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LATE QUATERNARY POLLEN STRATIGRAPHY,
GEOLOGY AND SOILS OF AN AREA NEAR GREYTOWN.

A thesis presented in partial fulfilment of
the requirements for the Degree of
Master of Science at
Massey University.

JOANNA OLIVE TOMPKINS.

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ABSTRACT.

In the southern Wairarapa Valley there are extensive gravel fans, built by the Tauherenikau, Waiohine, and Waingawa Rivers. The fans form the Waiohine Surface which is lapped by a complex of Holocene fluvial, lacustrine and estuarine deposits. At the toe of the fans, peat deposits have accumulated over early Holocene sediments.

This study involved;

- a) detailed mapping of the Quaternary deposits and soils and,
- b) analysis of pollen stratigraphy from continuous peat deposits in an area south of Greytown, in order to establish the Late Quaternary vegetative and environmental changes in the area.

Detailed mapping showed that the c.6,000 years B.P. Holocene high sea level did not encroach the area as was previously believed. After the formation of the Waiohine Surface c.10,000 years B.P., the Waiohine and possibly Tauherenikau Rivers infilled the area with aggradational gravels and sands. At c.8,500 years B.P. these river systems left the area and, peat deposits began accumulating soon after.

The pollen spectrum, dated from c.8,500 years B.P. at the base, to c.5,500 years B.P. at the surface showed that the vegetation in the area suffered little change during the period of peat accumulation. Substantial areas of shrub, herbaceous and swamp communities existed in the valley, in addition to a *Dacrydium cupressinum* dominated podocarp-hardwood forest. Stands of *Dacrycarpus dacrydioides* were prominent on many wetter sites. A podocarp-hardwood complex, with areas of *Nothofagus* existed in the adjacent ranges.

Climatic deterioration may have caused the rise in *Nothofagus* at the expense of the podocarps after 6,000 years B.P. The steady decline of *D. dacrydioides* with respect to *D. cupressinum* between 6,000 years B.P. and 5,000 years B.P. however, is a result of local drying around the bog. Fluctuations in vegetation are not of sufficient magnitude to justify the use of pollen zones.

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