or perhaps useful, for its original purpose and was instead more valuable in the process of *siapo* manufacture.

Table 3. Use, repair and condition

Catalogue No.	Type	Use	Repair	Condition
E97.5a	<i>Upeti fala</i>	unused	not observed	good
E97.5b	<i>Upeti fala</i>	unused	not observed	good
E166.401	<i>Upeti fala</i>	used	not observed	poor
E138.361	<i>Upeti fala</i>	used	addition of string	good
E138.362	<i>Upeti</i>	used - both surfaces	raw material recycled	old damage

Design

The characteristics of design elements are clearly influenced by the raw materials used and their orientation. With *upeti fala*, many of the features important for the structural integrity of the object are also integral to the design layout. Design surfaces consist of patterns of reoccurring motifs arranged within sequences of smaller, usually repetitive design panels. Unlike the *upeti fala*, the wooden *upeti* has design surfaces carved on both the front and back surfaces.

The surface area within the border of E97.5a (Fig. 1) is divided into ten rectangular panels by straight lengths of as yet unidentified sections of semi-circular cross-sectioned fibrous wood (probably coconut leaf mid-rib) coiled with strands of sennit. These dividers are sewn in place with a couching stitch of white thread passed through both layers of the base. Each panel contains a design motif. Three panels contain flowers with a central eye and radiating elongated petals formed by bending semi-circular sections of fibrous wood (probably coconut leaf mid-rib) decorated with coiled strands. Each flower is held in place at multiple points with white thread sewn through both layers of the base with a couching stitch. Five panels contain twelve crescent shapes radiating in opposite directions from the centre line of the *upeti fala*. Five of the crescents are composed of a cluster of three elements; six have four elements, and the remaining crescent five. One panel with crescents extends uninterrupted from margin to margin, while the remaining four have a central fibrous wooden divider coiled with fibre. The remaining two panels are square with slightly off-vertical parallel sets of twisted white threads (numbering 30 and 31 respectively) sewn with couching stitches through both layers of the base. In one panel each individual thread is held in place with two sets of couching stitches through both layers of the base; the other has three sets in the same configuration.

E97.5b (Fig. 2) is divided into four rectangular design panels by straight strips of pandanus leaf, sewn in place with closely spaced parallel lines of twisted double threads of sennit, that enhance the otherwise low-relief raised ridges formed by a single thickness of pandanus leaf. With only minor variations, the four panels comprise two with floral and two with rectangular designs placed in diagonally opposing configuration. The virtually identical rectangular designs have two long vertical bars of a single thickness of pandanus leaf

separating three rows of evenly spaced shorter bars (combinations of 12 and 13 units) alternately off-set so as to create a zig-zag pattern. The visible stitches on the surface of the bars are similarly aligned in alternating directions both between adjacent bars and adjacent rows. The intention is clearly to enhance the sense of movement across the design surface. The two floral panels have an identical basic layout, but have variations in design alignment and motifs. Each panel is divided into six vertical sub-panels, two of which have sequences of five and six off-set rectilinear bars. The remaining two sub-panels have sequences of two longitudinally aligned rectilinear bars separating a sequence of three flowers. On one panel, the paired off-set bars are all orientated in the direction of the centre line of the *upeti fala*, in the other the orientation alternates with one pair aligned towards the centre line and the other pair towards the border. The most striking variation is with the design of the flowers. Nine of the twelve are composed of sets of four lozenge shaped petals radiating from the centre of each square framed by the longitudinal bars. Each of the remaining three flowers has four extra irregular shaped secondary petals between the four main petals. Whether this is intended to be decorative or representational is not clear.

