

Article for '*Contemporary Cartographer*'

***TE IKA A MAUI and TE WAI POUNAMU***  
**(North Island and South Island of New Zealand)**  
**Maps showing Maori names, relief and vegetation types**  
**circa 1840**

**Introduction**

A proposal emanating from the Conference on South Pacific Place Names hosted by the New Zealand Geographic Board in November 1990, was for a map wholly expressed in Maori. Always likely to win a favourable response, it went before the board at its first meeting in 1991 for consideration.

It was known that interesting draft maps showing Maori names for natural features representing the period at approximately 1840 had been compiled for a Centennial Atlas of New Zealand in 1940, but owing to lack of funds the atlas, planned for publication in 1941, was never completed.

The Geographic Board was keen to adopt the proposal and decided that sponsorship should be sought to fund the project. Discussions with the Historical Branch continued to formulate exactly what type of map might be published.

**Historical map or contemporary map?**

The proposal came down to one of two ways to proceed; a reprint of the Centennial Atlas map using compilation from 1940, or a contemporary map in Maori. Each one of these maps would fulfill a unique function; thus to attempt to combine the main purposes of each would have compromised the functions of a pre European map on the one hand, and a contemporary map all in Maori on the other.

Utilising the work that had already been started over 50 years ago seemed the logical choice, so it was the historical map that was given priority. It was also very much in keeping with at least one of the board's functions; that of collecting original Maori place names and recording them on maps. Furthermore, the United Nations was to dedicate 1993 as the International Year of the World's Indigenous Peoples, and the publishing date of the map was likely to coincide.

## **Map design and funding**

It was indeed fortunate that along with a set of compilation maps prepared for the Centennial Atlas, lists of place names and meanings complementing the maps had survived. These lists had been compiled at the time by Sir Apirana Ngata, and other scholars, and had been kept in the archives of the Turnbull Library. The two compilation maps were at a scale of 1:1 000 000, so it was decided to adopt this scale for the new maps; a North Island map, and a South Island map.

The board agreed that a principle proposed at the South Pacific Place Names Conference should be adopted for these maps. This principle stated that Maori place names would show macrons, (a simple diacritic over stressed vowels), and words would be divided into syllables to indicate correct pronunciation. Mrs Te Aue Davis, a noted Maori place names expert, who had worked with the board during the preparation of their 1990 book publication, *Place Names of the Ancestors, A Maori Oral History Atlas*, was contracted to coordinate the collection of extra names for the maps.

The board also agreed that the maps should show significant Pa\* and kianga\* sites of the period to indicate the major areas of Maori settlement. Lists of these sites were also compiled for the Centennial Atlas.

Map design concepts were left to the Department of Survey and Land Information cartographer's to develop, before cost estimates could be prepared. The emphasis of the maps in their original form had been on the place names. The compilations were monochrome prints showing coast and limited hydrography, and the names.

There was be room surrounding the maps to include some uniquely designed art work appropriate for the theme of the maps. Noted Maori artist, Cliff Whiting was contracted to produce drawings that he felt were appropriate for the maps. The cartography would include relief and indicate the extent of the forests and other vegetation types of the period. The South Island would have an inset of the Chatham Islands which had also been occupied by Maori in 1840. At the conclusion of the design and estimate stage, a booklet was produced outlining the project and including a small sample of the way we believed the maps would look. This was distributed to potential sponsors and when funding was eventually secured, production in earnest proceeded.

## **PRODUCTION CARTOGRAPHY**

### **Base maps**

To start with, adopting existing drawings of maps at the right scale was easy. However before accepting digital film outputs, modifications were required to the coast and hydrography. In a number of places, nature had altered shapes since 1840. Old maps and charts were inspected to see where the topography was different. Notable examples were Lake Tarawera before the eruption of 1886, and the Ahuriri Lagoon and Hawke's Bay coastline before the big earthquake of 1931.

Other changes that were made included the mouths of several rivers which have been straightened or diverted, swamps which had to be added where they have since been drained, and perhaps the biggest changes were to rivers that have since undergone major changes for hydro electric or irrigation schemes. Several man made lakes and canals had to be removed from the current map bases. Once corrected for the period, the digital bases together with one degree graticules were plotted out, generating the bases for the new, (old) maps.

### **Ground cover and relief**

From the outset, we had wanted to try a different approach to traditional full colour reproduction. Inevitably, thematic colour and relief shading conspire against each other; the density of tones making names and other detail hard to read if either is not toned right down. We wanted to try to print the land cover tints with the relief so one enhanced the other. Attempting this in process colours seemed to be asking for trouble as the screen densities and angles became very complicated.

The range of land cover themes was limited to swamps, sand and gravel, scrub and fernland, lowland tussock, forest, high altitude grassland and scrub, and alpine barrens.

We produced several drawings using coloured pencils and squeakers to mimic PMS colours in an attempt to gain the desired colour and relief balance.

When we were satisfied, a flow chart of production was prepared.

Compilation of the vegetation cover for the period was based on maps that had been prepared for the Descriptive Atlas of New Zealand, first published in 1959. The categories we wanted to show however, were somewhat fewer and simpler. We preferred for example to group all forest types into one. The atlas showed the pre European vegetation at a scale smaller than 1: 1 000 000, so after initially plotting these onto new map bases, they were referred to Land Care Research NZ in Lincoln where refinements in the retrospective delineation were built in relative to the drawings in the Descriptive Atlas, and appropriate for the scale of the new maps.

