THE UNIVERSITY OF AUCKLAND, 1974.

STUDIES ON DIURESIS IN THE NEW ZEALAND EARWIG, *ANISOLABIS LITTOREA* (WHITE).

by

Wayne Francis Donovan

A thesis submitted
for the degree of
Doctor of Philosophy
in Zoology.

A C K N O W L E D G E M E N T S

During the period of this study I have had cause to call on numerous people for assistance.

In particular my supervisor Dr. J.P. Leader, who not only initiated my interest in insect physiology but advised and encouraged me during all facets of this study. To him I express my sincerest gratitude.

To Mr J.G. Moorhouse, whose expertise in the field of electronics enabled me to enter a hitherto foreign domain, I extend my thanks.

My thanks also goes to Dr. J.J. Bedford for advice and assistance with the gel electrophoresis analysis and to Mr P. Hicks and Mr G. Grayston for assistance with all facets of the electronmicroscopy.

To these and many other people who made this work possible I offer my thanks.

To my wife, Cathy, who not only typed the manuscript but was a constant source of encouragement I express special thanks.

A B S T R A C T

Examination of the terminal abdominal ganglia of the New Zealand maritime earwig Anisolabis littorea (White) revealed a paraldehyde fuchsin stainable material in animals which had undergone some degree of dehydration. A Malpighian tubule bioassay preparation enabled the physiological activity of extracts of the terminal abdominal ganglia and pharmacologically active substances to be monitored.

Results obtained suggest that substances are present in the terminal abdominal ganglia which alter the Malpighian tubule secretion rate. These results are discussed in view of current theories of Malpighian tubule secretion in insects.

C O N T E N T S