The design surface of E166.401 (Fig. 3) is divided in two along the centre line with a strip of folded zig-zag pandanus leaf flanked on either side by light wooden (possibly coconut leaf mid-rib) strips coiled with a single strand of fibre. The designs on each half are the same. A series of five design triangles on either half are separated by strips of folded pandanus flanked on either side by light wooden strips coiled with single strands of fibre. The two triangles on each side with their apexes towards the centre line are decorated with single-layered raised strips of pandanus leaf cut as repeating triangles. Each segment is held in place with closely spaced couching stitches of twisted double threads drawn through both layers of the base. The stitches enhance the contrast between the raised triangular designs and the exposed plain triangular shapes of the flat design surface. Each sequence of triangular patterns is separated from the next by a closely spaced parallel pair of raised light wooden ribs held in place with couching stitches of single sennit thread.

E138.361 (Fig. 4) is divided into ten square design panels. The design surface is divided into five

main vertical panels by four strips of pandanus leaf alternatively folded to create a zig-zag line. Each of these vertical panels is divided through the centre line with a longitudinal wooden (probably coconut leaf mid-rib) divider that extends the complete length of the *upeti fala* thereby creating ten square design sub-panels. Within the sub-panels of E138.361 there are three different designs, repeated five, three and two times respectively across the design surface. All of the design elements are sewn in place with a combination of twisted double sennit thread and cotton string running stitches drawn through both layers of the base. The three designs represented are intricate combinations of geometric, and linear patterns. In order to decipher and facilitate description of the patterns, similar discrete units were colour coded and the three different designs labelled Design One, Two and Three accordingly (Fig. 4a). This also clearly established their combinations and distribution across the design surface.

In Design One each of the three sub-panels is divided into eight triangles separated by three raised wooden (coconut rib) dividers that intersect at the mid point; two extending diagonally from the opposite corners and one vertically on the centre line of the square. Two pairs of opposed triangles have parallel lines of light wooden ribs sewn in place with twisted double sennit threads. The remaining two opposed pairs have alternating rows of light wooden ribs and folded zig-zag pandanus leaf aligned in pairs to the lines of the crossed diagonal dividers (see section drawing, Fig. 5).

In Design Two each of these five sub-panels has a layout of two larger vertical oblong units separated by a narrow oblong central unit, defined by raised wooden dividers. The design in the central unit is a parallel pair of raised wooden ribs sewn in a zig-zag formation. The larger units are separated diagonally into two pairs of triangular designs. Those triangles with their bases aligned along the centre line are decorated with parallel transverse ridges formed by a pair of twisted sennit threads. The pair of triangles with their apexes to the centre line are decorated with alternating rows of light wooden ribs and folded zig-zag pattern pandanus leaf strips laid in pairs parallel to the diagonal divider.

Design Three has the same basic layout mechanism as Design One. Each of the two sub-panels is divided into eight triangles by intersecting raised wooden dividers. The two basic designs, however are not in

adjacent matched pairs but alternate around the mid point between light wooden ribs. One enclosed design has alternating pairs of light wooden ribs separating lines of folded zig-zag pandanus leaf running parallel to the crossed diagonal dividers. The other has parallel rows of twisted pairs of sennit fibre running parallel to the angle of either a diagonal or vertical raised wooden divider.

The wooden *upeti* E138.362 has designs carved onto both front and back surfaces. Surface 'a' (Fig. 7) is carved with two (almost) identical designs. Most of the carving is about three millimetres deep, but parts of a central leaf motif have been carved to an approximate depth of seven millimetres. The two design panels terminate with an open V-shaped carved margin extending across the board surface approximately 18 mm from either end. The design panels are separated from each other at the mid-point of the board with a continuous solid bar formed by carving two parallel shallow V-shaped grooves across the board. Each of the square design panels is divided, with a similarly formed diagonal bar into two triangular design motifs, one a leaf pattern, the other a contrasting linear pattern, perhaps best described in European terms as 'herring-bone-like lines'. The leaf pattern motif appears most likely to be sprigs of three smooth edged elongated oval shaped leaves, with mid-ribs clearly visible. The background spaces between the leaves are decorated with sequences of parallel carved lines and triangles.

