HIGHLAND NEW GUINEA HUNTER-GATHERERS: THE EVIDENCE OF NOMBE ROCKSHELTER, SIMBU WITH EMPHASIS ON THE PLEISTOCENE

by

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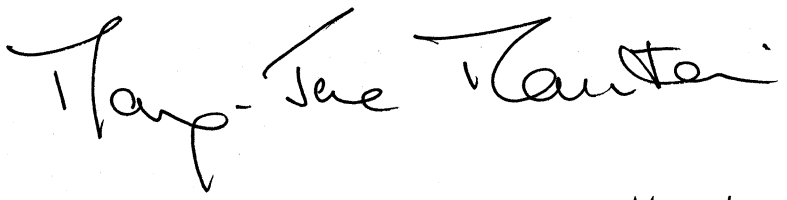
Declaration

Unless otherwise indicated, this thesis represents the original work of the author.



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ABSTRACT

HIGHLAND NEW GUINEA HUNTER-GATHERERS: THE EVIDENCE OF NOMBE ROCKSHELTER, SIMBU WITH EMPHASIS ON THE PLEISTOCENE

Nombe rockshelter was excavated by M-J. Mountain between 1971 and 1980. Human activity is first documented at the site at about 25,000 bp and continues through to the present. Four extinct Pleistocene herbivores, *Protemnodon nombe*, *Protemnodon tumbuna*, *Dendrolagus noibano* and a diprotodontid, occur in late Pleistocene strata together with human artefacts. Large quantities of animal bone were recovered and the analysis of these supplies the major data for the research.

Three main issues are addressed:

1. The nature of the relationship between the early humans and their environment through the period that covers the late glacial maximum at about 18,000 bp.
2. The relationship between humans and the extinct species, including the thylacine, *Thylacinus cynocephalus*, which was a major predator at the site, contributing bone to the deposits during the Pleistocene.
3. The use of faunal evidence as an indicator of economic and subsistence activities as well as local environmental changes.

The data show that the human activity during the late Pleistocene at Nombe was sporadic over the period from about 25,000 bp to about 15,000 bp. Hunters were probably targeting the large herbivores living in high altitude forest and other species adapted to high altitude cold environments. Humans and large herbivores coexisted for about 10,000 years before the animals disappeared from the record. This coexistence does not suggest a rapid demise through human overkill.

Palynological evidence suggests that people were deliberately firing small patches of highland forest as early as 30,000 bp. Such clearing could have been used to promote forest-edge plants especially *Pandanus*, which has rich oily nuts. These small clearings could also have been used as an aid to hunting.

By the end of the Pleistocene, human hunting had switched to emphasise medium and smaller forest animals, especially fruit bats, macropodids, phalangers and possums. Bat hunting was especially important at Nombe, which is in a limestone area with many caves.

In the early Holocene the temperatures rose and sub-alpine grasslands were greatly reduced as forest spread to higher altitudes. The archaeological evidence shows that more sites were occupied by 10,000 bp than before and the faunal

data at Nombe indicate a steep rise in the grassland wallaby, *Thylogale brunii.* This species adapts easily to forest disturbance and may indicate that forest clearance was increasing in the locality. The early Holocene was the period of intense human settlement of the site.

The faunal analysis employed in this study is designed to test the broad questions about human-environment relationships rather than to supply detailed information about the size and sex representation in the species present. Species are often dealt with as a group and no individual bone measurements have been taken. The computer database has been designed to produce a flexible data set that can easily be adapted to taxonomic change. The success of the approach suggests that faunal evidence can be a sensitive indicator of environmental change and can be used to examine human predation strategies and changes in economic subsistence.

NOTES

This thesis is in two volumes:

Volume 1 contains the text of the thesis and all supporting material.

Volume 2 comprises the site profiles.

References in the text to the site profiles such as:

" ... Dasyurid bones occur ^{P2,P4}... "

refer the reader to site profiles 2 ***(P2)*** and 4 ***(P4)*** in Volume 2.

Unless otherwise stated, all data in this thesis relate to excavated material from the site of Nombe, Simbu Province, Papua New Guinea. Unless tables and figures specify otherwise, they refer to the site of Nombe or data from that site.

Figures 2.1, 2.2, 2.3, 2.4, 2.6, 3.2, 3.3, 3.4 and 3.5 were drawn by Winifred Mumford from site drawings prepared by the author. Figures 2.5 and 3.1 were prepared by Barry Shaw from original drawings by David Gillieson. Uncited photographs were taken by Barry Shaw.

"New Guinea" is used to refer to the island of New Guinea which today includes "mainland" Papua New Guinea and the Indonesian Province of Irian Jaya. "Papua New Guinea" refers to the country of Papua New Guinea. The "highlands" refers to the highland region (over about 1300 m above sea level) of the island of New Guinea and includes Irian Jaya.

Totals in the data were originally added to one more significant place than is shown in the text or tables. However the nature of the samples and the accuracy of excavation does not justify such detail so the data and totals were then reduced by one significant place to avoid spurious accuracy. This may result in totals differing slightly in the final digit. In addition, some data is presented as <1, meaning "present", but less than one. Where <1 appears several times in a sum, the resultant total may differ even more. Nevertheless, data totals are correct.

All excavated materials from Nombe and other sites, which are at present housed in the Department of Archaeology and Anthropology at the Australian National University, are the property of the National Museum of Papua New Guinea and will be returned there on completion of analyses together with the site documentation.

All radiocarbon dating results are expressed in conventional radiocarbon ages (BP) with the statistical error range (±) supplied with the date (Stuiver and Polach 1977)

Abbreviations:

asl	Above sea level
ANU	Australian National University
ESR	Electron spin resonance
MNI	Minimum number of individual animals
PNG	Papua New Guinea
NISP	Number of identified specimens

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This thesis is the product of twenty years of research and there are many people, both in Papua New Guinea and Australia, to whom I am most grateful.

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