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## **MAORI CANOE-SAIL IN THE BRITISH MUSEUM**

by  
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Buck, P. H. (1931). Maori canoe-sail in the British Museum. *Journal of the Polynesian Society*, 40, 136-140.

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## ADDITIONAL NOTES.

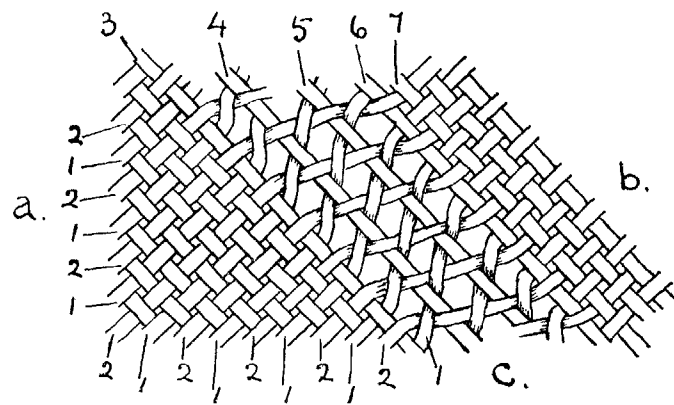
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 BY TE RANGI HIROA.  
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THE Maori canoe-sail in the British Museum was first figured by Edge-Partington (1, 3rd series, no. 162) who gave its dimensions. Hamilton (2) figured it later and added a sketch of a canoe with the sails in position. Hamilton's figure was reproduced by the author with a few general comments (3, p. 361). Elsdon Best (4, p. 187) also reproduced it in his exhaustive monograph on the Maori canoe, and added some remarks by W. H. Skinner, who examined the sail in London. Mr. Firth's paper now supplies the much-needed technical details that were lacking in the previous contributions. Mr. Firth was good enough to let me see his line-figures on the technique of the sail, and these few additional notes are offered to supplement his paper.

*The joins*—The sail is plaited in thirteen segments or *papa*, and the weft widths of ten, twelve, thirteen or so to the inch are fairly fine. The join between the segments appears to be what I have termed the *single join* from the Maori technical term of *hono tahi* (5, p. 722). In this join, the dextral and sinistral wefts for each additional segment are added on the same row and the cut-off ends of both sets form one short projecting fringe on the posterior surface of the sail, as shown in figs. 14 and 15. In the double join (*hono rua*), the dextrals are joined first in a separate row while the sinistrals are added in another row after the plaiting has proceeded for from 1 to 1.5 inches in depth, with the result that each join between two segments has two separate fringe-rows of cut-off weft-ends. I take it that Mr. Firth uses the term "double join" to denote that the butt ends of both new dextrals and sinistrals were doubled over and held by the subsequent plaiting-strokes. The Maori technique of doubling over the weft-ends to

render the join more secure differs from the general Polynesian join, which consists of simply laying the new wefts over the shortening old ones and continuing the plaiting with double wefts for a number of strokes. The ends are then cut off close to the edges of the last crossing-wefts and no fringes are formed. The difference in technique was probably necessitated by the nature of the material used, the stiff New Zealand flax and the softer Polynesian pandanus.

*The zigzag lines*—In my paper on plaiting (3, p. 361) it seemed obvious to me that the double zigzag lines on the sail were due to coloured wefts added in the same manner as in the *takapau* sleeping-mats. The true explanation, as given by Dr. Firth, shows the fallacy of general descriptions that are not checked by exact details. His description and the close-up photograph (fig. 15) show conclusively that no colour was used, but that the zigzag lines were produced by a change in technique which formed open work. In the plates reproduced of the full sail, the sail was photographed against a dark background, and the dark colour, showing through the openwork, gave the optical effect of coloured zigzag lines as shown in figs. 13 and 14. In fig. 15 the sail was photographed against a white background and the coloured lines are not present. The effect of the openwork technique is so deceiving that I have supplemented Dr. Firth's line-figures with an extra one. See figure.