Surface 'b' (Fig. 7) is carved with six (almost) identical design panels. The panels are separated from each other along the centre line of the board by a continuous horizontal bar, and vertically with two equally spaced bars formed by carving two parallel shallow V-shaped grooves leaving a plain bar in between. All the decorative carving is a shallow V-shape between three and five millimetres deep, terminating without a defined border approximately three millimetres from either outer edge. The design panels at either end of the board terminate at a shallow carved groove across the board, leaving a plain margin approximately 18–20 mm wide at either end. The focal motif is a star shaped pattern with a circular centre and six radiating triangular arms. The triangular spaces between the radiating arms are decorated with two different design sequences. Those orientated towards the edges and the centre line of the *upeti*, are closely-spaced lines carved parallel to the adjacent diagonal arms of the star shape. The remaining triangular designs, whose bases rest against the outer

margins and vertical divisions of the design panels, have, in addition to closely spaced lines, a single row of triangles also carved parallel to the adjacent diagonal arms.

In summary, three *upeti fala* (E97.5a, E138.361 and E166.401) have raised wooden design elements used to form both motifs and borders of design panels. These three *upeti fala* (E97.5b, E138.361 and E166.401) and surface 'b' of *upeti* E138.362 are bisected along the centre line, the fourth (E97.5a) is bisected for two thirds of its length. Two of the *upeti fala* (E97.5a and b) and surface 'a' of the *upeti* (E138.362) are bisected transversely. The designs on either half of one *upeti fala* (E97.5b) and surface 'a' of the *upeti* (E138.362) are almost identical in reverse figuration. Both halves of *upeti fala* E97.5a have an innovative design layout incorporating variations of the same basic motifs. One *upeti fala* (E166.401) and surface 'b' of *upeti* E138.362 have co-ordinated 'matched' pairs of designs on either side. The remaining *upeti fala* (E138.361) has the greatest layout variation, with three repetitive designs unevenly distributed across ten panels, and five along each side. The similarity in size, construction and provenance between E97.5a and b suggests they were possibly made about the same time by the same artist. The wide variation in layout and design elements used confirms the range of individuality and originality that existed within works by a single artist. Whereas the designs on *upeti fala* are created through the addition of raised elements to the design surface, the designs on an *upeti* are created by carving into the surface.

COMPARATIVE RESEARCH POTENTIAL

There is considerable potential for future comparative research into other similarly provenanced collections of both design boards and *siapo*. The relative rarity of *upeti fala*, like other surviving collections of material culture, offers challenges for quantitative comparison but it must be remembered that their research potential also derives from their individual stories. Knowledge of other existing collections is provided and preliminary comparative observations are offered based on the examples available. Similarly, a discussion of issues involving the identification of individual design elements present on both *upeti fala* and other comparative expressions of Samoan cultural practice such as *tautu* is presented. Lastly, a review of the available literature on

Polynesian sewing technologies is discussed in the light of the evidence presented by the Canterbury Museum's collection of *upeti fala*.

Other museum collections and rarity

A scoping survey of international museums known to have Oceania collections was undertaken to establish the rarity of *upeti fala* and *upeti*. The collections of over sixty museums were explored online and, for clarity, direct contact was made in many cases with curatorial and collections staff. From this unsystematic survey the best estimate showed that there are approximately 17 other *upeti fala* and 35 *upeti* known in museum collections worldwide. Canterbury Museum appears to hold one of the largest and most securely provenanced collections of *upeti fala*. Another significant collection is cared for by the Museum Volkenkunde, Leiden (as reported by Kooijman 1972, pp 218-221). Other collections similar in size to Canterbury Museum's are held by the British Museum, London, the Pitt Rivers Museum, Oxford and the Bishop Museum, Hawai'i. In addition, 14 *upeti fala* and 24 *upeti* can be viewed in the "Museum" section of *Siapo.com* (accessed 13-09-2011). However, we have been unable to verify whether these are duplicates of the design boards already identified in other museum collections, or from private collections which we did not attempt to survey.

