

Relief is depicted on the maps of Tuhawaiki, Huruhuru and Rakiraki. Although it is likely that the hachuring is an addition by Europeans it could possibly have a Maori origin. Spink and Moodie report that the Eskimo used hachuring to depict relief. Maori maps, except for Tuki Tahua's, are practical guides, stylistically simple, with no fanciful elaboration. What is not known or not considered essential for the purpose of the map is omitted. No coloured Maori maps are known. The orientation of Tuki Tahua's and Halswell's maps appears to conform to the shape of the media, as the added directional arrow indicates. Maori cartographers were clearly not restricted by European cartographic conventions of scale, orientation and presentation and depicted very freely their conception of the environment.

The evidence suggests that geographical knowledge and map drawing were restricted to chiefs and tribal experts. All the recorded maps were drawn by men; Cook's map was drawn by chiefs, Tuki Tahua is described as a chief by Milligan, and Tuhawaiki, Huruhuru and Reko were clearly chiefs.

An extensive topographical nomenclature coupled with well developed memories enabled Maoris to construct a geographic reference framework into which topographical features could be fitted in relationship to each other. The accuracy of 'mental maps' and their transcriptions depend on the knowledge, intelligence, and drawing ability of the cartographer, and this can be seen in the examples illustrated. Whether the Maoris who transcribed their 'mental maps' had seen and been influenced by European maps cannot be answered conclusively. The chiefs in 1769 are reputed to have seen Cook and others on the *Endeavour* drawing maps and sketching, and others may well have observed European explorers and surveyors doing likewise. Tuki Tahua was familiar with European maps as Collins comments: 'Too-gee was not only very inquisitive respecting England, &c. (the situation of which, as well as that of New Zealand, Norfolk Island, and Port Jackson, he knew well how to find by means of a coloured chart)'.⁴⁹ Tuki Tahua had seen a world map, but whether it had an outline of New Zealand we do not know. By 1793 world maps showing Cook's outline of New Zealand were available and in regular use.

The conclusions of this essay are that ideal conditions existed in New Zealand for the evolution of the ability to conceptualise mental maps, and that despite the lack of evidence it is likely that such mental maps were transcribed on non-permanent media for the education of other Maoris before European contact. From 1769 to 1859 Maoris drew maps for European explorers and surveyors and played an important part in the early mapping of New Zealand by Europeans.