

VEGETABLE KINGDOMS :
taro irrigation and Pacific prehistory

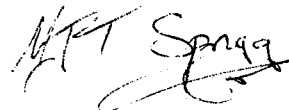
by

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the Degree of Doctor of Philosophy in
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This thesis is the product of the author's research. In the analysis of some data the help of specialists in various disciplines has been sought and is acknowledged. Except for these instances the thesis is my own original work.

A handwritten signature in black ink, appearing to read "M.J.T. Spriggs". The signature is stylized and cursive, with the first name "M.J.T." written in a more blocky, uppercase style and "Spriggs" in a flowing cursive script.

M.J.T. Spriggs

'You know,
A lot of people
Don't bother
About their friends in the
Vegetable Kingdom ...
Call any vegetable
And the chances are good
That the Vegetable will respond to you.'

- Frank Zappa, Pauley Pavilion, UCLA,
Los Angeles, August 7th, 1971

'Le Mélanésien traitait le végétal domestique comme
son égal, un ami.'

- Jacques Barrau, 1973

'La Civilisation du végétal'

- Pierre Gourou, title of a
paper, 1948

DEDICATION

TO FOUR PEOPLE AND FOUR PEOPLES

To Les Groube who suggested I go to Aneityum,
Jack Yauotau the best field assistant anyone ever had,
Kichi Kichi a good friend, and
the late Chris Weaver one of the best.

To the people of Col de la Pirogue,
ni-Vanuatu in name or spirit everywhere, and
especially to the people of Maewo and Aneityum.

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SUMMARY

This thesis examines one particular avenue of agricultural intensification found in the Pacific, that of irrigation, with reference as to whether it has a more than purely technological significance in Pacific prehistory. To this end the island of Aneityum in southern Vanuatu, where irrigation of taro (Colocasia esculenta) was traditionally important, has been studied in detail, through documentary sources, oral history, archaeological survey and ethnographic observation, to assess the scale, layout and productivity of its agricultural systems of contact (1830) (Chapters 2-4).

Archaeological excavations and stratigraphic observations were made on the alluvial plains where the largest irrigation systems are located, in order to chart the history of the island's agricultural exploitation from its settlement apparently by about 3000 BP (Chapter 5). Before 2000 BP there is evidence for massive humanly-induced erosion of the hillsides near the sea. Subsequent deposition of alluvium led to valley infilling and progradation of the shoreline. As valley infilling progressed they became less swampy and the first direct evidence of their use for gardening occurs at about 1000 BP.

In all cases the indications are that dry land gardening preceded irrigation on the new alluvium. It is only within the last 500 years at most that large-scale irrigation systems, often fed by canals several kilometres long which cross major watersheds, were extended onto the alluvial plains. Human interference with natural environmental processes had led, not to ecological disaster, but to a greatly expanded potential for agricultural intensification and social stratification. An examination of the literature on other areas of the Pacific reveals that comparable processes of landscape change can be observed on many other islands, having perhaps equally significant implications for their prehistory (Chapter 6).

To complement the detailed study of irrigation techniques on Aneityum, the major irrigation techniques in use elsewhere in the Pacific are examined and their distribution discussed (Chapter 7). Although many different irrigation methods are found in the Pacific there are several advantages over dry land gardening common to all. Among these, the greater potential for intensification of production is the most significant and this gives irrigation a more than purely technological significance

in Pacific prehistory (Chapter 8). Where there were social and political demands for large agricultural surpluses, irrigation (where environmentally possible) formed an ideal economic base precisely because of this potential.

To the extent, however that such political systems on Aneityum and elsewhere were based on exploitation of the rich alluvial land of valley bottom and coastal plain, they can only have come into existence within the last few hundred years, during the time that these environments have existed in a form manageable for agriculture. Prior to that time a different economy and different social relations must have existed.

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A note on Spelling

In aneityumese orthography : D represents th as in thing.
G represents ng as in thing.
C represents g as in Gogol.

In quotations, archaic spellings and grammar have been given as in the originals.

AT and then a number signifies site designation on Aneityum as used in the archaeological survey of the island. All map references are taken from the 1:50,000 map of Aneityum and Futuna, published by L'Institut Geographique National, Paris in 1969.