Although this survey cannot be considered as statistically accurate, and no doubt under-represents true numbers of Samoan design boards, it is indicative of rarity and highlights challenges for any future comparative research. Inconsistencies in terminology, provenance data and the identification of raw materials made positive identification problematic and at best sometimes only a probable presence or absence could be established. Unarguably, it seems that *upeti fala* are particularly rare, especially in relation to other types of Samoan material culture, due in part to their fragile nature and subsequent replacement by *upeti*. However, it also appears likely that further factors may have influenced the low ratio of *upeti fala* and *upeti* in relation to *siapo* represented in both museum collections and research outputs. Rarity may in part also be a consequence of the influence of once prevailing value judgements on museum collecting behaviours, where manufacturing tools, such as design boards, were seen as minor cultural adjuncts rather than as inseparable,

functional components integral to understanding the end products of traditional art forms such as *siapo*. The obvious bonus of such rarity is the theoretical possibility of eventually including the majority of known examples in comparative research.

As a result of our reliance upon online databases and images, any in depth comparative material culture analysis between Canterbury Museum's collections and those of other museums is difficult. At this point it is only possible to make preliminary and very general comparative observations with other collections of *upeti fala*. These indicate further variability beyond that observed in Canterbury Museum's collection, particularly relating to size, number of design panels, and types of motifs used. The variability in quality of images available made comments on stitching impossible, but the majority have visible remnants of dye indicating that some individual design boards have been used. In regards to *upeti*, the majority appear to have only single surfaces carved, although the Pitt Rivers Museum reported one "wooden block for printing designs on bark-cloth" from Samoa, collected before 1935 (Accession number 1954.9.209), which has four carved surfaces. One *upeti* was located that was reported to have had one surface carved in 1939 and the other much later in 1963, illustrating the potential for one object to have a long life of use (*Siapo.com*). More interestingly, this particular *upeti* was reported as being carved by a woman, Mary Jewett Pritchard, a celebrated Samoan artist and teacher (see Mallon 2003, p. 68).

The characteristic technical differences in composition between *upeti fala* and *upeti* design surfaces also create diagnostic impressions on the underside of those sheets of *siapo* rubbed over them. These are sufficiently distinctive from one and other to enable identification, in most cases, of which type of design board was used in the decoration of an individual piece of *siapo*. When a wooden *upeti* is rubbed, pressure is exerted against the board into which design patterns have been carved. The flat design elements register on the cloth as the coloured design figuration (shown in black in Figure 7), while the carved grooves (shown in white in Figure 7) remain as a plain uncoloured pattern. When an *upeti fala* is rubbed it is the raised, decorative surface elements that create the positive impression. The resulting imprint left by an *upeti fala* consequently tends to be more defined with crisper outlines and greater

areas left undecorated. By comparison, the impressions left by most *upeti* have wider positive patterns and therefore reduced uncoloured areas. Further material culture analysis of other collections of *upeti fala* and *upeti* establishes the potential to connect individual pieces of *siapo* with any individual surviving design boards actually used to decorate them.

Even broader comparative research on *tapa* and design board collections between island groups has potential for understanding cultural choices and changes. For example, evidence from Tonga contrasts with that presented by the Samoan examples explored here. Tongan women still use textile-based design boards called kupesi tui, some of which are designed by men. Kupesi tui are argued to have been proudly protected by women due to the opportunity for them to be manufactured quickly and therefore allow innovation with new designs (Lythberg 2010, pp 153-154).

Comparing designs

To date, at least 15 graphic *siapo* symbols have been described and named, but in practice identification of these designs is not straightforward (Pritchard 1984, pp 40-46). The source of the problem is the inherent artistic freedom in the application of these designs. While the abstract designs represent recognisable forms (eg nets, bristles, trochus shells, male pandanus flower, pandanus leaf, breadfruit leaf, birds, starfish, banana pod, rolled pandanus leaf, worms, centipedes), analysis is more complicated because individual artists appear always to have been free to improvise, modify, alter proportions, and group unlimited combinations of these symbols (Pritchard 1984, p. 40). However, it is this process of artistic innovation and originality which ensures an individual dynamic quality to the designs. Freehand over painting further complicates the interpretation of designs. In these circumstances, the best way to decipher the design figuration is by examining the underside of *siapo*.

