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LATE HOLOCENE CHANGES IN THE VEGETATION OF WESTERN TARANAKI
INVESTIGATED BY SOIL PALYNOLOGY

VOLUME I

A thesis presented in partial fulfilment of
the requirements for the
Degree of Doctor of Philosophy
at Massey University

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1987



FIG. 44.—New vegetation as it was in 1905 on the deep volcanic ash ejected during the eruption of Mount Tarawera in 1886. The tussocks are those of the toetoe (*Arundo conspicua*); they are at least 5 feet high.
(Photo, L. Cockayne.)

From "New Zealand Plants and Their Story"
L. Cockayne (2nd Ed.) 1919.

ABSTRACT

The study area in western Taranaki is dominated by the andesitic volcano, Mount Egmont. Palynological study of 22 fossil pollen sites from a wide range of sediments has produced evidence of change in vegetation over last 4000 years. The resilience of the indigenous vegetation ensured survival of temperate lowland forests until the arrival of European settlers about 150 years ago. Within this period, deforestation of the lowlands has been almost complete. Surviving forest is protected within Egmont National Park. There is little evidence of pre-European deforestation, but indications of earlier fires are thought to be due to an increase in the Maori diet of Pteridium rhizomes, dictated by a change of climate about 400yr B.P.

Information has been gained in general terms about the effects of older tephras and in detail about damage and recovery after tephras *were* deposited within the last 400 years. A revised tephrochronology for the last 400 years is offered. Palynological evidence suggests that an equable climate existed between 4000-1400yr B.P. A decline of Ascarina from very high values at this time to low values at 400yr B.P. has been interpreted as due to a prevalence of droughts. Since 400yr B.P. the climate has been wetter and cooler. This, together with the availability of newly exposed sites due to volcanic activity, has resulted in a dominance of Weinmannia in the Mount Egmont forests. Such dominance is not seen in pollen profiles of older sites over the last 4000 years.

PREFACE

This research was undertaken to elucidate the effect of volcanism on the vegetation of western Taranaki, particularly on the forests of Mount Egmont. The tephrochronology and botany were well known and formed a sound basis on which to commence palynological studies. In addition information was sought and gained about recent climatic change and changes brought about by man in his use of the Taranaki environment.

ACKNOWLEDGEMENTS

I would like to express my deep gratitude to my supervisors, Dr. V. E. Neall, Department of Soil Science, Dr. J. P. Skipworth, Botany Department, both of Massey University and Dr. M. S. McGlone, Botany Division, D. S. I. R. Lincoln, for their enthusiasm, valued advice and encouragement during the period of this research. To my two computer programmers, Mr. M. R. Lewis (recently of the Department of Soil Science) and Mr. B. S. Solomon, Geography Department, Massey University, I offer my grateful thanks for their patience and their innovative responses to my requests. Many helpful conversations have assisted with problems. I would like to mention particularly Dr. A. N. Macgregor, Dr. J. H. Kirkman and Mr. M. A. Turner, all of the Department of Soil Science and Dr. J. L. MacArthur, Geography Department, Massey University. Professor D. A. Livingstone of Duke University, North Carolina, U. S. A. sent helpful advice about the problem of clumping in pollen and Professor G. W. Dimbleby (Emeritus Professor of London University) generously made himself available to discuss soil palynology during my visit to London.

Members of the ^{*}Royal Society for the Protection of Forest and Bird, shared their knowledge of the indigenous vegetation and generously answered many questions, I would particularly like to record my thanks to Mr. R. M. Greenwood and Mr. R. A. Creswell in this respect. Last, but certainly not least, I acknowledge the debt I owe to the extensive knowledge of the Mount Egmont forests acquired by Mr. A. P. Druce and for useful discussion of some of my results. My tribute is paid in the many quotations of his work in this research.

Dr. R. N. Patel of the Botany Division, D. S. I. R., Lincoln, kindly identified wood samples for dating. The Radiocarbon Dating Laboratory, Institute of Nuclear Sciences, Lower Hutt, provided four new dates.

* Royal Forest & Bird Protection Society

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