The plotting of the boundaries of the vegetation and the drawing of the infill layers was then completed using *Microstation* software. Relief shading was adopted from existing 1:1 000 000 scale drawings; the half tones being redeployed after duplicating with minor changes we had made on the bases.

The intermix of layer colour and relief required careful screen and colour specifications. From the outset, we wanted to process the relief through the layer colours; i.e. through each layer mask, so that the individual colours would vary in strength along with the relief half tone. Increasingly, the department's cartographers have turned to process colours in the design of their maps. The colours we wanted to adopt to represent the vegetation types would have needed two or three primaries to make each one of them up. The relief half tone would then have been used to with each primary with carefully selected screen angles.

By adopting a PMS colour for each land cover layer, there were no overlaying screens, and the relief could easily be processed with each instead of being an extra overlaying screen tint. Thus the relief and layers complimented each other. The only limiting factor was that in the processing of the layers through the half tone relief, the layer colours would vary in strength by the same variation range as that of the relief itself, (normally from about 5% to 95%). This would have burnt out most of the colour on the highlighted slopes. The half tones, therefore were processed again to increase the size of the highlight dot to about 10%.

Trial proofs on small sample extracts showed that the relief still lacked impact. To improve the effect of the relief, it was decided to print it separately as well as via the layers, in a very weak blue. To achieve this, the original half tones were again processed via a flat 30% screen. This was then combined with the blue plate. The result was a faint relief with a maximum dot of about 25% in dark areas, but no more than a residual dot in the highlights. Further experiments proved that this was not going to be too much to upset the various thematic layer tints, nor indeed the legibility of the solid blue hydrographic nomenclature yet to be applied. The alpine barrens are areas of severe climate above the forest and scrub line in the mountains, and are at about 1300 metres above sea level around Mt. Ruapehu, and about 500 metres above sea level in the south of the South Island. For these areas, we allocated no layer colour. By leaving these *tops* uncoloured, the only tint visible would be the light blue relief alone. The resultant effect gives the appearance of snow.

### **Typing up the names / setting the index**

The original set of names from the 1940 compilation, together with newly researched names that Te Aue Davis brought forward and others researched by

board members were all carefully added to a compilation prints of our new base maps adjacent to their respective physical features, Pa and Kianga sites.

Typing up the names was by traditional stripping film assembly. To facilitate a once only typesetting exercise, the required names were hand listed from the compilation maps, giving each a reference code after the graticule was allocated alpha-numeric references for indexing. The resultant typesetting was carried out in *Pagemaker*. Applying the names to the maps was one of the last exercises, as these were generated from the *Pagemaker* file direct onto stripping film. Before going to stripping film, prints of all the names were output by feature type so that font style and size could be specified for finished map application.

In this way, the index set the names for the map, rather than the other way round. Furthermore, because alpha-numeric references were already associated with each name, the names were easier to relocate on the finished drawings.

The index was assembled up on the backs of each map; (approximately 600 names per map). Each place name shown alphabetically, has a brief meaning adjacent to it, and a common name found on maps today, and an alpha numeric map reference. In many cases the original name and the common name are the same. Pa sites are listed separately from other features.

The backs of the maps are printed in dark brown.

### **Other design elements**

Because the maps were not being printing in process colours, Cliff Whiting's artwork had to be pre separated. Cliff completed each of his exquisite taniwha's (monsters), with three drawings on foil for each, and was happy for us to choose what colours to reproduce them. The shading on each and the colour infills then were completed while the cartography proceeded.

A fictitious piece of country showing all features was chosen for the reference panel instead of the traditional boxes of colour etc; labels for which were arrowed in.

Finally artwork was prepared for an illustration in one colour for the back of the maps under the index. It is a piece of fictitious landscape showing a selection of features over which we labeled, in Maori, all the generic names associated with these features.

## **Final check and printing**

When board members were confronted with the proofs, they naturally found gaps in place name information, necessitating some last minute research. Apart from the additional names, some offshore fishing grounds of importance to the South Island Ngai Tahu Maori were also added. This called for another symbol to be designed; a Maori fish hook fashioned from whale bone being chosen as typical.

By the time the maps were ready to print, 1993 had passed, and although the United Nations Year was still considered relevant, launching the product in 1995 was an added bonus as this had been chosen as Maori Language Year.

Not designed to fold, the maps were printed on a saturn matt art paper of 170 gsm. and launched with fanfare. Many contributors, the Cabinet Minister and the media were present.

## **Summary**

The Geographic Board considers the maps to be a great success. How far they go in preserving original Maori names is a product of their scale to some extent, and the time frame in which they were produced. The maps should never be seen as complete, nor indeed as necessarily beyond challenge. The board would prefer to see these important maps as a stepping stone in a continuous process.

While the gathering of names, both in current use as well as historic, is an ongoing exercise of the Department of Survey and Land Information for the Geographic Board, it is projects such as these that focus our attention and give us a goal. It remains therefore as a potential for the future; that publishing more maps at larger scale and in more detail; even the current day map all in Maori remains as a potential.

\* *Pa is a fortified village*

\* *Kianga is any other settlement*