This complicated process of identifying various designs can be illustrated by reference to the *upeti* in Canterbury Museum's collection. The linear pattern, described as herring-bone-like lines, observed in the *upeti* E138.362 could be interpreted following the conventions outlined by Pritchard (1984, p. 41), where patterns of small lines, *tusili'i* are described as being derived from common household items such as brooms

made from coconut leaf mid-ribs. However, in this particular case, there is no way of confirming that this is the intention of the artist. Similarly, it is not possible to confidently ascribe any particular species to the leaf patterns observed on *upeti* E138.362 on the basis of shape and structure of the leaves represented. Nor do they convincingly resemble any of the named examples illustrated in the literature (Pritchard 1984, p. 46). In like manner, representations of general conventions such as star motifs, examples of which also appear on *upeti* E138.362, according to Pritchard do not represent celestial bodies such as the sun and stars but are instead representations of starfish *fa`a`aveau* (Pritchard 1984, p. 40). Again it is difficult to determine exactly what the intention of the artist was. However, the remarkably rigid geometric conformity of the six motifs looks distinctly like the bright galactic stars of European iconography.

Pritchard (1984, pp 41-42) states that various triangular and diamond formations, common in Samoan art forms including *siapo*, tatau and wood carving, are abstract representations of trochus shells (*Trochus niloticus*) *fa`a ali`ao*. The wide variety of applications of triangular and diamond configurations, present both as elements of motifs and within design panels (see E97.5b, E138.361 and E138.362 surface 'a'), suggests that, in some instances at least, these shapes are employed simply for pragmatic design convenience and elsewhere they clearly represent other natural forms such as flower petals.

Many *siapo* designs also appear remarkably similar in composition and subject matter to those of tatau and it is reasonable to assume a similar artistic derivation. Like *siapo*, both male and female *tatau* designs include combinations of linear, geometric, and floral patterns. Like *siapo*, the surface decoration is divided into specific areas (back, front, thighs, pubic, navel), designs have an orthodox prescription, and there is considerable room for artistic expression in the decorative treatment within spaces. This involves remarkably similar processes of improvisation, innovation, and originality of symbol selection to those at work in *siapo* decoration. Many of the abstract tatau designs not only represent the same known natural objects and share the same indigenous names, but are rendered in almost identical shapes.

Some of the shared symbols include lines, pandanus leaves, male pandanus flower, trochus shell, net and starfish (for full discussion see Buck 1930, pp 641-658). While there is obviously a need for a much more

comprehensive comparative study of the relationship between *siapo* and tatau designs and nomenclature, the purpose here is to establish that there are at least some basic generic links connecting essentially male *tatau* and female *siapo* art forms.

Comparing sewing technology

To date there has been no comprehensive material culture study of traditional Polynesian sewing techniques and consequently our understanding of the temporal and geographic distribution and intended functional end-use purposes of sewing is correspondingly erratic. Only on Hawaii and Rapanui (Easter Island) has sewing been recorded as a method of joining objects made of *tapa* cloth (Kooijman 1972, pp 464-465), while design tablets made of leaf material sewn together are recorded from the Southern Lau Islands, Tonga and Samoa (Kooijman 1972, pp 219, 308, 363). Maori stitched garments have been comprehensively reviewed using Maori oral tradition, ethno-historical accounts and surviving archaeological and material cultural evidence (Wallace 2002, 2006). Another alternative approach to the study of Maori sewing analysed metric and non-metric variables of bone needles in lieu of the long since decayed archaeological fabrics (Carr et al. 2005, pp 1-9). *Upeti fala* clearly demonstrate that sewing was traditionally an important technological part of the wider Polynesian cultural tool-kit. The variety, complexity and competence of sewing in the construction of the *upeti fala* as observed throughout the Canterbury Museum collections provides impetus for further comparative studies of Polynesian sewing between types of material culture, through time, and across regions.