*Technique of openwork zigzag lines*—The plaiting on the left (a) and the right (b) is in ordinary check, while the part between them bounded by the sinistral wefts, 3

and 6, shows the openwork technique (*c*). In plaiting terminology, the wefts that are inclined to the right are termed dextrals and those inclined to the left are termed sinistrals. In check technique, the dextral wefts that are being worked are divided into two sets of alternative wefts. In each movement, one set is raised while the other is recumbent. Into the shed so formed, the sinistral weft is placed. In the next movement, the two sets are reversed, which forms a shed for the next sinistral. The two sets of dextrals in the figure are marked 1 and 2 respectively. The check-plaiting proceeded normally until the sinistral 3 was laid in the shed. The raised set (2) was then dropped over the sinistral 3 and the recumbent set (1) raised on its far or right side. Instead, however, of continuing the ordinary technique, the raised wefts (1) are crossed over the now recumbent set (2). To do this, the angle of direction of both sets is changed to allow the crossing to take place. All the dextrals have hitherto had a normal angle of 45 degrees with the near border of the work. The raised wefts (1) are bent upward through another 45 degrees, which makes their direction approximately vertical, while the recumbent wefts (2) are bent downward for another 45 degrees so that they become approximately horizontal. Each raised weft (1) thus crosses over the recumbent weft (2) above it. The crossings having been made, the recumbent wefts (2) are raised and the next sinistral (4) is placed in the shed so formed. The now raised set (2) passes horizontally over the sinistral 4, while the recumbent set (1) passes vertically beneath it. On the right of the sinistral 4, the change of direction brings the vertical dextral wefts (1) from below in contact with the horizontal wefts (2) from above. Crossings are again made by raising the recumbent vertical wefts (1) and passing them over the horizontal wefts (2). The horizontal wefts which are now recumbent are raised to form a shed and the next sinistral (5) is placed in the shed. The raised horizontal wefts (2) are dropped over the sinistral (5), while on its right the now recumbent vertical wefts (1) are again raised and crossed over the horizontal wefts (2). This being done, the two sets of dextral wefts are bent back into their normal angle of 45 degrees, and so once more become parallel in their course. The now recumbent set (2) is raised to form

a shed, and the next sinistral (6) is placed in position. The raised set (2) is dropped over the sinistral (6) and the recumbent set (1) is raised to form a shed for the next sinistral (7) which re-establishes the normal check technique.

It is obvious that the change in direction of the working dextrals was necessary to permit of their crossing each other. The effect of the dextral crossings between the contiguous sinistrals, 3, 4, 5, and 6, was to push them apart and so increase the inter-weft space between the sinistrals. The wider inter-sinistral spaces combined with the crossing of the dextrals formed openings that are roughly six-sided.

In the figure, there are two spaced sinistrals (4, 5) in the open work. In some parts of the open zigzag lines three sinistrals are spaced. This is merely a continuation of the crossed dextral wefts beyond the sinistral 6, which would make the sinistral 7 the right marginal weft to restore the parallel direction of the dextral wefts.

*Sail-edge*—The doubling of the sail-edge over a cord and the sewing down of the edge with two rows of “stitching” as shown by Dr. Firth in fig. 4 is practically the same technique as in the Samoan sails (6, p. 411, fig. 252 *d*). The only difference is that the second row of stitching which fixes the turned-in edge of the plaiting is a simple tacking-stitch in the Samoan sail, while spaced overhand knots with a continuous cord is used in the Maori sail, the latter being the better technique. The method of including a cord in the doubled-over edge was probably a widespread Polynesian technique in full-sized sails which may be omitted in the smaller model-sails. It strengthens the sail-edge and prevents the loops which fasten the sail to the mast and sprits from tearing through the plaited material when strain is put on the sail.

*Feather-attachment*—The method of attaching the feathers in tufts by overhand knots on a running cord (figs. 7 and 9) finds some similarity in the Samoan method of attaching red feathers to the lower border of fine mats. In the Samoan method, the feathers are knotted on a single cord (6, p. 257, fig. 143) and this cord is stitched to the matting-edge with a separate cord.

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