DISCUSSION: CONTINUITY AND CHANGE

The provenance associated with Canterbury Museum's collection enhances its potential contribution to ongoing analyses of *siapo* manufacture and design, and also to investigations relating to indigenous and external human impacts on continuity and change of Samoan material culture. Interpretations made in previous research, as presented in the introduction, can be reconsidered in the context of Canterbury Museum's collection of *upeti fala* and *upeti*.

Raised wooden design elements in E97.5a, E138.361 and E166.401 all appear to be the same light fibrous wood, probably coconut leaf mid-rib, but certainly not

bamboo as recorded by Kooijman (1972, p. 219). The need for reliable methods to identify raw materials is obvious, and future studies should attempt to locate and utilise scientific techniques for wood and fibre identification.

Kooijman's (1972, pp 218-221) observation that the pandanus strip foundations of *upeti fala* may influence the overall design elements is validated and can be expanded to include other raw materials and components. The designs on several *upeti fala* have been deliberately aligned so as to either obscure or incorporate construction components. The placement of stitches and addition of borders, as well as the initial orientation of pandanus strips, clearly contribute to both the structural integrity and design elements.

The construction technique documented for all the *upeti fala* described differs from that recorded by Buck (1930, p. 308). In all examples in the Canterbury Museum, the stitches used to apply the designs clearly pass through both layers of the body and are clearly deliberately intended to contribute to the structural integrity of the construction. The only stitches applied separately to the individual layers are those initially applied along the overlapping edges of the pandanus strips as a temporary measure to facilitate holding them together during the process of construction.

In 1930, Buck described the design material of a typical *upeti fala* as consisting of single thickness pandanus strips, fau (hibiscus) threads and two-ply twisted cords of sennit fibre (Buck 1930, p. 308). The analysis of the present collection demonstrates far wider and more varied and innovative uses of both pandanus leaf strips, at least four different types of thread, and extensive use of raised wooden ribs. Two *upeti fala* (E138.316, E166.401) have pandanus leaf strips folded into two layers to produce zig-zag lines and three *upeti fala* (E97.5a, E138.316, E166.401) have raised wooden design elements; two (E97.5a, E166.401) of these have wooden ribs coiled with sennit threads. The designs include floral, geometric and linear patterns in intricate repetitive arrangements. The folded pandanus, raised ribs and exposed alignments of stitching ensure the rubbing surface has textured, raised relief patterns that would produce clearly detailed design figuration, between distinct areas of lightly coloured background. There is clear evidence for variation in the combinations of design elements, artistic freedom and innovation,

and possible evidence for identifying individual artistic expressions.

In contrast to *upeti fala*, on the flat rubbing surfaces of the wooden *upeti* (E138.362, surface 'a' and 'b') the designs are executed with shallow carved pattern outlines that would produce bolder figuration and smaller areas of lightly coloured surface. Although the raw materials and techniques for applying designs to the different types of design board are vastly different, the design motifs themselves remain essentially the same. The range of floral, linear, rectangular and geometric patterns represented on *upeti fala* and *upeti* produced between the 1890s and 1930s is similar. The only likely impact of the different pattern figuration by the two types of design board represented in this collection appears to be a reduction of technical opportunities for freehand surface painting of primary detailed designs. This observation is based on the assumption that the decrease in uncoloured areas between design motifs produced by *upeti* would limit the scope for infilling. However there is still the same opportunity to over paint with darker dyes to embellish and introduce pattern.

This appears to be the point of Neich's (1980, p. 51) observation that, "the designs carved on wooden *upeti* are quite rudimentary, leaving plenty of scope for the women doing the freehand over painting to exercise their own imagination in filling in the design." This suggests that while the two types of design board co-existed, there was continuity in their designs which remained similar in detail, with the wooden *upeti* being modelled on the earlier *upeti fala*. Although there is variation, which is yet to be understood, carvers clearly attempted to retain the basic design conventions of *upeti fala*. It is hypothesised that because *upeti fala* would wear out and need to be replaced more frequently than wooden *upeti*, that this would have created greater opportunity for innovation, experimentation and individuality

Some repairs of *upeti fala* have been noted, but in each case these were undertaken in such a manner as to retain the original design. There is no evidence for the types of secondary alteration or modification to designs that have been recorded for *upeti*.

Although the process is clearly not yet fully understood, the greatest cultural impact of the decline in manufacture of *upeti fala* was undoubtedly the transfer of responsibility for the composition of the designs, the essence of the art form itself, from women to men (Neich

1985, p. 51). The possible connection between male tatau and female *siapo* symbols and conventions may also help explain both the continuity in layout and use of design elements between *upeti fala* made by women and the wooden *upeti* carved by men. Should further research demonstrate the validity of this connection it would have considerable relevance to the ongoing discussion about the impact of the gender transfer on *siapo* designs. Of course, the relationship between the social construction of gender and material culture is complex (see Conkey and Spector 1984; Nelson 1997) and already one *upeti* carved by a woman emphasises the importance of considering individual agency in understanding changing social roles and expectations.

CONCLUSION

This paper has demonstrated that the thorough descriptive analysis and documentation of *upeti fala* and *upeti* in museum collections results in significant contributions of re-discovered information. Such documentation is not intended for an academic audience alone, but also as a means of extending public access to museum collections. For the Samoan community, particularly contemporary *siapo* artists, it will offer another opportunity to review traditional practise, albeit from an alternative perspective (for example see Byrne et al. 2011, pp 4-5). The realisation that many of the more detailed elements of this study were in fact filling a void in the anthropological literature came as somewhat of a surprise. How could the detailed description of such significant elements of Samoan material culture have been largely overlooked by scholars for so long? With very limited relevant literature available for guidance, detailed material culture analysis resulted in a useful contribution towards a better understanding of provenance, process of manufacture, use, repair and creative design of *upeti fala* and *upeti*.

It is anticipated that the inclusion of the very detailed descriptive narrative and comprehensive illustrations might also offer something of a template for other scholars to follow, for without a corpus of such information the vital next step, undertaking wider comparative studies with other collections, will be virtually impossible. The most obvious first step towards this comparative research might, however, also prove to be one of the most difficult. As reported above, locating the whereabouts and obtaining the relevant

documentation of the widely dispersed collections of *upeti fala* and *upeti* might pose considerable logistical challenges. As is the nature of research, this analysis has raised some questions which must remain unanswered for the present. For instance, the limitations of the present sample made it difficult to offer well informed observations about wider issues such as continuity and change in Samoan cultural practice. Further, it is hoped that future research initiatives will venture beyond documentation. A more holistic comparative approach to material culture will be required to unravel the complex social, artistic and gender perspectives that must have emerged as *upeti* carved by men replaced *upeti fala* sewn by women. Two of the many ancillary areas appear to offer exciting research potential. The first would be a material culture analysis of sewing within the Polynesian cultural tool kit, and the second would be further analysis of the organic raw materials used in the manufacture of *upeti fala* and *upeti*.

Perhaps the single most significant conclusion of the present analysis is that it reveals the exceptional technical complexity, the extraordinary forethought and planning, and the diversity of individual artistic creativity manifest in each design board studied.

ACKNOWLEDGEMENTS

The authors would like to thank the following individuals and museums for their assistance: Natasha McKinney, British Museum; Jeremy Coote, Pitt Rivers Museum, University of Oxford. We are grateful for the services of Katie Wilson, Image Technician, Canterbury Museum, who took the photographs, Judith Street and Lisa Barbour for the drawings and Dayna Stiles for compiling the final figures. Thanks to the two referees for valuable and useful comments which improved the final text. Special thanks go to Doreen Fraser and Pauline Pease, Canterbury Museum, for willingly sharing their wisdom about stitches.

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